

DC-8

FLIGHT

MANUAL



DC-8 FLIGHT MANUAL - HANDBOOK
REVISION #29
MAR 27/74
FROM: OPERATIONAL ENGINEERING - SFOEG

<u>CHAPTER/SECTION</u>	<u>REMOVE PAGES</u>	<u>INSERT PAGES</u>
Check List	7, 8	7, 8
1. Bulletins		
Bulletin Check List	Dated, NOV 19/73	Dated, MAR 18/74
<u>HANDBOOK</u>		
Limits	L&S-23, L&S-24 L&S-31, L&S-32	L&S-23, L&S-24 L&S-31, L&S-32

SUMMARY: Page L&S-24: Reverse taxi information changed.
 Page L&S-32: Minimum dispatch fuel requirement changed.



DC-8 FLIGHT MANUAL

REVISION #21

MAR 2/73

FROM: FLIGHT AND DEVELOPMENT ENGINEERING - SFOEG

NOTE: Checklist was issued with Revision #20.

<u>CHAPTER/SECTION</u>	<u>REMOVE PAGES</u>	<u>INSERT PAGES</u>
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JT3D-3	T-19 thru T-24	T-11 thru T-16
JT3D-3B	T-25 thru T-30	T-17 thru T-22
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Cruise	C-i, C-ii, C-iii	C-i, C-ii
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JT3D-3	C-5C thru C-18C	C-5C thru C-18C
JT3D-3B	C-5D, C-6D	C-5D, C-6D
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Summary: Page A: Reference to JT3D-1 and airplanes N8034U and 36U deleted. Page T-4: Barbers Point, Casper, Ogden and Palmdale deleted. Page T-5: Takeoff EPR Table revised to incorporate Normal T.O. EPR procedure.



Summary - Continued

Page T-11 thru T-28: The JT3D-1 section is deleted and the takeoff EPR Tables were revised to incorporate Normal T.O. EPR procedures. Wet/Dry V_1 Limit Speeds added to JT3D-3 V Speeds Table. Stabilizer setting chart for Basic Wing, JT3D-3 powered DC-8 added. Page C-5A: FAR 10% Flt. Time Overwater Reserve Fuel presented in tabular form. Table extended down to 2.0 hrs. Pages C-1B to C-18B: JT3D-1 deleted. Page C-5C: Max. Cruise Weight adjustment added for Basic Wing airplanes. Page C-6C: FAR 10% Flt. Time Overwater Reserve Fuel presented in tabular form. Table extended down to 2.0 hrs. Pages C-8C, C-9C: DC-8F heading deleted. Pages C-10C thru C-16C: DC-8F heading deleted and adjustment table for basic wing airplanes added. Pages C-17C, C-18C: DC-8F heading deleted. Pages C-6D, C-6E: FAR 10% Flt. Time Overwater Reserve Fuel presented in tabular form. Table extended down to 2.0 hrs. Page L-5: JT3D-1 deleted. Page L&S-1: Reference to JT3D-1 deleted and runway clutter data extended for higher gross weights. Page L&S-3: References to JT3D-1 changed to -3. Reference to airplanes N8034U and 36U deleted. Page L&S-5: Reference to JT3D-1 changed to -3. Page L&S-11: Reference to JT3D-1 deleted. V_{MCG} Speeds shown for temperature in °F rather than °C. Page L&S-12: Reference to JT3D-1 deleted. Page L&S-23: Reference to JT3D-1 deleted. Idle N_2 RPM range established from 59% to 61%. Upper idle limit established to minimize need for excessive braking during taxi. Log entry is required when any engine does not idle between 59% and 61% N_2 . Pages L&S-24, -26: Reference to JT3D-1 deleted. Page E-2: Reference to JT3D-1 deleted. Page E-29: Added Captain's raft assignment on GIT airplanes and changes S/O raft exit. Page I-16: Hydraulic irregular procedures revised to include use of Aux. Pump. Page I-37: Editorial change. Page I-38: Revises "Eng Stuck In Reverse - JT4" procedure to more proper sequence and adds use of both hydraulic pumps to assure maximum pressure.



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T-12	MAY 27/73	C-ii	MAY 27/73	C-1C	AUG 1/70
T-13	FEB 27/73			- -	
T-14	FEB 27/73	C-1	AUG 1/70	C-3C	JUN 27/72
T-15	FEB 27/73	C-2	AUG 1/70	- -	
T-16	FEB 27/73	C-3	AUG 1/70	C-5C	FEB 27/73
		C-4	AUG 1/70	C-6C	FEB 27/73
		C-5	AUG 1/70	C-7C	AUG 1/70
		C-6	AUG 1/70	C-8C	FEB 27/73
		C-7	MAR 27/72	C-9C	FEB 27/73
		C-8	AUG 1/70	C-10C	FEB 27/73
		C-9	AUG 1/70	C-11C	FEB 27/73
		C-10	MAR 27/72	C-12C	FEB 27/73



PAGE	DATE	PAGE	DATE	PAGE	DATE
<u>JT3D-3 (Continued)</u>		<u>JT3D-7</u>		<u>Limits</u>	
C-13C	FEB 27/73	C-1E	AUG 1/70	L&S-i	AUG 1/70
C-14C	FEB 27/73	- -		L&S-ii	AUG 1/70
C-15C	JAN 12/71	C-3E	JUN 27/72	L&S-iii	AUG 12/71
C-16C	FEB 27/73	C-4E	JUN 27/72	L&S-iv	SEP 27/71
C-17C	FEB 27/73	C-5E	AUG 1/70		
C-18C	FEB 27/73	C-6E	FEB 27/73	L&S-1	FEB 27/73
		C-7E	AUG 1/70	L&S-2	MAR 27/72
		C-8E	AUG 1/70	L&S-3	FEB 27/73
		C-9E	AUG 1/70	L&S-4	AUG 1/70
<u>JT3D-3B</u>		C-10E	AUG 1/70	L&S-5	FEB 27/73
C-1D	AUG 1/70	C-11E	AUG 1/70	L&S-6	JUL 12/71
- -		C-12E	AUG 1/70	L&S-7	AUG 1/70
C-3D	JUN 27/72	C-13E	AUG 1/70	L&S-8	SEP 30/70
- -		C-14E	AUG 1/70	L&S-9	MAR 27/72
C-5D	AUG 1/70	C-15E	AUG 1/70	L&S-10	AUG 1/70
C-6D	FEB 27/73	C-16E	AUG 1/70	L&S-11	FEB 27/73
C-7D	AUG 1/70	C-17E	AUG 1/70	L&S-12	FEB 27/73
C-8D	APR 12/71	C-18E	AUG 1/70	L&S-13	AUG 1/70
C-9D	AUG 1/70			L&S-14	SEP 30/70
C-10D	AUG 1/70			L&S-15	AUG 1/70
C-11D	AUG 1/70	<u>Landing</u>		L&S-16	AUG 1/70
C-12D	AUG 1/70	L-i	FEB 27/73	L&S-17	AUG 1/70
C-13D	AUG 1/70	- -		L&S-18	AUG 12/71
C-14D	AUG 1/70			<u>L&S-19</u>	AUG 1/70
C-15D	AUG 1/70			<u>L&S-20</u>	DEC 9/70
C-16D	AUG 1/70	L-1	SEP 27/72	L&S-21	JUL 12/71
C-17D	AUG 1/70	L-2	JUL 12/71	L&S-22	FEB 12/71
C-18D	AUG 1/70	L-3	JUL 12/71	L&S-23	FEB 27/73
		L-4	AUG 1/70	L&S-24	FEB 27/73
		L-5	FEB 27/73	L&S-25	AUG 1/70
		L-6	AUG 1/70	L&S-26	FEB 27/73
		L-7	AUG 1/70	L&S-27	SEP 30/70
		L-8	AUG 1/70	L&S-28	AUG 1/70
				L&S-29	AUG 1/70
				L&S-30	AUG 1/70
				L&S-31	AUG 1/70
				L&S-32	JUL 12/71
				L&S-33	SEP 27/71
				L&S-34	APR 12/71



PAGE	DATE	PAGE	DATE	PAGE	DATE
<u>Emergencies</u>		<u>Irregularities</u>			
E-i	NOV 27/72	I-i	NOV 27/72	I-37	FEB 27/73
--		I-ii	MAY 12/71	I-38	FEB 27/73
		I-iii	MAY 12/71	I-39	AUG 1/70
E-1	MAY 12/71	--		I-40	JAN 12/71
E-2	FEB 27/73			I-41	JAN 12/71
E-3	AUG 1/70	I-1	APR 12/71	I-42	AUG 1/70
E-4	NOV 27/72	I-2	APR 12/71		
--		I-3	APR 12/71		
--		I-4	APR 12/71		
E-7	NOV 27/72	I-5	APR 12/71		
E-8	NOV 27/72	I-6	APR 12/71		
E-9	NOV 12/70	I-7	NOV 27/72		
E-10	AUG 1/70	I-8	NOV 27/72		
E-11	JUL 12/71	I-9	NOV 27/72		
E-12	AUG 1/70	I-10	NOV 27/72		
E-13	MAR 12/71	I-11	NOV 27/72		
E-14	MAR 12/71	I-12	NOV 27/72		
E-15	AUG 1/70	I-13	NOV 27/72		
E-16	AUG 1/70	I-14	NOV 27/72		
E-17	AUG 1/70	I-15	NOV 27/72		
E-18	AUG 1/70	I-16	FEB 27/73		
E-19	AUG 1/70	I-17	MAY 12/71		
E-20	SEP 30/70	I-18	AUG 1/70		
E-21	AUG 1/70	I-19	MAY 12/71		
E-22	MAR 27/72	I-20	MAR 27/72		
E-23	MAR 27/72	I-21	MAR 27/72		
<u>E-24</u>	JUN 27/72	I-22	MAR 27/72		
E-25	MAR 27/72	I-23	SEP 27/72		
E-26	MAR 27/72	I-24	AUG 1/70		
E-27	MAR 27/72	I-25	MAY 12/71		
E-28	JUN 27/72	I-26	AUG 1/70		
E-29	FEB 27/73	I-27	MAR 27/72		
E-30	JUN 27/72	I-28	AUG 1/70		
		I-29	MAR 12/71		
		I-30	NOV 27/72		
		I-31	MAR 27/72		
		I-32	AUG 1/70		
		I-33	MAY 12/71		
		I-34	MAY 12/71		
		I-35	AUG 1/70		
		I-36	AUG 12/71		



INTRODUCTION

This DC-8 Flight Manual has been written in accordance with the design concept and format now employed in other United fleets. This introduction is designed to provide an understanding of the philosophy so that the manual may be used properly.

The purposes of the DC-8 Flight Manual are:

1. To serve as a ready reference for airplane operation, providing necessary information regarding:
 - Numbers (performance, system, operating)
 - Limits
 - Procedures
2. To accomplish standardization in practice, behavior, and terminology.
3. To satisfy legal requirements.
4. To serve as a review guide for use in recurrent training and proficiency checks.
5. To serve as a comprehensive text for initial training.
6. To provide a controlled source for training material that will be revised and updated as required.

To accomplish these functions, the DC-8 Manual consists of three sections, each in a separate binder, designated:

TRAINING REFERENCE AND REVIEW FLIGHT HANDBOOK

and represented by the symbolic triangle as shown:



TRAINING



The purpose of the TRAINING section is to provide relevant systems information for initial transition training. For this purpose, it is an addition to the other two basic sections. Recognition of previous flying experience has been made and detailed basic system principals are avoided.



Each tabbed chapter includes a Table of Contents, and most of the chapters follow the same basic format; a brief, general description of the system followed by more detailed information related to controls, indicators, and components. Illustrations and diagrams are generally placed at the end of each major topic.

After initial training, this section may be used for review or reference, if desired, but it is not designed for that purpose.

REFERENCE AND REVIEW



This section, together with the Flight Handbook, is the "operating manual". The primary function of the R & R section is well described by its title.

There are four tabbed chapters in this section:

Bulletins - Operational bulletin information for all sections of the Flight Manual will be located in this chapter. These bulletins will encompass the type of material previously covered by Green Bulletins and Flight Information Letters, however bulletins will not be issued if an acceptable regular page revision can be published.

Operations - Contains procedures used in operating the airplane on a normal flight, amplified where appropriate with pertinent system information and/or operating techniques.

Flight Proficiency - A specification of maneuvers, level of performance and techniques to be rated on proficiency checks.

Systems - A complete presentation of cockpit panels, controls and indicators with "call outs" or operational system information. This chapter contains all "need to know" systems information.

FLIGHT HANDBOOK



This section contains the basic information and data necessary for operation of a trip.

Material in this section includes:

- Flight data and check lists (in proper sequence) needed for daily operation.
- Limitations and specifications (limitations and numbers for reference purposes during flight).
- Emergency Procedures.
- Irregular Procedures.



SUMMARY

The DC-8 Flight Manual is published in three parts for functional purposes, plus the airport gross weight pages which are in a separate binder. Revisions for the HANDBOOK, REFERENCE AND REVIEW, and the TRAINING manual will be issued on the same transmittal sheet and under the same revision number. A revision could include material for all three manuals or any combination thereof. The Record of Revision sheet should be kept at the beginning of the REFERENCE AND REVIEW manual.

The FLIGHT HANDBOOK and REFERENCE AND REVIEW sections, plus the airport gross weights, contain all the information for which the pilot is responsible. The TRAINING section is designed primarily for initial transition.

Crew members responsibilities for carrying the various sections of the Flight Manual during flight operations are published in the Flight Operations Manual.

The following sections of this manual are approved by the Federal Aviation Administration as satisfying the requirements of the FAA Approved Airplane Flight Manual, Sections - Limitations, Emergency Procedures, Normal Operations, and Performance.

This manual contains all the pertinent information presented in the FAA Approved Airplane Flight Manual and is intended to replace the FAA Approved Airplane Flight Manual. Instructions contained in this manual shall govern the conduct of flight and the handling of the airplane on all flights. Where these procedures differ from the FAA Approved Airplane Flight Manual, United Air Lines has determined that equivalent safety is provided by such alternate procedures and assumes full responsibility for this determination.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW

BULLETIN #13

NOV 9/70

FROM: TECHNICAL MANUALS SECTION - SFOEG/FE

Please insert following 1. BULLETINS Chapter. Remove Bulletin #12.

JT4A-9 THRUST RATING DATA

INTRODUCTION

This bulletin provides the necessary data required to utilize JT4A-9 thrust ratings for takeoff on JT4 powered DC-8's. The higher rated thrust provides increased TOGW capability to permit operation from runways undergoing construction or from certain restrictive airports.

JT4A-9 thrust ratings are to be used only on those runways in which JT4A-9 gross weight data is provided and only if necessary to accommodate a specific TOGW requirement. The JT4A-3 engine rating remains the standard rating for JT4 powered DC-8's.

PROCEDURE

The takeoff with JT4A-9 thrust is made in the usual manner. V_1 , V_R , V_2 , EPR settings, and minimum control speeds included in this bulletin must be used when the JT4A-9 rating is to be utilized. Takeoff EPR may be used for a full 5 minutes in the event of engine failure or if otherwise necessary. Four engine max. continuous EPR is the same as for the JT4A-3. In the event of an engine failure JT4A-9 3 engine max. continuous EPR shown in this Bulletin should be used for cleanup and acceleration to final segment climb speed at 1500 feet after 5 minute takeoff limitation is reached.

JT4A-9 ENGINE LIMITATIONS

Thrust Setting	Maximum EGT
Takeoff	635° C
Max. Continuous	515° C
Engine Acceleration	635° C

All other limitations are the same as those for the JT4A-3 rating.

JT4A-9 EPR SETTINGS

Subtract 0.01 from all settings if rain removal on.

TAKEOFF EPR		
Ambient Temp. °F	Normal Bleed	Icing Bleed
110	2.38	
105	2.39	
100	2.41	
95	2.44	
90	2.45	
85	2.48	
80	2.50	
75	2.52	
70	2.54	
65	2.57	
60	2.59	
55	2.61	
50	2.63	2.59
45	2.65	2.61
40	2.68	2.63
35	2.70	2.65
30	2.72	2.67
25	2.75	2.69
20	2.77	2.71
15	2.79	2.73
10	2.81	2.75
5	2.84	2.77
0	2.86	2.79
-5	2.88	2.81
-10	2.90	2.83
-15	2.92	2.85
-20	2.95	2.87

MAXIMUM CONTINUOUS EPR			
RAT °C	4 Engines		3 Engines
50	1.85		1.92
45	1.90		1.97
40	1.95		2.03
35	2.00		2.08
30	2.05		2.13
26	2.08		2.17
22	2.12		2.21
18	2.15		2.25
14	2.19		2.29
10	<u>2.23</u>		2.33 2.20
8	2.25 2.14		2.34 2.22
6	2.27 2.16		2.36 2.24
4	2.29 2.18		2.38 2.26
2	2.31 2.19		2.40 2.27
0	2.33 2.21		2.42 2.29
-2	2.35 2.23		2.44 2.31
-4	2.37 2.24		2.46 2.33
-6	2.39 2.26		2.48 2.34
-8	2.41 2.28		2.50 2.36
-10	2.43 2.29		2.52 2.38
-12	2.45 2.31		2.54 2.39
-14	2.46 2.32		2.56 2.41
-16	2.48 2.34		2.58 2.43
-18	2.50 2.36		2.60 2.42
-22	2.54 2.39		2.64 2.48
-26	2.58 2.42		2.67 2.51
-30	2.62 2.46		2.71 2.54
-35	2.67		2.76 2.57

1. Set EPR statically.
2. Normal Bleed - two cabin compressors operating and blowaway jets ON.
3. Icing Bleed - Normal Bleed plus engine anti-ice and airplane deicing.
4. Add 0.01 when all cabin compressors OFF.
5. Above 92° F, turn off all cabin compressors.
6. Underlined EPR is max. allowable for pressure altitude.

1. Above EPR values valid only from S. L. to 25,000 feet.
2. Underlined EPR is maximum allowed for pressure altitude.



V₁

JT4A-9

25° FLAPS

1. Enter Table I with airport elevation and surface temperature to obtain V₁ reference code.
2. Enter Table II with V₁ reference code and TOGW to obtain V₁.
3. Increase V₁ 1 knot per 10 knots of headwind.
4. Decrease V₁ 2 knots per 5 knots of tailwind.

TABLE I

SURFACE TEMP. - °F	-20	-10	0	10	20	30	40	50	60	70	80	90	100	110
AIRPORT ELEV. - FT.														
SEA LEVEL	A	A	A	A	A	A	A	A	A	A	B	C	C	D
2000	A	A	A	A	A	A	A	B	B	C	D	D	E	F
4000	A	A	A	A	B	B	C	C	D	D	E	F	F	G
6000	A	B	B	C	C	D	D	E	E	F	G	H	H	I

TABLE II

REFERENCE CODE	A	B	C	D	E	F	G	H	I
TOGW - 1000 LBS.									
280	128	129	131	132	134				
270	125	126	127	129	130	131			
260	121	123	124	125	126	128			
250	118	119	121	122	123	124	125		
240	115	116	117	118	120	121	122	123	
230	114	112	114	115	116	117	118	119	120
220	114	111	110	111	113	114	115	116	117
210	114	111	109	107	109	110	111	112	113
200	114	111	109	105	105	106	107	108	109
190	114	111	109	105	103	102	103	104	105
180	114	111	109	105	103	101	99	100	101

V_R

JT4A-9

25° FLAPS

1. Enter Table I with airport elevation and surface temperature to obtain V_R reference code.
2. Enter Table II with V_R reference code and TOGW to obtain V_R.

TABLE I

SURFACE TEMP. -°F	-20	-10	0	10	20	30	40	50	60	70	80	90	100	110
AIRPORT ELEV. - FT.														
SEA LEVEL	A	A	A	A	A	A	A	A	A	A	B	B	C	C
2000	A	A	A	A	A	A	A	B	B	C	C	C	D	D
4000	A	A	A	B	B	B	C	C	C	C	D	D	D	E
6000	B	B	B	C	C	C	C	D	D	D	E	E	E	E

TABLE II

REFERENCE CODE	A	B	C	D	E
TOGW - 1000 LBS.					
280	141	142	143		
270	138	139	140	141	
260	135	136	137	138	
250	132	133	133	135	136
240	129	130	131	132	133
230	128	126	127	129	130
220	128	126	124	125	126
210	128	126	123	122	123
200	128	126	123	118	120
190	128	126	123	117	116
180	128	126	123	117	113

V₂

JT4A-9

25° FLAPS

1. Enter Table I with airport elevation and surface temperature to obtain V₂ reference code.
2. Enter Table II with V₂ reference code and TOGW to obtain V₂.

TABLE I

SURFACE TEMP. -°F	-20	-10	0	10	20	30	40	50	60	70	80	90	100	110
AIRPORT ELEV. - FT.														
SEA LEVEL	A	A	A	A	A	A	A	A	A	A	B	C	C	D
2000	A	A	A	A	A	A	A	B	B	C	C	D	E	E
4000	A	A	A	A	B	B	C	C	D	D	E	F	F	G
6000	A	B	B	C	C	D	D	E	E	F	F	G	G	H

TABLE II

REFERENCE CODE	A	B	C	D	E	F	G	H
TOGW - 1000 LBS.								
280	153	153	152	152	151	151		
270	151	150	150	150	149	149	148	
260	148	148	147	147	147	146	146	
250	146	145	145	145	144	143	143	143
240	143	143	142	142	141	141	141	140
230	144	140	140	140	139	139	138	138
220	144	138	137	137	136	136	135	135
210	145	139	136	134	134	133	133	132
200	146	140	137	132	131	130	130	129
190	147	141	138	133	129	128	127	127
180	149	142	139	134	129	126	124	124



MINIMUM CONTROL SPEED ON THE GROUND, JT4A-9 - IAS

ALTITUDE - FT	TEMPERATURE -°F						
	-20	0	20	40	60	80	100
SEA LEVEL	110	110	110	110	110	107	104
2000	110	110	110	109	106	102	99
4000	111	111	108	104	101	98	95
6000	109	106	103	100	100	94	91

MINIMUM CONTROL SPEED IN THE AIR, JT4A-9 AT 25° FLAPS - IAS

ALTITUDE - FT	TEMPERATURE -°C							
	-30	-20	-10	0	10	20	30	40
SEA LEVEL	124	124	124	124	124	122	119	116
2000	124	124	124	124	121	118	115	112
4000	124	124	122	119	116	114	112	110
6000	122	120	118	115	113	111	109	107
Add 1 knot per 15,000 lbs. gross weight above 180,000 lbs.								

NOTE: The above minimum control speeds in the air are increase approximately 40 knots with rudder power off.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #16
JAN 4/71
FROM: TECHNICAL MANUALS SECTION - SFOEG/FE

Please insert this bulletin in 1. BULLETINS Chapter. Record on "Record of Bulletins" sheet.

DC-8-62 DATA LINK EVALUATION PROGRAM - COA T-2753

A Digital Data Link system has been installed in DC-8-62, N8974U for evaluation. The basic purpose of a data link system is to provide rapid, automatic transmission of data from an airplane to a ground station. In this particular installation, airplane altitude and INS position will be automatically transmitted via VHF-2 upon receipt of interrogation signals from ARINC. The installation is strictly for evaluation and will not affect the operation of any other aircraft system.

Data will be received through an ARINC ground station at SFO and routed to the FAA OAK ATC Center. OAK ATC will use the position and altitude information to update special scopes as part of an evaluation of a new radar type display system.

Crews flying A/C N8974U in the SFO area of coverage should turn on the data link equipment so that data may be received by the ground station.

Receipt of data is only possible when in range of the SFO ARINC station on 131.05. Coverage to the East is limited to the immediate Bay Area and to the West approximately 450 NM on a 249° radial from SFO. (See Figure 1).

Since VHF-2 will be tuned to 131.05 for data link operation, ARINC overwater reports and Selcal watch should be on HF using ARINC assigned primary or secondary frequencies in lieu of the normal 131.95 extended range VHF frequency. If necessary, VHF-2 may be used for voice communications by selecting the appropriate frequency and transmitting. When the contact is complete, reset the frequency to 131.05 for data link operation.

SFO ARINC communication center will be notified by Dispatch in advance of A/C N8974U entering the SFO area so that the ground equipment can be activated for receipt of data transmissions.

The controls for the data link system are installed in the overhead control panel. Figure 2 is an illustration of the data link control panel. The functions of the various lights and switches are as follows:

1. VHF Selector Switch - VHF-2 position connects data link for use on VHF-2 transceivers. This will be the normal position of the selector switch during the evaluation. The VHF-1 position is not connected and should not be used. The OFF position disconnects the system from VHF-1 and VHF-2 transceivers.



2. INS Switch - Selects INS system to be used in conjunction with data link system. INS-2 is the normal position. INS-1 position is not connected.
3. TEST Light - When pushed will indicate:
 - A. ON Steady - System OK and is being interrogated by ARINC.
 - B. ON Blinking - System OK and is not being interrogated by ARINC.
 - C. OFF - Data link is OFF or is malfunctioning.
4. SEND Light Button - When the button is depressed the light will illuminate and command data link to transmit without being interrogated by the ground. Do not use during evaluation.
5. Message Code Window - Permits selection of extra messages to be sent to ground. Do not use during evaluation.
6. ARM Light Button - When the button is depressed the light will illuminate and the Message Code selected in the Message Code Window will be armed to be sent when system is interrogated by the ground. The light will stay on until ground acknowledges receipt of message, or until reset by depressing TEST. Do not use during evaluation.

Two circuit breakers, "A & B BOX DATA LINK" on RADIO BUS-2 and "DATA LINK" on 28V AC BUS, provide circuit breaker protection for the system.

OPERATION

When within range of ARINC:

VHF Selector Switch	VHF-2
INS Switch	INS-2
VHF-2 COMM Frequency Selector	131.05 MHz



CALCULATED COVERAGE
SFO EXTENDED RANGE - VHF
GLOBE SITE/KING MOUNTAIN FACILITY

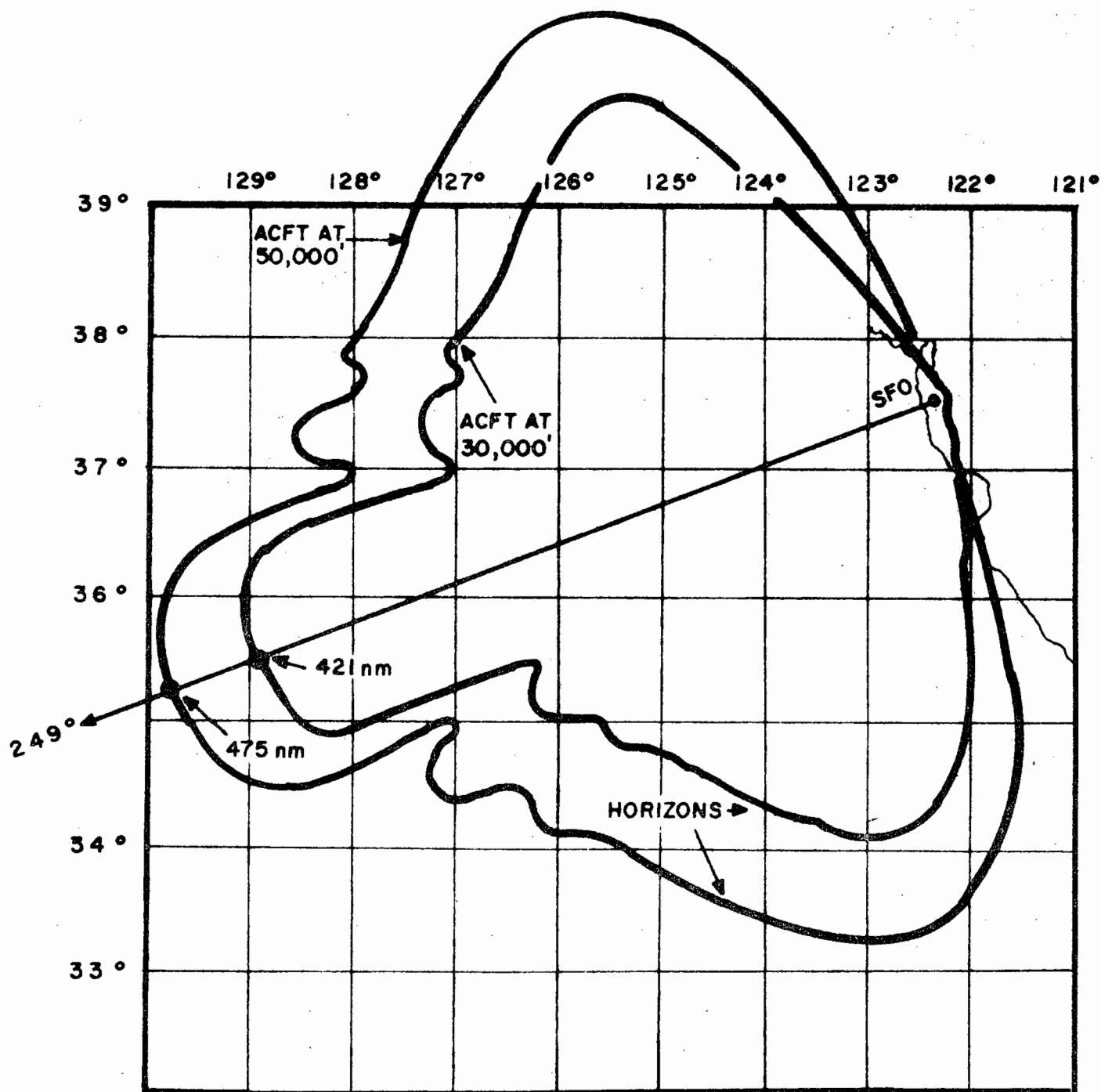


FIGURE 1

DATA LINK CONTROL PANEL
(Located in overhead panel)

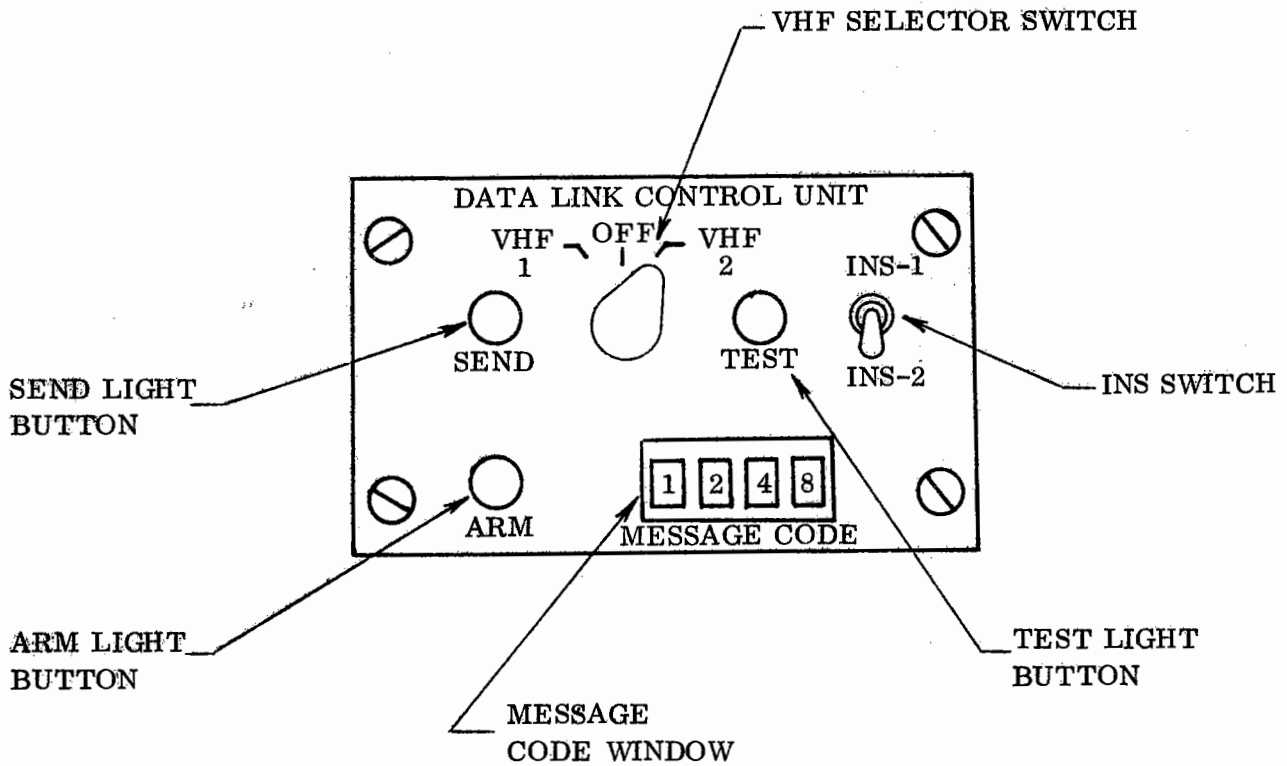


FIGURE 2



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #44

DEC 1/72

FROM: FLIGHT AND DEVELOPMENT ENGINEERING - SFOEG

Please insert following the 1. BULLETINS Tab. Record on the "Bulletin Check List". Remove Bulletin #22.

DC-8 AUTOMATIC ALTITUDE REPORTING (COA 2-4245)

INTRODUCTION

A modification is now in progress to incorporate automatic altitude reporting systems in all DC-8 airplanes. The purpose of this bulletin is to describe the Altitude Reporting system and to establish operating procedures for the use of this equipment. Also included is information concerning modifications to the present altimeter correction circuits necessitated by automatic altitude reporting requirements.

SYSTEM DESCRIPTION

The altitude reporting system is designed to automatically transmit coded altitude information to ATC facilities. The airplane altitude information is obtained from the selected air data system (Captain's on most DC-8's) and is transmitted via the operating ATC transponder. To provide automatic altitude reporting capability for all of our DC-8's, several modifications will be required to the altimeters and air data systems. The following describes the configuration of these systems upon completion of this COA.



AIRPLANE NUMBER	ALTIMETER CORRECTIONS CHANGES	ALTI-CODER SWITCH (Position For Altitude Reporting)
N8001U-03U N8018U N8021U-69U N8207U-66U	Position and scale error correction provided for Capt. and F/O altimeters with Static System switches in either NORMAL or ALTERNATE positions.	CAPT. (F/O position placarded INOP.)
N8004U-17U N8019U N8020U (Airplanes with tail alternate static source)	Position and scale error correction provided for Capt. and F/O altimeters with Static System switches in NORMAL only. No altitude reporting information will be available with Static System switch in ALTERNATE position.	CAPT. (F/O position placarded INOP.)
DC-8-61 N8070U-94U	Scale error correction provided for Capt's altimeter with Capt. Static System Switch in either NORMAL or ALTERNATE positions. F/O altimeter is an uncorrected servo-pneumatic altimeter with yellow STBY flag in view at all times.	CAPT. (F/O position placarded INOP.)
DC-8-61 N8095U-99U DC-8-62 N8966U-75U	No change	CAPT. or F/O



NORMAL OPERATION

Cockpit Preparation - (F/O)

Transponders BOTH TO STDBY
ALT RPTG Switches ALT RPTG (Both Transponders)
ALTICODER Switch CAPT (CAPT. or F/O
on DC-8-61's 95 to 99 or DC-8-62's)

Takeoff (C, F/O)

Transponders AS REQUIRED
Altitude reporting information will be transmitted by the operating
transponder.

NOTE: The ALT RPTG switch on both transponders should always be in the ALT
RPTG position unless otherwise requested by ATC. The ALT RPTG
switch is used to turn off the automatic altitude reporting system.

Estimate completion date for this COA is 12/30/73.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #46
APR 10/73
FROM: FLIGHT AND DEVELOPMENT ENGINEERING - SFOEG

Please insert following the 1. BULLETINS Tab. Remove Bulletin #41. Record on the "Bulletin Check List".

DC-8 LOW AUXILIARY HYDRAULIC PUMP PRESSURE

There continues to be logbook write-ups in which the auxiliary pump pressure has been squawked correctly for being less than 2600 psi minimum. However, some have been invalid because the pressure is low only when Aileron or Rudder power is ON. These write-ups usually occur on preflight and some have resulted in trip delays or cancellations. The following information has been prepared to provide you with background information concerning this problem and procedures to avoid unnecessary trip cancellations.

Background

Low auxiliary pump pressure generally is an indication that internal leakage has become excessive in one or several components. Although some internal leakage is designed into the system, time causes additional leakage resulting from normal erosion inside hydraulic components or changes in valve rigging. With the increased time between overhauls, we now see more airplanes where the leakage exceeds limits. A program of checking and correcting excessive internal leakage at heavy checks has been started in order to minimize flight crew exposure to low auxiliary pump pressures.

Flight crews are still requested to make logbook entries when pressure is found to be below 2600 psi with Aileron and Rudder power OFF. The intent is to inform maintenance so that they can take corrective action before it affects dispatch.

It should be emphasized that auxiliary pump pressure limits are only valid with Aileron and Rudder power OFF. Under abnormal flight conditions, the standby rudder pump can be used for rudder power and aileron power would be OFF. Normal internal leakage is high in the aileron and rudder power units. The small auxiliary pump, with either a 3 or 4 gallons per minute flow, cannot be expected to operate the total system to the same degree as one or two 21 gallon per minute engine pumps. However, the auxiliary pump pressure does provide a relative measure of system internal leakage, so that desired flexibility using auxiliary pump pressure can be maintained at a practical level.



Procedures

1. Auxiliary pump pressure less than 2600 psi, but 2400 psi or more with Aileron and Rudder power OFF.
 - A. Make a logbook entry stating, "Aux pump pressure _____ psi with Aileron and Rudder power OFF."
 - (1) Corrective action may be deferred for up to 25 flight hours to permit maintenance to correct without causing schedule delay.
2. Auxiliary pump pressure less than 2400 psi, with Aileron and Rudder power OFF.
 - A. Corrective action required prior to dispatch.
 - (1) Operating hydraulic system selector handle or cycling the main landing gear doors will sometimes correct problem.
 - (2) Make logbook entry stating, "Aux pump pressure _____ psi with Aileron and Rudder power OFF."

NOTE: A flight test has been conducted to ensure required aux pump functions (raising and lowering flaps and actuation of main gear down locks with System Selector in EMERGENCY position) are not compromised by the above temporary relaxation of the 2600 psi minimum. The manufacturer has also approved such action.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #48

JUN 13/73

FROM: OPERATIONAL ENGINEERING - SFOEG

Please insert following the BULLETINS Tab. Record on the "Bulletin Check List".

"NO NOISE" THROTTLE ALIGNMENT

A procedure has been developed that eliminates the requirement for a high power engine runup on the ground in order to adjust mis-aligned throttles. Elimination of this requirement will not only enable Line Maintenance to respond faster to throttle alignment complaints but will also reduce a major source of airport noise and minimize the costs associated with high power engine runs.

The new procedure requires that flight crews encountering mis-aligned throttles to record a minimal amount of engine data. These data will be compared by Line Maintenance to an EPR vs. RAT calibration curve developed by SFOEG for a specific throttle reference position on the pedestal. If the throttle rigging is found to be within limits, the throttles will be aligned by a simple adjustment to the engine fuel control trim screw based on the amount of deviation from the EPR vs. RAT calibration curve.

A misaligned throttle resulting from engine trim will deviate from the other throttles in the same direction in all flight conditions. The use of this procedure will accurately correct the majority of our throttle alignment complaints resulting from mis-trimmed engines. There are, however, conditions other than mis-trimmed engines or improper throttle rigging that will result in mis-aligned throttles that cannot be corrected by fuel control trim screw adjustments. The possibility of these conditions creating the mis-aligned throttle condition should be considered before entering the engine data in the log book.

1. EPR instrumentation is in error. Check the other instruments.
2. Engine bleed system is not operating properly. Excessive bleed air will show a throttle mis-aligned forward. High fuel flow and EGT will accompany this condition.

These conditions can generally be detected by comparing engine readings to those of the other three engines at constant EPR. N_1 is normally within $\pm 1.5\%$ ($\pm 2.0\%$ for JT4 engines), $EGT \pm 30^\circ C$, $N_2 \pm 2.0\%$, fuel flow ± 150 lbs/hr.

Procedure

If throttle alignment is unsatisfactory:

1. The airplane must be in stabilized cruise, above .75 Mn and RAT between $0^\circ C$ and $-40^\circ C$.



2. Place the aft edge of a throttle on the aft edge of the white throttle reference line painted on the pedestal. The throttle should be set by moving the throttle forward in a continuous motion to the line.

NOTE: At low temperatures, the throttles at this position may produce a power setting above the max. continuous rating. Momentary transients above the max. continuous rating are acceptable provided that the Go-Around EPR, rotor speed limits and EGT redline are not exceeded.

3. Position the LOW PRESS PNEU SHUTOFF Switch for the engine to OFF and allow the engine to stabilize at the higher EPR for approximately 10 seconds.
4. Record bleeds off EPR, N_1 RPM and RAT (to the nearest degree) in the log book.
5. Turn bleed air on. Repeat procedure for other engines.
6. Request throttle alignment in the log book using the data taken in step #4.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #49
JUL 20/73
FROM: OPERATIONAL ENGINEERING - SFOEG

Please insert following the 1. BULLETINS Tab. Record on the "Bulletin Checklist".

JT3D EGT GAGE LIMIT MARKINGS

With the introduction of the new Gross Weights earlier this year, use of the JT3D-1 rating was eliminated. All airplanes previously using the JT3D-1 rating were upgraded to use JT3D-3 power. At that time COA2-4442 was prepared to revise the EGT gage limit markings to reflect -3 limits. Unfortunately, the time required to get this modification started has been longer than anticipated and there are still many of these airplanes with -1 gage markings.

On hot days when using maximum -3 takeoff EPR, it is possible that the EGT will exceed the old -1 red line at 530°C. This is permissible as long as the EGT does not exceed the -3 takeoff EGT limit of 555°C. All the engines have the -3 components and are certified for higher EGT.

Attempts are being made to expedite the accomplishment of the COA to minimize continued exposure to the incorrect EGT gage markings.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #50
OCT 18/73
FROM: OPERATIONAL ENGINEERING - SFOEG

Please insert following the BULLETINS Tab. Record on the "Bulletin Checklist".

LOW FREEZE POINT FUEL

Starting 12/1/73 and continuing through 2/28/74 all non-stop Inland-Honolulu flights will be fueled with fuel having a "freeze point" of -46°F or lower. Consequently, those trips operating from JFK to HNL and ORD to HNL/ITO will have a fuel tank limit temperature of -40°C.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #51
FEB 15/74
FROM: OPERATIONAL ENGINEERING - SFOEG

Please insert following the BULLETINS Tab. Record on the "Bulletin Checklist".

DC-8F AUTOMATED CARGO HANDLING SYSTEM INSTALLATION - COA2-4368

An automatic cargo handling system is presently being installed on all the DC-8F airplanes. The system consists of power rollers in the doorway for lateral transfer of pallets in and out of the airplane and a power shuttle running on a geared track for longitudinal transfer of pallets in the airplane.

Controls for the system are on two independent, portable control panels remotely connected to the power shuttle and lateral roller systems. Master switches labeled POWER PACK SHUTTLE and associated green power ON lights are located on the cabin sidewall just forward of the main cargo door. These switches are used to shut off power to the system. Power for the system comes from Cabin Bus #4. A circuit breaker labeled "POWER PACK" on Cabin Bus 4 and fuses mounted on the wall in the cockpit doorway above the lavatory entry light switch provide protection for the system.

While flight crews will not be involved in the operation of this system, it is required that the Second Officer verify the POWER PACK SHUTTLE switches are off prior to starting engines.



DC-8 FLIGHT MANUAL - REFERENCE AND REVIEW
BULLETIN #52
FEB 27/74
FROM: OPERATIONAL ENGINEERING - SFOEG

Please insert following the BULLETINS Tab. Record on the "Bulletin Checklist".

REVISED FUELING PROCEDURES

Beginning in March, 1974, a new "No Dripstick" fueling procedure will replace existing refueling procedures for all DC-8 airplanes. The new procedure is designed to reduce dripsticking frequency and yield more precise fuel loads.

Briefly, the new procedure requires the fueler to determine fuel quantity to be loaded by subtracting the amount presently in the tanks from the amount requested for the next flight (including taxi fuel). The airplane is then fueled to desired gage readings listed on the Fuel Service Form. Next, a comparison is made between the amount of fuel pumped into the airplane (from truck meter) and the calculated amount to be added. If these amounts agree within specified limits, the fuel load is verified as satisfactory. When the amounts exceed allowable tolerances, dripsticking will be required. A new short Fuel Service Form UO1295A is used and will be explained later.

The following changes are effective upon implementation of the new "No Dripstick" fueling procedures.

1. All existing fueling manuals will be obsolete (Small books).
2. Second Officers will not be issued new refueling manuals.
3. A plasticized Fuel Distribution Table will be maintained in the S/O table for use by the S/O in verifying fuel distribution.
4. Second Officers will continue to fuel airplanes on through trips where the stop is scheduled for one hour or less, however, they will no longer be required to prepare Fuel Service forms. Maintenance will deliver prepared forms to the cockpit for the Second Officer to use for fueling. Upon the completion of fueling, the S/O will make all required remaining entries and give a copy to ground personnel prior to flight. When the fuel load is out of tolerance, Maintenance is to be notified and, if dripsticking is required, Maintenance shall complete the fuel form by entering dripstick readings.
5. Dripsticking of fuel tanks will be required:
 - A. On all overwater flights - drip stick all tanks.
 - B. Whenever there is not agreement with limits between fuel truck meter and calculated fuel to be added using the airplane fuel gages.
 - C. Whenever there is an inoperative gage (all tanks must be dripsticked)
 - D. When requested by the flight crew.



PRESSURE FUELING PROCEDURES

Crossfeed Levers NORMAL
During fueling do not open Crossfeed Levers to prevent damage
to fuel pressure transmitters.

All Boost Pumps OFF

Fuel Quantity Gages TEST

Quantity Fill Bugs SET

Set bugs to "Desired" quantities shown on Fuel Service form.
For fuel to full capacity, set bugs to full scale. For partial
fueling, initially set bug to 2000 lbs. below desired quantity
then advance clockwise to the desired quantity. This removes
back-lash in the fuel quantity selector.

Auto Shutoff System Switch VALVE CLOSED INDICATION

Fill Valve Switches FILL

Open fill valves on tanks to which fuel is to be added. Monitor
tanks to ensure fuel distribution is approximately even during
fueling

Fill Valve Switches OFF

Monitor fuel tank quantity and close fill valves when desired
amounts are in each tank.

Fuel Service Form Complete

Obtain gallons boarded from fueler and compare with calculated
gallons to be added. If out of tolerance, call Maintenance for
dripsticking. Feed pumps should be ON when tanks are dripsticked.



FUEL SERVICE FORM

Shaded areas will be prepared by Maintenance. Reverse side of form shows tolerances, taxi fuel and pounds to gallons conversion table.

Maintenance will complete this column when dripsticking is required.

NOTE: Form is being revised to show desired and actual stick readings.

Obtain reading from fueler on completion of fueling.

ORIGINAL—FLIGHT CREW
COPY—STATION FILES

UNITED AIR LINES FUEL SERVICE FORM REF. MM 7-0-7-1

PLANE NO.		OUTSTANDING FLIGHT NO.		DATE	STATION	CHECK IF FUEL LOAD VERIFICATION REQUIRED	
TANK NO.	FUEL DISTRIBUTION			STICK	FUEL TO BE ADDED COMPUTATION	AMOUNT OF FUEL ADDED—FROM FUEL TRUCK METER(S)	
	BEFORE	DESIRED	ACTUAL				
RESV./ALT.					REQUESTED LOAD		TRUCK #
#1 MAIN					LBS		GAL
ALT.					TAXI FUEL		TRUCK #
#2 MAIN					LBS		GAL
CENTER					FINAL LOAD		TOTAL FROM TRUCK(S)
					LBS		GAL
MAIN					PRESERVICE FUEL (SUBTRACT)		CALCULATED GAL TO BE ADDED
#3 ALT.					LBS	REMOVED	GAL
MAIN					CALCULATED FUEL TO BE ADDED		TOLERANCE
#4 RESV./ALT.					REMOVED		DIFFERENCE
					LBS		
TOTAL PRESERVICE FUEL		FUELED BY		DRIPTICKS CHECKED BY		WITHIN LIMITS: OUT OF LIMITS:*	
-LBS.							

OIL ADDED		
ENG	QUARTS	SERVICED BY

UO 1295 A 9/73

Subtract preservice fuel from final load.

Difference between total from trucks and calculated gal. to be added.

[illegible]



OPERATIONS

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OPERATIONS

INTRODUCTION

The OPERATIONS CHAPTER includes all of the procedures used in operating the DC-8 on a "Normal" Flight. The First Section, NORMAL OPERATIONS, lists these procedures, from "Preflight" through "Parking", with expanded details pertaining to systems operations. Operating techniques are also included in this section at the appropriate time in the Flight sequence.

Certain items in the Preliminary Cockpit Preparation, Cockpit Preparation, and Before Start portions are marked with an asterisk (*). This indicates the specific items in those portions that must be accomplished at en route stops when no crew or airplane change takes place. For all other phases of Normal Operations, all procedural steps must always be done.

Allocation of duties, where required, is shown by: "C" for Captain, "F/O" for First Officer, and "S/O" for Second Officer.

Check Lists are included at the proper point in the procedures. They are duplicates of the Check Lists in the Flight Handbook.

Procedures that are unusually long are contained in the Additional Procedures section, immediately following Normal Operations. (Refer to the Table of Contents.) Specific numbers and limitations are summarized in the Limitations & Specifications Chapter of the Flight Handbook and they will be repeated in this Operations chapter only when necessary for emphasis.

The word "Check" denotes inspection only, while "Test" implies physical action will be required for that item.

SECOND OFFICER'S COLLATERAL DUTIES

In addition to the duties outlined for the Second Officer in the Normal Operations Procedures, he shall also perform the following:

1. Fill out Log Book and other required forms, submit nonroutine reports as requested.
2. Closely observe the operation of all equipment and instruments, calling any malfunctions or unusual readings to the Captain's attention and taking corrective action as approved or ordered.
3. Assist Stewardess when necessary.
4. Discuss with ground crews and Second Officer flying next trip segment any malfunctioning or unusual indications experienced during flight.



BEFORE PREFLIGHT (SECOND OFFICER'S DUTIES)

1. Confirm with Maintenance personnel or inbound Second Officer the current status of the airplane.
2. Review the Airplane Log Books and worksheets.
3. Confirm the requested fuel loading.
4. On all through flights where the stop is scheduled for one hour or less, the Second Officer will be responsible for controlling the fueling operation at the Second Officer's station.

The refueling is the responsibility of the outbound Second Officer; however, the inbound Second Officer will man the station until relieved, or, until the refueling is completed. The outbound Second Officer is obligated to meet the inbound trip and relieve the inbound Second Officer in accordance with the standard reporting time.

On through stops of over one hour, and originating flights, Maintenance will man the fueling station.

Actual ground time on a through trip is of no consequence in determination of whether the Second Officer or Maintenance personnel assume the responsibility. The Jet Fueling Handbook should be used for the correct procedure.

5. On originating trips or crew change through trips with over one hour scheduled ground time, the Second Officer will perform all inspection items under the "Exterior Inspection" group. During the preflight, pay particular attention to those items which required Maintenance action.
6. When the Second Officer's primary responsibility is the controlling of the fueling, exterior inspection is omitted as a Second Officer duty. It is recommended and would be considered good judgment if a walkaround and interior check is accomplished if time permits following refueling.



(ALL FLIGHTS)

* EXT PWR AVAIL LIGHT ON

* BATT/EXT PWR SWITCH . . EXT PWR

RADIO RACK OVERHEAT LIGHT. . OUT

* CIRCUIT BREAKERS & FUSES

. CHECK

Observe that all required CB's are set and all fuses operable.

NOTE

On DC-8-61's, N8095U-99U and DC-8-62's, unless windshield defogging required, operate with window and windshield anti-fog CB's pulled.

AGENT LOW PRESSURE

LIGHTS PUSH/TEST

FIRE SHUTOFF LEVERS . . . NORMAL

VOICE RECORDER TEST

Push and release TEST button, needle should flicker twice into white scale area.

* INS MODE SELECTORS (If installed)

. ALIGN

STANDBY REVERSER HYD

PUMP TEST

(DC-8-62 only) Place REV HYD PUMP switch ON and observe that pressure is normal and REV HYD PUMP light is illuminated, then place switch to OFF.

* WINDSHIELD HEAT . . . WARM UP

STALL WARNING TEST

Tests stall warning system and actuates stick shaker.

ANTI-ICE HTRS & METER SEL . . . TEST

Check ammeter readings for each position (No readings for OAT 1 and 2, when installed), then return to OFF.

* EMERGENCY EXIT LIGHTS . . . ARM

Place EMER LIGHTS switch to DISARM
CHECK and verify EMER LTS DISARMED
light illuminates. Position switch to
ARM and verify EMER LTS DISARMED
light extinguishes.

* FASTEN SEAT BELT AND

NO SMOKING SWITCHES ON

EXTERIOR LIGHTS ON

NAV LIGHTS OSC & FIXED

ANTI-COLLISION ON

WING/GROUND FLOOD

(Night) WING FLOOD

WINDSHIELDS CHECK

Check for cleanliness, scratches, cracks or bulging.

STANDBY ATTITUDE INDICATOR

..... ON

SAI must be manually caged after at least 30 seconds of operation.

FLAP, STABILIZER, EJECTORS

. OBSERVE POSITIONS.

BRAKES SET



RAIN REPELLENT QUANTITY

(If installed) CHECK
Above refill level on sight gauge.

AC TIE, DC TIE & BATTERY

VOLTAGE CHECK
Place VOLT & FREQ SELECTOR to proper position and check AC, DC and CPS FREQ meters for proper voltages and frequency.

* FLIGHT RECORDER

. SET & CHECK

Trip & Date Dials SET

FLT REC Switch ON

FLT REC POWER OFF light may remain illuminated until servo motor has taken up slack in tape. Light should go out in approximately 1 minute.

RECORDING HOURS REMAINING

. CHECK
Verify Recording Hours Remaining is sufficient.

REPEAT Button PRESS

APPROXIMATELY 10 SECONDS

Encoding light should stay on.

FLT REC Switch OFF

FLT REC POWER OFF light illuminates.

CADC FAIL WARN LIGHT OUT

* MAST HEATER SWITCH ON

(DC-8-61, -62)

OXYGEN REGULATOR & MASK . . . TEST

Oxygen Supply Switch . . . Safetied On
Hold mask away from the face and place the Mask Selector to TEST MASK to blow out any debris (Rotate the front knob to EMERG on Mask Mounted Regulators). Put the mask on and adjust for fit. Place the Mask Selector to NORMAL and while breathing through the mask, check flow indicator operation with the Oxygen Selector in NORMAL and in 100%. Place the Mask Selector to EMERGENCY and check flow indicator operation. Return the Mask Selector and the Oxygen Selector to NORMAL. Check for oxygen mask microphone output with the OXYGEN MASK MIKE switch in NOR and in PA. After check, return the OXYGEN MASK MIKE SWITCH to the guarded NOR position and stow mask.

DC-8-61, -62: Check oxygen mask microphone output with MIC SELECTOR in MASK NORM and in PA. After check, return MIC Selector to the BOOM NORM and stow mask.

* FIRE WARNING SYSTEM TEST

1. Actuate #1 ENG COMPT FIRE WARN TEST switch and check that the fire warning bell sounds, the MASTER and S/O FIRE warning lights and #1 Fire Shutoff Handle Lights (2 bulbs) illuminate.
2. Push the MASTER FIRE warning light. Bell should stop and MASTER & S/O FIRE warning lights go out.



3. Release #1 Test switch - #1 Fire
Shutoff Handle lights go out.

4. Repeat steps 1 and 3 for engines
#2, #3, and #4.

* GALLEY POWER SWITCH. . . . ON

PASSENGER READING LIGHTS
SWITCH (DC-8-62) ON

* HYDRAULIC PANEL CHECK

HYD QTY 10 GALS PLUS
(NORMALLY AT FULL PEG)

HYD SYS PRESS . . .0 WHEN PUMPS
NOT OPERATING

HYD BRAKE PRESS. . . . CHECK

1500 PSI minimum required for
setting or holding brakes. Observe
that brake system pressure does not
decay more rapidly than normal.

AIR BRAKE PRESS 2600 LBS
MINIMUM

* ENGINE OIL QUANTITY . . . CHECK

Observe that sufficient quantity (deter-
mined from previous flight's oil
consumption) is indicated on the OIL
QTY gauges.

* FUEL QUANTITY CHECK

Verify agreement with required fuel
load.

SAI BAT MONITOR TEST

After SAI is "ON" for at least three
minutes, depress SAI BAT MONITOR
Test Button for at least 20 seconds.
Observe minimum reading of 23 Volts,
normal SAI display, and PWR Flag out
of view.

SPARE FUSES AND BULBS . . .CHECK
Adequate reserve supply available.

EMERGENCY EQUIPMENT

. CHECK

Portable Oxygen Bottle - Mask attached
and Pressure.

Smoke Goggles in sealed container.

Emergency VHF Transceiver (if
installed).

Escape Lines.

Life Vests or Life Rings.

Crash Axe.

Sealed CO₂ Fire Extinguisher.

Sealed H₂O Fire Extinguisher (DC-8F).

* Crew Oxygen pressure and valve OPEN
(DC-8-61 Crew Oxygen checked in
Oxygen Control Center).

Overwater Flights also check:

Life Rafts (DC-8F).

Life Vests.

Crew Flashlights in sealed containers.



PASSENGER CABIN INSPECTION - S/O

EMERGENCY EQUIPMENT

Evacuation slide containers and
bottle pressure.

First Aid Oxygen valve OPEN, pressure,
AUTO supply valve in AUTO and First
Aid Automatic Supply Valve gauge zero.

Emergency oxygen valves OPEN and
proper pressure.

Portable oxygen bottles pressure and
masks.

Sealed Fire Extinguishers.

Megaphones - Actuate trigger for
audio response.

First Aid Kit sealed.

Cabin Attendants Life Vests or Life
Rings.

Overwater flights also check:

Cabin Attendants Life Vests.

Spot check passenger Life Vests.

Life Raft containers sealed and
current date.

Flashlights in sealed containers.

LAVATORIES CHECK

Soap, water, cleanliness, all lights
operating, and RETURN TO CABIN
sign illuminated.

GALLEY DOOR LATCHES . . . CHECK

GALLEYS CHECK

Units secure, lights, circuit breakers,
hot plates, coffee maker, water heater
and pump switches ON, and water
supply (also quantity and pressure on
DC-8-61).

WATER TANK FILL VALVE LIGHT

OUT
Push to test.

WINDOWS AND EMERGENCY EXITS

CHECK
Inspect windows for cracks and bulges;
exits for condition and security.

UPPER WING CHECK

Inspect for fluid leaks, caps in place,
position of main gear visual downlock
indicators and that wing slots are closed
(flaps up).

FASTEN SEAT BELT & NO

SMOKING SIGNS ON

**EXTERIOR INSPECTION - S/O**

During the inspection, observe the general condition of the airplane. Check for damage, fluid leaks, open access panels and compartment doors not in use or other conditions that may require corrective action. During low temperature conditions give special attention to the control surfaces and flaps.

In addition, observe -

FORWARD FUSELAGE

STATIC PORTS & PITOTS
..... CLEAN, NO OBSTRUCTIONS

AIR SCOOPS & EXHAUSTS
..... NO OBSTRUCTIONS,
DOORS SECURE

NOSE WHEEL WELL

STEERING BYPASS VALVE
..... FLAG REMOVED, PIN
IN OPERATING POSITION
(DC-8-61 & -62)

ACCUMULATOR PRESSURES
..... AT OR ABOVE MINIMUM
PRECHARGE
Steering (2), Shimmy Damper

TIRES INFLATED, NO DEEP
CUTS OR EXCESSIVE WEAR

STRUT INFLATION
..... INNER CYLINDER VISIBLE

MAIN WHEEL WELLS

TIRES INFLATED, NO DEEP
CUTS OR EXCESSIVE WEAR

STRUT INFLATION

..... INNER CYLINDER VISIBLE
Left and right struts equally extended.

BOGIE UNLOCK & TRIM CYLINDERS
..... INTACT

BRAKE COMPENSATING RODS
..... PROPERLY ATTACHED

BRAKE LOCKOUT CYLINDERS
..... PROPERLY EXTENDED
Indicator rod at or above indicator mark.

FLUID QUANTITY LIMITERS
..... NO LEAKS
(DC-8-62)

ACCUMULATOR PRESSURES . . . AT OR
ABOVE MINIMUM PRECHARGE
Main system, Brake (3), Spoiler
Reverser (DC-8-62) (2).

AIR BOTTLE PRESSURES
..... AT OR ABOVE
MINIMUM

Air Brake, Ejector (JT-4).

FLAP LOCKOUT CYLINDERS
..... PROPERLY ADJUSTED
Piston rod aligned with white mark with
flaps retracted.

LOWER ANTICOLLISION LIGHT
..... BOTH BULBS ON, ROTATING

WINGS

FUEL DUMP CHUTES
..... LATCH FLAG RETRACTED

WING FLAPS
..... HINGE FITTING COVERS SECURE

WING SLOTS. CLOSED

NORMAL OPERATIONS



STALL WARNING SENSOR . . . INTACT

LANDING LIGHTS

. . . RETRACTED, NO DISCOLORATION

NAVIGATION LIGHTS ON

One steady, one oscillating on each wing.

UPPER ANTICOLLISION LIGHT

. BOTH BULBS ON, ROTATING

ENGINES

COWLING & FASTENERS . . . SECURE

OIL COOLER DOORS

. FULL OPEN, SECURE

PNEUMATIC HEAT EXCHANGER DOORS

. CLOSED, SECURE

ENGINE INLETS & EXHAUSTS

. NO OBSTRUCTIONS

COMPRESSOR BLADES

. NO NICKS OR CRACKS

EXHAUST COMPONENTS

. INTACT, NO CRACKS

EXHAUST CONES & STRUTS

. NO CRACKS OR BREAKS

AFT FUSELAGE AND TAIL

PRESSURIZATION OUTFLOW VALVES

. OPEN

PRESSURIZATION RELIEF VALVES

. CLOSED

PRESSURIZATION RELIEF VALVE

STATIC PORTS . . NO OBSTRUCTIONS

HORIZONTAL STABILIZER

. . HINGES SECURE, NO OBSTRUCTIONS

Position agrees with trim setting

RUDDER HINGES SECURE,
NO OBSTRUCTIONS

NAVIGATION LIGHTS ON

One steady, one oscillating

TAIL SKID CHECK

(DC-8-61) No evidence of scraping on painted surface. Scraping indicates frangible shock absorber may have been crushed; call maintenance.

COCKPIT PREPARATION - S/O

This listing assumes that the preliminary cockpit preparation has been completed.

PUSH TO TEST ALL INDICATING LIGHTS THAT ARE NOT ILLUMINATED.

DC LOADMETERS OPERATING

GENERATOR DRIVE OIL

TEMPERATURE NEAR ZERO

AC LOADMETERS ZERO

GENERATOR CONTROL SWITCHES

. ON

EMERGENCY ELECTRICAL CONTROL

SWITCHES NORMAL

AC BUS ISOL SWITCH (Guarded)

. NORMAL

DC BUS ISOL SWITCH (Guarded)

. NORMAL

IGN PWR SWITCH OFF

(DC-8-62)

RECIRCULATION FAN SWITCHES

. AS REQUIRED

TEMP DIVERT SWITCH (Guarded)

. TEMP DIVERT

**AUTOMATIC PRESSURE****CONTROLLER SET**

Set station altimeter setting in window.
Rotate ALT knob until flight pointer
reads field elevation on the outer scale;
or slightly above planned cruise altitude
on the inner scale, whichever is the
furthestmost clockwise setting-set RATE
knob as desired.

MANIFOLD AIR PRESS**GAUGE CHECK**

Observe that both left and right needles
read approximately the same.

MANIFOLD AIR TEMP**GAUGE CHECK**

Normal for condition.

PNEU X-FEED SWITCH**(Guarded) NORMAL****LOW PRESS PNEU SHUTOFF****SWITCHES OFF****CABIN COMPRESSOR SWITCHES. . . OFF****CABIN COMPRESSOR RPM****INDICATORS ZERO****CABIN ALT. - DIFF. PRESS.****GAUGE CHECK**

Cabin hand should read field elevation
and differential pressure hand should
read zero.

CABIN RATE OF CLIMB**INDICATOR ZERO****COCKPIT TEMPERATURE****SELECTOR SET**

Adjust for desired temperature.

CABIN TEMPERATURE**SELECTOR SET**

Adjust for desired temperature.

CABIN TEMPERATURE**INDICATOR OBSERVE**

Note temperature.

FREON COMPRESSOR**SWITCHES OFF****FREON TEMPERATURE****GAUGES OBSERVE**

SATUR and SUPER normal for
condition.

PASSENGER OXY MASK**SWITCH (Guarded). NORMAL****MOVIE PROJECTOR SWITCHES****(If installed) OFF****CARGO COMPT. BLOWERS****SWITCH (Guarded) ON**
(DC-8F only)**SMOKE DETECTOR****INDICATOR CHECK**

(DC-8F only) Light above each window
on.

MAIN GEAR SPOILERS**INOPERATIVE LIGHT OUT****HYD TEMP GAUGE OBSERVE**

Temperature below red line.

*** AUXILIARY HYDRAULIC****PUMP START**

Place AUX HYD PUMP switch to START.



* HYDRAULIC SYSTEM

PRESSURE CHECK
Observe buildup on HYD SYS PRESS
gauge.

* HYDRAULIC BRAKE

PRESSURE CHECK
Observe buildup on HYD BRAKE PRESS
gauge when system pressure reaches
brake pressure.

* HYDRAULIC QUANTITY CHECK

Verify that more than 10 gallons shows
on HYD QTY gauge.

* AUXILIARY HYDRAULIC

PUMP SWITCH STOP

ENG HYD PUMP SWITCHES ON

FLIGHT SPOILER SWITCH TEST

Hold switch in OVERRIDE and note
pressure buildup on SPOILER HYD
PRESS gauge. Raise guard and turn
switch off.

AIR BRAKE PRESSURE CHECK

Observe minimum 2600 lbs. on AIR
BRAKE PRESS gauge.

N₂ % RPM GAUGES ZERO

ENG OIL QTY GAUGES CHECK

Insure they indicate sufficient quantity.

OIL COOLER DOOR

SWITCHES TO/CLB

GND. COOLING & BLOWAWAY

JET SHUTOFF SW. OBSERVE
Button switch out from panel and light
on.

AIRFOIL DEICE TIMERS OFF

Operation may be checked if desired.

TAIL DUCT VALVE SWITCH

(Guarded) NORMAL

FILL VALVE

SWITCHES VALVE CLOSED

SHUTOFF CLOSED LIGHTS. CHECK

Observe that lights are out. Come on
only when AUTO SHUTOFF SYSTEM
switch in TEST or VALVE CLOSED
to indicate that fuel level control valves
are closed.

AUTO SHUTOFF SYSTEM

SWITCH NORM

FUEL QTY GAUGES TEST

Push "Q" Buttons (DC-8-62 "T"
Buttons). Note quantity decrease on
the gauges and on the TOTAL FUEL
QTY gauge. Release buttons and note
quantity increase to original value.

* QUANTITY FILL BUGS SET

Set bugs on #1 and #4 alternate tanks
to zero, #1 and #4 main tanks to
8000 lbs. (DC-8-62, 4500 lbs.). Set
remaining bugs to maximum position.

If center wing tank is installed and
contains fuel, refer to Fuel Management
in "ADDITIONAL PROCEDURES".



NORMAL OPERATIONS

SCAVENGE PUMP SWITCH OFF
(DC-8-62)

* FUEL QUANTITY CHECK
Insure that each FUEL QTY gage and
the TOTAL FUEL QTY gage show the
required distribution and amount.

FUEL TANK SELECTOR
LEVERS MAIN

CENTER WING AUX. TANK
SELECTOR LEVER . . . CTR WING AUX
Off, if tank is empty.

FWD AUX TANK SELECTOR
LEVER OFF
(DC-8-62)

CROSSFEED LEVERS NORMAL

MAIN TANK BOOST PUMPS . . . TEST
Move switches to BOOST & FEED and
observe FEED PUMP PRESS lights come
on then go out. Observe FUEL PRESS
for indications. Move switches to OFF.

FEED PUMP PRESS light will not
push-test with main tank Boost & Feed
pumps switch in OFF position.

With engines not running, fuel trapped
in lines can expand to cause pressure
indication. If desired, this pressure
can be bled off by changing position of
the Tank Selector or Crossfeed levers.

ALTERNATE TANK BOOST
PUMP SWITCHES OFF

FUEL TEMP GAGE OBSERVE

DUMP CHUTE POSITION
INDICATOR CHECK
Observe pointer at retract mark.

FUEL DUMP CRANK STOWED

FREQ & LOAD CONTROL SWS.
. NORMAL

GEN DRIVE DISCONNECT LEVERS
(Switches ON DC-8-61 & -62) . . ENGAGED

HYDRAULIC SYSTEM SELECTOR
LEVER NORMAL

RUD HYD POWER SHUTOFF
LEVER (In detent) OFF

AIL HYD POWER SHUTOFF
LEVER (In detent) OFF

CABIN PRESS OUTFLOW VALVE
LEVER TEST
Verify freedom of movement, then set
for automatic operation.

CABIN AND CKPT TEMP MIXING
VALVE LEVERS SET

NOTE

Set levers to full decrease (cold)
position until after cabin com-
pressor overspeed check performed
to avoid compressor stall.



GRD SPOILER POWER SWITCH
(Guarded) NORMAL

STANDBY RUDDER POWER
LIGHT OUT

* TAKEOFF CARD COMPLETE
Determine and post on card - C.G.,
Stabilizer Trim, Temperature, Flap
Setting, Gross Weight, $V_1 - V_R - V_2$
Speeds, EPR, and Fuel dump time.

COCKPIT PREPARATION - C

Cockpit preparation items are normally accomplished when both C and F/O are in their seats. The assignment of controls and switches to either the C or F/O is presented as a guide for convenience only. Any of the required checks on the overhead panel, Instrument panel, or control pedestal can be accomplished by either C or F/O.

PUSH TO TEST ALL INDICATING LIGHTS THAT ARE NOT ILLUMINATED.

MAIN CARGO DOOR (DC-8F)
. CLOSED

Before taxi, the S/O will insure that the Main Cargo Door is properly closed. He will check that the exterior Lock Pin Handle is aligned with the stenciled "LOCK" marking, and cargo permitting, that the interior Lock Pin Handle is aligned.

PARKING BRAKES SET

INS (If installed) SET
See Additional Procedures.

RAIN REMOVAL LEVER OFF

OXYGEN REGULATOR AND
MASK TEST

Oxygen Supply Switch Safetied On
Hold mask away from the face and place the Mask Selector to TEST MASK to blow out any debris (Rotate the front knob to EMER on Mask Mounted Regulators). Put the mask on and adjust for fit. Place the Mask Selector to NORMAL and while breathing through the mask, check flow indicator operation with the Oxygen Selector in NORMAL and in 100%. Place the Mask Selector to EMERGENCY and check flow indicator operation. Return the Mask Selector and the Oxygen Selector to NORMAL. Check for oxygen mask microphone output with MIC Selector in MASK NORM and in PA position. After check, return the MIC Selector to the BOOM NORM position and stow mask.

CABIN CARGO (DC-8F) CHECK

Cargo loading permitting, the S/O will insure that cabin cargo is properly restrained. On MAC flights he will also check that the pallet restraints (four on forward and four on aft side of each pallet) are properly engaged.



MAX. SPEED WARNING SEL
SWITCH (Safetied) CARGO
(DC-8F)

EMERGENCY AIR BRAKES
(Safetied) OFF

STATIC SYSTEM SELECTOR NORM

SPOILER EXTEND LIGHT OUT

ANTISKID FAIL LIGHT ON

ATTITUDE INDICATOR,
FLIGHT DIRECTOR, RADIO
ALTIMETER TEST
Refer to Additional Procedures.

*COMPASS SYSTEM CHECK
ALIGNMENT

Check that heading agrees with other
compasses and annunciator is aligned
between dot and cross indications.

Align if necessary. (DC-8-62
automatically aligns)

*V₁ - V_R - V₂ SPEEDS & EPR SET
Set Airspeed & EPR bugs.

*RADIOS AND INTERPHONE TEST &
SET

*VOR - ADF SELECTOR
SWITCHES SET

*CLOCK SET

*ALTIMETER VIBRATOR CHECK
Verify that vibrator is operating
by noting sound or feeling
instrument.

*ALTIMETER SET
(If servo-pneumatic altimeter is
installed SET & ON)

WX RADAR AS REQUIRED
See Additional Procedures.

PITCH TRIM
COMPENSATOR RETRACTED AND
OVERRIDE

ALTERNATE EJECTOR
LEVER NORMAL
(JT4 only)

*SPOILER CONTROL
LEVER RETRACT

*WING FLAPS UP
Check handle position and indicator.

CAUTION

Do not move unless area is
clear.

*LONGITUDINAL TRIM TEST
AUX HYDRAULIC PUMP ON
Observe hydraulic pressure buildup.

Simultaneously move LONG TRIM
handles in opposite directions and
hold in full travel position, while
observing that the LONG TRIM
indicator does not move and/or the
HYD SYS PRESS does not decrease.

Test both sets of control wheel LONG
TRIM switches for proper operation.

ALTERNATE LONGITUDINAL TRIM
. TEST
Move ALT LONG TRIM switches to
NOSE UP and NOSE DOWN positions
and observe proper movement of
LONGITUDINAL TRIM Indicator.

NOTE

DO NOT move the ALT LONG TRIM
switches in opposite directions
simultaneously.



COCKPIT PREPARATION - F/O

* HORIZONTAL STABILIZER
TRIM SET

* AUX. HYDRAULIC PUMP OFF

FRICITION LOCK SET

* FUEL SHUTOFF LEVERS OFF

AUTOPILOT YAW DAMPER OFF

* RUDDER TRIM SET

* AILERON TRIM SET

INS (If installed) SET
See Additional Procedures

RAIN REMOVAL LEVER OFF

OXYGEN REGULATOR AND
MASK TEST
(See Captain's procedure)

FUEL DUMP SWITCH RETRACT

WARN LIGHTS DIM
SWITCH OBSERVE
This switch should be in BRIGHT position
except during darkness since some
warning lights are not visible while
on DIM during daylight.

AUX VERT GYRO SEL NORMAL
(DC-8-62)

AUX VERT GYRO FAIL LIGHT . . . OUT
(DC-8-62)

PUSH TO ANNOUNCE BUTTON . . . OFF
May be disarmed by pushing mechanic
call button or by switch at handset
cradle.

* TRANSPONDERS BOTH TO STBY
Code as required.

EMER BUCKET SWITCH NORMAL
(DC-8-62)

ENGINE ANTI-ICE VALVE
LIGHTS OUT

ENGINE ANTI-ICE SWITCHES . . . OFF



SCOOPS ANTI-ICE SWITCH. OFF

ENG EJECTOR SWITCHES . . . EXTEND
(JT4)

CAUTION

Do not move switches until sure
engine areas are clear.

NAVIGATION LIGHTS . . . AS REQUIRED

ANTI-COLLISION
LIGHTS AS REQUIREDEMER THRUST BRAKE
RETRACTION SWITCHES
(Guarded) NORMAL
(JT3D)PT₂ PROBE HEATERS SWITCH . . . OFFLANDING AND TAXI LIGHT
SWITCHES RETRACT - OFFWING-GROUND FLOOD LIGHT
SWITCH AS REQUIREDSTARTER BUTTONS CHECK
Button switches out from panel and blue
lights out.STARTER AND IGNITION
SWITCH OFF

IGNITION OVERRIDE SWITCH OFF

IGNITER SWITCHES BOTH
(DC-8-62)CONTINUOUS IGNITION SWITCH. . . OFF
(JT3D-1, -3, -3B)

MASTER WARNING LIGHT OUT

TRIMMING SPIRIT LEVEL . . . CHECK
Should agree with slip indicators.

THRUST BRAKE LIGHTS OUT

ANTI-SKID SWITCH. OFF

STATIC SYSTEM SELECTOR. . . NORM

PITOT SYSTEM SWITCH
(If installed) NORM

ENGINE OIL PRESS LIGHTS ON

LANDING GEAR LEVER AND
LIGHTS DOWN & 3 GREEN
Observe both bulbs in each landing
gear light are illuminated.

ADF RADIOS SET

HF RADIO AS REQUIRED

EJECTOR EXTEND LIGHTS ON
(JT4)ENG DOORS OPEN LIGHTS . . CHECK
(JT3D-1, -3, -3B) Lights indicate one
or more reverser cover doors are not
stowed. Lights are frequently on until
pneumatic pressure is available.

NOTE

If an ENG DOOR OPEN light
is on, do not takeoff until
cleared by maintenance.

GUST LOCK ON

NORMAL OPERATIONS



OVERSPEED TEST Switch TEST

ATTITUDE INDICATOR, FLIGHT
DIRECTOR, RADIO ALTIMETER

. TEST
Refer to Additional Procedures.

* COMPASS SYSTEM CHECK
ALIGNMENT

Check that heading agrees with other
compasses and annunciator is aligned
between dot and cross indications. Align
if necessary. (DC-8-62 automatically
aligns).

* $V_1 - V_R - V_2$ SPEEDS CHECK
Set airspeed bugs.

RADIOS AND INTERPHONE TEST

Test Radios and set Audio controls as
desired. Normally #1 VHF Comm
should be used for ATC and #2 VHF
Comm for company communications.

* VOR-ADF SELECTOR SWITCHES
. SET

* CLOCK SET

* ALTIMETER VIBRATOR CHECK
Verify that vibrator is operating
by noting sound or feeling
instrument.

* ALTIMETER SET
(If servo-pneumatic altimeter is
installed SET & ON)

BEFORE START CHALLENGE/RESPOND

CHALLENGE (F/O)	RESPOND (C, F/O, S/O)
WINDSHIELD HEAT	WARM UP
PARKING BRAKE	SET
HYDRAULIC FLUID	CHECKED
HYD. & AIR BRAKE PRESS	AND LBS.
ENG. HYD. PUMPS	ON
HYD. SYS. SELECTOR	NORMAL
OIL QUANTITY	ALL ABOVE GALLONS
CABIN PRESS	SET & AUTO
FUEL TANK SELECTORS & CROSSFEEDS	MAINS AND NORMAL
FUEL QUANTITY	LBS., CLEARED WITH LBS.
INS	NAV
EPR	SET
STANDBY ATTITUDE INDICATOR	ON
PTC	RETRACTED & OVERRIDE
FUEL SHUTOFF LEVERS	OFF
OXYGEN	CHECKED (ALL)
CLOCKS & ALTIMETERS	SET

V_1, V_R, V_2	SET
DUMP TIME	MINUTES
CG & STAB TRIM	% °

NOTE: The last three items may have to
be changed after receiving final
weight manifest figures.

BEFORE START Check List announced
completed by F/O.

**ENGINE START**

DO NOT START ENGINES UNTIL
CLEARED BY GROUND CREW.

S/O ITEMS (CHECK BY S/O)

GALLEY POWER	OFF
FREON COMPRESSORS	OFF
RECIRCULATING FANS	OFF
CABIN COMPRESSORS	OFF
PNEUMATIC PRESSURE	____ LBS.

The S/O will announce, "Final items
complete, pneumatic pressure ____ LBS.".

Do not attempt engine start if pneumatic
pressure is below 22 psi, as a "Hot" or
"Hung" start may occur.

NOTE

For Battery Start refer to
Irregularities.

S/O #3 MAIN FUEL TANK

BOOST PUMP BOOST & FEED

C THROTTLES IDLE

C STARTER & IGNITION

SWITCH ARMED

C #3 STARTER BUTTON

. PRESS & HOLD
Light inside button will illuminate to
indicate start circuit complete.
Pneumatic manifold pressure will drop
as starter valve opens.

NOTE

If outside air temperature is
below freezing and no pneumatic
manifold drop is noted, hold
starter button in for a few min-
utes to melt possible ice accum-
ulation.



CAUTION

If starter button released or power interrupted, do not depress button until N₂ RPM zero, to avoid starter damage.

S/O #3 ENGINE OIL PRESSURE CHECK
Call out "Oil Pressure" when steady rise occurs.

NOTE

Discontinue start if no rise in oil pressure by 15% N₂ RPM.

S/O #3 N₂% RPM CHECK
Call out "15%"

NOTE

When one tachometer is inoperative rotation of N₁ or 15% N₂, and 17% N₁ or 35% N₂ can be used interchangeably. Have ground personnel verify N₁ rotation if N₁ tachometer is inoperative.

S/O VOLT. & FREQ.
SELECTOR GEN. #3

C #3 N₁ % RPM CHECK
Do not actuate fuel shutoff lever until N₁ rotation observed.

C #3 FUEL SHUTOFF LEVER . . . ON .
Light up should occur within 20 sec. after Fuel Shutoff Lever ON.

C, F/O FUEL FLOW, EGT,
N₁% RPM MONITOR

CAUTION

If EGT rises too rapidly, or too high, shut off fuel lever and tank boost pump. Continue to rotate for 20 sec. Then release starter button.

S/O N₂% RPM MONITOR

S/O #3 N₂% RPM CHECK
Call out "35%".

C #3 STARTER BUTTON . . . RELEASED
Observe starter button light out.

S/O STARTER VALVE CLOSED
Observe rise in pneumatic pressure as starter button released and call out "Valve closed".

C, F/O EGT, EPR, N₁% RPM,
OIL PRESSURE WARNING
LIGHT, FUEL FLOW CHECK
Monitor for normal indications and lights out.

S/O N₂% RPM, OIL PRESSURE,
OIL TEMPERATURE, FUEL
PRESSURE CHECK
Monitor for normal indications during start, until stabilized at idle. Call out if any abnormal indications observed.

S/O MAIN TANK BOOST PUMPS . . . OFF
When engine fuel pressure stable at idle RPM place MAIN TANK BOOST PUMP switch to OFF. If fuel in associated main tank is less than 5000 lbs., place main tank boost pump switch to FEED ONLY.

REPEAT PREVIOUS STEPS FOR STARTING OTHER ENGINES.

S/O GEN VOLT., FREQ.,
& LOADMETER CHECK
#3, #4, #2 Generators checked for normal indications as subsequent engine attains 15% N₂ RPM.



S/O BATT - EXT. PWR.

SWITCH BATT
Do not move while any starter is operating, nor before at least two generators are operating.

AFTER START

S/O PNEUMATIC SYSTEM . . . BLEED
Turn two cabin compressors ON.

S/O DISCONNECT CALLOUT
S/O calls out "Disconnect" and F/O advises ground to disconnect. After disconnect, cabin compressors OFF.

S/O HYDRAULIC SYSTEM TEST
Place both L & R ENG HYD PUMPS switches momentarily to BYPASS then place the L PUMP switch to ON and check the hydraulic system pressure. Repeat for the RIGHT PUMP. Operate with both pumps ON until climb.

S/O #1 GEN. VOLT., FREQ,
& LOADMETER CHECK
Observe normal indications.

S/O VOLT. & FREQ.
SELECTOR AC TIE

S/O PREFERENTIAL CIRCUIT . . .TEST

1. Observe that one of the GEN UNPARL'D lights is out.
2. Turn the corresponding GENERATOR CONTROL switch OFF and observe the GEN UNPARL'D light come ON.
3. Observe that the GEN UNPARL'D light of the highest priority generator in the preferential sequence is out.
4. Turn the GENERATOR CONTROL switch ON and observe no change in the GEN UNPARL'D lights.



NOTE

See Additional Procedures for Preferential Circuit Test when #2 or #3 generator is inoperative.

S/O GEN PARALLEL BUTTON . . . PUSH

Using the Frequency and Load Control Switch (cycling Fuel Boost Pump Switch on DC-8-62) for corresponding generator may aid in paralleling.

CAUTION

Do not use Recirculating Fans or Galley Power Switch to assist in paralleling as damage may result.

S/O GALLEY POWER SWITCH . . . ON

S/O LOW PRESSURE PNEUMATIC SYSTEM TEST

1. PNEUMATIC CROSS-FEED VALVE CLOSED
2. #1 AND #4 PNEU SHUTOFF SWITCHES ON
(DC-8-62 AUTO) Allow both needles on manifold pressure gauge to stabilize.
3. #1 AND #4 PNEU SHUTOFF SWITCHES OFF
Observe both needles. They should not bleed down to zero within 5 seconds.
4. #2 AND #3 PNEU SHUTOFF SWITCHES ON
(DC-8-62 AUTO) Observe pressure increase on both needles.
5. #1 AND #4 PNEU SHUTOFF SWITCHES ON
(DC 8-62 AUTO)
6. PNEUMATIC CROSS-FEED VALVE NORMAL

NOTE

Do not turn on engine or scoops anti-ice until above test is completed because a rapid pressure drop would result.

S/O CABIN COMPRESSOR

OVERSPEED TEST

1. #1 AND #4 CABIN COMPRESSOR SWITCHES ON
2. #1 AND #4 CABIN COMPRESSOR OVERSPEED TEST BUTTONS PUSH
Button must be actuated before compressor reaches 4000 RPM. RPM should not exceed 15,000 RPM and should then decrease to zero.
3. #1 AND #4 CABIN COMPRESSOR SWITCHES OFF
4. Repeat for #2 and #3 cabin compressors.
5. CABIN COMPRESSOR SWITCHES AS REQUIRED

S/O RECIRCULATING

FANS AS REQUIRED

1. Recirculating fans should not be in AUTO during takeoff roll, except Center Fan DC-8-61, since a rough runway could cause a momentary ground shift to "Inflight", then back to "Ground" with a resultant heavy electric surge.



2. Use of a recirculating fan and cabin compressor on the same side may cause an annoying "choo-choo" effect. Changing position of the diverter valve may dampen this noise.
3. To prevent overheating of a recirculating fan motor on a DC-8-61, at least two fans must be operating unless at least two cabin compressors are on.

S/O FREON COMPRESSORS

. AS REQUIRED

S/O RUDDER AND AILERON

POWER ON

Advise C and F/O before moving the
HYD PWR SHUTOFF levers.

S/O CABIN AND BELLY DOOR

OPEN LIGHTS OUT

S/O FLIGHT COMPARTMENT

DOOR LOCKED

S/O WEIGHT MANIFEST CHECK

Check with load planning for any
revisions to weight manifest. Recheck
takeoff data and revise as required.

C STARTER & IGNITION SW OFF

C STANDBY REVERSER HYD

PUMP ON

(DC-8-62) This permits using outboard
reversers without first placing an
inboard reverser lever in idle reverse.

C PITOT HEAT ON

C PITOT HEATER INOP LIGHT

(DC-8-61, -62) OUT

C ANTI-ICE AS REQUIRED

If visible moisture is present and any
doubt exists - always use anti-ice. If
anti-ice is to be used during takeoff,
turn it on as soon as practical after
engine start. Use scoops anti-ice and
PT₂ heat concurrent with engine
anti-ice.

If icing conditions exist and long ground
delays are encountered, periodic engine
runups to as high a thrust setting as
practical, should be performed. Just
prior to takeoff, a final static engine
runup should be made observing EPR
and EGT, to assure normal engine
operation.

CHECK THAT ANTI-ICE TAKEOFF DATA
USED.C PT₂ PROBE HEAT AS REQUIRED
(JT4, JT3D-3, -3B)

F/O EXTERIOR LIGHTS

. AS REQUIRED

F/O GUST LOCK OFF

CAUTION

During push back, do not
operate nose gear steering
wheel as serious damage to
bogie could result if bogie
should become unlocked.
(JT4, JT3D-3, -3B).

F/O EJECTORS EXTENDED

. CHECK
(JT4) ENG EJECTOR switches in
EXTEND and ENG EJECTOR EXT'D
lights on steady.



F/O WING FLAPS SET
As required. Observe slot light on,
then out.

S/O HYD. SYSTEM & HYD.

BRAKE PRESSURE CHECK
Monitor during all ground operation.
Call out, as required - "Pressure &
Fluid".

TAXI-OUT

60% N_1 should be the maximum required to
move the airplane. Thrust greater than
60% N_1 can cause damage to ground
equipment and should not be used without
prior ground clearance.

During Taxi, avoid continuous riding of the
brakes. Use of idle reverse will aid in
holding taxi speed down.

In circumstances which preclude the use of
reverse, minimum brake heating is
acquired by repeatedly braking to a slower
than desired taxi speed, and then allowing
the airplane to accelerate without brake
application.

On the DC-8-62, the bogie swivel feature
has been deleted so the turning radius
during ground maneuvering is increased.
Slightly more power is required to execute
sharp turns.

If ground delays are encountered, one or
more engines should be shut down to
conserve fuel.

S/O FLIGHT SPOILER SW NORMAL
Observe pressure buildup.

C, S/O FLIGHT CONTROLS. TEST
Insure that the gust lock is OFF, then
move all flight controls through the full
range of travel and determine that they
operate freely.

When checking the ailerons full travel,
the S/O should observe the hydraulic
system and spoiler system pressure
decrease and recover.

When checking the rudder full travel,
the S/O should observe the hydraulic
system pressure decrease and recover.
Hold nosewheel steering wheel centered
while checking the rudder.

When checking the elevators, the
Captain and First Officer should apply
elevator control column pressure
simultaneously to minimize stress
forces on the individual control columns.

F/O YAW DAMPER ON
(DC-8-61, -62)

C YAW DAMPER CHECK
(DC-8-61, -62) Hold rudder pedals
centered and initiate turn with steering
wheel.

Observe that when entering or leaving
a turn the A/P rudder trim indicator
moves in a direction opposite to the
turn. May be "ON" for takeoff in
DC-8-61 and DC-8-62 airplanes.

C HORIZONTAL STABILIZER
TRIM CHECK
Recheck setting for final weight
manifest information.

F/O EPR SET
Set to T.O. EPR for final air temp.

S/O CABIN COMPRESSORS
(One on each side) ON
On JT4A airplanes, all cabin
compressors must be OFF when
temperature above 92°F.

**BEFORE TAKEOFF
CHALLENGE/RESPOND CHECK LIST**

CHALLENGE (S/O)	RESPOND (C, F/O, S/O)

FLT. & NAV. INSTRUMENTS

..... **CHECKED & SET**
(Flight instruments, Navigation equipment,
compass systems.)

STANDBY REVERSER HYD.

PUMP (DC-8-62) ON

ANTI-ICE AS REQUIRED
(OFF or ON)

PITOT HEAT ON

EJECTORS (JT-4) EXTENDED

SPOILERS RETRACTED,
LIGHT OUT, PRESSURE

GUST LOCK OFF

WING FLAPS HANDLE IN DETENT
..... ° INDICATED

CONTROLS FREE, PWR ON,
LTS OUT

TRIM 3 SET

YAW DAMPER OFF
(OPTIONAL DC-8-61, -62)

FUEL SHUTOFF LEVERS
..... ON-IN DETENT

DOOR WARNING LIGHTS OUT

FUEL TANK SELECTORS MAINS

BOOST PUMPS. AS REQUIRED

IGNITION ALL ENGINES
(Use CONTINUOUS IGNITION if
installed, otherwise IGNITION
OVERRIDE).

ANTI-SKID ARMED & LIGHT OUT

Items below the dashed line are
completed after takeoff clearance
received.

The entire Challenge-Respond must always
be completed prior to the start of the
takeoff run.

The Challenge-Respond must be repeated
in its entirety prior to takeoff if:

1. There is an interruption other
than for routine communications.
2. Any control is repositioned
following the completion of the
Challenge-Respond.
3. There is a lengthy delay prior to
takeoff.

S/O FREON COMPRESSORS OFF

S/O FLIGHT RECORDER ON

TAKE-OFF

When the First Officer makes the take-off,
the Captain will take over the First Officer's
duties, except the Captain will maintain his
hand on the throttles until transiting V₁.
The pilot not flying will cross check the
Flight Instruments during all phases of
take-off. The Second Officer will monitor
engine instruments. After reaching V₁ the
pilot not flying should continue to guard the
throttles. At V_R, a smooth rotation will be
effected to an initial climb attitude of ap-
proximately 10 degrees nose up. Maintain
V₂ plus 10 to 3000 feet. No turns should
be initiated below 500' A.G. unless there
is an ATC or obstacle clearance requirement.



Either a rolling take-off or a take-off from a standing start is acceptable. The rudder pedals may be used for directional control as soon as the airplane is aligned with the runway. If a rolling take-off is not made and take-off thrust is set while parked at the end of the runway, the parking brake should be set.

DO NOT rely on holding the brake pedals as unnoticed airplane movement may occur if your attention is diverted.

Runway clutter (slush, snow, water) has a very detrimental effect on acceleration during the take-off roll as well as being a source of possible aircraft damage. Refer to the Flight Operations Manual for operational limitations and to the limitations chapter of this manual for weight reduction factors.

If the takeoff warning horn sounds during the take-off roll BEFORE the airplane is committed to takeoff, discontinue the takeoff and correct the condition prior to making another attempt.

If the takeoff warning horn sounds AFTER the takeoff is committed, give consideration to selection of a rotation speed somewhat in excess of the normal V_R provided that obstacle clearance is not critical.

If prior to takeoff a flock of birds has been reported or sighted in the takeoff flight path area, consider selection of another runway or delaying the takeoff. Engine surging or possible flame-out may result from bird ingestion. If takeoff is committed and an encounter with birds appears likely, consider using an initial climb speed somewhat higher than normal.

During night flights use a mixture or both integral instrument lights and panel background lights in order to avoid a blackout in the event of power loss to one system.

If ACTUAL GROSS WEIGHT is less than the maximum allowable for both 15° (18°) and 25° (23°) flap settings, the Captain may use that setting which in his opinion best serves the existing situation.

Crosswind takeoff capability is extremely good and is not particularly different in this airplane except for the increased tendency of a swept-wing airplane to weathercock and to roll with downwind rudder applied when lift-off is initiated.



As takeoff roll begins, hold necessary downwind rudder and ailerons as required to maintain runway alignment. The tendency of the nose wheel to scrub can be alleviated by holding firm forward pressure on the yoke. Adjust aileron and gradually decrease rudder application as airplane accelerates. Rudder should be nearly neutral at the unstick point. Adverse rudder at the moment of unstick will cause the airplane to roll in the direction of the applied rudder.

In the event of a rejected takeoff, the First Officer will MANUALLY EXTEND THE SPOILERS. If a takeoff is rejected, do not attempt a subsequent takeoff without considering the residual heat in the brakes and tires. If a maximum braking effort (such as a rejected takeoff on a runway which is field length limited) is made, return to the blocks for a cooling period. Personnel and ground equipment should be kept clear to avoid injury or damage to the airplane in case deflated tires cause the airplane to settle.

C. F/O TRANSPONDERS

AS REQUIRED
Set unit of pilot not flying to code and mode specified by controller. Leave other unit in STBY.

C. F/O THROTTLES. . TAKEOFF EPR
Smoothly advance throttles and assure that all engines are "spooling up" evenly before applying final takeoff EPR. Takeoff thrust is limited to 5 min. except in an emergency.

NOTE

On JT3D airplanes set
takeoff EPR less 0.03.

S/O EPR, EGT, N_1 , N_2
FUEL FLOW CHECK
All indications normal.

C BRAKES OFF

S/O BLOWAWAY JET LIGHT . . . OUT
Push button approximately 5 seconds
after start of takeoff roll - Note that
button holds in.

NOTE

On JT3D airplanes, between
40-80 kts., after blowaway jet
off - set final EPR to value shown
on EPR card.

C, F/O V_1 , V_R , V_2 CALL OUT
Pilot not flying call out speed when
reached.

C, F/O GEAR (ON ORDER) UP
Either pilot call positive rate and
other pilot confirm.
Pilot flying call for gear up and pilot
not flying retract gear.

C, F/O Flaps (as ordered) UP
Check slot light ON, then OFF.



AFTER TAKEOFF

C. F/O LANDING GEAR UPLATCH

TEST

Pilot not flying will place landing gear lever in UPLATCH CHECK position. when above 500 feet A.G., and before reaching 230 KIAS. Observe LDG GEAR UNSAFE light remains out (on DC-8-61 and -62, also observe that Main Gear DOORS light remains out). Return landing gear lever to UP.

S/O CLIMB EPR DETERMINE

C. F/O CLIMB EPR SET

C. F/O EJECTORS (JT4) RETRACT

C. F/O STANDBY REVERSER

HYD. PUMP OFF
(DC-8-62)

C. F/O LANDING LIGHTS

. RETRACT & OFF

C. F/O IGNITION OFF

After climb thrust set.

NOTE

In turbulent air conditions. thunderstorm areas or in icing conditions it is recommended that ignition switches be positioned to ALL ENGINES. Use the Continuous Ignition switch (if installed) otherwise the Ignition Override switch.

C PTC NORMAL
If inoperative. check limitations.

C. F/O RADIO ALTIMETERS

. SET TO 1500 FT.

S/O MAIN TANK BOOST PUMPS

. BOOST & FEED
After climb thrust set.

S/O CABIN COMPRESSORS ON

Normal takeoff is made with only one compressor on each side ON. Others should be started after setting climb thrust.

CAUTION

CABIN COMPRESSORS MAY BE DAMAGED IF STARTED AFTER COLD SOAKING AT ALTITUDE.

TO PREVENT ICE DAMAGE, SCOOPS ANTI-ICING MUST BE USED WHEN IN ICING CONDITIONS.

S/O FREON COMPRESSORS

. AS REQUIRED

AFTER TAKEOFF CHECK LIST - S/O

To be checked by Second Officer and announced to Captain as completed.

LANDING GEAR UPLATCH CHECK

EJECTORS (JT-4) RETRACTED

IGNITION OFF

LANDING LIGHTS RETRACTED

STANDBY REVERSER HYD.

PUMP (DC-8-62) OFF

TRANSPONDER ON

P T C NORMAL

RADIO ALTIMETERS SET TO
1500 FT.

MAIN TANK BOOST

PUMPS BOOST & FEED

CLIMB

C, F/O CLIMB EPR MAINTAIN
S/O provides EPR settings as required.

C ANTI-ICING AS REQUIRED

Use anti-ice while in clouds below
20,000 feet with the OAT below freezing.

EPR indicators will give erratic indications or slowly decrease or increase as icing begins - monitor them for ice indication.

Use Continuous Ignition (if installed)
otherwise Ignition Override when turning engine anti-ice on or off during flight or whenever engine surging occurs.

The engine anti-ice switches should be turned ON or OFF one at a time during high thrust settings, particularly right after takeoff.

S/O DE-ICING SYSTEM. . AS REQUIRED

When Airfoil De-icing is required, or
IF IN DOUBT, use this procedure:

1. Position airfoil de-ice switch to timer #1 or #2.
2. Rotate the temperature selector knob to match the indicated Ram Air Temperature (RAT).
3. Check that the cycle selector is in "Normal Cycle" position.
4. Monitor the timer and pneumatic pressure for indication of valves operating.

5. On airplanes with a tail De-Ice Button: Press the button every 20 minutes, and 10 minutes before landing.

NOTE

The Tail De-ice Warning Light will illuminate momentarily when the Tail De-ice Button is pressed or when the Airfoil De-ice System operation is initiated.

After leaving icing conditions:

6. Turn cycle selector to "Long Cycle" for one complete cycle, then return to "Normal Cycle" and turn de-ice switch OFF.

C SEAT BELT & NO
SMOKING SIGNS AS REQUIRED

S/O ENGINE HYDRAULIC
PUMP BYPASS
Bypass one pump. Operate even pump (#2) on even numbered flight and odd pump (#3) on odd numbered flight.

S/O SPOILER PRESSURE CHECK
Note pressure decrease.



CRUISE

S/O PRESSURIZATION CHECK

Set flight altitude on Automatic Pressure Controller to approximately 1000 feet above expected cruise altitude with 29.92 in baro. window. Monitor cabin rate of climb and differential pressure.

S/O AIR CONDITIONING CHECK

Normal operation is both temperature mixing valve levers in AUTO, both freon compressor switches ON, temperature control selectors set as desired. See Additional Procedures for operating instruction.

S/O FUEL MANAGEMENT

. AS REQUIRED
See Additional Procedures.

C, F/O ALTIMETERS & ALTITUDE

ALERT SET
Set 29.92 climbing through 18,000 feet.

S/O CRUISE CARD PREPARE

C, F/O CRUISE THRUST SET

S/O OXYGEN QUANTITY . . MONITOR

S/O LOW PRESS. PNEUMATIC SWITCHES (DC-8-62) AUTO

Manually switch to HIGH if cabin compressors surge or if poor cabin circulation reported. Avoid arbitrary switching to HIGH as fuel consumption will be increased by approximately 2%.

S/O FUEL MANAGEMENT AND FUEL FLOW MONITOR

Check fuel flow against Flight Plan, Cruise Table and Engine Performance Calculator. Check fuel quantity against fuel flow and confirm actual fuel consumption.

F/O ENGINE ANTI-ICE SYSTEM

. TEST

1. IGNITION ALL ENGINES
Use Continuous Ignition (if installed) otherwise Ignition Override.

2. ENGINE ANTI-ICE SWITCHES ON
Anti-ice valve lights should come on momentarily while associated anti-ice valves are in transit, then go out. An EPR drop on each engine should be observed.
3. ENGINE ANTI-ICE SWITCHES OFF
Anti-ice valve lights should come on, then go off and EPR return to original setting.
4. IGNITION OFF

NOTE

The engine anti-ice system should be tested before arrival at gate since an inoperative unit could cause delay prior to next takeoff. One test during any single crew's flight is considered sufficient. Test may be done in late cruise or at any time adequate pneumatic air pressure exists.

OPERATION IN SEVERE TURBULENT AIR

Flight through severe turbulence should be avoided, if possible. When flying at 30,000 feet or higher, it is not advisable to avoid a turbulent area by climbing over it, unless it is obvious that it can be overflown well in the clear. For turbulence of the same intensity, greater buffet margins are achieved by flying the recommended speeds at reduced altitudes.

Autopilot operation in severe turbulence can cause significant out-of-trim conditions which can lead to subsequent control difficulty if autopilot is not properly monitored and corrective action taken. Excessive trim, control activity and altitude changes are particularly aggravated by use of the "altitude hold" mode. Additionally, improper and excessive trimming can result from pilot forces applied to the control column when the autopilot is engaged. Under conditions of turbulence the yaw damper will tend to operate in a manner to maintain stable control and reduce structural loads.

The recommended procedures for flight in severe turbulence are:

1. AIRSPEED

When anticipating or operating in severe turbulence it is recommended that the following target speeds be used. The speeds have been reduced at the lower gross weights in order to avoid high incremental load factors when the airplane is subjected to high intensity gusts. Rapid fluctuations of the airspeed indicator are to be expected, and no attempt should be made to chase airspeed.

All Speeds In Knots IAS
PRESSURE ALTITUDE - 1,000 FEET

	S. L.	15	23	30	35	40
Gross Wt. 1,000 lbs.	180	225	225	235	230	227
	220	225	225	252	249	242
	260	225	225	269	267	242*
	300	225	233	280	271	242*

NOTE: *At or above aerodynamic ceiling for basic wing airplane.



Although the above target speeds are recommended, the strength of the airplane is such that at the operator's option it is permissible to use a single rough air gust speed as follows:

For all approved gross weights and altitudes - 280 knots IAS up to 33,000 feet and M .80 above 33,000 feet.

2. YAW DAMPER - ENGAGED

It is desirable to engage the yaw damper when the rudder is centered.

3. AUTOPILOT - OFF

Optionally the autopilot may be used with the following precautions:

- a. Do not use altitude hold mode.
- b. Monitor pitch trim activity and be prepared to disengage if sustained trimming occurs.
- c. Do not aid or resist control motions when autopilot is engaged.

4. ATTITUDE

Maintain wings level and the desired pitch attitude. Use attitude indicator as the primary instrument. In extreme drafts, large attitude changes may occur.

DO NOT USE SUDDEN LARGE CONTROL INPUTS.

5. STABILIZER

Maintain control of the airplane with the elevators. After establishing the trim setting for penetration speed, DO NOT CHANGE STABILIZER TRIM.

6. ALTITUDE

Allow altitude to vary. Large altitude variations are possible in severe turbulence. Sacrifice altitude in order to maintain the desired attitude and air speed. DO NOT CHASE ALTITUDE.

7. THRUST

Ignition override or continuous ignition should be ON. Make an initial thrust setting for the target air speed. CHANGE THRUST ONLY IN CASE OF EXTREME AIRSPEED VARIATION.

In the event of penetration of regions of turbulent air, all of the procedures, such as observing the rough air speed, attempting to fly constant attitude, and minimizing throttle activity while trying to hold target rough air speed, should be applied. In addition, the following performance characteristics and techniques should be considered.

Under no conditions should the landing gear be extended as a drag brake at high air speeds. Aside from the fact that the landing gear doors may be torn away, the important consideration is that the resultant pitch-up could be sufficiently violent as to cause structural damage.

Reverse thrust may be used at any time to obtain a rapid slow down. However, it must be remembered that as reverse thrust is applied, the airplane will pitch up and this could, under some conditions, momentarily accelerate the airplane into buffet or high load factors.

In general, structural limitations at high altitudes may not be as restrictive as at lower altitude, due to lower air density. However, the margin between high and low speed aerodynamic buffet decreases with increasing altitude. Changes in angle of attack caused by updrafts could eliminate the margin completely.

Due to low air density at high altitudes, there will be less effective damping of disturbances to airplane trim.

In view of the effects of higher altitude, it may be necessary to descent to lower altitudes when flight through rough air cannot be avoided. This will provide greater margin between low and high speed buffet speeds.

Refer to Flight Handbook, Cruise Section, for high and low speed initial buffet limits for various combinations of weight, altitude, and load factor.

On all flights, it is recommended that buffet boundary speeds be determined for the 1.5G condition and airspeed bugs be used to display a continuing presentation of these values.

APPROACH DESCENT

If meeting schedule is a problem, minimum time will be approximated by maintaining cruise Mach at start of descent until reaching V_{MO} , then V_{MO} to 10,000 ft. MSL. Begin the descent at a distance approximately 3 times the cruise altitude in thousands (e.g., at FL 300, begin descent 90 NM from destination). An initial rate of descent can be approximated by adding a zero to one-half the ground speed (e.g., if ground speed is 500 then rate of descent would be 2500 ft/min).

Descent rates of less than 4000 ft/min are sufficient for all normal operations. A descent rate of 1000 ft/min is about the maximum that will allow a precise comfortable level off. This should be monitored closely when within 2000 ft. of the ground.

Idle reverse, if necessary, may be used in normal descent at speeds above 200 kts. When this is done it is recommended that use be limited to inboard engines and, when possible, passengers be advised prior to this action.

With extremely cold temperatures, it is considered good practice to keep fuel flows through the system at or above 1200 lbs. per hr.

C, F/O CLEARED ALTITUDE . . . CHECK
Pilot flying will announce cleared altitude. Pilot not flying will call off 30,000 ft., 20,000 ft., 10,000 ft., and 5,000 ft. (if appropriate) during descent and 1,000 ft. above cleared altitude.

C, F/O ALTIMETERS & ALTITUDE ALERT
. SET
Set landing field altimeter setting leaving FL 180.

C STANDBY REVERSER
HYD. PUMP (DC-8-62) ON

C, F/O EJECTORS (JT4) . . . EXTENDED

C ENGINE & SCOOP
ANTI-ICE AS REQUIRED

F/O ANTI-SKID ARMED

C PITCH TRIM COMPENSATOR
SWITCH OVERRIDE

NORMAL OPERATIONS



S/O LANDING GROSS WEIGHT
& SPEEDS CHECK
Determine landing weight and prepare
M. A. R. card.

C, F/O M. A. R. CARD CHECK
Set one airspeed bug to Reference speed
or Reference speed corrected for ab-
normal configurations - other airspeed
bugs as desired.

S/O CABIN PRESSURE
CONTROLLER SET
S/O set altitude hand to landing field
altitude and altimeter setting in window.
Set RATE knob at approximately mid
point unless increased rate of cabin
descent required to insure cabin and
landing field altitudes are the same
prior to landing.

S/O MAIN GEAR SPOILER
INOP. LIGHT (If installed) OUT

S/O ENGINE DRIVEN
HYDRAULIC PUMPS ON

S/O HYDRAULIC SYSTEM AND
BRAKE PRESSURE CHECK
S/O check system quantity and pressure-
hydraulic and air brake pressure.

S/O BLOWAWAY JET &
GROUND COOLING BUTTON OUT

S/O FUEL SELECTORS MAINS

S/O FUEL CROSSFEEDS NORMAL

S/O ALL TANK FILL VALVES
. CLOSED
(Except #1 and #4 mains - DC-8-62)

S/O HYDRAULIC SYSTEM
SELECTOR NORMAL

S/O CIRCUIT BREAKER AND
FUSE PANEL CHECK

C, F/O RADIO ALTIMETERS CHECK
Decision Height Light ON 2500 ft. A. G.
Extinguish light. Decision Height Light
ON 1500 ft. A. G. Reset bug as
required.

APPROACH DESCENT CHECK LIST - S/O

Check and announce to Captain as
completed.

ALTIMETERS CHECKED

CABIN PRESS SET TO FLD ELEV

ENGINE HYD.
PUMPS ON, PRESS & FLUID

BRAKE PRESSURE
(HYD. & AIR) CHECK

FUEL TANK SELECTORS MAINS

BLOWAWAY JET BUTTON OUT

LANDING GROSS WT _____ LBS.

REFERENCE SPEED _____ KTS.

STANDBY REVERSER HYD
PUMP (DC-8-62) ON

EJECTORS (JT4) EXTENDED

SEAT BELT SWITCH ON

ANTI-SKID ARMED

PTC RETRACTED & OVERRIDE

FINAL DESCENT

All Approaches

After receiving wind information, and completion of the Final Descent checklist, the pilot flying will announce the target approach speed.

Throughout the approach, the Second Officer will monitor the flight and engine instruments and airplane systems and immediately announce the nature of any discrepancy.

At 1000 feet above field elevation, the pilot not flying will crosscheck the flight instruments and announce: "1000 feet above field elevation, flight instruments check" - or nature of discrepancy. At 500 feet above field elevation, as determined by the barometric altimeter, he will announce: "500 feet above field elevation", and call out any deviation of 1 dot on the localizer; ± 1 dot on glide slope; ± 5 knots from target approach speed; and rate of descent in excess of 1000 FPM. At approximately each 100 foot increment below 500 feet, he will call out only the deviation errors.

By reference to the barometric altimeter, he will call out "Approaching minimums" at approximately 100 ft. above minimums, and "Minimums" when minimums are reached.

NOTE

VFR and nonprecision approach callouts should include 1000 feet A. G. L., 500 feet A. G. L., deviations of ± 5 knots from the announced target approach speed, and rates of descent in excess of 1000 FPM below 500 feet A. G. L.

Low Visibility Approaches

The Captain will make all approaches and landings in weather less than 4000 RVR or 3/4 mile visibility, and use the auto coupler for CAT II approaches.

After the First Officer has made the 1000 foot announcement, he will adjust his scan pattern to include outside visual cues. When he has the approach lights in sight, he will announce, "Approach lights". His prime duty from that point will be to monitor the flight instruments to touchdown and roll-out or through go-around. During this period he should call out any deviation from the normal profile.

Following the approach light call out by the First Officer, the Captain will adjust his scan pattern to include outside visual cues, and have his decision formulated at decision height.

The Captain will disengage the autopilot and land, or if visual cues are (or become) insufficient or do not confirm proper alignment, announce "Going around" and execute the missed approach procedure.

During CAT II approaches, the F/O's announcement, "Approaching minimums" and "Minimums", must be by reference to the radio altimeter, unless specific approach procedures indicate a barometric altitude.

NOTE

On any precision approach, the maximum deviation at 100 feet, is 1/3 of a dot from the localizer or ± 1 dot from glide slope.

STABILIZED APPROACH TECHNIQUE

- a. Maneuvering flap to the outer marker, or if VFR, to a position of beginning final approach.
- b. As glide slope is being approached, extend gear. Landing flap may be applied in one or more increments as air speed and other conditions dictate.
- c. Follow descent path, speed decaying to specified approach speed and then stabilized. Airplane should be in the final landing configuration by 500 feet unless the approach procedure (ADF, VOR) requires leveling off for a period before the final descent for landing is commenced.

In this case the final flap increment should be selected and the speed stabilized at the time the final descent is started from the minimum descent altitude. Retrim to maintain light control forces during the entire approach.

- d. The ideal rate of descent is between 600 to 800 feet per minute.
- e. Cross threshold at proper speed, reducing thrust as airplane begins to enter ground effect with additional power reduction to idle upon runway touchdown. (It is important that speed not be dissipated so soon that it becomes necessary to maintain high thrust settings throughout the final stages of the approach. On the other hand, it is equally important that speed be allowed to decay soon enough so that a normal landing can be accomplished.)

The advantages of this type of approach are as follows:

- a. Improved constant airspeed control.
- b. Improved capability to realize proper threshold speed.

- c. Constant attitude and "trim out" during entire final approach.
- d. Better control of desired touchdown spot.
- e. Improved autopilot approach due to stabilized airplane configuration throughout final approach to touchdown.
- f. Improved "go-around" performance since engine acceleration from the higher approach power setting will be more rapid.

Altitude loss will be limited to 20 feet or less during an aborted approach if the airplane has been established in a stabilized approach configuration with engines spooled up and a proper rotation and thrust application are made. If engines are allowed to spool down to idle rpm with airspeed near reference, high rates-of-descent may develop resulting in altitude losses of up to 100 feet during an aborted approach.

Although it is believed that preoccupation with minute speed control has been a contributing factor, the undershoot problem is one of the serious problem areas with jet swept-wing airplanes. This is particularly true at high altitude airports on hot days, when available engine thrust is greatly reduced.

Maintain the proper constant attitude during approach to touchdown and avoid any tendency to dive for the end of the runway. This tendency can result from the illusion presented when breaking out underneath a low ceiling from a normal ILS approach and will result in a high rate-of-descent close to the ground.

C, F/O, S/O FLIGHT AND
NAVIGATION INST . . CROSS-CHECKED
Call out any noted discrepancies.



C, F/O ALTITUDE ALERT. . . . SET
Set alert altitude at least 900 feet above
present altitude to avoid nuisance
warnings.

C, F/O REFERENCE SPEED . . CHECK

F/O NO SMOKING SWITCH ON

F/O WING FLAPS AS ORDERED
Verify handle position with indicator.
On initial flap extension, note wing slot
light comes on, then goes out.

F/O LANDING GEAR (On order) . . DOWN
S/O will note spoiler pressure buildup.

F/O LANDING GEAR LIGHTS ON
3 Green illuminated and Red LDG GEAR
UNSAFE off.

S/O HYDRAULIC PANEL CHECK
Hydraulic system pressure and fluid
normal. Hydraulic and air brake
pressure normal. Spoiler pressure
normal.

F/O SPOILERS (On order) . . . ARMED
Check handle up. Red area visible.

CAUTION: DC-8F, DC-8-61, DC-8-62.
DO NOT PERSIST IN
ATTEMPTS TO ARM THE SPOILER
LEVER. IF THE ELECTRIC ACTUATOR
HAS FAILED IN THE "EXTEND"
POSITION, THE SPOILER LEVER WILL
BE UNGUARDED AND APPROXIMATELY
ONE INCH OF LEVER MOVEMENT WILL
FULLY DEPLOY THE SPOILERS.

DO NOT ATTEMPT TO EXTEND GROUND
SPOILERS BEFORE TOUCHDOWN AS
THIS WILL RESULT IN EXCESSIVE SINK
RATE AND EXTREME STRUCTURAL
LOADS UPON LANDING.

C, F/O AUTOPILOT AND
YAW DAMPER OFF
(Yaw damper optional DC-8-61, -62).

FINAL DESCENT CHALLENGE/RESPOND

<u>CHALLENGE - S/O</u>	<u>RESPOND (Pilot not flying & S/O)</u>

FLIGHT & NAV INSTS	CROSS-CHECKED

REFERENCE SPEED	____ KTS, BUGS SET

WING FLAPS	____° INDICATING

LANDING GEAR	DOWN 3 GREEN, LIGHTS

HYD. & BRAKE PRESS	NORMAL

SPOILERS	ARMED & PRESS.

YAW DAMPER	OFF (Optional DC-8-61, -62)

GO-AROUND (4 OR 3 ENGINES)

C THROTTLES. . . SET AS REQUIRED
(Simultaneously rotating to Go-Around
attitude). Up to takeoff EPR may be used.

F/O WING FLAPS 25°
(DC-8-62 23°)

F/O LANDING GEAR . . UP ON ORDER-
AFTER POSITIVE
RATE OF CLIMB

C AIRSPEED. . MAINTAIN REF + 10 KTS
OR 130 KTS, WHICHEVER
IS GREATER, UNTIL ADE-
QUATE CLIMB IS ACCOM-
PLISHED.



LANDING ROLL

Reversing is more effective at higher speeds, braking is more effective at lower speeds. The rudder is much more effective for directional control at high speed than the nose wheel steering, which is available if needed but will probably be ineffective above 80 kts (nose wheel scrubbing with no directional change).

If maximum braking is required, when using the Mark I system, hold enough brake pedal pressure to feel positive deceleration and occasional foot thumpers. With Mark II system, hold full brake pedal pressure continuously. If the runway is wet, hydroplaning may result if braking is applied above 100 Knots. On a slippery runway with crosswind, maximum braking may cause the airplane to drift across the runway. If the airplane continues to slide to the side with nose pointed toward center-line, reduce reverse thrust to idle reverse or idle forward. Maintain wings level.

Leaving engines in idle reverse while decelerating to taxi speed and, when required, using reverse while taxiing will assist in preventing excessive brake wear and overheating.

After landing, if it is suspected that a tire or tires have blow it would be desirable to clear the active runway. If possible taxi slowly to the nearest turnoff. If it can be determined that no more than one tire on each truck is flat it is permissible to continue to the gate. If more than one tire has blown further taxi is not recommended until advised by maintenance.

These functions will be performed by individual indicated. Where C, F/O is indicated, the function will normally be performed by the pilot flying.

C, F/O THROTTLES . . . FORWARD IDLE

S/O SPOILERS CALL OUT,
"SPOILERS EXTENDED"
F/O will manually extend if required.

C, F/O REVERSE LEVERS
. IDLE REVERSE

S/O REVERSE LIGHTS
. CALL OUT & MONITOR

C, F/O REVERSE AND
BRAKE AS DESIRED
Braking should be applied after touch-down in an amount appropriate to runway length and conditions; positive but not excessive. Heavy braking, merely to make an early turn-off, is discouraged. Use care to avoid unsymmetrical reverse. As speed decreases return all throttles to idle reverse thrust by approximately 90 Kts.

S/O FUEL BOOST PUMPS OFF

**TAXI-IN**

C, F/O REVERSE

LEVERS UNREVERSE

When desired - idle reverse may be used to avoid high taxi speeds.

F/O WING FLAPS (On order) UP

Retract flaps when Captain orders.

NOTE

If landing on ice and/or slush, do not retract to less than 10° until inspected to prevent damage.

F/O SPOILERS (On order) . . . RETRACT

F/O ANTI-SKID (On order) OFF

On airplanes with the Mark II brake system, irregular operation of the anti-skid system could cause brake release, if anti-skid is left armed below 15 Kts.

S/O HYD. SYS. & BRAKE

PRESSURE MONITOR

Monitor hyd. system pressure and fluid quantity and brake pressure. Call out "Pressure & Fluid" as required.

S/O FLIGHT SPOILER SWITCH . . . OFF

S/O FLIGHT RECORDER OFF

If less than 10 recording hours remain, indicate in Log Book.

S/O GALLEY POWER

(Trip termination) OFF

If Not terminating trip, leave ON until engine shut down. Turn OFF prior to engine shut down and turn ON after Ext. Pwr. supplying AC Tie Bus.

F/O RADAR OFF

F/O GUST LOCK ON

S/O AILERON & RUDDER POWER

SHUTOFF LEVERS OFF

C STABILIZER 2° ANU SET

C TRANSPONDERS OFF

C ENGINE & SCOOPS ANTI-ICE . . . OFF

Verify lights out.

S/O AIRFOIL DE-ICE SWITCH OFF

S/O AIR CONDITIONING

SYSTEM AS REQUIRED

NOTE

"Unless conditions dictate otherwise, one or both outboard engines should be shut down to conserve fuel".

S/O ENGINE OIL QUANTITY . . . CHECK

Check appropriate servicing required block in Log Book when oil quantity below 7.0 gallons (4.0 gallons for DC-8-62).



PARKING

C PARKING BRAKES SET

NOTE

If more than normal braking has been used for landing, and/or taxi-in, notify the ground crew who will properly chock the airplane. After properly chocked, the parking brakes may be released to allow faster brake heat dissipation.

S/O RECIRCULATING FANS OFF

S/O FREON COMPRESSORS. OFF

S/O CABIN COMPRESSORS OFF

NOTE

After external power connected, recirculating fans may be used to provide airflow.

S/O ONE FILL VALVE. OPEN
For thermal expansion in X-Feed Manifold.

C FUEL SHUTOFF LEVERS,
ALL EXCEPT #3 FUEL OFF

S/O BATT. EXT. PWR.
SWITCH EXT. PWR.
When EXT PWR is selected observe #3 AC Loadmeter decrease in load and #3 GEN UN-PARL'D light come on.

C FUEL SHUTOFF LEVER
#3 ENGINE FUEL OFF

C, F/O DME STBY

C STANDBY REVERSER HYD
PUMP (DC-8-62) OFF

C WINDSHIELD HEAT OFF

C PT₂ HEATER SWITCH OFF
(JT4, JT3D-3, & -3B)

C LANDING LIGHTS RETRACT

C PITOT HEAT OFF

C, F/O INS (If installed) OFF

C STANDBY ATTITUDE INDICATOR
(Trip termination) OFF

F/O EXTERIOR LIGHTS
. AS REQUIRED

F/O EMERG. EXIT LIGHTS
(Trip termination) DISARM
After all passengers have deplaned, place EMER LIGHTS switch to DISARM CHECK and verify EMER LTS DISARMED light comes on, then place switch to DISARM.

C, F/O RAIN REMOVAL SYSTEM
. OFF
If left on, cabin compressors could be damaged by rain or wash water collecting in ducting.

**PARKING CHALLENGE/RESPOND****CHALLENGE (S/O) RESPOND (C, S/O)**

PARKING BRAKES SET

GUST LOCK ON

FUEL SHUTOFF LEVERS OFF

STANDBY REVERSER HYD

PUMP (DC-8-62) OFF

WINDSHIELD HEAT OFF

ENGINE & SCOOP ANTI-ICE OFF

PITOT HEATERS OFF

LANDING LIGHTS . . . RETRACT & OFF

IGNITION OFF

INS. OFF

TRANSPONDER, DME & RADAR . . . OFF

STANDBY ATTITUDE INDICATOR

(Trip term.) OFF

BATTERY SWITCH EXT. PWR.

FREON COMPRESSORS OFF

CABIN COMPRESSORS OFF

FUEL BOOST PUMPS OFF

RUDDER & AILERON POWER OFF

EMERG. EXIT LTS (Trip term.)

. DISARMED & CHECKED

POST FLIGHT

S/O MAR CARD ERASE

S/O LOG BOOK COMPLETE

S/O FUEL PANEL SET UP

On through flight with stop scheduled
for one hour or less - control fueling
operation.

S/O YELLOW CAPPED CIRCUIT

BREAKERS (Trip term.) PULL

ATTITUDE INDICATOR AND FLIGHT DIRECTOR TEST

Select FI mode on the Flight Director.

Observe Flight Director roll command bar comes into view. No flags showing in the Attitude Indicator.

Push Attitude Indicator Test Button.

Observe: a) Smooth movement into a climbing right turn indication.
b) Both the Gyro and FD flags appear.
c) Command bar retracts out of view.

RADIO ALTIMETER TEST

Set Minimum Altitude bug to +20 feet.

Observe: a) Indicator shows zero altitude.
b) Failure flag hidden.
c) Decision height light illuminated.

Push altimeter test button.

Observe: a) Indicator shows 40 feet.
b) Failure flag appears.
c) Decision height light out.

Release test button.

Observe: a) Indicator shows zero.
b) Failure flag retracts.
c) Decision height light on as indicator transits 20 feet point.

CAUTION

Do not actuate the test button after autopilot or flight director glideslope engagement as it is possible to upset the glideslope gain programming.

NOTE

The direction of pointer movement to and from the test altitude (40 feet) varies with different units and should be disregarded.

ILS TEST DC-8-61, -62

Select an ILS frequency.

Position ILS TEST switch to UP/L.

Course bar will deflect up left one dot, the GS bar will move up one dot and the NAV and GS warning flags will appear then disappear for several seconds.

Position ILS TEST switch to DN/R.

Course bar will deflect up right one dot, the GS bar will move down one dot and flag action will be the same as described above.

NOTE

It is not possible to perform ILS test when the autopilot is coupled to VOR or LOC signals.



VOR TEST

Tune a VOR station.

Set course indicator to 000° or 180°.

Press SET/VOR TEST knob.

Course indicator will center, the associated RMI pointer will indicate 180° and the NAV warning flag will appear.

NOTE

On DC-8-61 and -62 the NAV flag will appear then disappear and remain out of view for several seconds.

DOPPLER RADAR OPERATION

WARMUP

Set Function Selector to RCVR ONLY for 2 minutes, then to ON. A 2-minute warmup on RCVR, only, is desirable but not required.

WARNING FLAG should indicate OFF and WARNING LIGHT should be ON when airplane is on ground.

PREFLIGHT CHECK

Set Land-Sea switch to LAND.

Pull out Function Selector knob, and set to TEST. Within 3 minutes the Warning Flag should disappear and the Warning Lights should be OFF. The Ground Speed and Drift Angle Indicator should show 600 kts. ± 5 kts. and 20° L drift ± 1 degree.

Set Land-Sea switch to SEA and observe approximately 5 kts. increase in ground speed.

Set Function Selector to ON. Warning flag should show and warning lights should come ON after 10-20 seconds. Occasional false lockon during ground operation will show spurious speed indications, and warning lights and flag will not actuate. This does not indicate a defective system. The set will re-acquire and indicate the correct speed during climbout.

OPERATION IN FLIGHT

Set Sea-Land switch as required by terrain. Warning flag should not be visible and warning lights should be off. Ground speed should be at least 100 kts. and altitude at least 1000 feet for proper operation.

NOTE

Warning flag and lights may indicate for 2 or 3 minutes when airplane approaches coast line, and indicate continuously when airplane parallels coast line.

All steps of PREFLIGHT CHECK may be performed any time during flight.

WEATHER RADAR OPERATION

CAUTION: THE RANGE SELECTOR MUST BE IN EITHER OFF OR STBY WHEN IN RAMP AREAS OR WITHIN 100 FEET OF FUELING ACTIVITIES, LARGE REFLECTING SURFACES OR WHERE PHOTO FLASH BULBS ARE LIKELY TO BE PRESENT. THE TILT CONTROL MUST BE FULL UP DURING ANY GROUND RADAR OPERATION.

WARM-UP

Set RANGE selector to 50 mile range or to STBY. A five minute time delay circuit provides for warm-up.

Set up control for adjustment procedures as follows:

STAB SWITCH	STAB
CONTOUR-NORM switch . .	NORM
TILT control.	FULL UP
GAIN control	LO
RANGE MARKS control	
.	FULL CCW
INTENSITY	FULL CCW
POLAROID FILTER . . .	FULL CW

INTENSITY control can be used to check for completion of the warm-up cycle if RANGE SELECTOR is not set to STBY. Advance control to approximately mid-position. If sweep line appears, warm-up cycle has ended.

ADJUSTMENT

Check RANGE selector set to 50 miles and warm-up cycle complete.

Advance INTENSITY control clockwise until sweep line is faintly visible. Adjustment of the control should be made in small increments, with at least three complete scans between each change in setting. The minimum of three scans of the sweep line is required

for build-up of a trace on the storage tube type indicator. When proper setting is reached, no further major adjustment is required. Minor re-adjustment may be required after each change of range.

Advance GAIN control until well defined snow appears past 40 miles on the scope, then reduce gain until snow is just visible. Resulting GAIN control position should be approximately 12 o'clock. This procedure checks receiver sensitivity. If no snow appears at maximum gain setting, do not rely on radar indications.

An altitude ring should be apparent when the aircraft is at higher altitudes (i. e. 15,000 feet or more above the ground.) It can be seen most readily on the 20 or 50 mile range.

Advance RANGE MARKS control until range marks are comfortably visible.

Set polaroid filter as required by cockpit lighting conditions. Do not change setting of INTENSITY control. Polaroid sunglasses can partially cancel scope presentation when viewing angle exceeds 45°.

After takeoff, transmitter can be approximately checked for normal output. Set TILT control to 1° UP. At 5,000 feet above ground almost solid ground return should exist to 50 miles. If check is made at higher altitudes, lower tilt angles will be required.

WEATHER SCANNING

Set CONTOUR-NORM switch to NORM while searching for storms to insure that no targets will be overlooked.



When investigating a particular storm cell, set CONTOUR-NORM switch to CONTOUR. Areas of greatest intensity of precipitation (strongest radar echo return) will appear black. Areas of lesser precipitation will appear as the usual lighted trace. The appearance of the display will resemble an irregular shaped doughnut; the hole indicating the core of the storm.

The horizontal and vertical structure of storm cells can be explored by use of the tilt control. At zero tilt, the beam intersects the storm at the level of the airplane. With upward tilt, the beam intersects the upper portion of the storm which is usually smaller in diameter. An advantage of using some upward tilt is that it will usually outline the core of a storm cell better, by eliminating much of the light rain clutter in the lower levels. With downward tilt, the beam intersects the lower portion of the storm which is usually larger in diameter.

When checking weather returns in 150 mile range, it is necessary (due to curvature of the earth) to use some downward tilt to scan distant areas at the level of the airplane. For example: at 20,000 feet altitude, if zero degrees tilt is used, beam will be scanning at approximately 30,000 feet altitude beyond 100 miles from the airplane. A good practice for routine radar observation is to set the tilt control so that general ground painting begins at about 75% of the range in use. This serves as a continuous check and insures that a storm return at a lesser distance will not be overlooked. In storm areas regular weather scanning procedures

should be followed. Hesitate slightly after each new tilt setting.

The heaviest turbulence will usually occur in the part of the storm where the steepest precipitation gradient is observed. On the scope display, this area is where the doughnut is thinnest.

Past experience has indicated that hail is suggested whenever prominent fingers or scalloped edges project outward from the storm echo. Since hail falls much faster than other forms of precipitation, a hail echo may be expected to change form very rapidly. Mapping the upper portions of a storm cell may provide warning that hail is falling out of a high overhang of the storm. Use either CONTOUR or NORM to produce best display when investigating possible hail areas.

SHUTDOWN

Set RANGE switch to STBY for two seconds before continuing to OFF. This delay will prevent a high voltage residual charge from remaining on the scope. Set polaroid filter full CCW (red position) to protect indicator tube coating.

NOTE: For proper airspeed and proper radar stabilization, it is important that the airplane be well trimmed for flight. Minor trim control adjustments may be necessary, especially after thrust setting changes.

When the airplane is out of trim, the vertical gyro may assume a small vertical angle error. This error may not be detected on the gyro horizon instrument, but does affect the radar stabilization system.

GENERATOR PREFERENTIAL CIRCUIT TEST (#2 or #3 GEN. INOP.)

Observe that operative inboard GEN UNPARL'D light is out.

Corresponding GEN CONTROL SW

..... OFF
Observe the GEN UNPARL'D light comes on and the No. 1 GEN UNPARL'D light goes out.

No. 1 GEN CONTROL SW OFF
(only momentarily if total load is near maximum for one generator). Observe No. 1 GEN UNPARL'D light comes on and No. 4 goes out.

All operative GEN CONTROL SWS

..... ON
Each operative gen. AC loadmeter will now indicate some load but light indications will remain: No. 1, 2, & 3 GEN UNPARL'D lights on.

No. 4 GEN CONTROL SW

..... OFF then ON
No. 2 or No. 3 (whichever is operative) GEN UNPARL'D light goes out.

TAIL DUCT VALVE TEST

A test of the Tail Duct Valve should be accomplished when the De-ice System is tested in flight.

A Tail Duct Valve Test Switch is installed on some early airplanes and can be used to test the Tail Duct Valve whenever adequate pneumatic pressure is available.

Cycle Selector Knob (timer to be used)
..... NORMAL CYCLE
Tail Duct Valve Switch NORMAL
Airfoil De-ice Switch Timer 1 or 2
Tail Duct Valve Test Switch TEST

The tail system de-ice light may come on during the initial surge to the tail. It should be on when timer rotates through positions 6, 8, 9 and 10 and be out at other times.

When a Tail Duct Valve Test Switch is not installed an adequate Tail Duct Valve test can be made in flight as follows:

Cycle Selector Knob (timer to be used)
..... NORMAL CYCLE
Tail Duct Valve Switch NORMAL
Airfoil De-ice Switch Timer 1 or 2
Observe tail de-ice system light comes on during initial surge. The light may stay on for more than one cycle.

When valve sequence indicator on the timer is in No. 9 and 10 positions:

Tail Duct Valve Switch. .OFF then NORM
Observe fluctuations of the left pneumatic manifold pressure gage needle. This indicates that the tail duct valve and the tail de-ice cycling valves are operating.



STATIC SYSTEM TEST

This test is performed by the Second Officer during taxi-out at Captain's discretion or when a system malfunction is suspected.

Cabin Pressure Manual

Control INCREASE
Manually pressurize the cabin at about 500 ft. /min. down on the cabin rate-of-climb to approximately 500 ft. below field elevation.

Pilots' Altimeters and R/C . MONITOR

Instrument pointers should not move as cabin is pressurized. Descent in altimeter or rate-of-climb indicates static system leak.

FUEL MANAGEMENT (EXCEPT DC-8-62)

8 TANK SYSTEM

Tank Selector Levers MAIN
Crossfeed Levers NORMAL
No. 2 and 3 Main Tank Fill
Switches FILL
No. 2 and 3 Alt. Tank Boost
Pumps BOOST

When No. 2 and 3 Alt. Tanks empty:

No. 2 and 3 Main Tank Fill
Switches CLOSED
No. 2 and 3 Alt. Tank Boost
Pumps OFF

When No. 1 and 4 Main Tanks below 7000 lbs.

No. 1 and 4 Main Tank Fill
Switches FILL
No. 1 and 4 Alt. Tank Boost
Pumps BOOST

When No. 1 and 4 Alt. Tanks empty:

No. 1 and 4 Main Tank Fill
Switches CLOSED
No. 1 and 4 Alt. Tank Boost
Pumps OFF

NOTE:

Assure alternate fill valves are closed when not in use to prevent unwanted transfer of fuel from mains to alternates.

9 TANK SYSTEM

When CW Aux. Tank contains fuel:

Main Tank Selector Levers . . MAIN
Center Wing Aux. Tank Selector
Lever CENTER WING AUX
Crossfeed Levers NORMAL
Main Tank Fill Switches FILL
(Alt. and Aux. Tank Fill Switches closed)
No. 2 and 3 Main Tank Quantity Fill
Bugs SET AT 16,000 LBS.
No. 1 and 4 Alt. Tank Quantity Fill
Bugs ZERO
All Other Tank Indicator
Bugs FULL SCALE
Center Wing Aux. Boost
Pump BOOST
Off for takeoff then return to Boost after climb thrust set.



When Center Wing Aux. Tank empty:
 Center Wing Aux. Boost Pump
 OFF
 Center Wing Aux. Tank Selector
 OFF

Set Tank Quantity Fill Bugs as for 8 Tank Operation.

Proceed with Fuel Management as shown for 8 Tank System.

FUEL MANAGEMENT (DC-8-62)

When CW Aux. Tank contains fuel:
 Main Tank Selector Levers . . . MAIN
 Center Wing Aux. Tank Selector
 Lever CTR WING AUX

When Forward Aux. Tank contains fuel:
 Fwd Aux. Tank Selector Lever
 FWD AUX.
 Crossfeed Levers NORMAL
 Main Tank Fill Switches FILL
 Assure blank stripe aligned to
 FILL position on #1 and #4 main
 tank fill switches.
 Quantity Fill Bugs SET
 Set main tank bugs to full scale.
 Center Wing Aux. Boost Pump
 BOOST
 Off for takeoff then return to
 BOOST after climb thrust set.

When Center Wing Aux. Tank empty:
 Center Wing Aux. Boost Pump . . OFF
 Center and Fwd. Aux. Tank
 Selector Levers OFF
 Main Tank Fill Switches OFF
 Scavenge Pump Selector Switch
 CTR WING
 For 30 min., then OFF.

When #1 and #4 Mains reach 3000 lbs:
 #1 and #4 Alt. Tank Boost Pumps
 BOOST
 #1 and #4 Main Tank Fill Switches
 FILL
 Int. level stripe to FILL position
 #1 and #4 Main Tank Indicator Bugs
 4500 LBS.

Fuel transfer from #1 and #4 Alternates to #1 and #4 Mains is permissible during T/O and LDG.

When #1 and #4 Alt. Tanks empty:
 #1 and #4 Alt Tank Boost Pumps
 OFF
 #1 and #4 Main Tank Fill Switches
 OFF

NOTE

Assure alternate fill valves are closed when not in use to prevent unwanted transfer of fuel from mains to alternates.

CAUTION

DO NOT USE CROSSFEED POSITION OF SCAVENGE PUMP SELECTOR SWITCH. IT MAY BE POSSIBLE TO FLAMEOUT AN ENGINE IF THE CROSSFEED IS EMPTY AND A CROSSFEED LEVER IS MOVED FROM THE NORMAL POSITION.

AIR CONDITIONING TECHNIQUES

ON GROUND

At Gate: If ground conditioning equipment is not available - outside air may be brought in by recirculating fan(s) if the forward accessory compartment door is opened.



NOTE

Make sure the forward accessory compartment door is closed before leaving the blocks by checking the BELLY DOOR OPEN warning light. If the warning light is known to be inoperative, Maintenance should be asked to check the door closed before taxiing.

If pneumatic pressure is available, freon(s) may also be used.

Taxi: Both freons, all recirculating fans and 2 cabin compressors operating will provide adequate cooling and static check capability, if required. For most efficient operation, pneumatic pressure should be at least 17 PSI.

TAKEOFF

Manually turn OFF freon compressors before applying takeoff thrust.

CLIMB/CRUISE

Cabin compressors ON and freon system normal.

NOTE

On DC-8-61 airplanes operate center recirculation fan during all ground and flight operations.

DESCENT

If anticipating high temperatures and/or humidity, some precooling slightly below that usually maintained may be desirable. Consider retaining more of already cooled air by reducing number of cabin compressors in use and utilizing recirculating fan(s) for airflow. Use freon.

LANDING

Use freon and recirculating fans.

DC-8F COLD CABIN OPERATION

Use only when requested for perishable cargo.

CLIMB

Cabin Compressors (4) ON
RH Freon Compressor Control
Switch NORM
Cabin Temp. Control Handle . . . LOCK IN
FULL COLD

CRUISE

Cabin Compressors OPERATE ONE
LH AND ONE RH
Cabin Pressure Controller . . . MAINTAIN
CABIN ALTITUDE
OF 7,000 FEET
OR HIGHER

CARGO CONTAINER SYSTEM OPERATION

The following procedures are to be used in the operation of the cargo container system only when the specialized personnel and equipment that normally operate the system are not available.

Equipment and Power Requirements:

- a) A 1/2 inch drive speeder wrench or equivalent.
- b) 110 - 220v, 400 cycle electrical power.

Unloading Containers



Fwd. Cargo Compartment Door. . OPEN -
PULL T-HANDLE
OUT OF DETENT,
ROTATE HANDLE AND
REINSERT IN DETENT.
SLIDE DOOR FWD.
"DN" Button PUSH - LOWER
CONTAINER TO GROUND.
RELEASE THE "DN" BUTTON
AS SOON AS THE LIFT
ASSEMBLY CABLES HAVE
ENOUGH SLACK TO
ALLOW REMOVAL OF
THE LIFT ASSEMBLY
FROM THE CONTAINER.
CARRY CONTAINER TO
ONE SIDE.

CAUTION

Do not lower cables enough to
cause excessive slack.

"UP" Button . . . PRESS - STEADY HOIST
RAILS AS THEY ARE RAISED.
RAISE RAILS UNTIL THEY
CONTACT STOPS AND MOTOR
STALLS.
1/2 Inch Drive INSERT IN THE
TRAVERSE MECHANISM
SOCKET (AT EITHER
SIDE OF CARGO DOOR)
AND TURN IN UNLOAD
DIRECTION UNTIL NEXT
CONTAINER ROLLS ONTO
HOIST RAILS AND WHEELS
FALL INTO DETENTS.
Remaining Containers LOWER AND
UNLOAD AS BEFORE.

NOTE

The containers forward of the
cargo door are operated by the
traverse sockets on the LH side
of the fuselage while the con-
tainers aft of the door are operat-
ed by the traverse sockets on the
RH side.

LOADING CONTAINERS

Loading is the reverse of unloading except
for the following additional items:

When loading the first container into an
empty compartment the traverse system
must be in the full unload position. In
this position, the red pick-up rings are
aligned with the red stripe on their
track.

The container doors and covers must
be fastened in place before hoisting.

Check the position of the container index
pin (located on top of container on side
opposite to the container door) to make
sure the arrow points in the direction
the container is to go when traversing.

Steady and align container in cargo door
before it enters fuselage.

Traverse each container one position
only. This position is felt as the wheels
of the container clears the lift assembly
and dips into the shallow detent in the
fixed track.

The last container lifted by the lift
assembly will remain on the lift
assembly rails, above the cargo door
during flight.



NOTE

During flight the last container may settle onto the cargo door and jam the door closed. If this occurs push "UP" button momentarily to lift weight off the door, then door will open normally.

TAKEOFF WITH ALL CABIN COMPRESSORS OFF

This procedure must be used for:

1. JT4A-3 and JT3D-1 powered airplanes when ambient temperature above 92°F; or,
2. All airplanes when allowable TO gross weights are based on all cabin compressors OFF. (The gross weight pages will specify when weights are based on all compressors OFF.)

After takeoff clearance received:

Freon Compressors OFF
Cabin Compressors (4) ALL OFF
Takeoff EPR INCREASE BY 0.01

When reaching 400 feet or a height at which obstacles are cleared, whichever is higher:

Cabin Compressors (one on each side) ON, ONE AT A TIME
Freon Compressors ON, If required

After setting climb thrust:

Cabin Compressors
(remaining two) . . . ON, ONE AT A TIME

INS OPERATING GUIDE

TURN ON AND TEST

External Power Available Light . . . ON
 BATT-EXT PWR Switch . . . EXT PWR
 Radio Rack Blower Control
 Switch ON
 INS Circuit Breakers SET
 INS Mode Selector Switch ALIGN
 Data Selector POS
 Test Switch PRESS AND HOLD

OBSERVE THE FOLLOWING

A. Control/Display Unit

Left Data Display 88° 88.8 N/S
 Right Data Display 888° 88.8 E/W
 FROM-TO Display 88
 HOLD key Illuminates
 REMOTE key Illuminates
 INSERT key Illuminates
 WYPT CHG key Illuminates
 ALERT lamp Illuminates
 BAT lamp Illuminates
 WARN lamp Illuminates

B. Mode Selector Unit

BAT lamp Illuminates
 READY NAV lamp Illuminates

C. INS Course Deviation Indicator

Course bar indicates one dot right.
 Warning flag retracts from view.

ALIGN

NOTE: To align present position, information must be inserted in each system separately (do not use REMOTE). Position information displayed at turn-on may be correct; however, the entire following align procedure must still be accomplished to achieve proper alignment.

Data Selector POS

Position Latitude LOAD
 Press keys in sequence.

Position Latitude VERIFY
 Other crew member verify and advise "INSERT".

INSERT Key PRESS
 Observe INSERT key remains illuminated.

Position Longitude LOAD
 Press keys in sequence.

Position Longitude VERIFY
 Other crew member verify and advise "INSERT".

INSERT Key PRESS
 Observe INSERT key goes out.

Position Coordinates VERIFY
 Both crew members verify coordinates are correct.

NOTE: If position incorrect, turn Mode Selector to STBY then back to ALIGN and reinsert present position.



PERFORMANCE INDEX

VERIFY DESIRED PERFORMANCE INDEX

Data Selector DSRTK/STS
Observe that 5 shows in sixth position
in right data display.

LOAD AND INSERT WAYPOINT

Insert departure ramp position as
Waypoint #1. Insert destination ramp
position was Waypoint #9.

REMOTE Key (Both Units) PRESS
Observe each REMOTE key illuminates.

Data Selector (Both Units) . . . WAY PT

Waypoint Selector
(Both Units) DESIRED NUMBER

Waypoint Latitude LOAD
Press keys in sequence.

Waypoint Latitude VERIFY
Other crew member verify and advise
"INSERT".

INSERT Key PRESS
Observe INSERT key goes out.

Waypoint Longitude LOAD
Press keys in sequence.

Waypoint Longitude VERIFY
Other crew member verify and advise
"INSERT".

INSERT Key PRESS
Observe INSERT key goes out.

Coordinates VERIFY
Both crew members verify the
coordinates are correct.

REMOTE Key (Both Units) PRESS
Observe each REMOTE key goes out.

NOTE: If waypoint incorrectly
inserted, repeat the
entry.

NAV MODE

Switch Mode Selector to NAV after
READY NAV light illuminates. Verify
INS in NAV mode before taxiing by
selecting DSRTK/STS and reading a ONE
in the first position of the right data
display.

NOTE: Taxiing airplane prior to
selecting NAV results in
illumination of WARN lamp
and 02 Action Code. If this
occurs park airplane, down-
mode to STBY, extinguish WARN
lamp and realign the system.
The entire ALIGN procedure
must be repeated including
the reinsertion of present
position coordinates.

If WARN lamp goes out and
realigned normal, the INS is
functioning properly and the
system does not require
replacement.

POSITION CHECK

(To be conducted over a known position, such as gateway.)

REMOTE Key (Both Units) . . . PRESS
Observe each REMOTE key illuminates.

Data Selector (Both Units). POS

When over a known position:

HOLD Key PRESS
Observe HOLD key illuminates on both units. Compare POS display to known position.

HOLD Key PRESS
Observe HOLD key goes out on both units.

REMOTE Key (Both Units) . . . PRESS
Observe each REMOTE key goes out.

POSITION UPDATE

NOTES: 1. This procedure to be used at Captain's discretion considering accuracy of the Position Check.

2. If both systems require updating it should be performed immediately following Position Check with REMOTE activated, POS selected and HOLD illuminated.

3. If only one system requires updating do not use REMOTE. Be sure REMOTE is deactivated prior to deactivating HOLD on the set not being updated.

Position Latitude LOAD
Press keys in sequence. Verify loaded data correct.

INSERT Key PRESS
Observe INSERT key remains illuminated.

Position Longitude LOAD
Press keys in sequence. Verify loaded data correct.

INSERT Key PRESS
Observe INSERT and HOLD Keys go out. Observe displays "catch up".

REMOTE Key (Both Units-if REMOTE was used) PRESS
Observe each REMOTE key goes out.

NOTE: If HOLD key remains illuminated, WARN lamp illuminates, and displays do not "catch up", the position update data is questionable. Recheck data and proceed as follows:

1. If correct data were inserted, press HOLD key and observe it goes out and displays "catch up". Perform WARN LAMP ON procedure to extinguish WARN lamp.



2. If incorrect data were inserted, repeat POSITION UPDATE procedure to load and insert correct data. HOLD key should go out and displays "catch up" when INSERT pressed. WARN lamp will remain on. Perform WARN LAMP ON procedure to extinguish it.

COMPASS CHECK

When established in cruise and variation is known, use most accurate INS to check compass systems for deviation. Record for use should DR be required.

NORMAL CONFIGURATION

#1 INS coupled to autopilot and #1 CDU set to DIS/TIME.

#2 INS CDU set to XTK/TKE.

NOTE: If there is an appreciable difference noted at position check, couple the most accurate INS to the autopilot.

WAYPOINT CHANGE

NOTE: With the AUTO MAN switch in the AUTO position, the waypoint numbers will automatically sequence to the next flight leg. The FROM-TO display should be checked to verify desired flight leg. In the MAN position the flight leg shown in the FROM-TO display must be changed through the keyboard as follows:

WY PT CHG Key PRESS
Observe WY PT CHG and INSERT keys illuminate.

New Flight Leg LOAD
Press numbered keys in the order you want them displayed.

FROM-TO Display VERIFY
Observe FROM-TO display reads correct flight leg.

INSERT Key PRESS
Observe INSERT and WY PT CHG keys go out.

INS - AUTOPILOT OPERATION

INS Selector Switch . . Select INS #1 or #2

AUTO-MAN Selector Switch AUTO

FROM-TO Display VERIFY
Observe the numbers and sequence are correct.

Autopilot NAV SELECTOR AUX NAV

COURSE CHANGES

To proceed from present position via a different course, use WAYPOINT CHANGE procedure, setting 0 in the FROM position and desired waypoint in the TO position.

NOTE: After making a course change from present position, the coordinates of the point at which the course change was accomplished will be displayed when the Data Selector is set to WYPT, and the Waypoint Selector is set to 0.

**INERTIAL POSITION DISPLAY**

If a position update has been performed and at a later time it is desired to check the position the INS would have calculated without the update:

REMOTE Keys (If both units were updated) PRESS
Observe each REMOTE key illuminates.

HOLD Key PRESS
Observe HOLD key illuminates (on both units if REMOTE used).

Data Selector WAY PT
Observe inertial present position in displays. (Position if present position update had not been performed.)

HOLD Key PRESS
Observe HOLD key goes out (on both units if REMOTE used).

REMOTE Keys (If both units were updated). PRESS
Observe each REMOTE key goes out.

POSITION UPDATE ERADICATION

If the foregoing procedure indicates it would be better without the previous update:

Data Selector DSRTK/STS

HOLD Key PRESS
Observe HOLD key illuminates.

Any Number LOAD
Press any number. Observe the number pressed is displayed in the right data display. Observe INSERT key illuminates.

INSERT Key PRESS
Observe INSERT and HOLD keys go out.

DISTANCE AND TIME

Data Selector DIS/TIME
Observe data displayed in distance and time from present position to the TO waypoint in the FROM-TO display at present ground speed.

If it is desired to determine distance and time from present position to any other waypoint, or between any two waypoints, leave Data Selector in DIS/TIME and proceed as follows:

WY PT CHG Key PRESS
Observe WY PT CHG and INSERT keys illuminate.

FROM Waypoint LOAD
Press numbered key for desired waypoint. Numbered key 0 pressed if finding distance and time from present position.

TO Waypoint LOAD
Press numbered key for desired waypoint. Observe desired waypoints appear in FROM-TO display. DO NOT INSERT. Recognize distance and time data displayed is for the waypoints in FROM-TO display at present ground speed.

To restore normal display:

CLEAR Key PRESS
Observe WY PT CHG and INSERT keys go out and FROM-TO shows present flight leg.



APPROACHING GATEWAY (or preplotted
waypoint for resuming radio navigation)

- When the ALERT lamp comes on for the entry Gateway waypoint, turn AUTO-MAN switch to MAN.
- When the ALERT lamp begins to blink, change the FROM-TO display if necessary, to assure that the last en route waypoint and the destination waypoint appear.

AT DESTINATION RAMP

Verify that the last en route waypoint and the destination waypoint appear in the FROM-TO display prior to recording information. Record in Log Book the DIS and XTK on each INS unit before positioning INS MODE SELECTOR to OFF. If DIS or XTK is more than 30 miles make a discrepancy write-up in the Log Book as "# _____ INS out of tolerance".

INS MODE SELECTOR (Both Units)

. OFF
Rotate Mode Selector to OFF on both units.

NOTE: If INS is written up in the Log Book indicate if problem was inflight or on the ground.



FLIGHT PROFICIENCY

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GENERAL

This section lists required maneuvers for ratings and proficiency checks, and describes the maneuvers, procedures and techniques that are utilized in training and checking.

Training, the rating ride and the proficiency check are operational, emphasizing instrument approaches, landings, takeoffs, missed approaches, and normal, additional, irregular and emergency procedures.

The minimum crew complement for all inflight checking will consist of the pilot being checked, check pilot and Second Officer/FOI. The FAA requires that the pilot seated at the controls, other than the pilot being checked, be qualified to act as pilot in command; however, this should in no way affect the crew concept of flying. The pilot at the controls should always use his crew to aid him in performing to the highest degree of safety and efficiency. The normal line crew complement may be used in the simulator portion of the proficiency check.

Each crew member is expected to have in his possession, and use as needed, all regular equipment, such as charts, manuals, etc. normally required in flight.

The pilot's performance is judged on adherence to standard operating procedures, including the use and execution of all check lists. The procedures outlined in FAR's, the Flight Operations Manual, and the Flight Manual apply to all flight checks.

The pilot may utilize any aircraft systems and ground aids to his best advantage, unless their use is denied by the check pilot or instructor on a specific demonstration or practice of a maneuver.

The flight director and autopilot should be used in the appropriate modes when desired, and their use is mandatory for ILS approaches to low minimums.

The maneuver descriptions and profiles in this Section are for general guidance only. The pilot is expected to use his judgment in performance of procedures and selection of airplane configuration and speeds as appropriate to the existing situation and conditions.

REQUIRED MANEUVERS

TYPE RATING AND CAPTAIN'S PROFICIENCY CHECK - no waivers permitted on check to reinstate currency.

Simulator (in airplane if not done in simulator)

1. REJECTED TAKEOFF (may waive). *Spoolers = Full RVs = Brakes =*
2. AREA DEPARTURE AND ARRIVAL (may waive one). *250K/BLO 10,000*
3. HOLDING (may waive).
4. STEEP TURNS (may waive). *1/2 GW + 115*
5. APPROACHES TO STALLS (may waive 2 of 3). *260K*
6. SPECIFIC FLIGHT CHARACTERISTICS (may waive).
7. ENGINE FAILURE - may be required.
8. 50% POWER APPROACH AND LANDING (certified by Instructor in flight training for rating). *160/170 over 17000*
9. NORMAL AND IRREGULAR PROCEDURES.
10. EMERGENCY PROCEDURES.
11. NON-PRECISION APPROACH (not required if certified by instructor in training).

Airplane (* may be performed in visual simulator)

1. PREFLIGHT (visual portion may be waived).
2. TAXIING.
3. TAKEOFFS: Types may be combined but must include:
 - NORMAL
 - *INSTRUMENT
 - CROSSWIND (if practicable)
 - *ENGINE FAILURE.
4. APPROACHES.
 - *ILS - NORMAL (autocoupled or manual).
 - ILS - ENGINE OUT (manual).
 - *NON-PRECISION (other than type performed in simulator).
 - *CIRCLING (1000' and 3 mi. - rating only).
 - *NO FLAP (rating only)
 - MISSED: Two required, at least one from an ILS, (one missed approach must be in the airplane; the *other may be done in a visual simulator). A complete missed approach procedure must be demonstrated at least once and a simulated engine failure may be required for any missed approach.
5. ENGINE FAILURE: May be required.
6. LANDINGS: A minimum of three landings is required on rating (two on PC), and one must be to a full stop. Types of landings may be combined but must include:
 - NORMAL
 - CROSSWIND (if practicable)
 - ONE ENGINE OUT
 - *REJECTED
 - FROM ILS
 - FROM CIRCLE

REQUIRED MANEUVERS

FIRST OFFICER'S PROFICIENCY CHECK - no waivers permitted on initial check or check to reinstate currency.

Simulator (in airplane if not done in simulator)

1. REJECTED TAKEOFF (may waive).
2. AREA DEPARTURE AND ARRIVAL (may waive one).
3. HOLDING (may waive).
4. APPROACHES TO STALLS (may waive 2 of 3).
5. SPECIFIC FLIGHT CHARACTERISTICS (may waive).
6. ENGINE FAILURE - may be required.
7. NORMAL AND IRREGULAR PROCEDURES.
8. EMERGENCY PROCEDURES.
9. NON-PRECISION APPROACH (not required if certified by instructor in training).

Airplane (*may be performed in visual simulator)

1. PREFLIGHT (visual portion may be waived).
2. TAXIING.
3. TAKEOFFS: Types may be combined but must include:
 - NORMAL
 - *INSTRUMENT
 - CROSSWIND (if practicable)
 - *ENGINE FAILURE
4. APPROACHES.
 - *ILS - NORMAL (autocoupled or manual, 250' Decision Height).
 - ILS - ENGINE OUT (manual, 250' Decision Height).
 - *NON-PRECISION (other than type performed in simulator).
 - MISSED: A complete missed approach procedure from an ILS is required, and an engine failure may be simulated.
5. ENGINE FAILURE: May be required.
6. LANDINGS: A minimum of two landings is required on Initial PC (one must be to full stop), and one on subsequent PC's. Types of landings may be combined but must include:
 - NORMAL
 - CROSSWIND (if practicable)
 - ONE ENGINE OUT
 - *REJECTED
 - FROM ILS

MANEUVERS

1. PREFLIGHT

A. Equipment Examination (Oral)

An oral examination is given to each crew member. The oral will be operational and will be conducted in a suitable environment. Pertinent to his crew position, each crew member must demonstrate a practical knowledge and understanding of all airplane systems; operation and performance factors; limitations and normal, additional, irregular, and emergency procedures.

B. Preflight Inspection

A visual inspection of the exterior of the airplane as outlined in the Operations section of this manual may be required. The crew member may be required to point out the location of various pieces of Emergency Equipment in the Cockpit and Cabin.

Preflight inspection also includes cockpit setup, use of before start check list, starting procedures, checks of all appropriate radios and electronic equipment, and selection of proper navigation and communication facilities prior to flight.

C. Taxiing

Taxiing will be evaluated on judgment and technique exercised. The First Officer is expected to taxi the airplane only to the extent practicable from his crew position.

D. Engine Checks

Each pilot is expected to give attention to proper engine acceleration, EPR, EGT, RPM, and pertinent temperature and pressure indications either prior to or immediately after start of the takeoff roll.

2. TAKEOFFS

A. Normal Takeoff

1500' Flaps 10° CLimb thrust 3000' EPR & Flaps up

A takeoff is considered to be "normal" when initiated from a standing start or rolling on to the runway. The maneuver may be combined with a crosswind and/or instrument takeoff listed following. The requirement for a normal takeoff may be satisfied when a Takeoff with Simulated Engine Failure is satisfactorily performed.

Factors to be considered are: Use of flight guidance system; thrust application; brake release; use of nosewheel steering; runway alignment; proper use of controls; Captain's hand on throttles transitting V_1 ; proper rotation; gear retraction; noise abatement procedures; flap retraction and thrust reduction to climb setting; adherence to airport speed limits; completion of aftertakeoff check list. The pilot not flying and Second Officer are expected to monitor engine and flight instruments.

B. Takeoff with Simulated Engine Failure

Immediately following V_1 , but prior to V_2 , one engine will be failed. (If accomplished in the airplane, the engine will be retarded to idle, using approximately three seconds for the thrust reduction.)

The pilot should apply the proper rudder pressure after the simulated engine failure, keeping the airplane properly aligned with the runway. After lift-off, flight director should be used as an aid to maintain heading. Sufficient rudder pressure to maintain the "ball" centered should be used initially and when climb is established, rudder pressure removed by use of the trim.

CLIMB 1500' - CLEAN UP -

In addition to the considerations mentioned under Normal Takeoff, performance will be evaluated on directional control, climbout at proper speed, and adherence to climbout profile. In the airplane, engine shutdown will be simulated.

C. Takeoff Under Simulated Instrument Conditions

At approximately 100' above the airport elevation, instrument conditions will be simulated. This maneuver may be combined with the normal takeoff, or with the engine failure on takeoff.

D. Crosswind Takeoff

Where practical, a crosswind takeoff shall be made. It may, however, be combined with any other takeoff. Emphasis will be placed on directional and lateral control throughout the takeoff.

E. Rejected Takeoff

This maneuver will be accomplished in the airplane during training. On the Proficiency Check and/or Type-Rating, it will be done in the simulator.

Emphasis will be placed on prompt thrust reduction, spoiler extension, the use of reverse thrust, proper use of brakes and directional control.



3. INSTRUMENT PROCEDURES

A. Area Departure and Arrival

Departure and arrival clearances will be concise and conform to the normal practices employed by ATC. Adherence to clearances, the proper use of available navigation facilities and compliance with airspeed restrictions are essential to satisfactory performance.

B. Holding

Holding will be judged on proper airspeed and method of entering, maintaining and leaving the holding pattern.

1/2 GW + 115 = HLO SPEED

C. ILS and Other Instrument Approaches

Captain's ILS training will be to CAT II minimums. The First Officer will receive training on ILS approaches to 200' but on certification and PC's will be required to demonstrate proficiency to 250'.

(1) Normals ILS

An ILS is considered to be "normal" when all engines and the appropriate ILS facilities and airborne equipment are operating. This ILS is normally autocoupled. Factors considered in the evaluation of performance are: Proper use of flight guidance system (flight director and autopilot); airspeed and alignment of the outer marker; stabilization of approach, recognition of, and prompt corrective action for departures from desired parameters; recognition of Decision Height and appropriate action.

It is good practice when tuning an ILS to select ADF on the VOR/ADF switches (if installed). The pilot tuning the ILS should verify positioning of the VOR/ADF and marker receiver switches. Both pilots should verify OM passage by the aural/visual signal, the ADF needle swing, and check the G/S altitude.

It is important to follow standard procedures for cross-monitoring all instrument indications throughout the approach. At Decision Height the airplane should be in position to land with minimum maneuvering.

(2) ILS Approach with Simulated Failure of One Engine

Prior to the outer marker, one engine will be retarded to idle, and ILS will be performed simulating one engine inoperative.

When making thrust or speed changes, proper rudder trim is essential for best airplane and flight director performance.

(3) 200-1/2 - Category II Certification

- (a) The Captain's 200-1/2 and Category II initial certification and re-current qualification will be accomplished by:

- 1) An autocouple ILS approach to 100' with all engines operating.
- 2) A flight director ILS approach to 100' with one engine inoperative.

One approach will be to a landing, the other to a missed approach. These approaches also satisfy C(1) and C(2) preceding. The 200-1/2 approach authorization is based upon use of the barometric altimeter for decision height, while the CAT II authorization is based on use of the radio altimeter.

(b) First Officer Certification

The First Officer may be certified to perform First Officer duties in connection with CAT II approaches in one of the following ways:

- 1) During the airplane portion of a proficiency check or training, by performing his duties on a CAT II approach.
- 2) During the simulator portion of a proficiency check or during simulator training:
 - a) Perform First Officer duties during a CAT II approach by the left seat pilot, and
 - b) Execute an autocopled ILS approach to 100'.

(4) Other Approaches

At least one nonprecision approach (an approach without glideslope: VOR, ADF, Back Course ILS, etc.) is required on a rating or proficiency check.

On an ADF, VOR, Back Course or ASR (without recommended altitudes) approach, the following procedure is recommended. If a straight-in approach is anticipated, gear should be extended prior to the final approach fix. Flaps should be extended and speed reduced prior to starting descent to Minimum Descent Altitude (MDA). Thrust should be adjusted to provide a rate-of-descent which will ensure reaching MDA early enough to permit alignment with the runway and to set up a normal landing profile. Landing flaps should be selected when in a position to intercept a normal descent profile for landing.



- (a) ADF APPROACH - Tune the radio facility accurately and check the VOR/ADF switches (if installed) properly set for both pilots.
- (b) VOR APPROACH - DME may be used to monitor procedure turn limits. The flight director may be used in the VOR/LOC mode. The pilot tuning a VOR should verify that VOR/ADF switches (if installed) are in the VOR position for both pilots unless ADF bearing is required for identification of intersections.
- (c) BACK COURSE ILS - Setting the FRONT course in the course indicator will provide proper sensing on the localizer course bar. Do not use flight director after intercepting localizer inbound.
- (d) ASR - (without recommended altitudes) - Make use of other operating aids to monitor position throughout approach.
- (e) ASR (with recommended altitudes) - Gear and landing flaps should be extended in increments when approaching the final descent path, and a stabilized approach with landing flap used as in the normal ILS approach.

D. Circling Approach

A circling approach may be initiated from an instrument approach or from vectors to a position where a VFR landing can be made. The landing runway must be at least 90° from the final instrument approach course.

Once under the cloud base (1000') the pilot must remain VFR and circle within sight of the field (3 miles). It is important to maneuver at a speed which will allow the airplane to stay within prescribed distance limits without exceeding 30° bank. Maneuvering flap and airspeed are recommended during both the instrument approach and the circle. Descent to land should be started as necessary to follow normal profile, which might occur before turning on to the final approach. Landing flaps may be extended when intercepting the normal descent profile.

E. Missed Approaches

Ref 110 or Min of 130K

Missed approaches required for proficiency check and rating:

- (1) One missed approach from an ILS approach.
- (2) One ~~additional~~ missed approach (Captain only).

Performance will be judged on: Proper thrust application and rotation; gear retraction upon positive rate-of-climb; directional control and use of trim; climb-out at proper speed and profile, and following the missed approach procedure to completion or until terminated by the check pilot.



As the missed approach is initiated, the pilot should advance the throttles and rotate to the go-around attitude (10°), simultaneously calling for takeoff thrust and flaps to the missed approach setting.

Limit bank to 15° until obtaining maneuvering airspeed for the flap configuration.

4. INFLIGHT PROCEDURES

A. Steep Turns

Steep turns will be accomplished in training but are not required for the First Officer certification flight. Steep turns will be done with 45° bank for at least 180° heading change in each direction.

Enter the turn with the airplane trimmed for level flight at 260 knots. As the bank angle steepens, a slight increase in pitch attitude and thrust may be required. Gyro precession may cause variation in the pitch indication during a steep turn. Instantaneous Vertical Speed Indicator (IVSI) readings will be erroneous rolling into and out of the turn.

B. Approaches to Stalls

The airplane should not be allowed to stall, shake or decelerate below the initial buffet or stick shaker warning. The approach to the stall will be continued only to the first warning indication.

The pilot will not be required to calculate or recall the thrust settings for stall entry, or trim termination speed, in the airplane.

Any of the stall entries may be required from level flight or from 15° bank. When the pilot is prepared for the entry, the instructor or check pilot will set a suitable thrust for entry.

APPROACHES TO STALLS:

Configuration:

Clean
(Gear up, Flaps up)

Takeoff
(Gear Up, Flaps 25)

Landing
(Gear Down, Flaps 50)

Recovery:

Takeoff Thrust,
Lower Nose

Takeoff Thrust,
Lower Nose

Takeoff Thrust,
Lower Nose



At first warning of impending stall (stick shaker or buffet) advance the throttles and lower the nose. From the banked entry, level the wings after lowering the nose. Rotate smoothly into an attitude which will maintain level flight while accelerating to a recovery airspeed (Clean R + 50 K, Takeoff R + 25 K, Landing R + 5 K).

Performance will be judged on maintaining entry altitude, recognition of impending stall, technique and promptness of recovery, avoiding a secondary warning. Emphasis will be placed on positive recovery rather than minimum loss of altitude.

C. Specific Flight Characteristics

Dutch Roll and Recovery: The DC-8 has very good damping characteristics throughout its entire operating envelope. With the yaw damper operative, the oscillation dampens in one cycle.

Dutch Roll can be induced by rapid displacement of the aileron, rudder, or by rough air. When Dutch Roll is indicated, it is easily stopped with positive aileron against the roll; engagement of the yaw damper, or autopilot. Use of rudder for the Dutch Roll recovery is discouraged.

D. Simulated Engine Failure

A simulated engine failure may be given at any time. The pilot should analyze the problem, and take corrective action as necessary, and call for the appropriate irregular/emergency checklist.

5. LANDINGS AND APPROACHES TO LANDINGS

A. Normal Landing

A normal landing is defined as one during which all engines are operating and the airplane is in a landing flap configuration.

B. Landing from an ILS Approach

If conditions beyond the control of the pilot prevent a straight-in landing, the maneuver will be considered satisfactory if the approach is continued to a point from which, in the judgment of the Check Pilot, a landing could have been made.

C. Crosswind Landing

A reasonable effort will be made to satisfy this requirement: However, if wind, runway or traffic conditions are such that a crosswind landing is impracticable, it may be waived.

D. Landing with Simulated Loss of One Engine

It is essential that airspeed and profile be stabilized early in the approach. The gear should normally be lowered at the outer marker or equivalent distance from the landing point and the final check list completed. A smooth, controlled transition from initial approach speed to threshold speed and landing configuration is important to good performance. The S/O should be briefed to remove all rudder trim just prior to touchdown.

E. Landing with Two Engines Inoperative

The two engines inoperative landing can be accomplished from either a visual or ILS approach depending on the weather and Check Pilot preference. In the airplane, the second engine will be idled when on the final approach.

Care must be taken to establish a normal profile. The most hazardous condition is brought about when a large amount of thrust must be added from a position low on the approach with the airspeed low or decelerating rapidly.

If the airplane is stabilized on the approach at approximately 600' above field elevation, recommended technique is to extend flaps in increments to the landing setting and to let the airspeed decrease gradually to the proper threshold speed. Some throttle reduction will usually be required as flaps are extended.

Precision of control and deliberate planning are key factors in committing the airplane for landing.

F. Rejected Landing

CLIMB REF + 10 - 130 K MIN -

The landing should be rejected from approximately over the runway threshold and followed by a missed approach. It may be combined with an ILS missed approach or the circling approach.

G. No Flap Visual Approach

Not required of the First Officer. It may be done visually or with the ILS, depending on the weather and Check Pilot preference. The pilot will make the approach to a point from which a landing could be accomplished. The Flight Instructor or Check Pilot will call for the go-around. When done in the visual simulator, the approach will normally be continued to a landing.



A long straight in approach is desired. It may be helpful to establish approach speed prior to commencing the descent. Throttles should be used sparingly for acceleration due to the rapid airplane acceleration and slow deceleration characteristics in the zero flap configuration. Speed reduction to threshold speed would normally be initiated at approximately 600' above the ground if on a normal profile (VASI or ILS glide path). Good judgment must be exercised to accomplish proper speed decay. Zero flap landings are not made on training or check due to exposure to tire and brake problems.

H. First Officer Duties on Landing

During training each pilot should accomplish the First Officer duties on at least one takeoff and landing while the Flight Instructor acts as Pilot-in-Command.

6. NORMAL, ADDITIONAL, IRREGULAR, AND EMERGENCY PROCEDURES

Each pilot must be able to perform all Normal, Additional, Irregular and Emergency procedures except the Second Officer's Cockpit Preparation procedures. Training and checking on all procedures will be conducted in accordance with the procedures in the Flight Manual.

A. Rapid Depressurization and Emergency Descent

The Captain should advise the crew he is initiating an emergency descent, order oxygen masks on and announce the altitude at which he plans to level off.

Techniques require a push force on the elevator controls to initiate the emergency descent, and it is recommended that the airplane not be trimmed into this maneuver. When stabilized in descent, the airplane may be trimmed in normal manner. The initial dive attitude for an emergency descent will be approximately 15° nose down. Do not exceed 20° nose down. Level off should be started about 2000' above target altitude.

B. Manual Flight Control Approach

Lateral control is reduced during manual control flight. Care must be used to avoid introducing excess yaw because recovery capability is reduced. A stabilized straight-in approach from which a landing can be made is recommended.

7. JUDGMENT and COMMAND

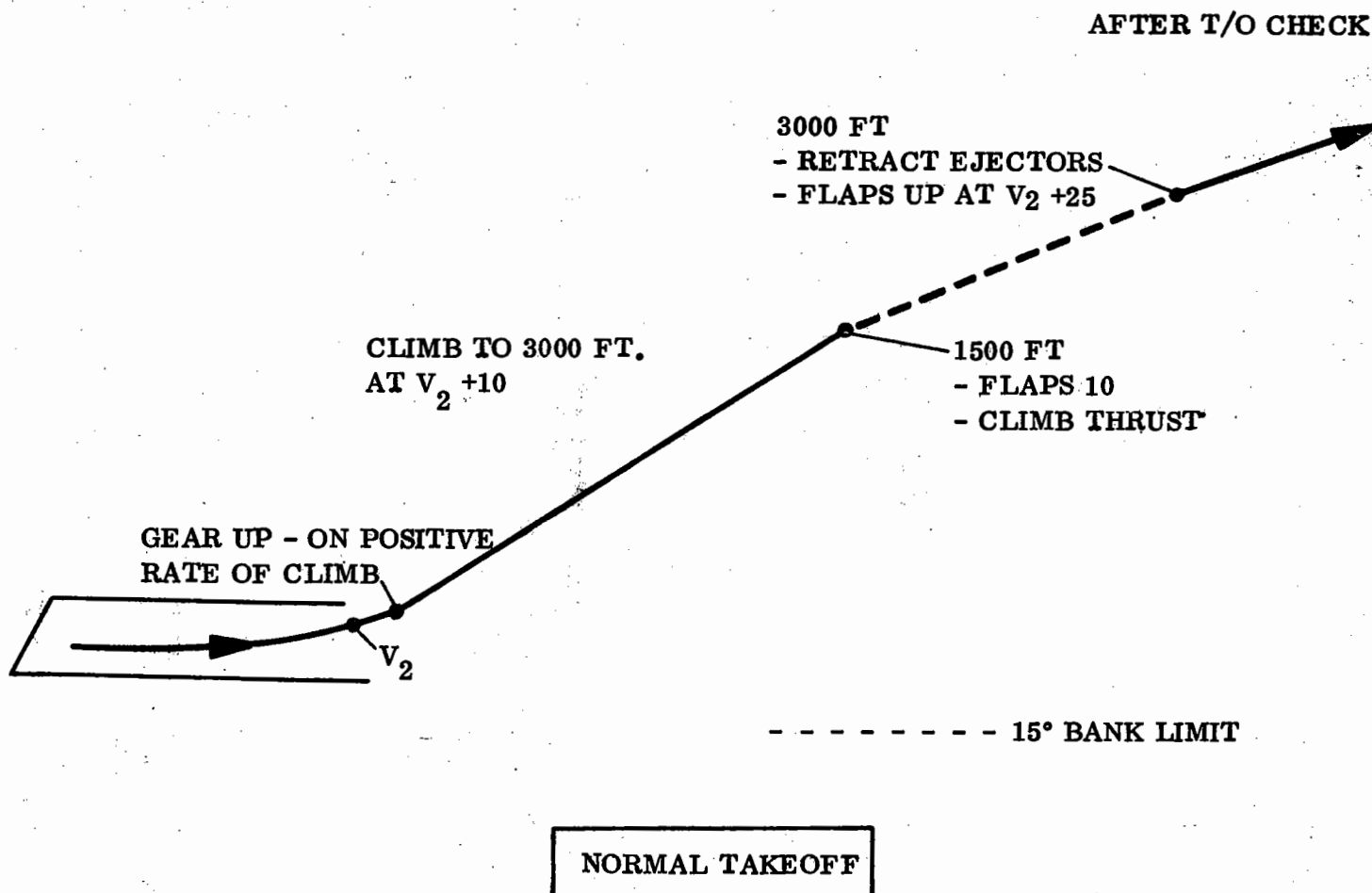
The judgment exercised in the execution of maneuvers will be evaluated on the basis of safety, adherence to standard procedures and the technique used in following through on a particular course of action.



For all inflight situations, initial training, rating, checking and enroute flying, the Pilot-in-Command is expected to utilize his crew to the best interests of the flight. His ability to coordinate all cockpit activities will determine the degree of command ability demonstrated during any given situation.

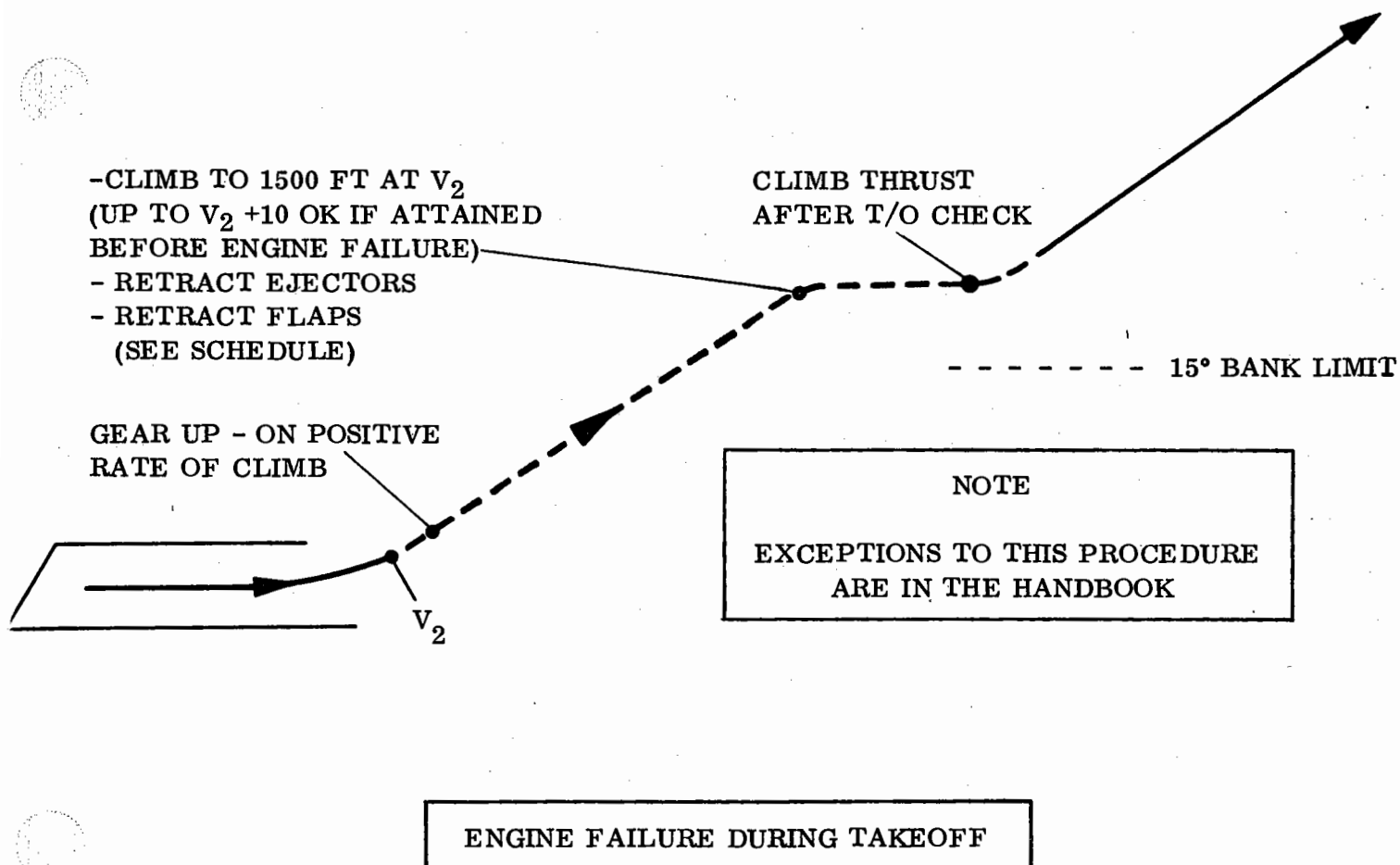
The First Officer is expected to demonstrate command ability commensurate with his position as Second in Command.

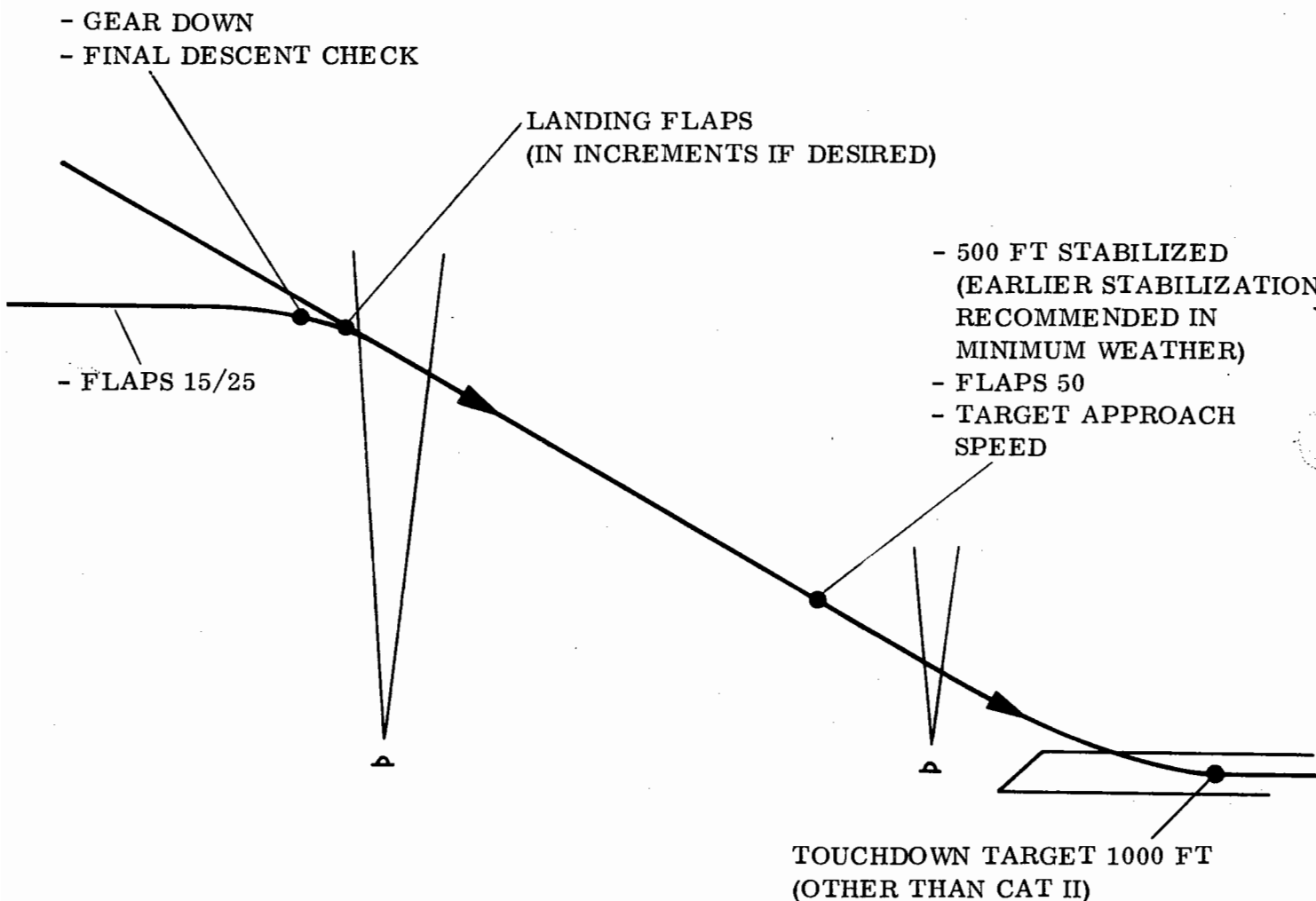
TAKEOFF FLAP RETRACTION SCHEDULE	
AT	SELECT FLAPS
$V_2 + 25$	UP
MANEUVERING SPEED (30° BANK LIMIT)	
$V_2 + 50$	CLEAN





TAKEOFF FLAP RETRACTION SCHEDULE	
AT	SELECT FLAPS
$V_2 + 25$	UP
MANEUVERING SPEED (30° BANK LIMIT)	
$V_2 + 50$	CLEAN





ILS APPROACH
FOUR ENGINE/THREE ENGINE

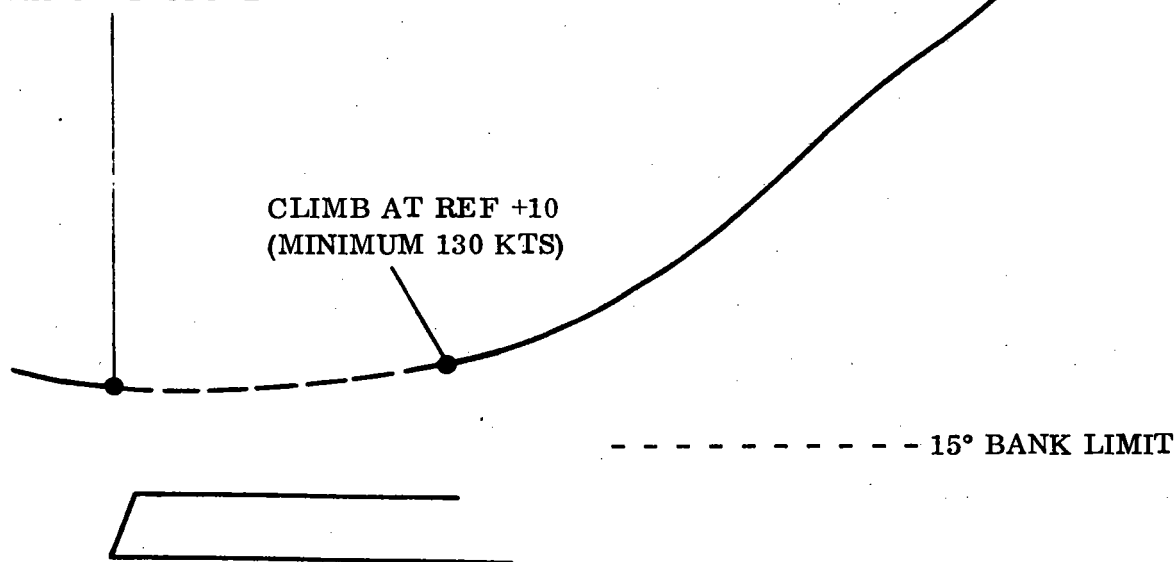


FLAP RETRACTION SCHEDULE	
AT	SELECT FLAPS
$V_2 + 25$	UP
MANEUVERING SPEED (30° BANK LIMIT)	
$V_2 + 50$	CLEAN

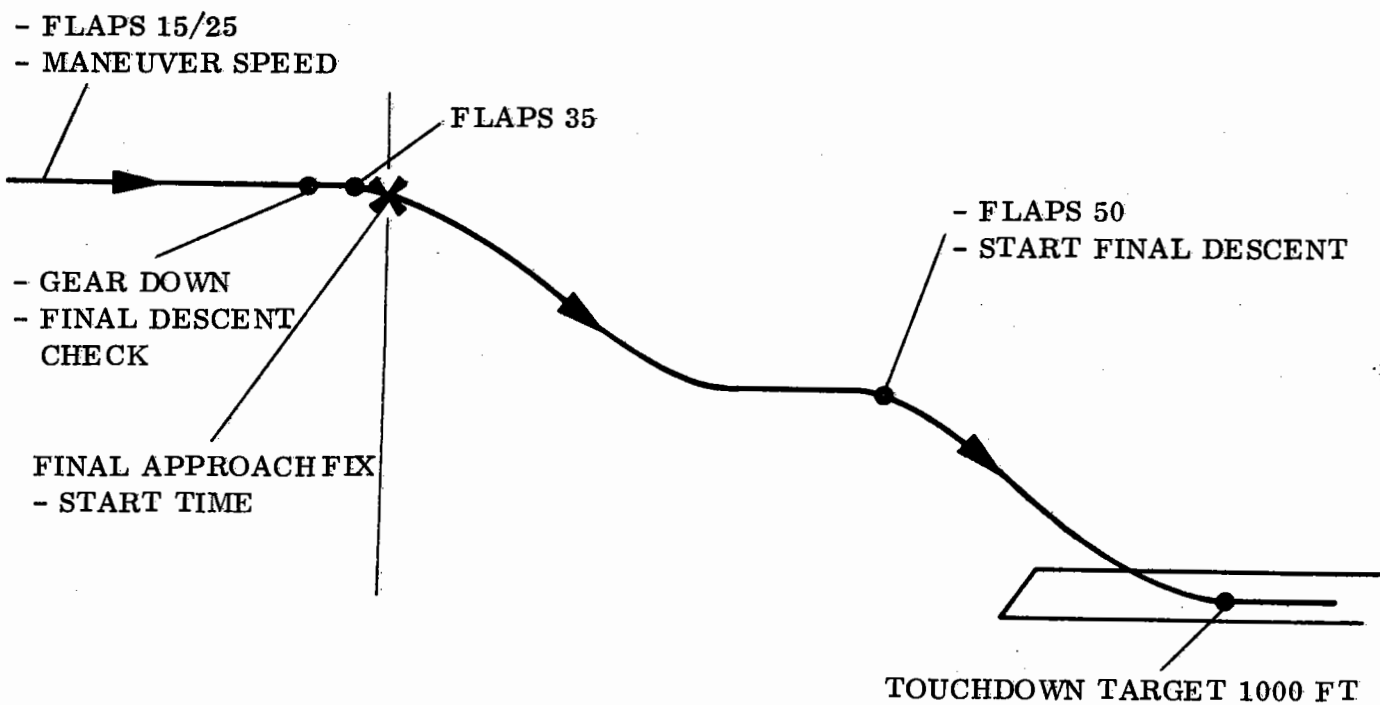
- SUGGEST INTERCEPTING APPROPRIATE T/O PROFILE (NORMAL OR ENGINE FAILURE)
- USE FLAP RETRACTION SCHEDULE ABOVE
- COMPLETE FLAP RETRACTION IS AT PILOT'S DISCRETION

INITIATE MISSED APPROACH

- T/O THRUST AND ROTATE
- FLAPS 25
- GEAR UP - ON POSITIVE RATE OF CLIMB



MISSED APPROACH
FOUR ENGINE/THREE ENGINE



NONPRECISION APPROACH
FOUR ENGINE/THREE ENGINE



- GEAR DOWN
- FINAL DESCENT CHECK

- REF +50

600 FT
START SPEED DECAY
TOWARD THRESHOLD
SPEED (REF +25)

SLOW TO APPROACH
SPEED (REF +35)

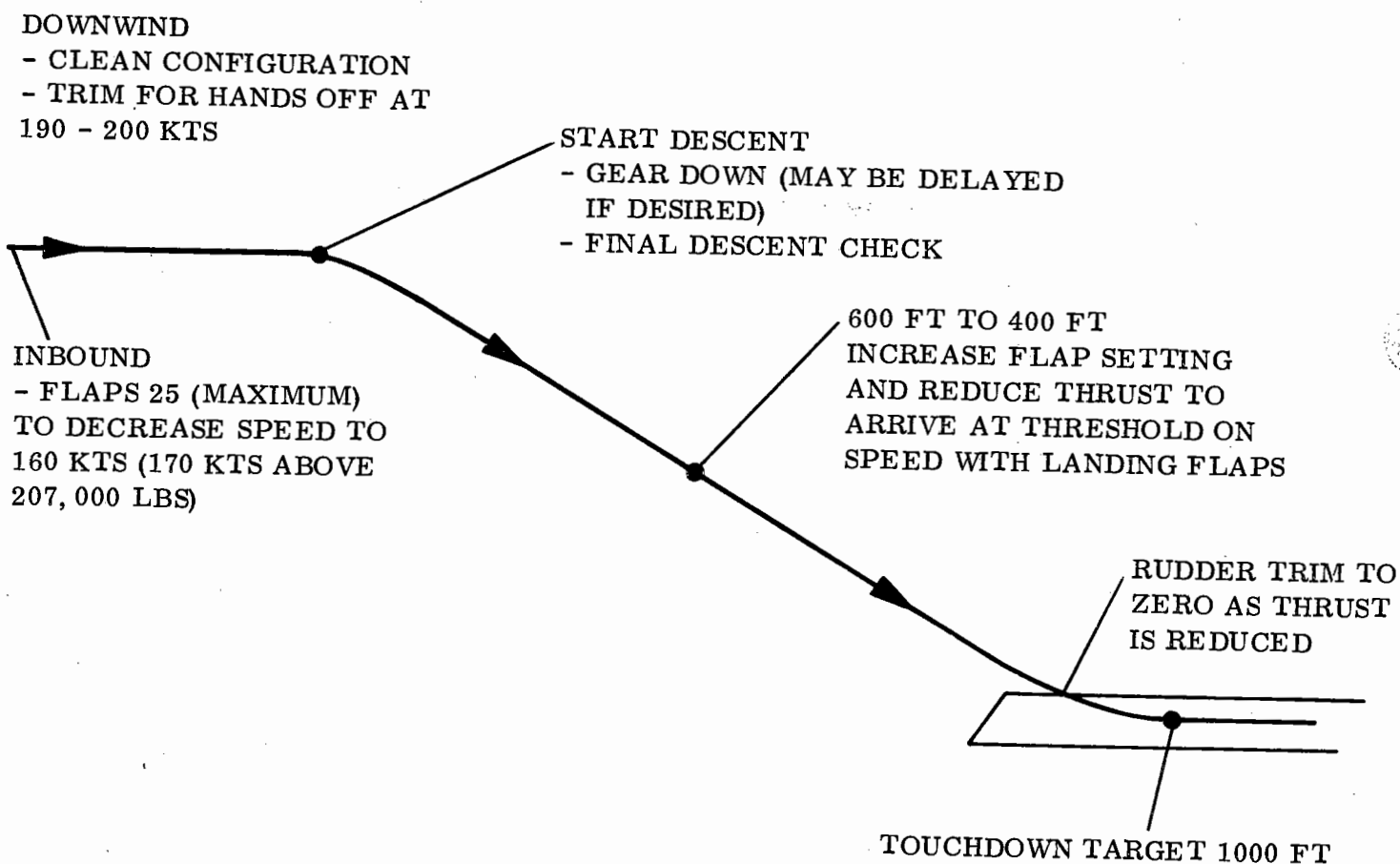
TOUCHDOWN TARGET 1000 FT

NO FLAP APPROACH AND LANDING



NOTE

PLAN FLAP AND GEAR
MANAGEMENT TO AVOID
REQUIREMENT FOR LARGE
THRUST CHANGES



APPROACH AND LANDING
TWO ENGINE



CHAPTER 4

SYSTEMS

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PNEUMATICS, AIR CONDITIONING & PRESSURIZATION

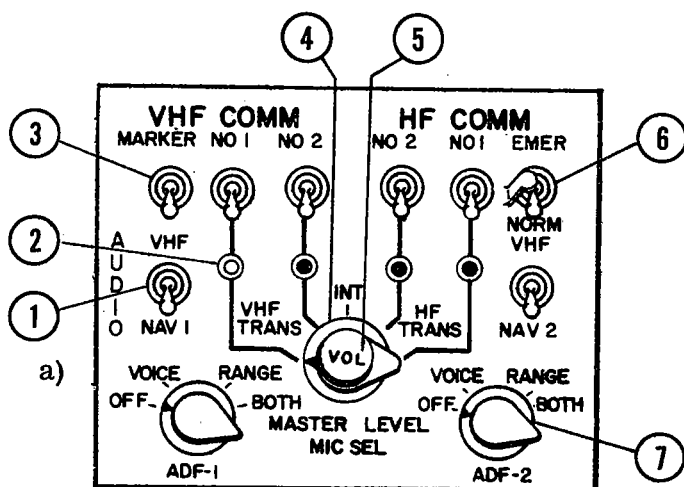
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AUDIO CONTROL PANEL



1 Receiver Switches.
Switch receiver audio to headset.

2 Transmitter Lights.
VHF - Light illuminates when microphone switched to specific transmitter.
HF - Light on when antenna tuning cycle complete and transmitter ready.
No light if on receiver only channel.

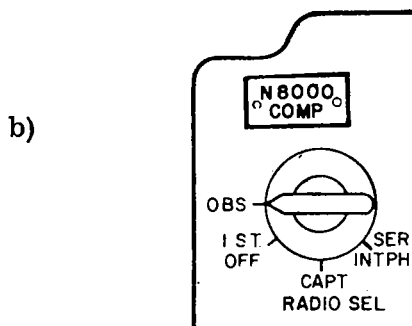
3 MARKER Switch.
OFF-ON marker receiver audio.

4 Microphone Selector Switch.
Microphone input to VHF 1 or 2 TRANSMITTER INT, or HF 1 or 2 TRANSMITTER.

5 Volume Control.
Controls volume of panel selections.

6 Amplifier Switch.
NORM - allows use of all receivers.
EMERG - allows use of only one receiver.

7 ADF Selectors - ADF-1, ADF-2.
OFF - ADF audio off.
VOICE - Voice only.
RANGE - Range, code identification only.
BOTH - Both voice and code.

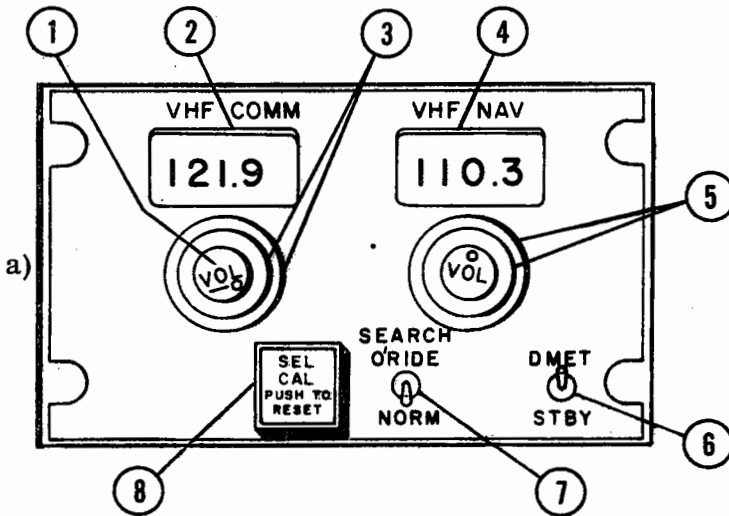


Second Officer's RADIO SElector.
Switches S/O microphone and headset through Audio Control Panel of:
OBS, 1st OFF, CAPT or SER INTPH.

Location: a) Capt, F/O, Obs stations; b) S/O Panel



VHF PANEL



- 1 Master VHF COMM VOL control.
- 2 VHF COMM indicator window.
Indicates frequency selected in mega-cycles.
- 3 VHF COMM frequency selector. 2 Knobs.
- 4 VHF NAV indicator window.
Indicates frequency selected in mega-cycles.
- 5 VHF NAV frequency selector and volume control. 2 Knobs.
- 6 DMET switch.
DMET - On.
STBY - Standby.

7 SEARCH Switch.

NORM - Search range limited to 50 miles on frequencies below 111.9 mhz.
O'RIDE - Search limit over-ridden and range is up to 200 miles.

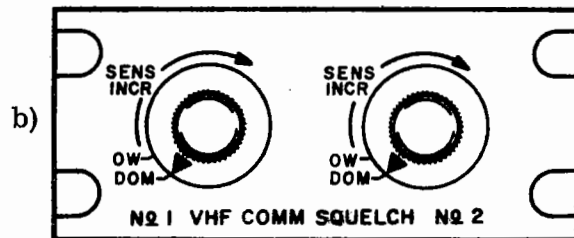
NOTE

Search function on frequencies above 112.0 mhz operable to 200 miles regardless of switch position.

8 SELCAL light.

ON and two tone chime if ground station calls airplane. PUSH to RESET rearms system for another call.

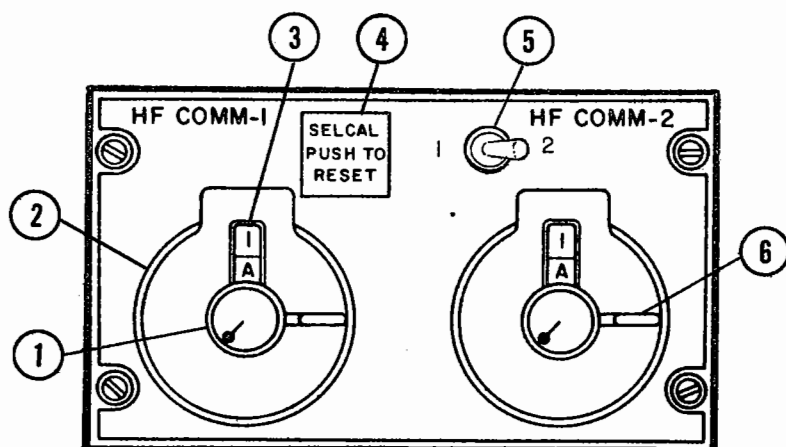
SQUELCH CONTROL PANEL



DOM (Domestic) - Receiver sensitivity limited to reduce background noise.
OW (Overwater) - Receiver sensitivity increased; also background noise.

Location: a) Control Pedestal, b) Overhead Panel

HF CONTROL PANEL



5 System Switch.

Sets both the System Switch and the Audio Panel Microphone Selector Switch to HF-1 or HF-2. During the antenna tuning cycle the HF Transmitter Light will be extinguished and will illuminate only after the tuning cycle is completed (within 20 seconds). Prior to transmitting, the System Switch must be positioned to the HF system that is to be used for transmission. Side tone will indicate transmission. Both HF receivers and the LORAN are operative at all times except during tuning and normal transmissions.

1 Volume Control.

2 Tuning Knob.

Selects coded channel number.

3 Tuning Indicator.

Shows coded channel number and letter to which tuned. Frequency card shows frequency code.

4 SELCAL Light.

Functions on HF-1.

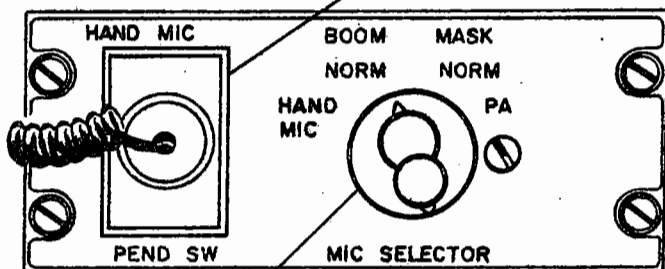
6 Tuning Lever.

Selects coded channel letter.

Location: Control Pedestal

**HAND MIC/PEND SW Receptable.**

Insert pendant switch for push-to-talk,
or hand mike with built-in switch.



a)

MIC SELECTOR.

HAND MIC - Must pull out lock. Permits use of hand mike when plugged into HAND MIC/PEND SW receptacle. Push mike switch or control wheel switch to talk.

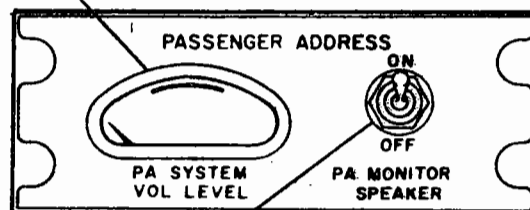
BOOM NORM - Switches Minitel to selected system on Audio Control Panel. Push pendant switch or control wheel switch to talk.

MASK NORM - Switches oxygen mask to system selected on Audio Control Panel. Push pendant switch or control wheel switch to talk.

PA - Must pull out lock. Switches oxygen mask to PA system. Live mike. No PA light.

PA SYSTEM VOL Indicator.

Midscale is satisfactory volume level.

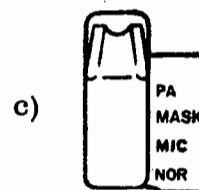


b)

PA MONITOR Switch.

ON - PA announcements heard over cockpit speaker.

OFF - Cockpit monitor speaker inoperative.



c)

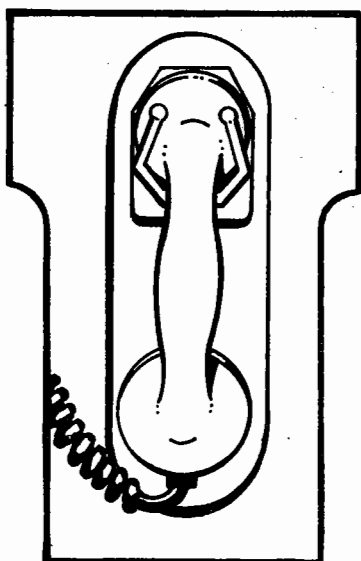
MASK MIC Switch.

NOR - Second Officer's mask microphone connected to normal audio selector system.

PA - Second Officer's mask microphone connected directly to the PA system.

Location: a) Capt. & F/O Sidewall, b) Overhead Panel, c) Top of S/O Panel.

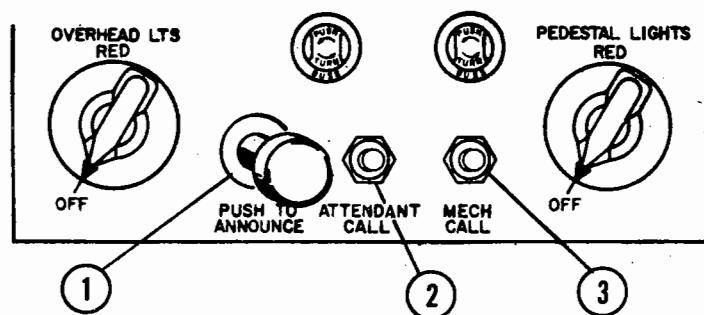
a)



HANDSET.

Push-to-talk switch in handle. Lift off cradle and handset is on Cabin Interphone. Push the PUSH TO ANNOUNCE button on the overhead panel and handset is on PA.

b)



INTERPHONE BUTTONS

1 PUSH TO ANNOUNCE.

Push momentarily to arm PA. Light in button comes on when system is armed. Reset when handset replaced on cradle.

2 ATTENDANT CALL.

Push to activate chime and Stewardess call light in cabin.

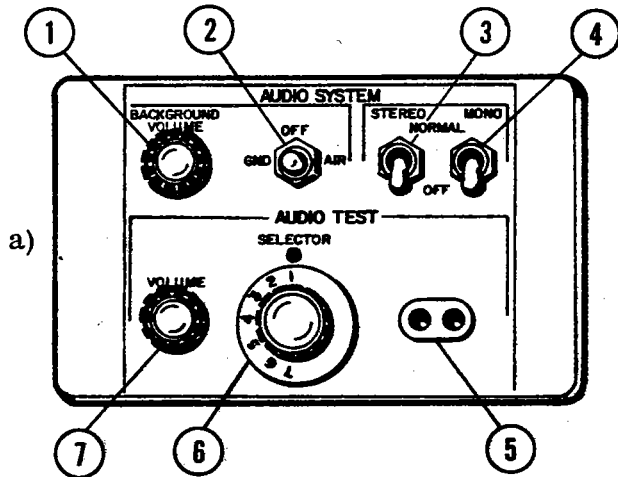
3 MECH CALL.

Push to sound horn in nose wheel well. May also be used to disarm cockpit PA system.

Location: a) Aft end Control Pedestal, b) Overhead Panel



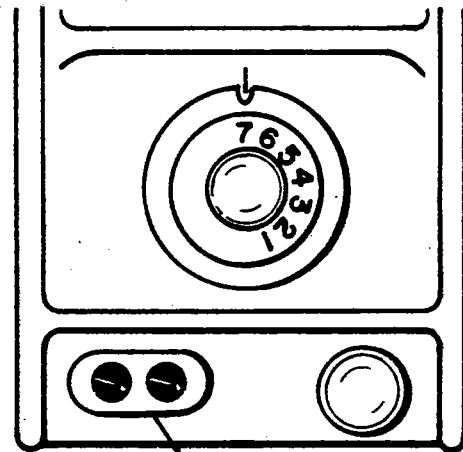
PASSENGER ENTERTAINMENT PANEL



PASSENGER AUDIO SYSTEM PANEL

- 1 **BACKGROUND VOLUME.**
Controls volume when System Switch in GND.
- 2 **System Switch.**
GND - Background music from only channel 4 through cabin speakers.
OFF - System off.
AIR - Complete audio system operative.
- 3 **STEREO SWITCH.**
NORMAL - Stereo operative.
- 4 **MONO SWITCH.**
NORMAL - Monaural operative.
- 5 **Headset Receptacle.**
For passenger type headset.
- 6 **System Selector.**
Selects program to Headset Receptacle. Channel 1 is movie sound. 2 & 3 stereo, 4 ADF audio, and 5, 6 & 7 mono.
- 7 **VOLUME Control.**
Controls Headset Receptable volume.

b)



Headset Receptable.

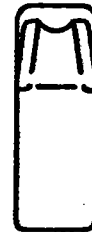
Two holes into which a passenger type headset may be plugged. Behind each hole is a tiny speaker; the headset is simply two listening tubes.

BROADCAST ENTERTAINMENT

c)

ADF NO. 2

NORMAL

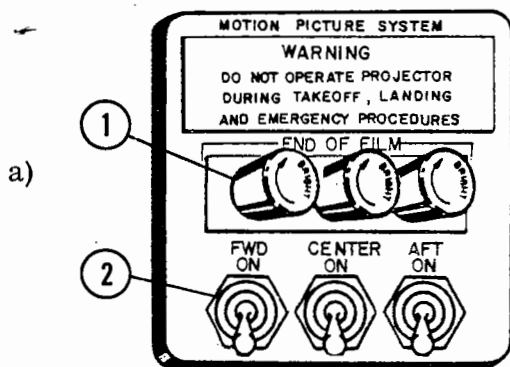
OBSERVER
AUDIO

SWITCH POSITIONS:

- ADF NO. 2:** Anything tuned on the No. 2 ADF will be transmitted over the entertainment channel.
- NORMAL:** Audio system operation normal.
- OBSERVER AUDIO:** Anything tuned on the observer's audio panel will be transmitted over the entertainment channel.

Location: a) Aft Coatroom, b) Top of Passenger Seats, c) Face of Radio Rack

PROJECTOR PANEL



1 END OF FILM Lights.

Illuminate when film finishes, until switched off. Also illuminate for a few seconds while projector is going through starting sequence.

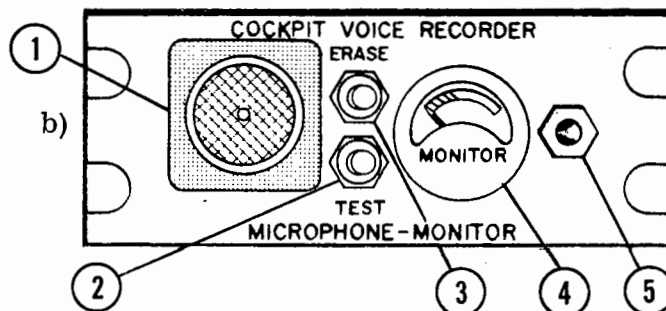
2 FWD, CENTER, AFT Projector Switches.

ON - Turns appropriate projector on when requested by Stewardess. Should be turned off (down) when END OF FILM Light illuminates.

CAUTION

Do not turn to ON unless full picture projection is desired. If inadvertently turned to ON, the film must be re-tensioned and the film brake reset.

VOICE RECORDER PANEL



1 Microphone.

Picks up cockpit conversation.

2 Test Button.

Push momentarily and observe Monitor Meter.

3 ERASE Button.

Depressing button erases entire tape. Erasure can be verified by a tone and popping in a headset plugged into the recording monitor jack.

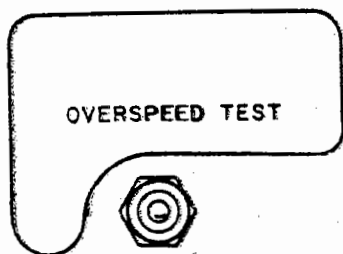
4 MONITOR Meter.

Shows proper recording level after Test Button is pressed. Two flickers in white area is good; in cross-hatched area is unsatisfactory.

5 Recording Monitor Jack.

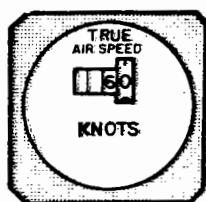
Location: a) S/O Panel, top right, b) Overhead Panel

a)

**OVERSPEED TEST Switch.**

Tests aural clacker. No Maximum
Airspeed Warning lights installed.

b)

**TRUE AIRSPEED Indicator.**

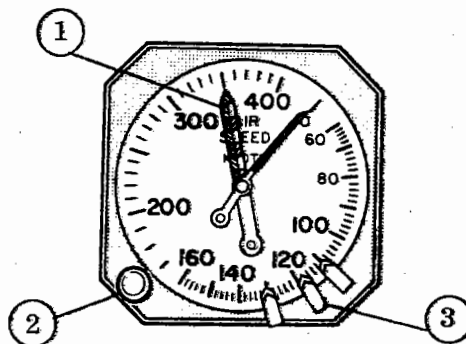
Driven by signals from SAT indicator
and Captain's Air Data Computer.

c)

**SLIP Indicator.**

Spirit level ball indicates a slip or
skid.

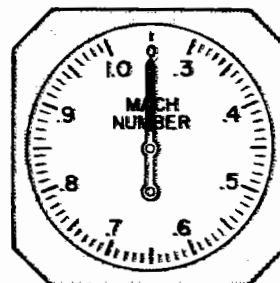
d)

**AIRSPEED Indicator.**

Direct reading from pitot and static
pressure. Uncorrected for static source
error.

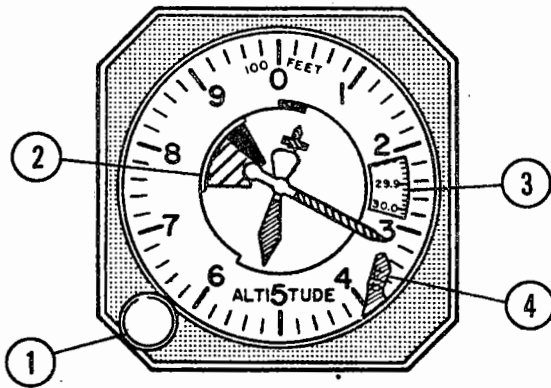
- 1 Checkered pointer - shows MAXIMUM
operating speed.
- 2 Set Knob - Sets one speed bug.
- 3 Bugs - To set takeoff and landing
speeds.

e)

**MACHMETER**

Direct reading from pitot and static
pressure. Uncorrected for static
source error.

Location: a) & b) F/O Instrument Panel only. c), d), & e) Captain & F/O Instrument Panel



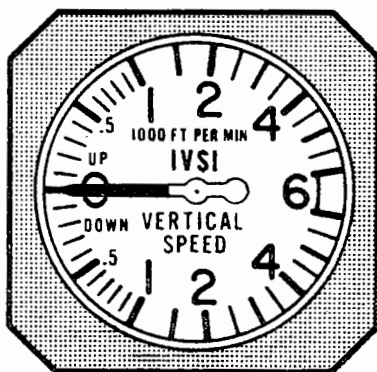
Altimeter.

Corrected for static source position error and instrument scale error by Air Data (KIEIS) Computer.

- 1 Set Knob - adjusts for barometric variations.
- 2 Crosshatch - begins to appear at 16,500 ft. Fully exposed at sea level.
- 3 Altimeter setting.
- 4 OFF Flag - appears when power from Air Data Computer is lost. Direct reading uncorrected when showing.

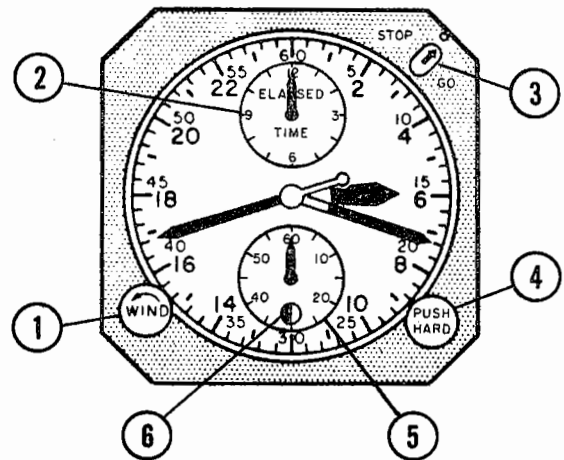
NOTE

Airplanes N 8207U - N 8266U have uncorrected pneumatic altimeters with no OFF Flag.



Rate of Climb Indicator
Indicates vertical speed.

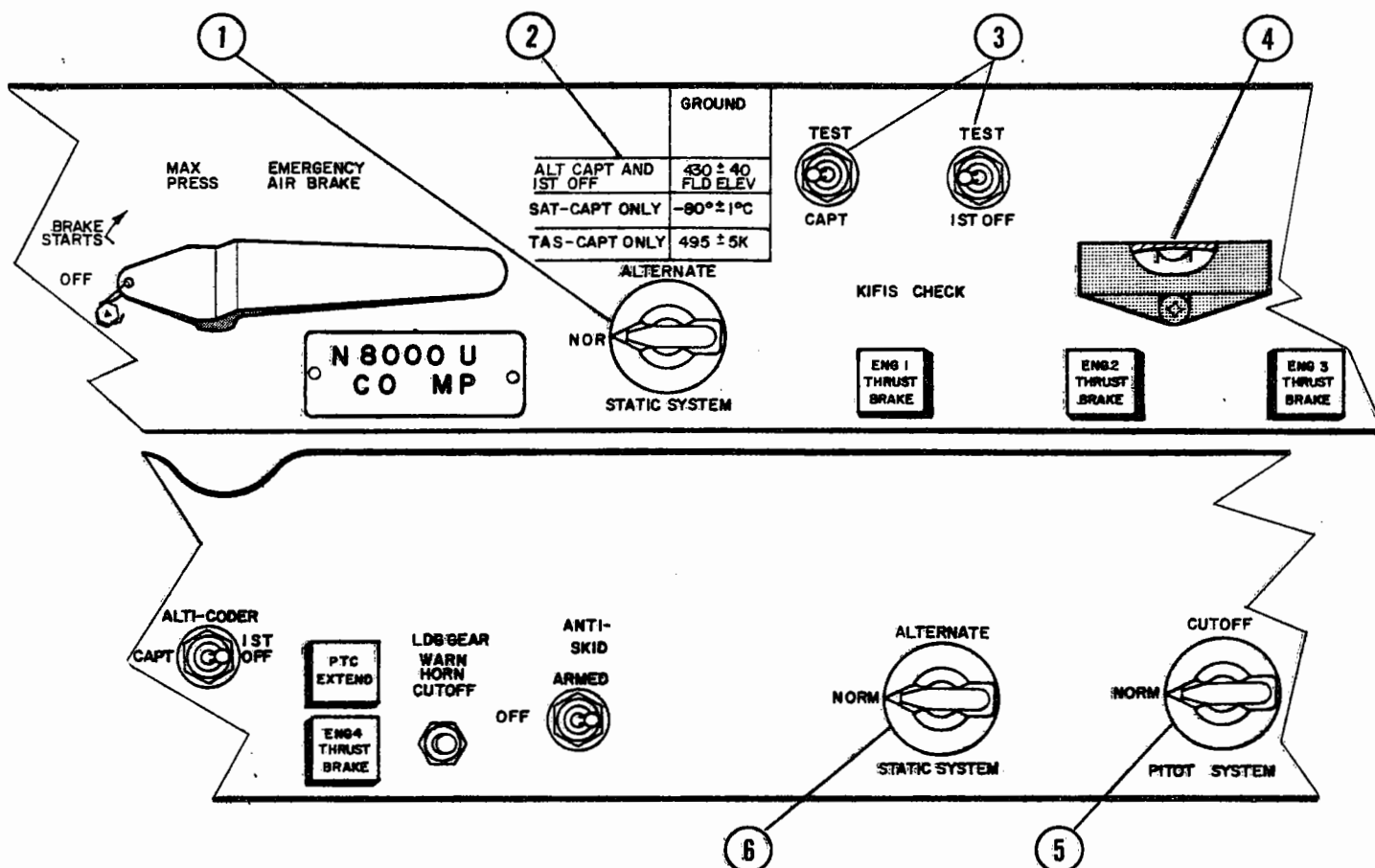
Location: Capt's & F/O's Inst. Panels



Clock.

- 1 WIND Knob - winds and sets main dial. Pulling out to set stops clock and zeros sweep second hand. Upper and lower dials geared to main dial and will be in error when main dial is set.
- 2 ELAPSED TIME Dial - shows hrs. & mins.
- 3 STOP-O-GO Switch - accumulates elapsed time on upper dial when moved counter clockwise between STOP and GO. When moved through O, elapsed time is reset to zero.
- 4 PUSH Button - controls lower dial. White dot in window indicates not running and set to zero. Half white/black dot indicates stopped but not reset. Black indicates running.
- 5 60 minute dial.
- 6 Dot window.

There are three other model clocks that may be installed at this location.



- 1 Captain STATIC SYSTEM Selector.
NORM - Captain's static source.
ALTERNATE - Alternate static source.

- 2 KIFIS Test Placard.
Instrument readings for KIFIS Test.

- 3 KIFIS CHECK Switches.
TEST - sends preset signal to respective altimeter.
CAPT - TEST also sends signal to the SAT and TAS Indicators.

- 4 SPIRIT LEVEL.

- 5 PITOT SYSTEM Switch.
(N 8001U - N 8043U, N 8207U - N 8266U only.)

NORM - F/O instruments and auxiliary equipment receive F/O pitot pressure.

CUTOFF - only F/O IAS and MACH-METER receive F/O pitot pressure. Auxiliary equipment cutoff.

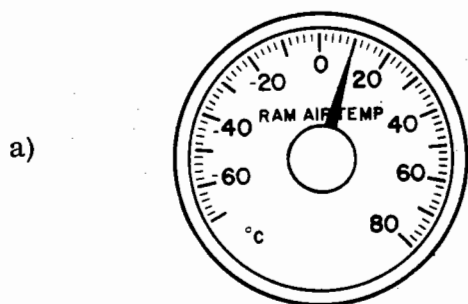
- 6 First Officer STATIC SYSTEM Selector.
NORM - First Officer's static source.
ALTERNATE - alternate static source.

Location: Glareshield

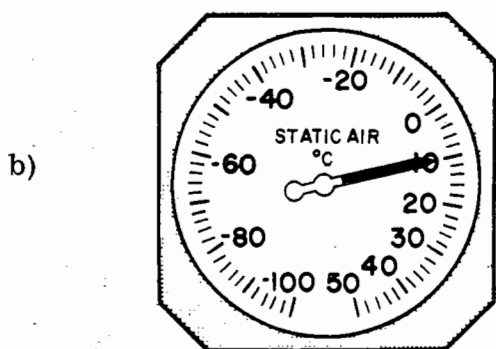
AUG 1/70

4-10

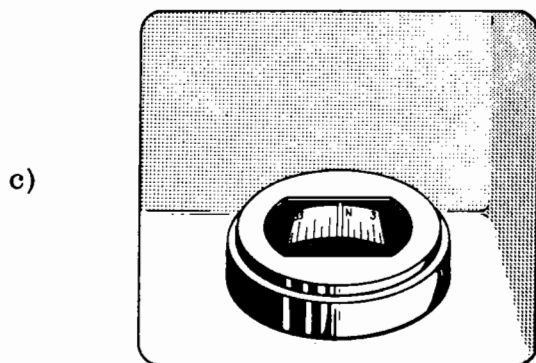
DC-8 FLIGHT MANUAL
REFERENCE AND REVIEW



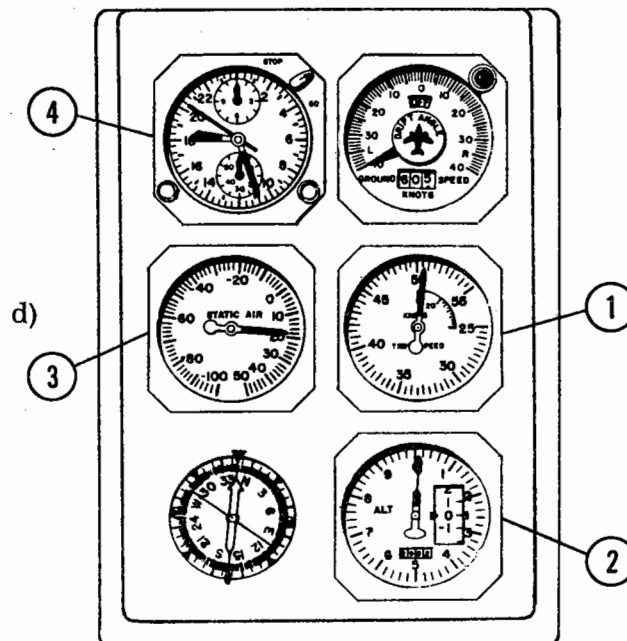
RAM AIR TEMP Gauge.
Uncorrected ram air temperature.



STATIC AIR Temperature Gauge.
Temperature corrected for Mach number from Captain's Air Data Computer. Provides temperature signal to TAS Indicator.



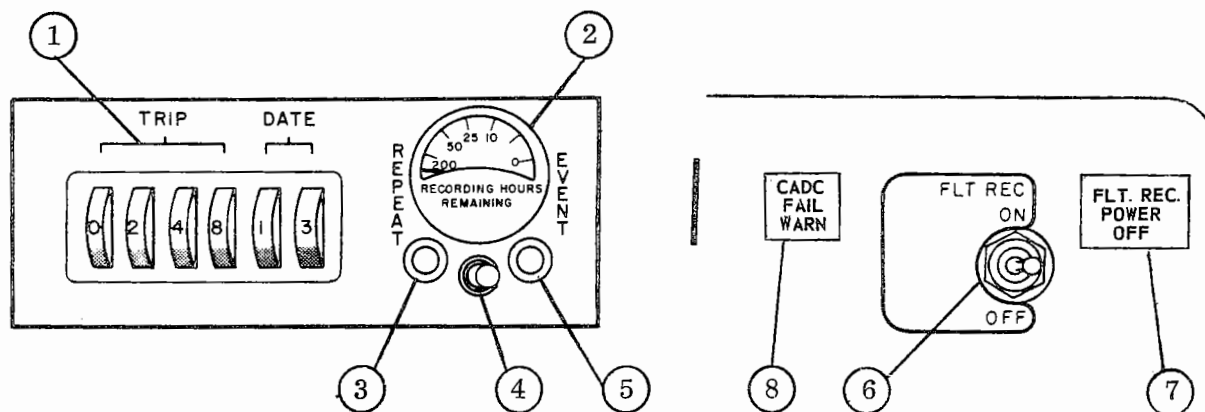
Magnetic Compass.
Direct reading compass with correction card below compass.



Navigator's Panel

- 1 TRUE AIRSPEED - slaved to F/O TAS.
- 2 ALTimeter - Direct reading from autopilot static source and not corrected by Air Data Computer.
- 3 STATIC AIR Temperature - Slaved to S/O's SAT gauge.
- 4 Clock - same as clocks on Captain and First Officer Inst. Panels.

Location: a) F/O Inst Panel, b) S/O Panel, c) Overhead Panel, d) Navigator Station



FLIGHT RECORDER

- 1 **TRIP and DATE dials.**
Permit setting input information.
- 2 **RECORDING TIME REMAINING indicator.**
Shows hours of tape remaining.
- 3 **REPEAT button.**
Press and hold approximately ten seconds to start encoding cycle.
- 4 **Encoding light.**
Light on during encoding cycle.
(About 15 minutes). Light is integral part of REPEAT button on some airplanes.
- 5 **EVENT button.**
Press and hold several seconds to record time of any special event.
- 6 **FLT REC Switch.**
ON - Powers Flight Recorder on the ground only.

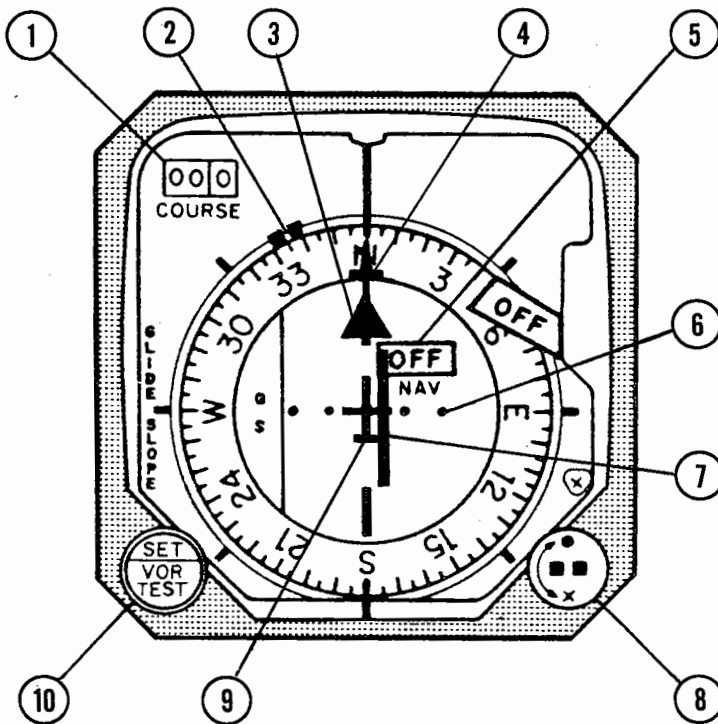
OFF - Deactivates Flight Recorder on the ground only
- 7 **FLT REC POWER OFF Light.**
Illuminated - indicates no AC power to Flight Recorder or tape transport failure.

The light may remain illuminated up to one minute after Flight Recorder is turned ON.
- 8 **CADC FAIL WARN Light.**
Illuminated - indicates failure of Central Air Data Computer.

Location: S/O Panel

MAR 12/71

4-12



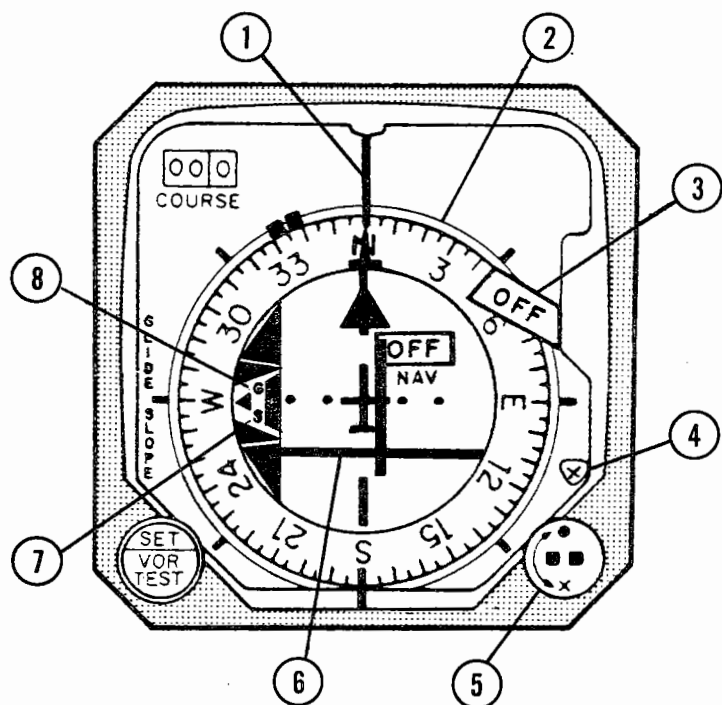
COURSE INDICATOR

COURSE FUNCTIONS

- 1 Course Counter - Shows course selected by Course Selector Knob.
- 2 Heading Bug - A marker on the compass card which may be moved around compass card by turning Heading Select Knob.
- 3 To - From Indicator - Arrow points towards VOR station.
- 4 Course Bug - A marker on the compass card which may be moved around compass card by turning Course Select Knob.

- 5 NAV OFF Flag - Shows if navigational radio signal is unsatisfactory.
- 6 Course Deviation Scale.
VOR - One dot equals 5°.
LOC - One dot equals approx. 1°.
- 7 Course Bar - Represents the selected radio course with respect to fixed airplane symbol. Bar moves across Course Deviation Scale.
- 8 Heading Select Knob - Turn to move Heading Bug around the compass card. Used to set heading for Captain's flight director and autopilot, the First Officer's select knob set only has flight director.
- 9 Airplane Symbol - Fixed in center of instrument. Represents the airplane with respect to the radio beams and compass card.
- 10 Course Selector Knob - Turn to set Course Bug and Course Counter. Push for VOR Test.

Location: Capt. & F/O Inst. Panel



COURSE INDICATOR

COMPASS FUNCTIONS

- 1 Lubber Line - Fixed mark against which compass card is read.
- 2 Compass Card - Master compass. Read against lubber line.
- 3 Power OFF Flag - Shows if power off or directional gyro fails.
- 4 Compass Annunciator - Normally drifts between dot and cross indicating satisfactory compass synchronization. If either dot or cross shows steady, it indicates that compass is out of synchronization.

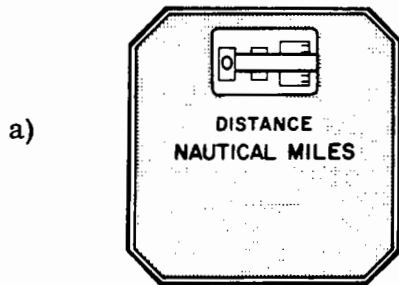
- 5 Heading Select Knob - Pull out and turn in direction indicated by annunciator arrow to synchronize compass manually.

GLIDE SLOPE FUNCTIONS

- 6 Glide Slope Bar - Represents glide slope beam with respect to airplane. Moves up and down glide slope scale. In view only with satisfactory localizer/glide slope radio signal.
- 7 Glide Slope Scale - One dot equals approximately $1/3^\circ$ displacement from glide slope.
- 8 Glide Slope Warning Flag - If glide slope is functioning properly, a pointer can be seen in front of the glide slope scale. The glide slope flag appears and covers the GS scale when a localizer/glide slope frequency is selected and the glide slope signal is unsatisfactory.

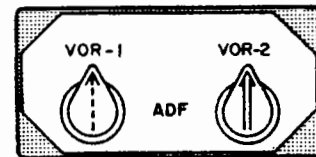
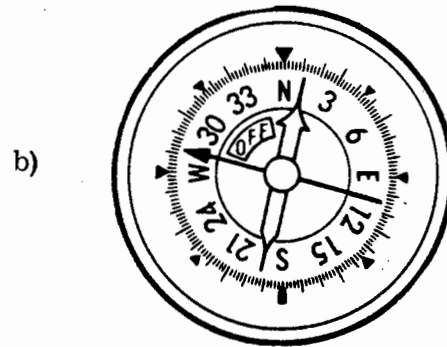
Location: Capt. & F/O Instrument Panel

DISTANCE INDICATOR



Measures slant distance from station to airplane in hundreds, tens and unit miles.

Flag appears across numbers when system is inoperative, in search mode or the DMET switch on the VHF panel is in STBY.



VOR/ADF RMI

Needles indicate magnetic bearing to VOR or ADF station as determined by selector switches below the instrument.

OFF flag appears when Course Indicator flag shows on opposite instrument panel, or when RMI dial fails to follow-up.

Location: a) & b) Captain & F/O Panels



ADF CONTROL PANEL

BFO Switch.

ON - Beat tone to assist in fine tuning weak station. When station is tuned, zero beat is heard.

SELECT Switch.

BROAD - Normal position.
SHARP - Narrows band width to reduce interference from adjacent station.

GAIN Control.

Use as a sensitivity and volume control when on ANT or LOOP Function. Set so deflection can be seen on Tuning Meter. Operates only as a volume control on ADF.

Tuning Meter.

Seek maximum when tuning.

FREQUENCY Indicator.

90 - 1800 KHz.

Function Switch.

ADF - Automatic direction finding operation.

ANT - Operation from sense antenna. Omni directional reception. Use when fine tuning a station.

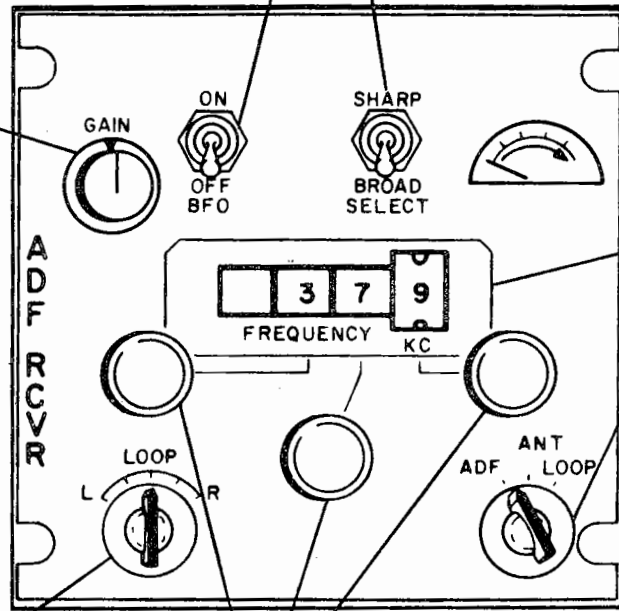
LOOP Switch.

For manual rotation of loop antenna in LOOP Function. High or low speed, left or right.

Tuning Knobs.

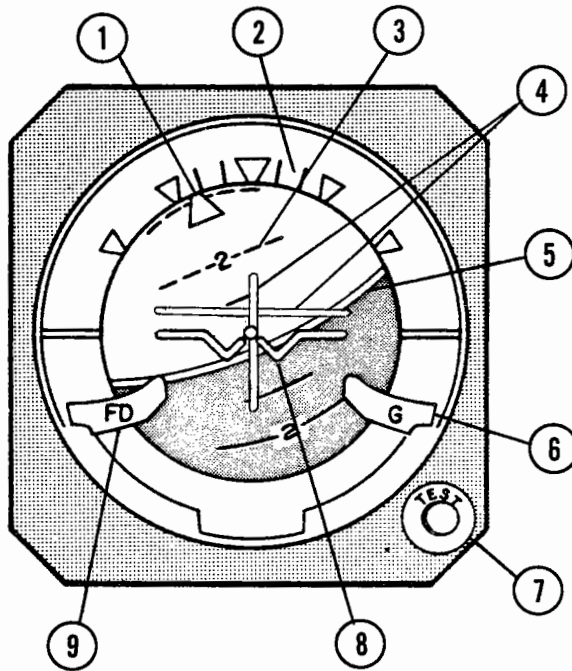
Make fine adjustment on right Knob for maximum on Tuning Meter or zero beat on BFO.

LOOP - Operation from Loop antenna when seeking null manually. May be used for reducing interference.



Location: Control Pedestal

ATTITUDE INDICATOR



- 1 Bank Index.
- 2 Bank Attitude Scale - Read against Bank Index.
- 3 Pitch Attitude Scale - Read against Airplane Symbol.
- 4 Command Bars - Display pitch and roll command for heading, course, or glide slope as determined by position of Flight Director Mode Selector.
- 5 Horizon Bar.

- 6 Gyro Flag - Shows when gyro horizon system is unsatisfactory. Command Bars will retract from view and FD flag will appear.
- 7 TEST Button - Produces approximately 20°- 30° roll and 10°-20° pitch change simulating a climbing right turn.
- 8 Airplane Symbol.
- 9 Flight Director Flag - Appears when Command Bars are unreliable. Command Bars retract from view.

CAUTION

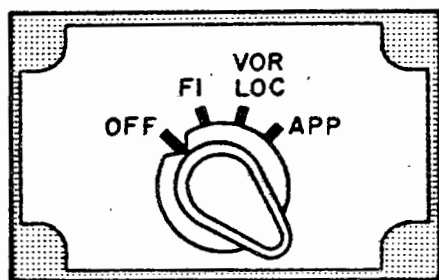
If power to the gyro is lost for 12 to 20 seconds, the Indicator will become unreliable. If power is restored, fly airplane straight and level for 4 minutes to prevent gyro erection to a false level.

Location: Capt. & F/O Instrument Panel



FLIGHT DIRECTOR MODE SELECTOR

a)



VOR LOC - Operates in FI mode until near selected course. At course capture commands to course selected by Course Selector Knob on Course Indicator. At glide path capture automatically switches to Approach mode.

APP - Roll and pitch Command Bars command to acquire localizer course and glide slope. Automatic crosswind correction is accomplished.

Determines mode of operation of Flight Director.

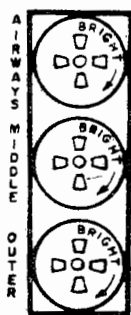
FI - Flight Instrument Mode - Roll Command Bar commands to heading selected by Heading Bug.

CAUTION

Must be in the detent for the desired mode to indicate properly.

MARKER BEACON LIGHTS & SENSITIVITY SWITCH

b)

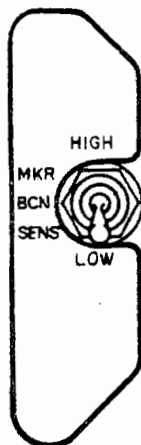


AIRWAYS Light - Flashing light indicates airplane over an airways fan marker transmitter. Steady aural tone.

MIDDLE Light - Flashing light indicates airplane over a landing system middle marker transmitter. Intermittent aural tone.

OUTER Light - Flashing light while airplane over a landing system outer marker. Intermittent aural tone.

c)

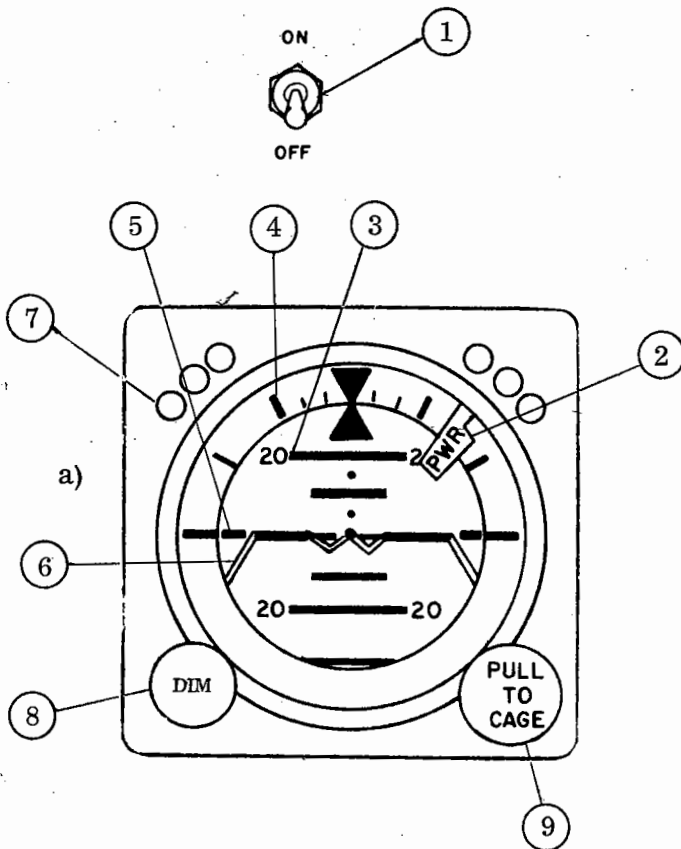


MKR BCN SENS Switch.

Provides HIGH or LOW sensitivity on receiver. Sharpest geographic location of a marker is achieved with lowest sensitivity consistent with good reception.

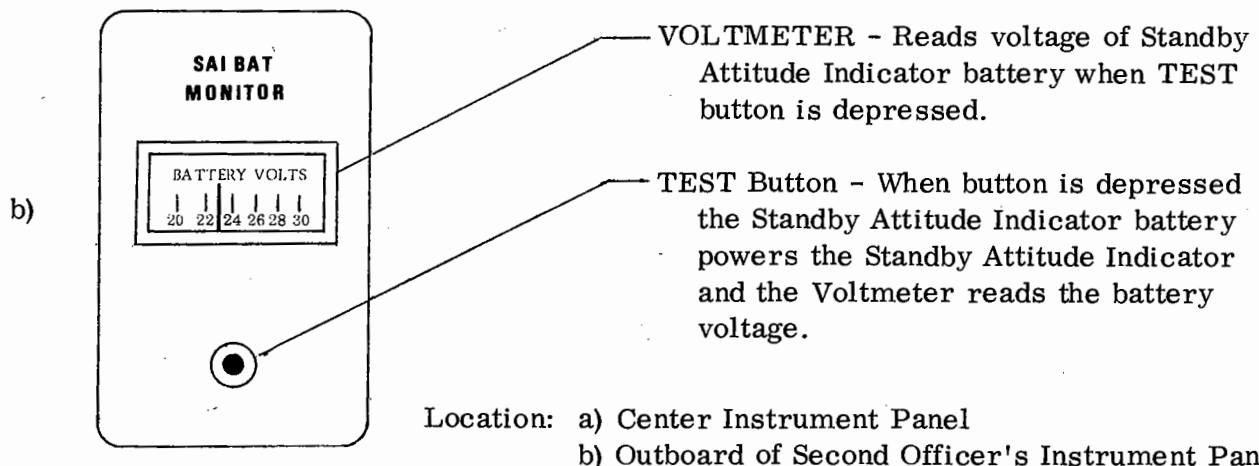
Location: a) Glareshield, b) F/O & Center Instrument Panel, c) Center Instrument Panel

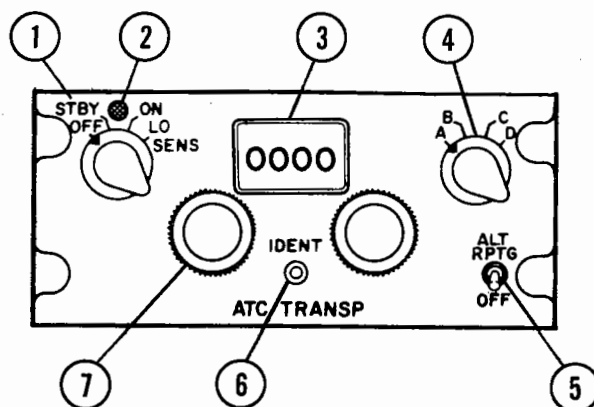
STANDBY ATTITUDE INDICATOR



- 1 PWR Switch - Off position removes power to the instrument.
- 2 PWR Flag - Flag shows if power to the instrument is lost or if switch is OFF.
- 3 Pitch Attitude Scale - Read against Airplane Symbol.
- 4 Bank Attitude Scale - Read against bank index.
- 5 Horizon Bar - Moves in pitch and roll representing horizon with respect to Airplane Symbol.
- 6 Airplane Symbol - Fixed in center of instrument. Represents the airplane with respect to horizon.
- 7 Instrument Lights - Pull to remove.
- 8 Instrument Light Switch - Controls intensity of instrument lights. Cannot turn lights completely off.
- 9 Pull to Cage - Pull knob to quickly erect the attitude indicator. Will erect to level unbanked flight regardless of airplane attitude.

STANDBY ATTITUDE INDICATOR BATTERY MONITOR



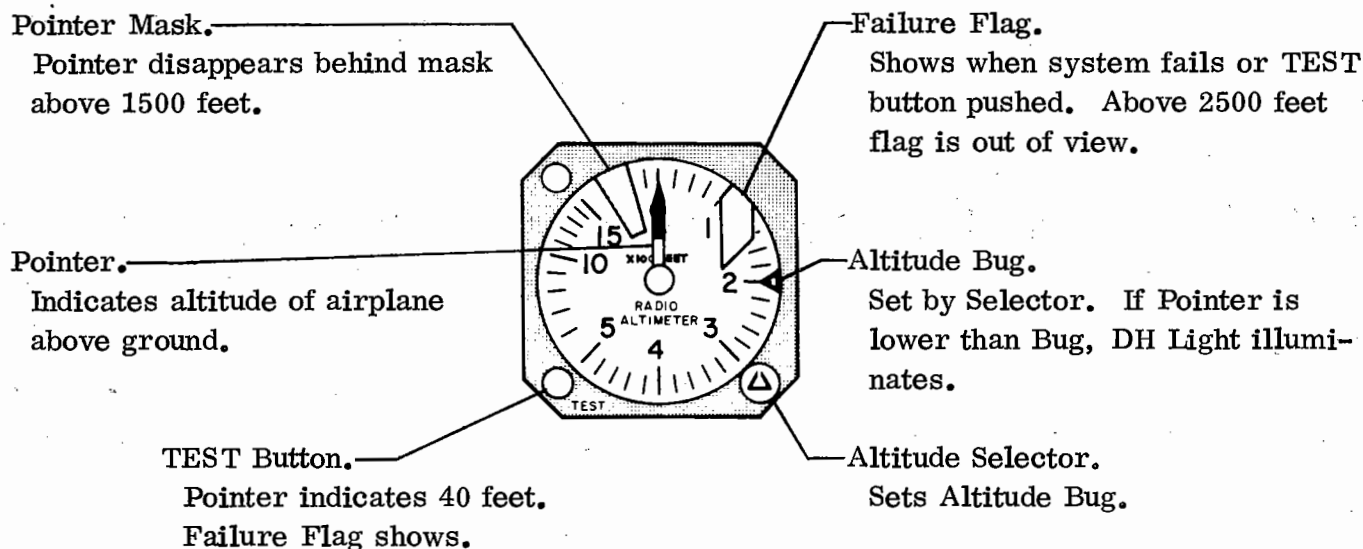


AIR TRAFFIC CONTROL TRANSPONDER

1 Function Switch. OFF STBY - Standby, unit warm, ready for operation after approximately 1-1/2 minutes in standby. ON - Unit operating if 1-1/2 minute warm-up period completed in either STBY or ON. LO SENS - Unit operates at low sensitivity.	4 Mode Selector. Mode A is used in the United States by Air Carrier Aircraft.
2 Caution Light. Light on if both transponders Function Switch in ON or LOW SENS.	5 ALT RPTG Switch. In ALT RPTG position, the unit transmits altitude reporting information when interrogated by a ground station.
3 Code Selector Window and Code Selectors. Permits selection of operating code.	6 IDENT Button. Press momentarily to transmit an identification signal when requested by a ground station.
	7 Code Selectors.

Location: Overhead Panel

RADIO ALTIMETER



Decision Height Light.

Illuminates:

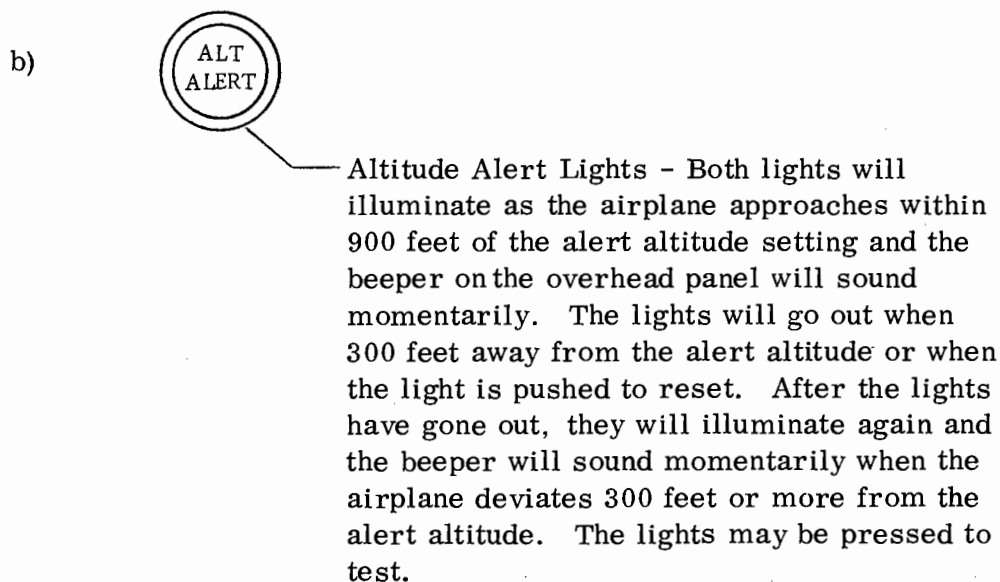
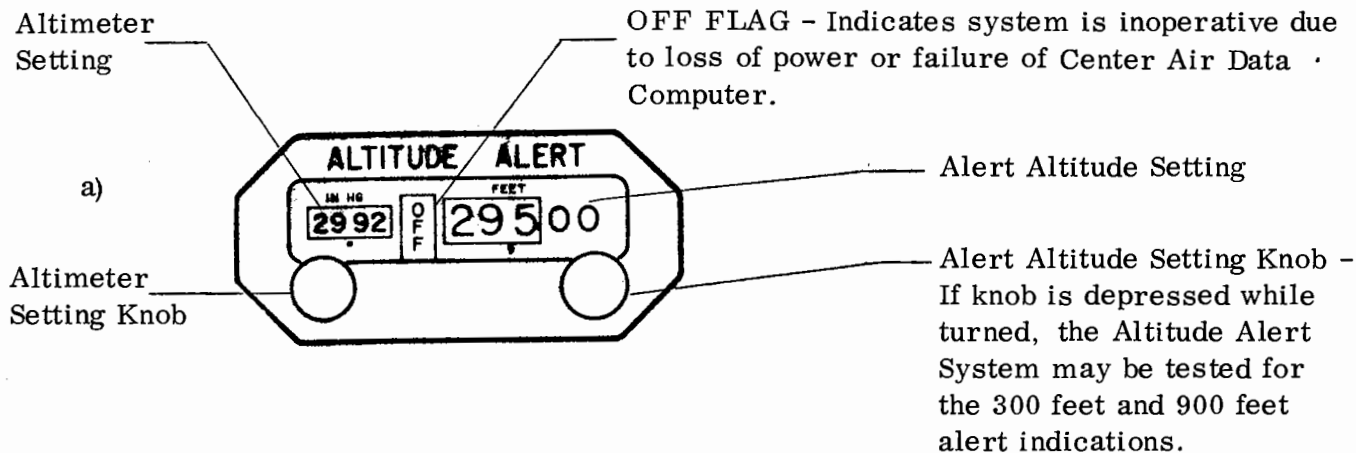
1. During descent at 2500 feet above the ground.
2. When Radio Altimeter Pointer is at or below the Altitude Bug Setting.

NOTE

After illumination of DH lights at 2500 feet, the lights can be extinguished by pushing each light individually. Below 1500 feet, the altitude bug must be below the pointer to extinguish lights.



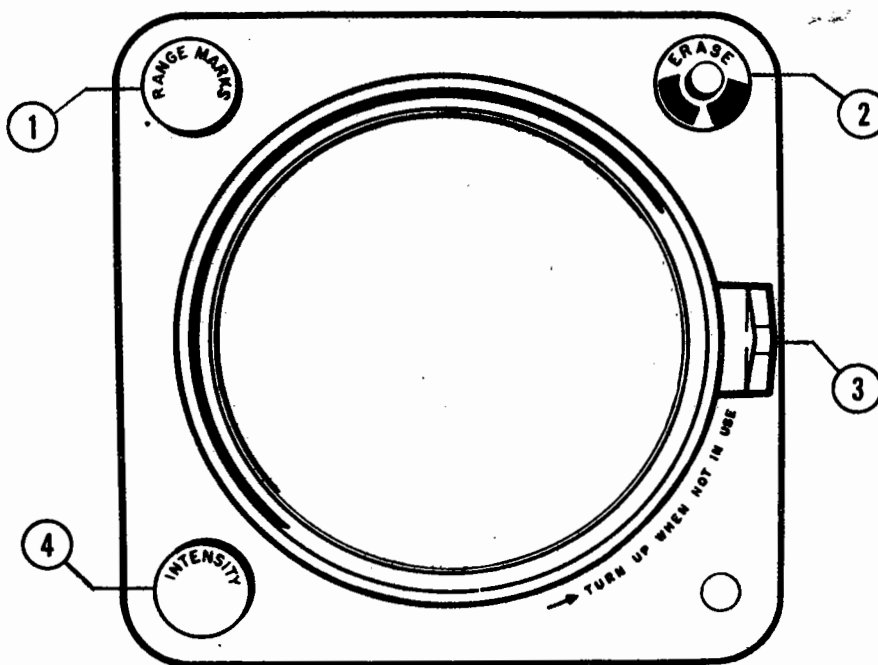
ALTITUDE ALERT PANEL



Location: a) Glareshield Panel
b) Captain's and First Officer's Instrument Panel

WEATHER RADAR

INDICATOR



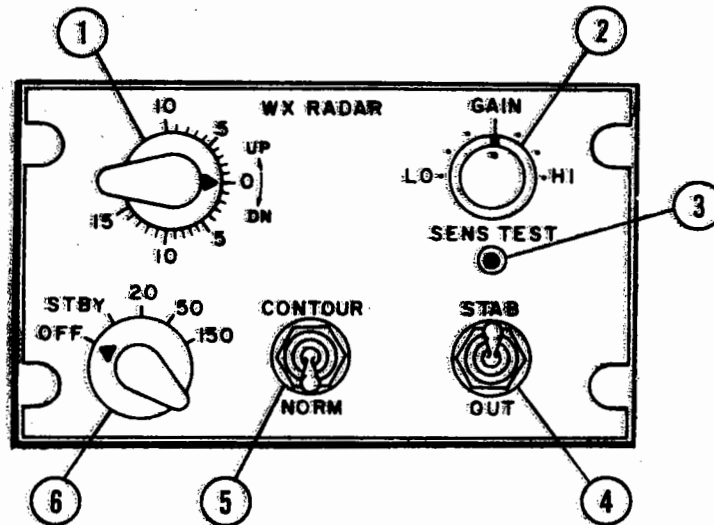
- 1 RANGE MARKS Control - Adjusts brightness of range marks.
- 2 ERASE Button - When pressed, it instantly erases picture on the indicator. It should be pressed only momentarily because the longer it is pressed the longer it will take for a new picture to appear.
- 3 POLAROID FILTER Control - Controls shading of the radar scope. Yellow display is for daylight use and the red display is for no-glare night use.
- 4 INTENSITY Control - Adjusts the brilliance of the radar returns.

Location: Control Pedestal



WEATHER RADAR

CONTROL PANEL



- 1 ANTENNA TILT Control - Tilts antenna up and down.
- 2 GAIN Control - Used to determine if radar has proper sensitivity. Normal setting is about mid position.
- 3 SENS TEST Button - Produces a test signal for maintenance. Do not use.
- 4 STAB - OUT Switch.
STAB - Antenna is gyro stabilized in relation to the horizon and position of Antenna Tilt Control.

OUT - Antenna is fixed in relation to axis of airplane and position of Antenna Tilt Control.
- 5 CONTOUR - NORMAL Switch - When switch is placed to CONTOUR the areas of greatest precipitation intensity (Strongest radar echo return) will appear black. Areas of lesser precipitation appear as usual lighted trace.
- 6 RANGE Selector.
OFF - Radar is off.

STBY - 5 minute warmup in STBY before rotating to operating position.

20 - Four, 5 mile range marks.

50 - Five, 10 mile range marks.

150 - Six, 25 mile range marks.

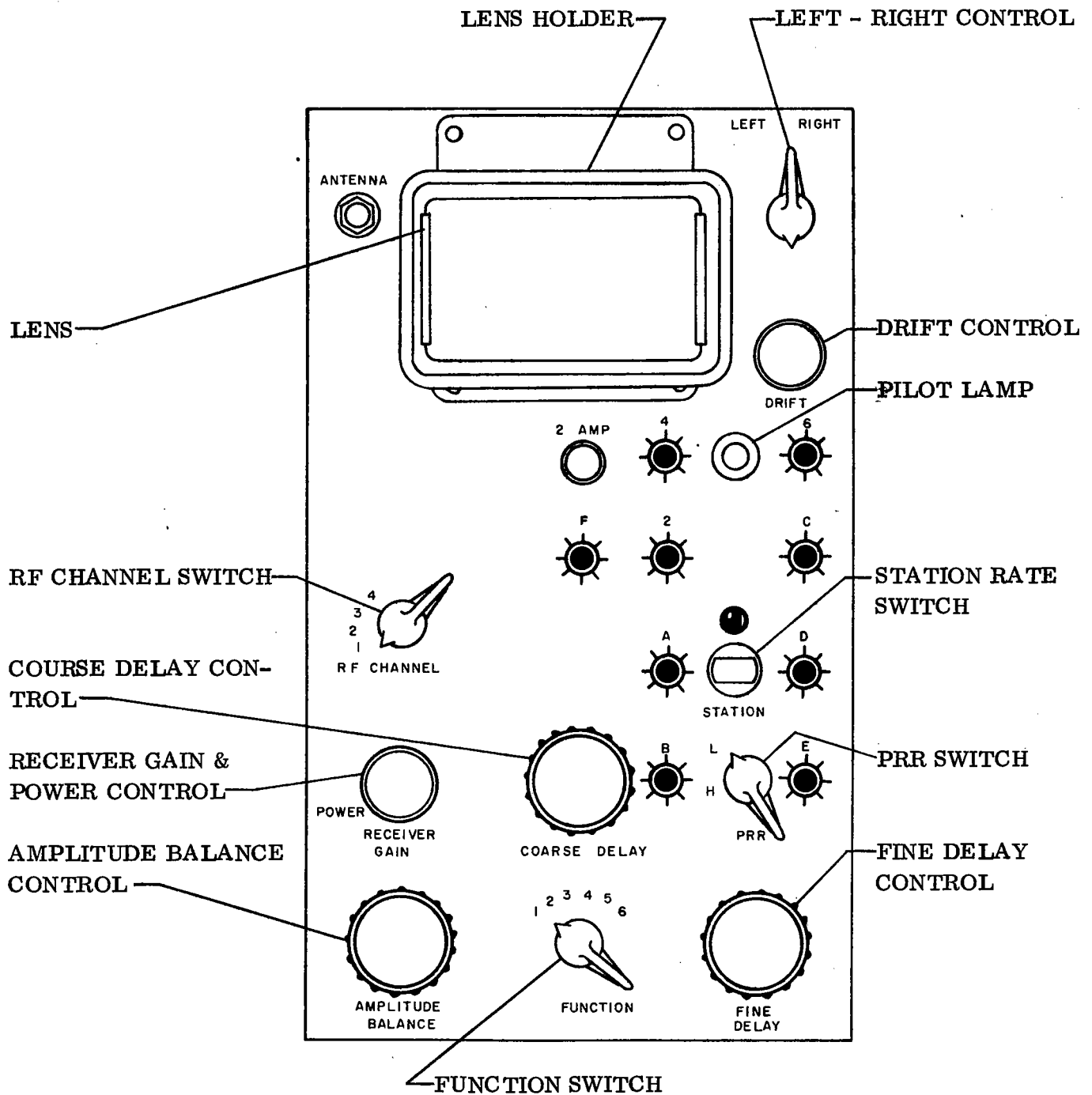
Location: Control Pedestal

AUG 1/70

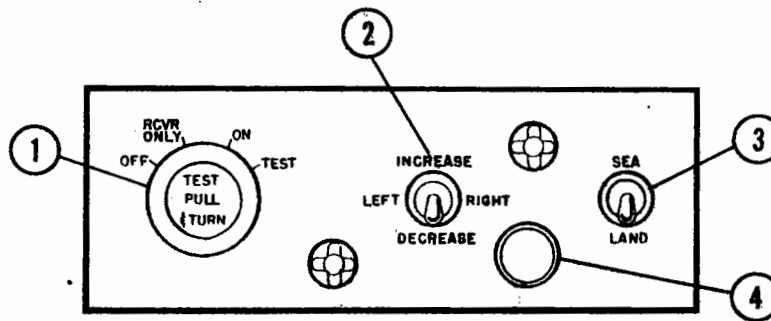
4-24

DC-8 FLIGHT MANUAL
REFERENCE AND REVIEW

LORAN RECEIVER



Location: Radio Rack



DOPPLER CONTROL PANEL

1 Function Switch

RCUR ONLY - Standby position to allow initial warm-up.
 ON - Normal operations.
 TEST - Within 3 minutes, the OFF Flag and Warning Light on the Ground Speed and Drift Indicator will disappear and the Indicator will show 600 knots and 20 degree left drift.

2 Slew Switch

INCREASE/DECREASE - Slews ground speed indicator.
 LEFT/RIGHT - Slews drift angle indication.

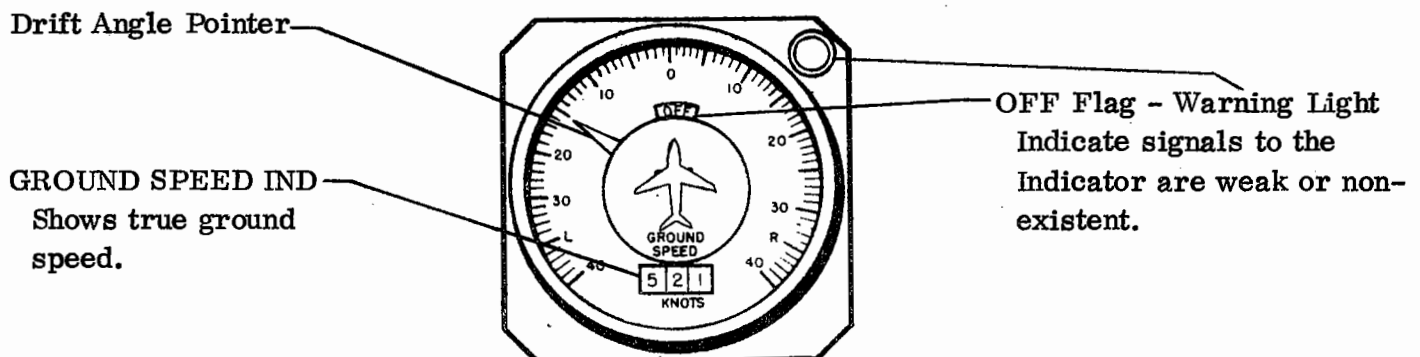
3 LAND-SEA Switch

Switch as necessary when over land or sea.

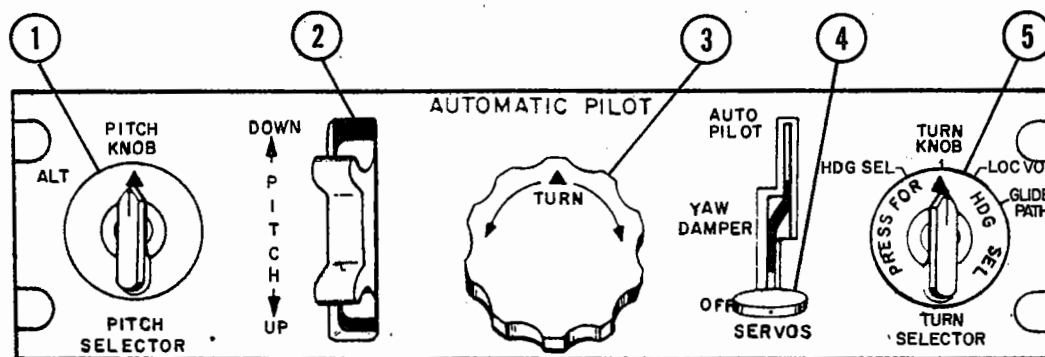
4 Warning Light

In parallel with Ground Speed Aux Drift Angle Indicator warning light.

GROUND SPEED AND DRIFT ANGLE INDICATOR



Location: Navigator's panel



SP 30-14 CONTROLLER

1 PITCH SELECTOR

ALT - Autopilot provides altitude hold control.

PITCH KNOB - PITCH KNOB provides pitch control.

2 PITCH Knob

Provides autopilot pitch control, Rotating Knob commands pitch in direction of rotation at a rate proportional to the amount of knob displacement. Normal position is the spring-loaded detent.

3 TURN Knob

Manually controls heading. Bank angle is proportional to amount of knob rotation. Neutral detent has arrow pointing forward.

4 SERVOS Lever

OFF - Required position for takeoff and landing. Autopilot has no control of airplane.

YAW DAMPER - Rudder servo only is engaged and autopilot provides only yaw damping control.

AUTOPILOT - All autopilot servos engaged and autopilot controls airplane about all axes.

5 TURN SELECTOR

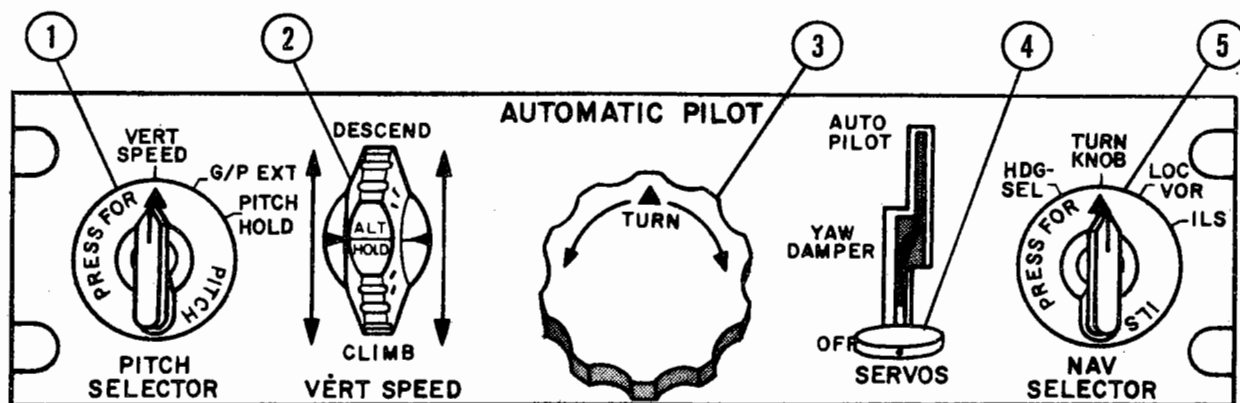
HDG SEL - Autopilot controls heading to the set Heading Bug on the Captain's Course Indicator.

TURN KNOB - Manually controls heading. Bank angle is proportional to amount of knob rotation. Neutral detent has arrow pointing forward.

LOC VOR - Controls to course heading selected on Captain's Course Indicator when VHF #1 NAV receiver is tuned.

GLIDE PATH - Selects autopilot mode of operation to capture and track localizer and glide path signals selected by Captain's VHF NAV receiver and Course Indicator. Glide path extension is automatically activated by the middle marker.

Location: Control Pedestal



SP 30-15 CONTROLLER

1 PITCH SELECTOR

VERT SPEED - Normal detent position. Autopilot maintains rate of climb, or descent existing when engaged. Changes to rate of climb may be made by rotating the **VERTICAL SPEED** knob.

G/P EXT - Permits glide path extension mode to be manually initiated during an automatic approach.

PITCH HOLD - Maintains pitch attitude existing at time of selection.

2 VERT SPEED Knob

Rate of vertical speed is proportional to amount of knob displacement. Limits of knob travel are from 4000 feet per minute climb to 8000 feet per minute descent. Knob has rate of climb graduations and indicates approximate rate of climb/descent at all times.

Pitch attitude is changed to maintain the barometric altitude existing when the knob is placed in the detent (**ALT HOLD**) position.

3 TURN Knob

Manually controls heading. Bank angle is proportional to amount of knob rotation. Neutral detent has arrow pointing forward.

4 SERVOS Lever

OFF - Required position for takeoff and landing. Autopilot has no control of airplane.

YAW DAMPER - Rudder servo only is engaged and autopilot provides only yaw damper control.

AUTOPILOT - All autopilot servos engaged and autopilot controls airplane about all axes.

5 NAV SELECTOR

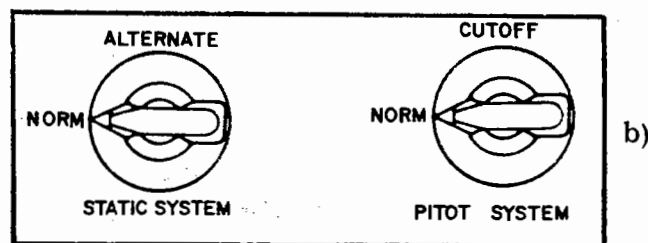
HDG SEL - Autopilot controls heading to the set Heading Bug on the Captain's Course Indicator.

TURN Knob - Controls to heading selected by **TURN** knob.

Location: Control pedestal.

LOC VOR - Controls to course heading selected on Captain's Course Indicator when VHF #1 NAV Receiver is tuned.

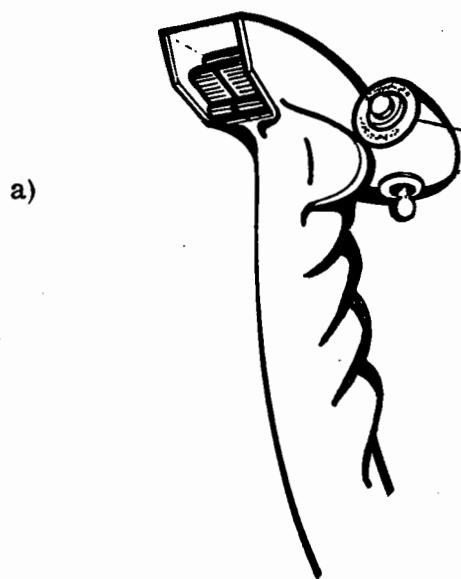
ILS - Selects autopilot mode of operation to capture and track localizer and glide path signals selected by Captain's VHF NAV Receiver and Course Indicator. Glide path extension is automatically activated by the Radio Altimeter at 300 feet or by the middle marker if the Radio Altimeter is inoperative.



(N 8001U - N 80043U and N 8207U - N 8266U)

PITOT SYSTEM Switch

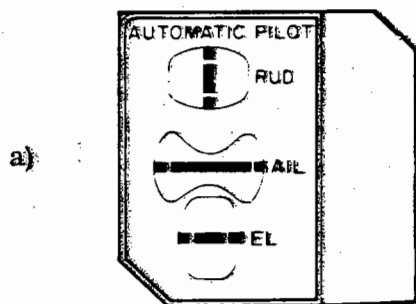
NORM - Supplies pitot pressure information to the flight control computer for adjusting autopilot control according to airspeed. Autopilot must not be engaged until switch is in this position.



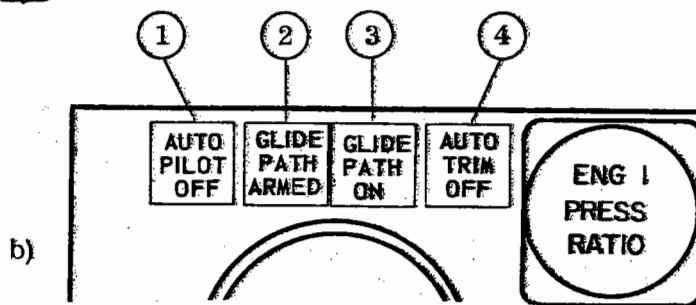
AUTOPILOT RELEASE Button

SP30-14 and -15, when pressed, the autopilot servos are disengaged and the SERVOS lever goes to OFF. Disengaging the autopilot in this way will not illuminate the AUTOPILOT OFF light.

Location: a) Control Wheels, b) Glareshield



AUTOPILOT INDICATOR



AUTOPILOT ANNUNCIATOR LIGHTS

Trim Meters

Indicate input signals to servos. Meters should be within one needle width before engaging or disengaging the autopilot.

1 AUTOPILOT OFF Light

Comes on when autopilot is either automatically disengaged or the SERVOS lever is manually moved to OFF or YAW DAMPER. Also comes on when electrical power is interrupted. Rearm light by pressing the AUTOPILOT RELEASE button or moving the SERVOS lever to AUTOPILOT.

2 GLIDE PATH ARMED Light

Indicates autopilot is armed for glide path operation. Light goes out when glide path engaged.

3 GLIDE PATH ON Light

Indicates that glide path has been intercepted and the automatic glide path capture sequence has been initiated. Goes out when autopilot is disengaged or NAV SELECTOR is moved out of ILS.

4 AUTO TRIM OFF Light

Indicates that automatic pitch trim is inoperative due to malfunction in that system.

Location: a) Captain's Instrument Panel, b) Center Instrument Panel.



INTERLOCK SYSTEM

Three minutes of uninterrupted electrical power to the autopilot are required for satisfactory operation. If the autopilot power supply is interrupted during autopilot operation, the Servos lever will automatically return to OFF. A time delay circuit permits immediate re-engagement of the autopilot, if power is restored to the autopilot

within twenty seconds. If the interruption is longer than twenty seconds, a full three minutes is required before re-engaging the autopilot. If the Servos lever is in AUTOPILOT and the autopilot circuit breaker is opened, the lever returns to YAW DAMPER. If the Servos lever is in AUTOPILOT or YAW DAMPER and the yaw damper circuit breaker is opened, the Servos lever returns to OFF.

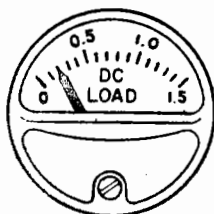
INTERLOCK CHART

NOTE: Nomenclature for SP30-15 is enclosed in parenthesis where different from SP30-14.

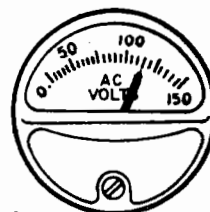
ACTION OR CONDITION	CONTROL					
	PITCH SELECTOR	PITCH (VERT SPD) KNOB	TURN KNOB	TURN NAV SELECTOR	C OR F/O'S A/P REL BUTTON	CONTROL WHEEL PITCH TRIM SWITCHES OR SUITCASE HANDLES
Servos lever cannot be engaged in YAW DAMPER or AUTOPILOT position unless:	In PITCH KNOT* (VERT SPEED) position.	In centered* position (Does not apply to SP 30-15).	In detent** position, (arrow pointing forward).	In TURN KNOB* position.		
Servos lever automatically returns from AUTOPILOT position if:					Pressed.	Moved.
Pitch Selector automatically returns to PITCH KNOB (VERT SPEED) position if:		Moved from centered position (moved)		In GLIDE PATH (ILS) position & glide slope beam is captured.		
Turn (NAV) Selector automatically returns from any other of its positions to TURN KNOB position if:			Moved from detent position.			
After glide path capture the turn selector automatically returns from GLIDE PATH (ILS) to TURN KNOB position if:		Moved from centered position (Does not apply to SP 30-15 when G/P extend activated).				

* These controls are spring-loaded to the positions indicated.

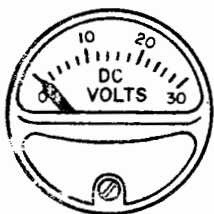
** Not a self-centering device and must be returned to detent position manually.

**DC LOADmeter.**

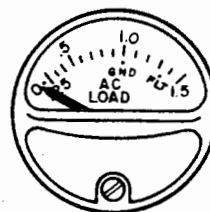
Indicates current drawn from the corresponding transformer rectifier, in TR rating terms.

**AC VOLTmeter.**

Indicates generator or AC tie bus voltage as selected. Generator voltage is also indicated when generator relay is open.

**DC VOLTmeter.**

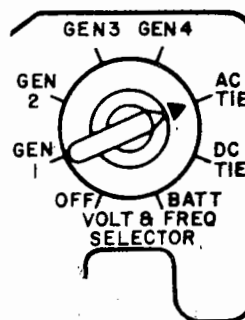
Indicates voltage of DC tie bus, or battery, as selected by VOLT & FREQ Selector.

**AC LOADmeter.**

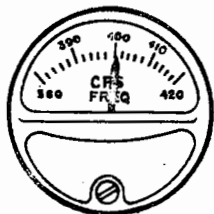
Indicates generator output in terms of generator rating.

**GEN. DR. OIL Indicator.**

Indicates temperature rise of the oil passing through the CSD.

**VOLT & FREQUENCY SELECTOR.**

Selects source for AC VOLTmeter, FREQUENCY meter, and DC VOLTmeter.

**FREQUENCY Meter.**

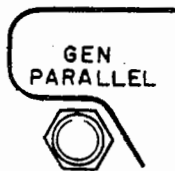
Indicates generator or AC tie bus frequency as selected. Generator frequency is also indicated when generator relay is open.

Location: Second Officer's panel.



GEN DRIVE OIL Light.

Illuminates when CSD oil pressure is low.



GEN PARALLEL Button.

When pressed initiates generator paralleling provided the BATT-EXT PWR switch is in BATT and AC ISOL switch is in NOR.

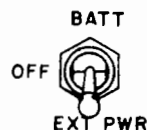


EMER BUS PWR FAIL Lights.

Illuminate with MASTER WARNING light with a power loss to the corresponding emergency AC bus.

EXT PWR AVAIL Light.

Illuminates when external power source is connected to the airplane.



BATT-EXT PWR Switch.

BATT - Battery connected to battery bus.
EXT PWR - External power is supplied to the AC tie bus and energizes entire electrical system. Battery is disconnected from battery bus.

OFF - Disconnects both the battery and external power from the buses.



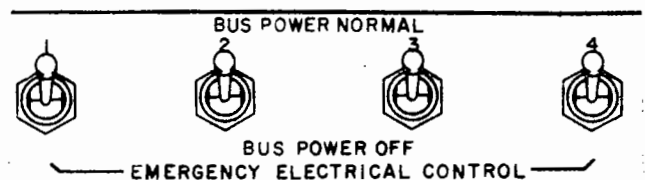
GEN OVERL'D Light.

Illuminates when any AC LOAD-meter approaches 1.0 on the ground or 1.37 in flight.



GENERATOR CONTROL Switches.

ON - generator relay normally closed.
OFF - generator relay always open.
RESET - momentary contact restores generator output of a generator that is turning but not producing voltage and frequency.



EMERGENCY ELECTRICAL CONTROL Switches.

BUS POWER NORMAL - Arms the main load monitor relay to close.
BUS POWER OFF - Opens the main load monitor relay.



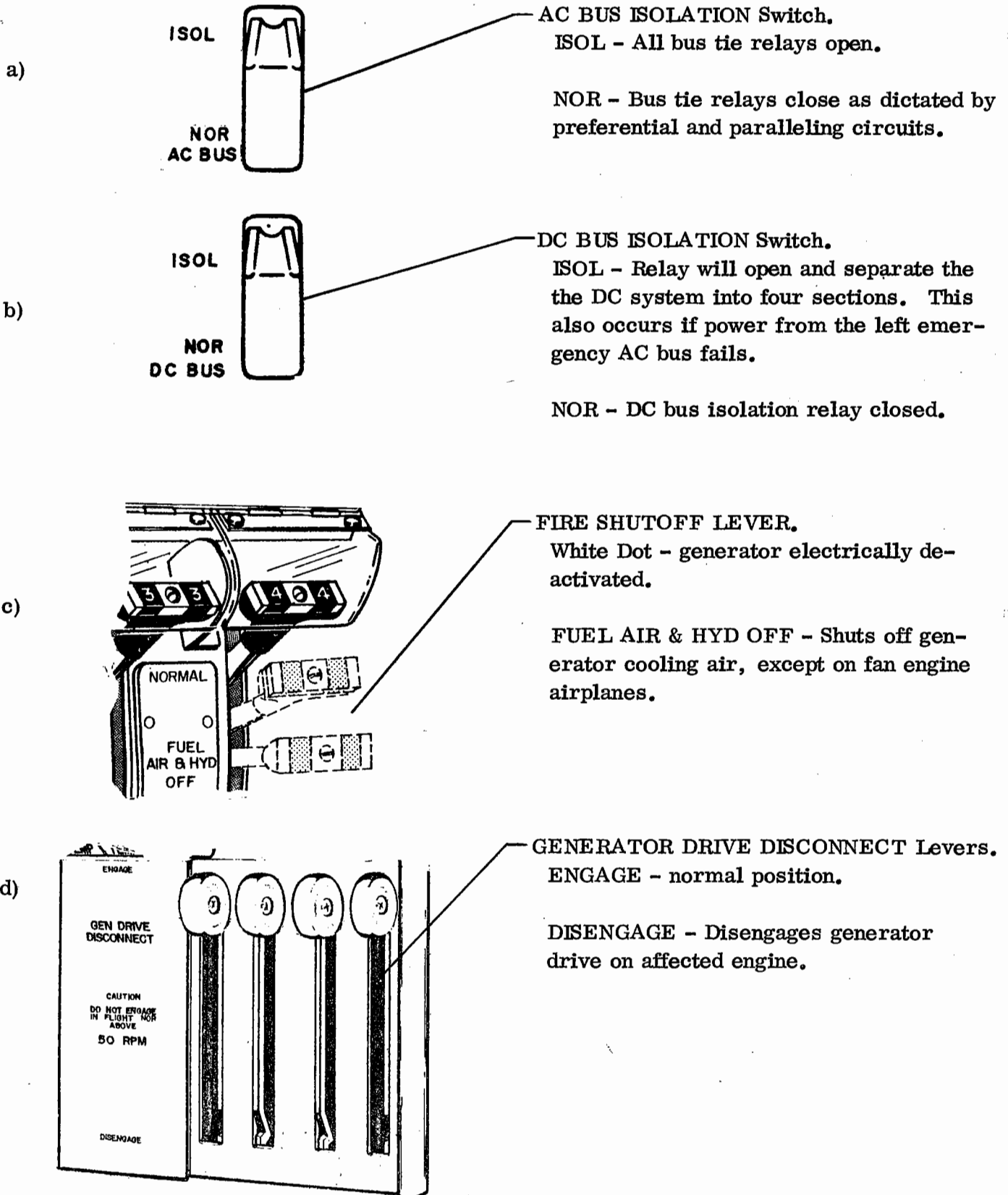
GEN UNPARL'D Light.

Illuminates when generator relay or bus tie relay corresponding generator is open and the generator is not supplying the AC tie bus.

BUS PWR FAIL Light.

Illuminates when corresponding main load monitor relay has opened indicating power is lost to the associated bus.

Location: Second Officer's Panel



Location: a), b) S/O Panel, c) Overhead Panel, d) S/O Pedestal

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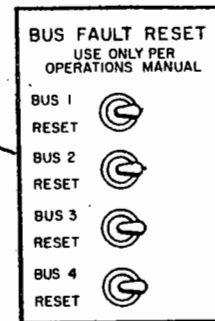
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BUS FAULT RESET Switches.

RESET - Momentary contact overcomes a lockout keeping the AC BTR open after a fault trip thereby closing the bus tie re-lays. If fault continues to exist, the bus tie relays will open again.

a)



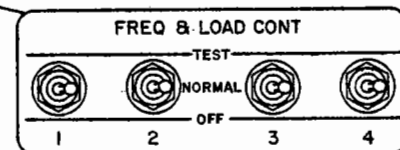
FREQ & LOAD CONT Switches.

TEST - Used as an aid in paralleling generators and to test whether or not the fine frequency control is working. Drives the frequency of the generator to a lower value when switch is held in this position. Frequency will return to normal when switch is released. Do not use when generators are paralleled.

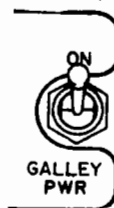
NORMAL - Fine frequency control of the CSD is maintained.

OFF - Fine frequency control is removed.

b)



c)

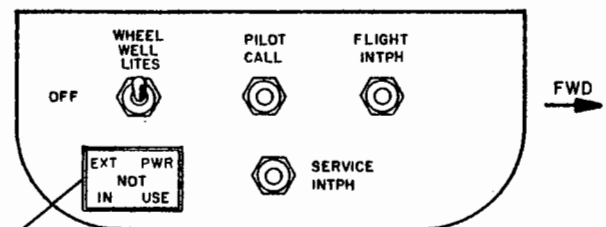


GALLEY PWR Switch.

Controls power to both the forward and aft galleys.

EXTERNAL POWER RECEPTACLE

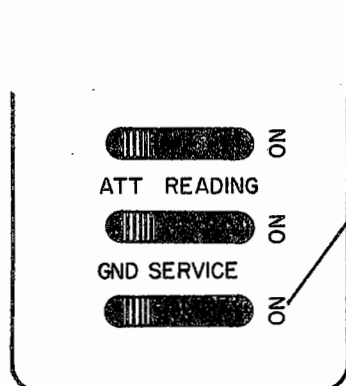
d)



EXT PWR NOT IN USE Light.

Illuminates when external power is connected but not being used.

Location: a) Outboard Main CB Panel, b) S/O Table, c) S/O Panel, d) Ext. Power Receptacle

**GND SERVICE Switch.**

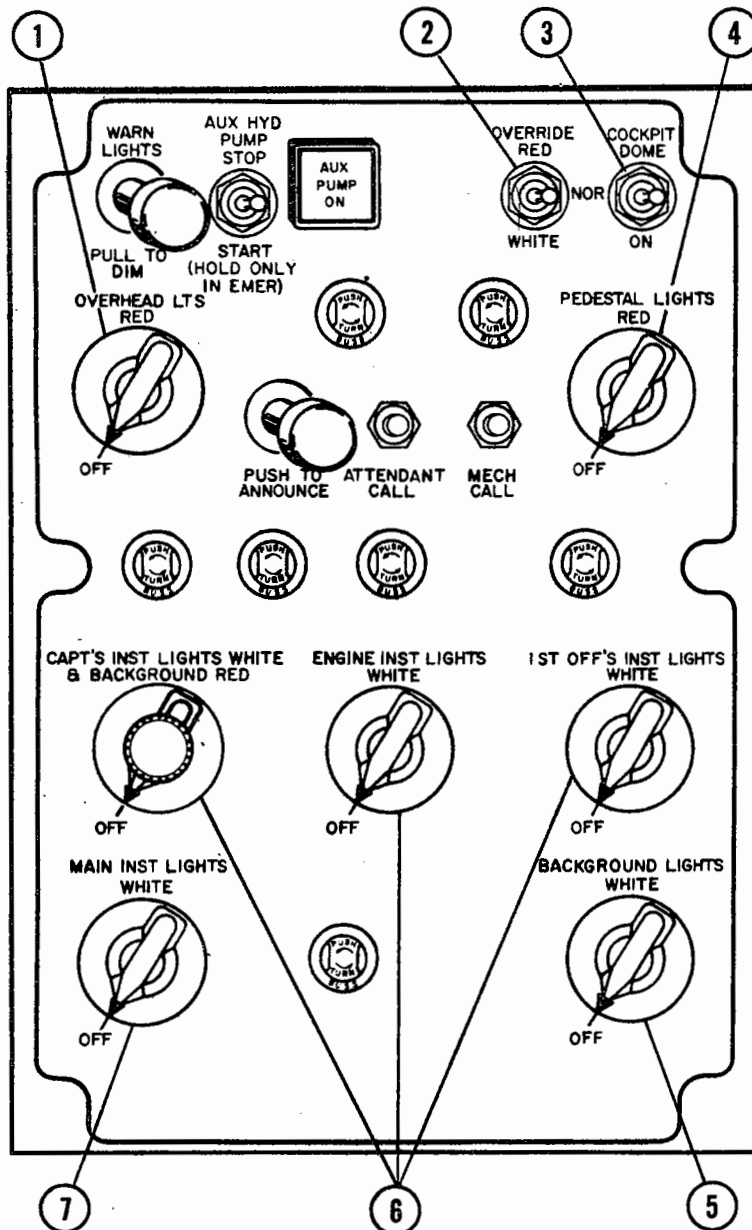
ON - Permits external power to be connected to Cabin Bus 4 only without supplying remainder of electrical system. Used for towing or ground servicing when other electrical units are not required. Following units will be supplied: Aux. Hyd. Pump; Nose, Main Wheel and lower compartment lights; Nav. Lights; some cockpit and cabin lights and the Hyd Brake and Airbrake Press. Indicators.

Location: Forward Passenger door.

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1 OVERHEAD LTS Switch.

Controls instrument lighting on the Overhead panel.

2 OVERRIDE Switch.

RED - Second Officer's flood lights (white) are without power.

NOR - Power available to all light controls.

WHITE - Instrument panel background lights and Second Officer flood lights illuminate at full intensity.

3 COCKPIT DOME Switch.

Controls 2 white dome lights in the cockpit.

4 PEDESTAL LIGHTS Switch.

Controls lighting of the Control Pedestal and lighting on the Longitudinal Trim Handle and Flap Lever.

5 BACKGROUND LIGHTS Switch.

Controls background lighting for pilot's instrument panels.

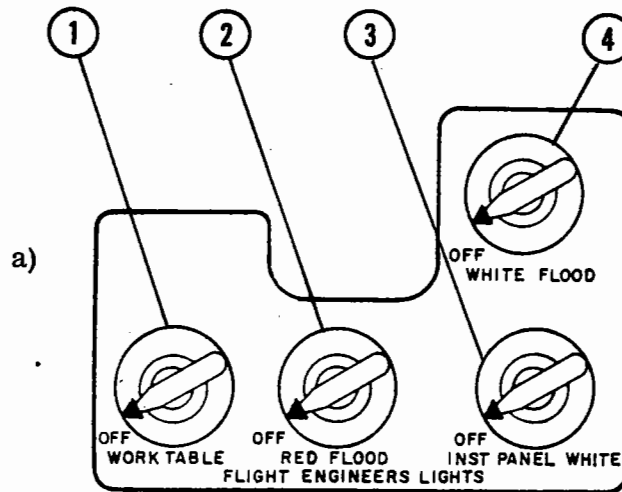
6 Pilots INST Panel Edge Lights and INST LIGHTS.

Provides instrument red lighting on instrument panels, glareshield and sidewall panels. Captain's control is dual concentric unit, the center knob controls instrument background lighting.

7 MAIN INST LIGHTS Switch.

Controls lighting for the pilots' instrument panels, glareshield and side panels.

Location: Overhead Panel



1 WORKTABLE Light Control. Controls intensity of light to S/O's work table. Red filter may be selected if desired. 2 RED FLOOD Light Control. Controls intensity of red overhead lighting for S/O's panel.	3 INST PANEL Light Control. Controls intensity of red lighting on S/O's panel. 4 WHITE FLOOD Light Control. Controls intensity of white fluorescent ceiling lights for S/O panel and general cockpit area.

MISCELLANEOUS LIGHT CONTROLS (Not Shown)

- OBSERVERS MAP LIGHT Control.**
Provides white or red spot illumination at Observer's station. Control adjacent to the light at the left rear of overhead panel adjusts intensity of the light. Red filter may be selected if desired.
- ELECTRICAL POWER CENTER Lights Control.**
Provides illumination of various inner panel areas of the cockpit for maintenance use. Switch is on lower left side of S/O work table.

Location: a) Second Officer's Panel, b) Navigator's Panel

(Miscellaneous Lights continued)

CIRCUIT BREAKER PANEL FLOODLIGHT Control.

Switch on upper frame of Second Officer's panel provides red lighting for circuit breaker panel.

PILOTS BRIEFCASE Light Control.

A push button beneath the light on each sidewall provides red illumination of briefcase storage area.

PILOTS FLOOR Lights Control.

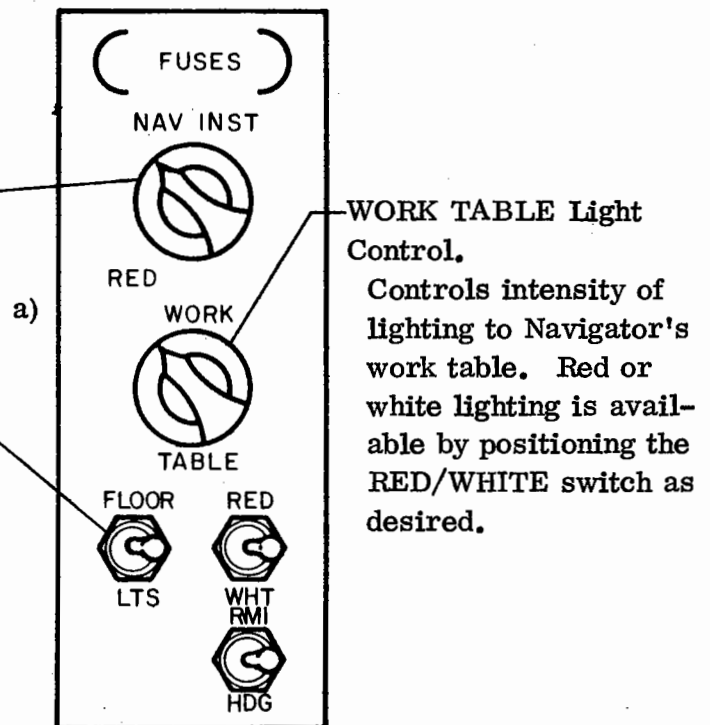
Controls on each sidewall provide red illumination of the pilots' floor area.

NAV INST Light Control.

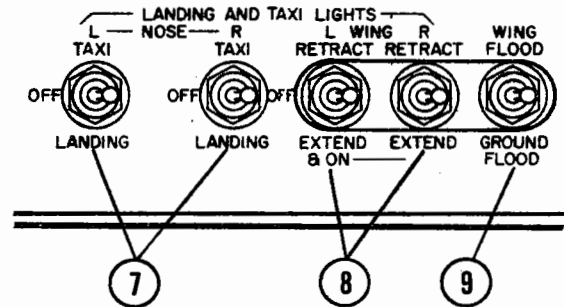
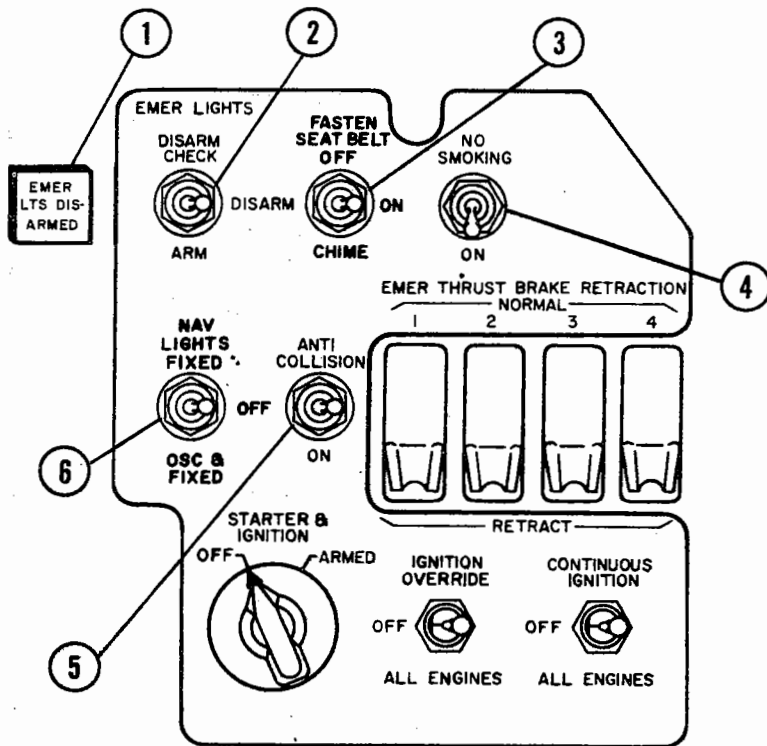
Controls intensity of red lighting of Navigator's panel.

FLOOR LTS Control.

Provides red illumination of Navigator's floor area.



Location: a) Navigator's Panel



- 1 **EMER LTS DISARMED Light.**
Illuminates when the emergency lighting circuit is disarmed or faulty.
- 2 **EMER LIGHTS Switch.**
DISARM CHECK - Checks that all emergency lighting circuits are disarmed.

DISARM - Disarms all emergency lighting circuits.

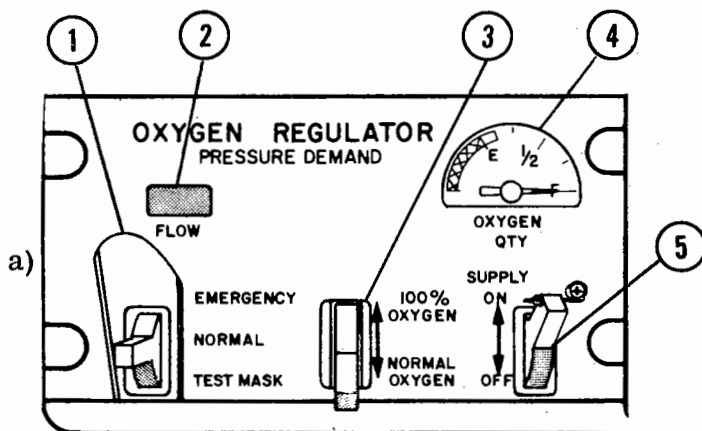
ARM - Arms all emergency lighting circuits.
- 3 **FASTEN SEAT BELT Switch.**
Controls associated lights in cabin.
- 4 **NO SMOKING Switch.**
Controls associated lights in cabin.

- 5 **ANTI COLLISION Switch.**
Controls Anti-collision lights.
- 6 **NAV LIGHTS Switch.**
Controls oscillating and fixed navigation lights.
- 7 **NOSE LANDING AND TAXI LTS Switches.**
Landing Gear lever must be DOWN and in detent to complete the lights' circuit.
LDG - High intensity illumination.
TAXI - Lower intensity illumination.
- 8 **Retractable Landing Lights Switches.**
RETRACT - Retracts underwing landing lights.

EXTEND & ON - Extends and illuminates underwing landing lights.
- 9 **WING and GND FLOODLIGHT Switch.**
WING FLOOD - Controls floodlight that illuminate nacelles and leading edge of the wings.

GND FLOOD - Controls wing floodlights plus light in each wing root that illuminates the ground.

Location: Overhead Panel



1 Mask Selector.

NORMAL - Provides for demand breathing as selected by Oxygen Selector up to 28,000 feet cabin altitude. Automatically provides 100% oxygen under pressure when cabin altitude is above 28,000 feet.

EMERGENCY - Provides 100% oxygen under pressure at all altitudes.

TEST MASK - At all altitudes, provides 100% oxygen at higher pressure to clear mask of contaminants and test the fit of mask. Spring loaded to NORMAL position.

2 FLOW indicator.

White - Oxygen flowing.
Black - No oxygen flow.

3 OXYGEN Selector.

NORMAL - Provides oxygen and air mixture below 28,000 feet cabin altitude when Mask Selector is NORMAL. Permits flow of 100% oxygen above 28,000 feet cabin altitude.

100% OXYGEN - Provides 100% oxygen for demand breathing up to 28,000 feet cabin altitude.

4 OXYGEN QTY Indicator.

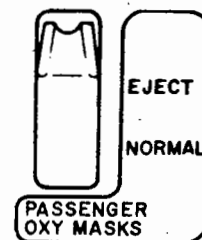
F - Full; 1/2; E - Empty.

5 OXYGEN SUPPLY Switch.

ON - Allows oxygen flow to the regulator.

OFF - Shuts off oxygen flow to regulator.

b)

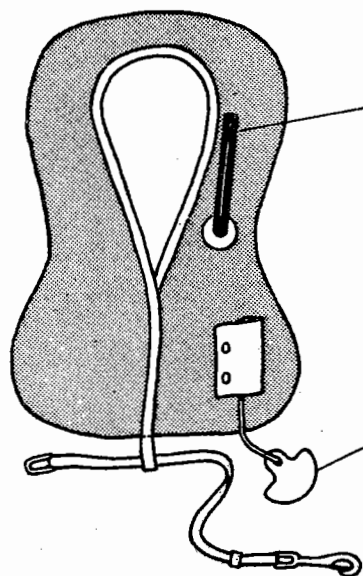


PASSENGER OXY MASKS Switch.

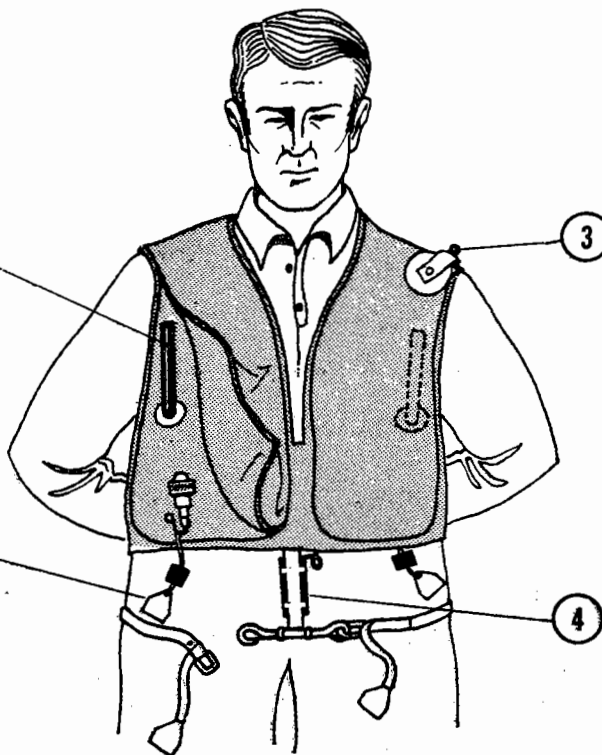
EJECT - Actuates bypass surge valve, opening cabin mask container doors.

Location: a) All crew positions in the cockpit, b) S/O Panel

LIFE VESTS



DOMESTIC CREW VEST



ADULT

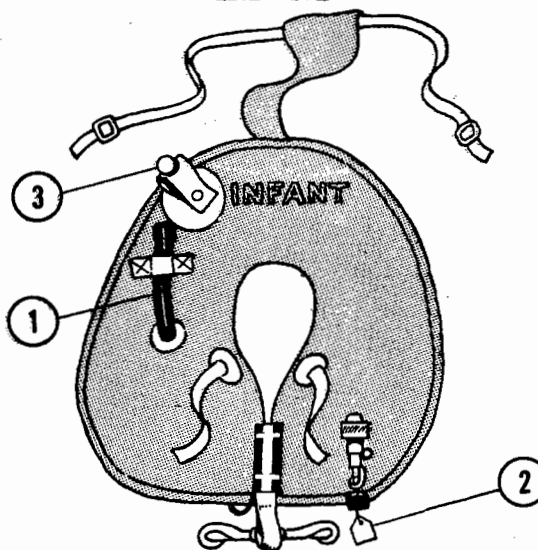
OVERWATER VESTS

1. Inflation Tube
For inflating by mouth should
CO₂ fail or be depleted.
2. Inflation Knob
Pull down to activate CO₂
cartridge to inflate vest.
3. Light
4. Battery

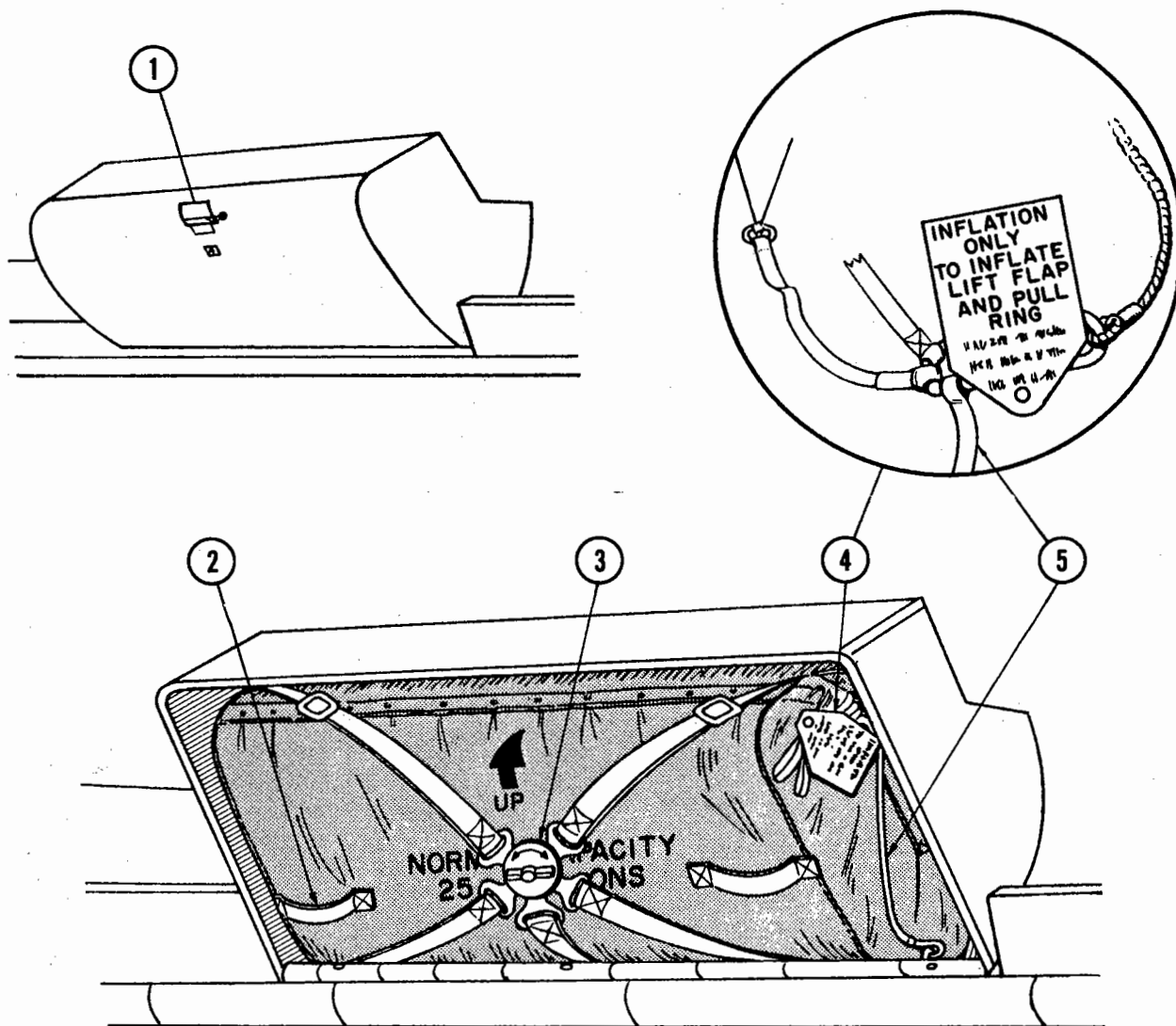
NOTE

To deflate vest: pull short
rubber tube from inflation
tube and depress the exposed
valve stem.

INFANT



HATRACK LIFE RAFT



1. Door Latch
Lift up to remove door.

2. Carrying Handle

3. Strap Release
Rotate to release 5 straps.
After release, remove raft by
rolling it out from the top.

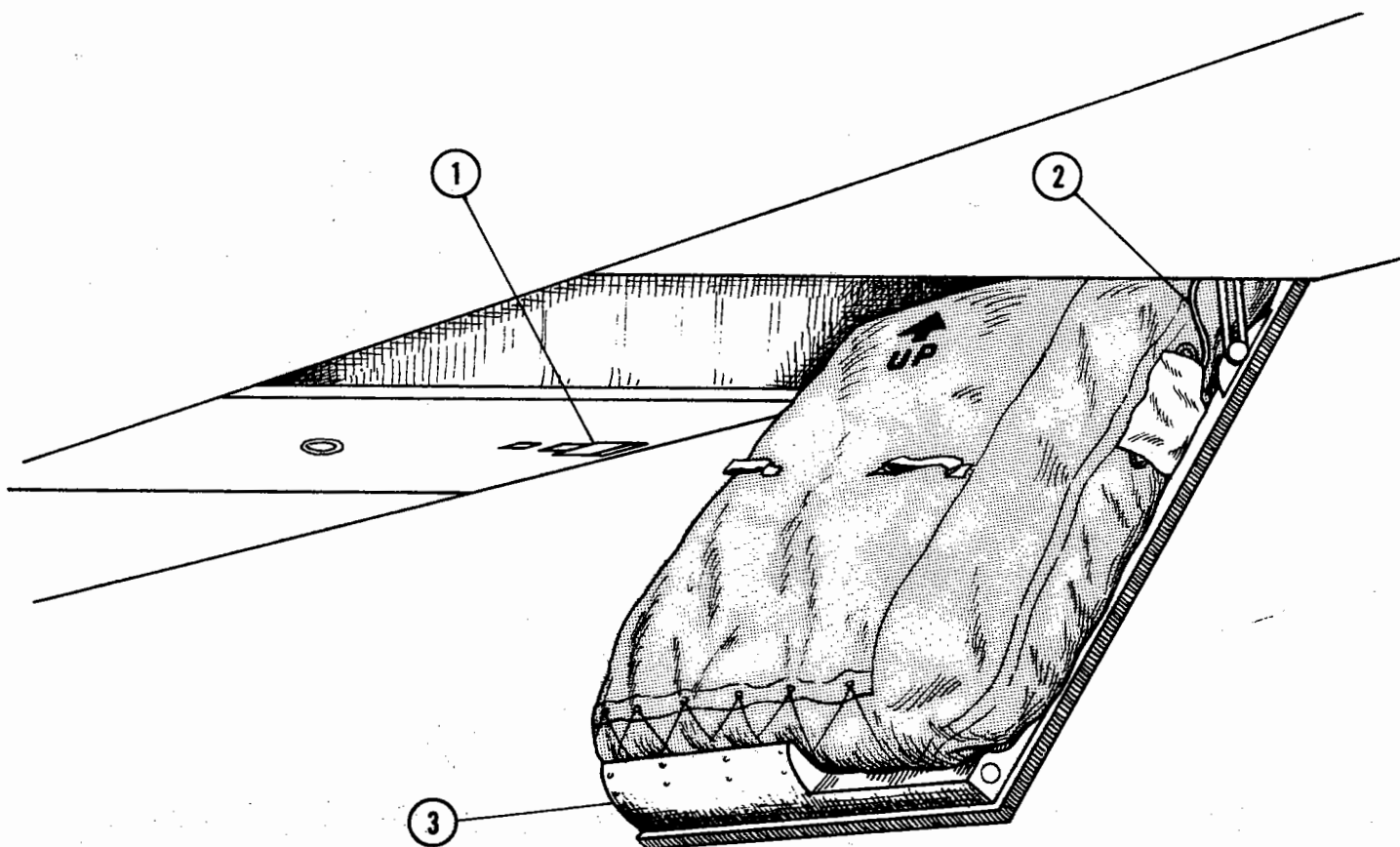
4. Inflation Mechanism

5. Static Line
Nylon tape attached by snap
hook to compartment and to
inflation mechanism of raft.

CAUTION

Do not move raft by this line
as inadvertant inflation may
occur.

CEILING RAFT



1. Door Latch
Pull down to open door.
2. Static Line
Nylon tape attached by
snap hook to compartment
and to inflation mechanism
of raft.

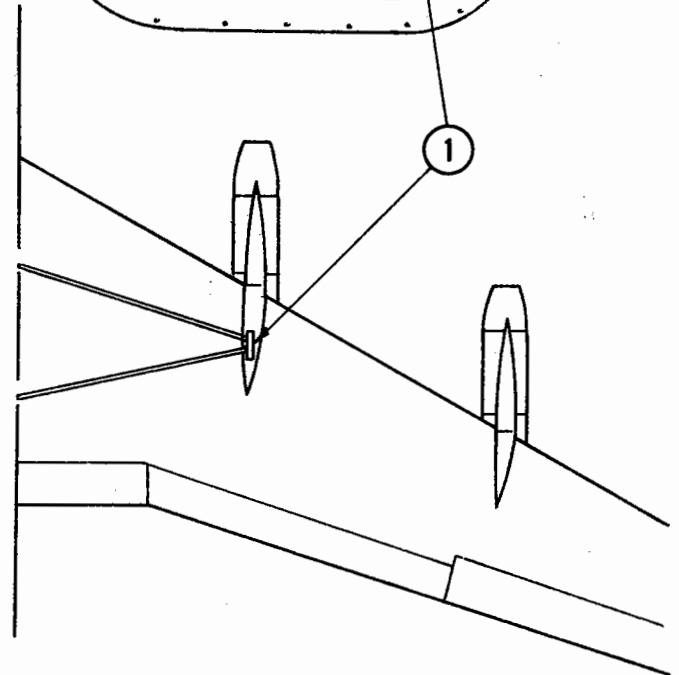
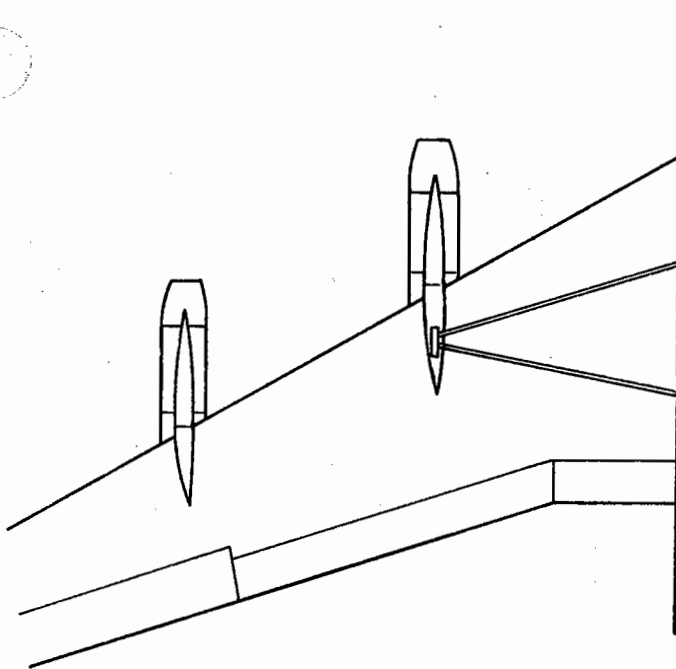
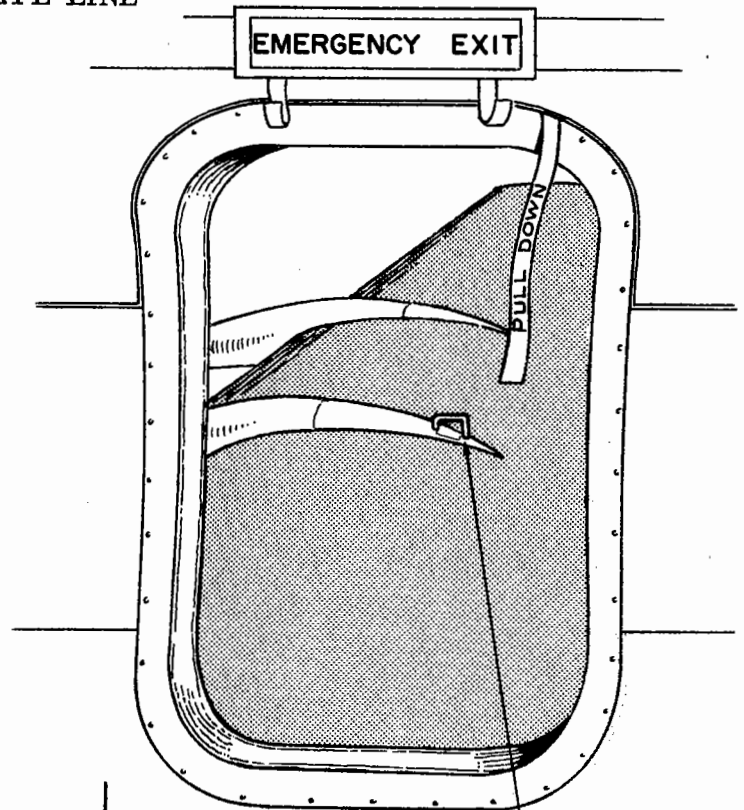
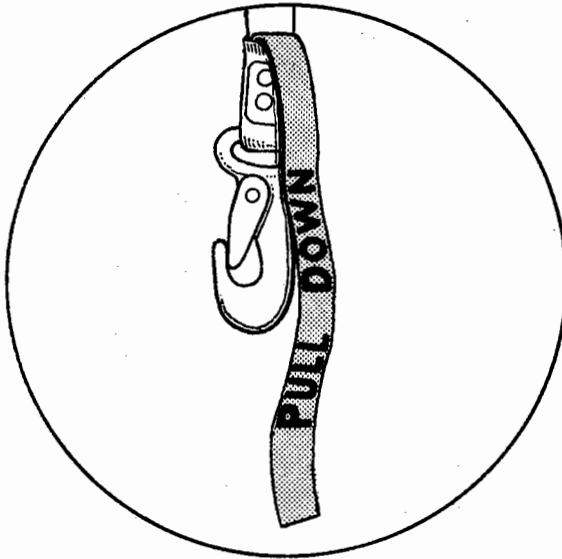
CAUTION

Do not move raft by this line
as inadvertent inflation may
occur.

3. Holding Bracket
Holds raft on door until
raft is lifted by two men
from door, at which time
the door automatically
closes.



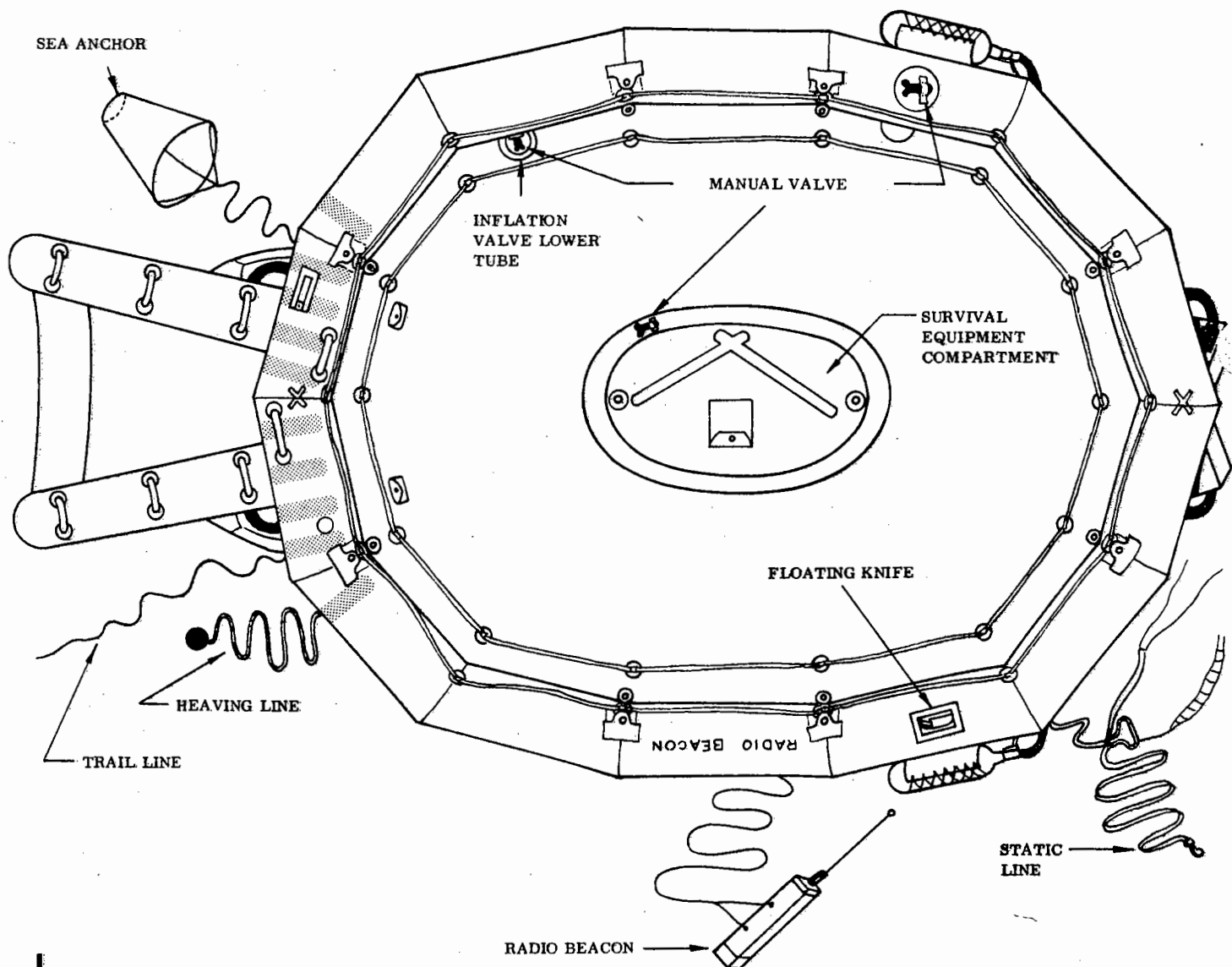
ESCAPE LINE



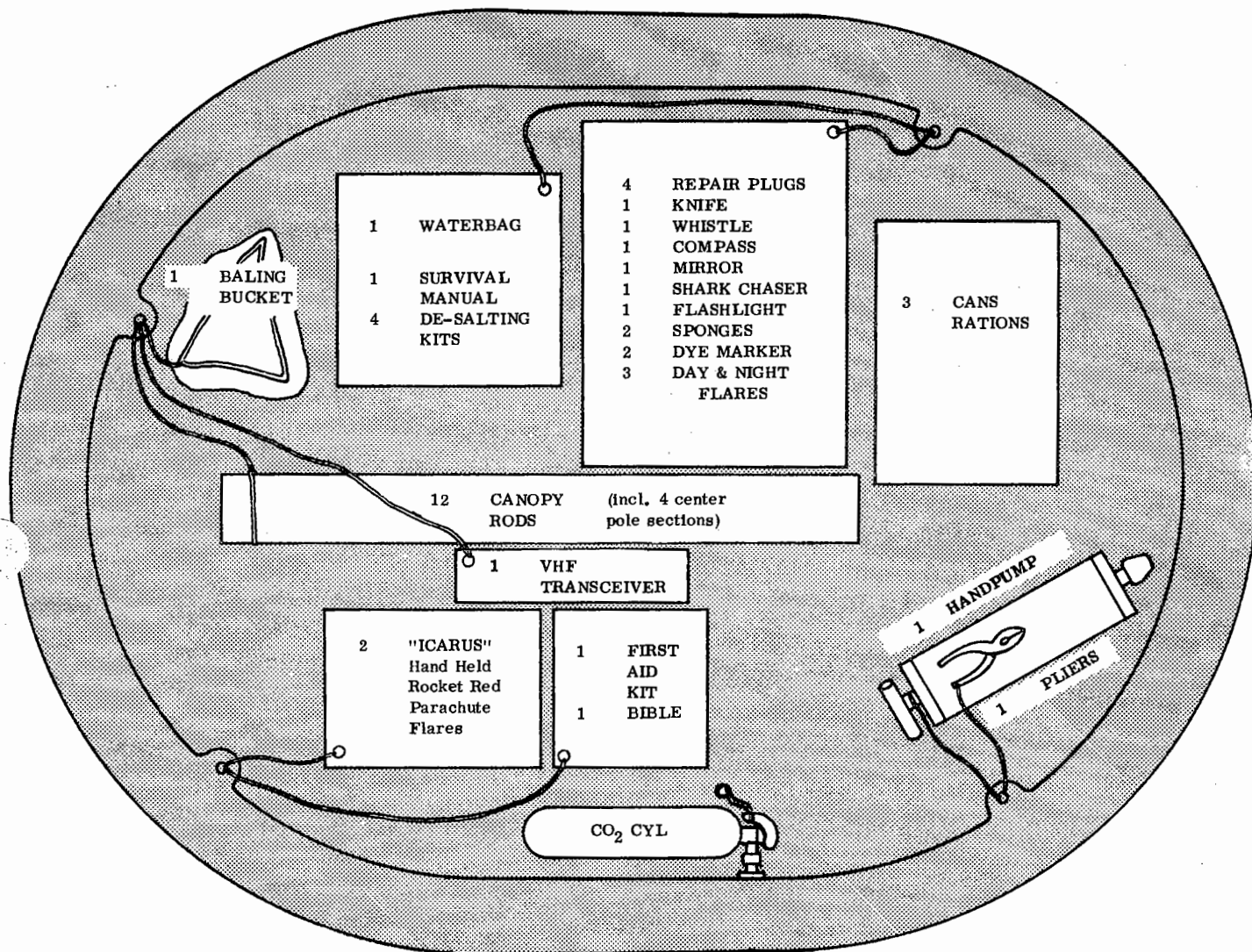
1. Wing Attach Fitting
Attach Escape Line to this fitting.

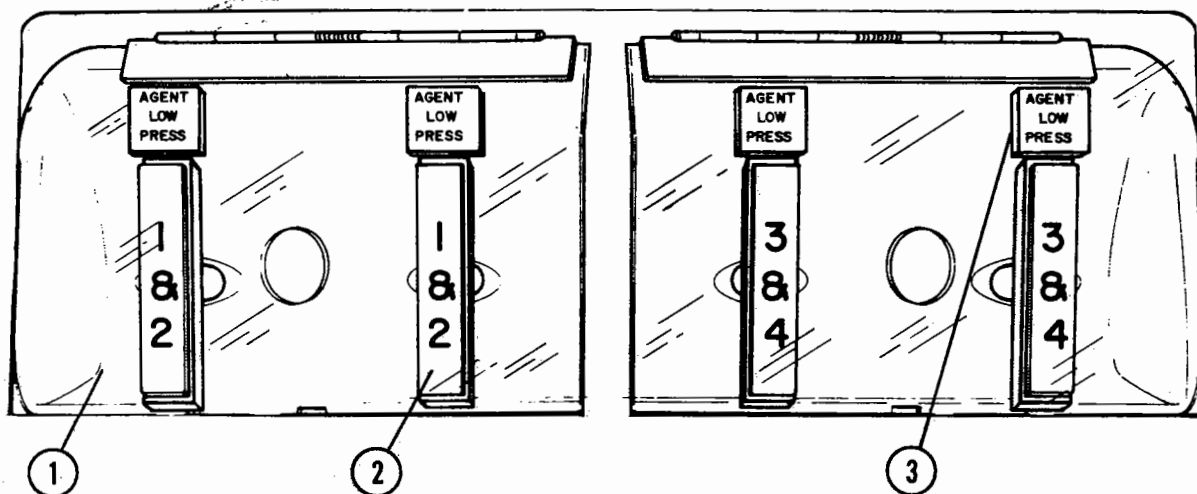


25 MAN LIFE RAFT



LIFE RAFT
SURVIVAL EQUIPMENT COMPARTMENT



**1. Cover.**

Automatically opens when Fire Shutoff lever is in SELECT AGENT. May also be manually opened.

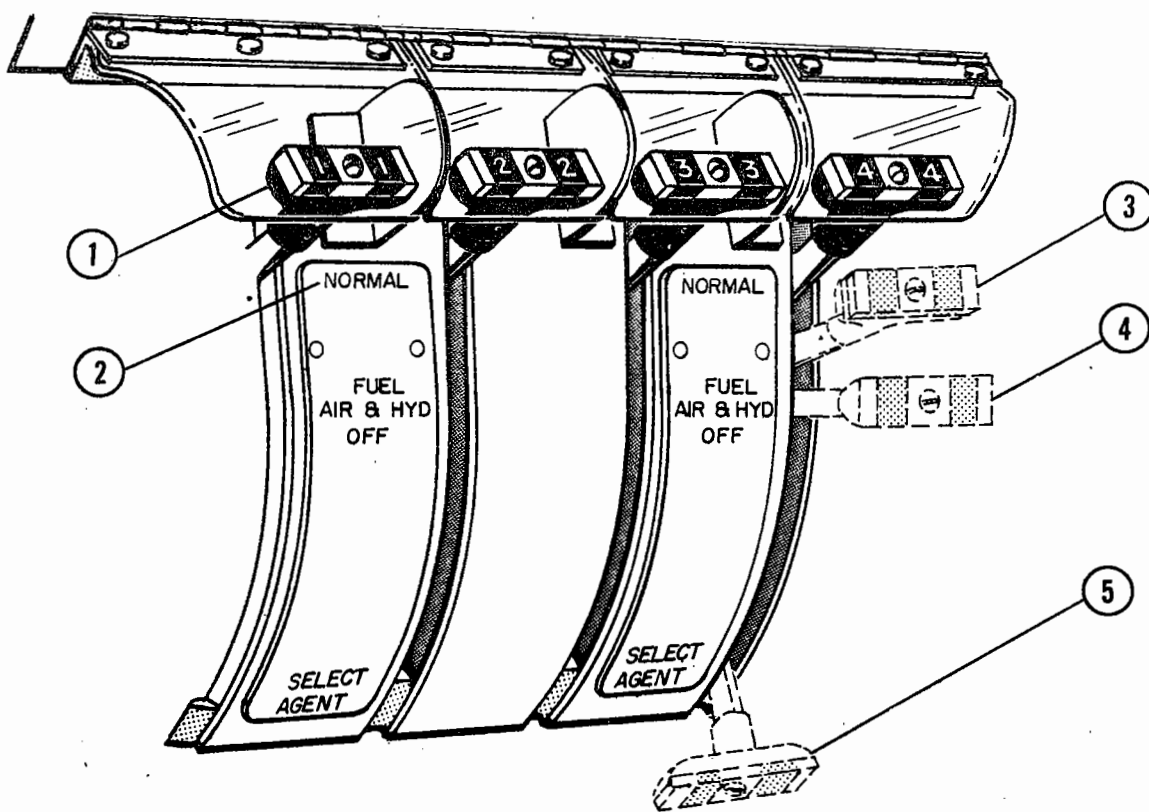
2. Agent Discharge Handle.

When pulled, discharges agent from corresponding bottle to either engine on same side as selected by the Fire Shutoff lever.

3. AGENT LOW PRESS Light.

Illuminates to indicate low pressure in agent supply bottle. May be pressed to test.

Location: Overhead panel



1 Fire Shutoff Lever.

When moved down to the full forward position closes corresponding engine shutoff valves in sequence.

2 NORMAL.

All shutoff valves open. Agent Discharge Handle cover closed.

3 Index Mark (White dot).

Generator electrically deactivated and Pneumatic System Valves closed electrically.

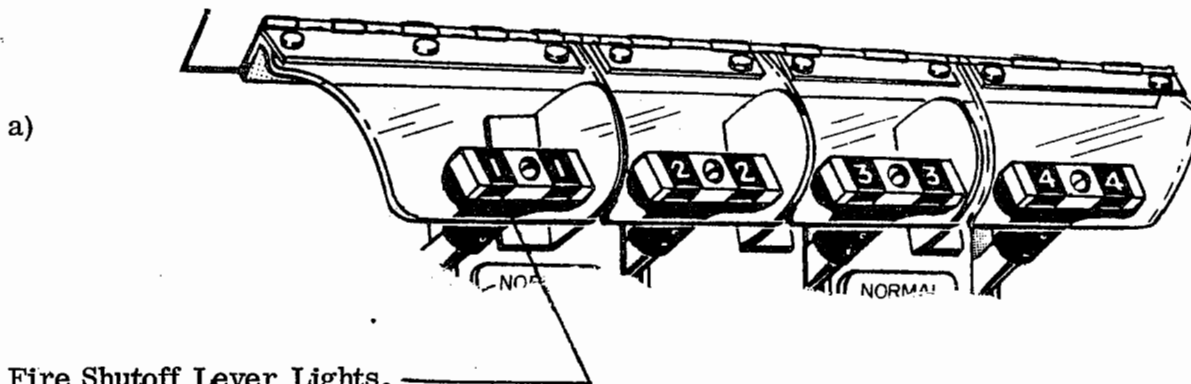
4 FUEL AIR & HYD OFF.

Fuel Shutoff valve, Hydraulic Shutoff valve (inboard engines only) and Pneumatic Shutoff valve closed. In addition, on JT4A airplanes, the Generator Cooling Air Shutoff and Accessory Section Ventilating Inlet valves are also closed.

5 SELECT AGENT.

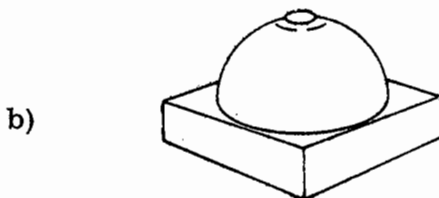
Agent Discharge Handle cover open. Agent Direction Valve positioned.

Location: Overhead Panel



Fire Shutoff Lever Lights.

Two lights per lever, when illuminated indicate nacelle fire condition for corresponding engine or corresponding FIRE WARNING TEST switch activated.



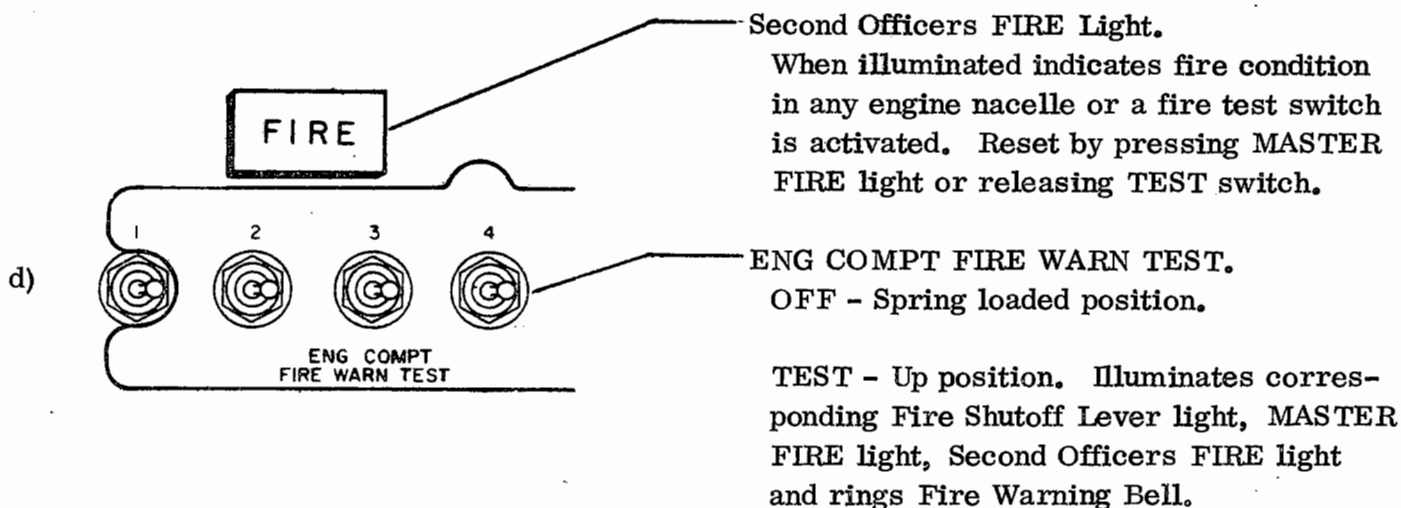
Engine Fire Warning Bell.

Sounds when fire condition exists in any engine nacelle or any fire test switch is activated. Silenced and reset by pressing MASTER FIRE light.



MASTER FIRE Light.

When on it indicates a fire condition in any engine nacelle or a fire test switch is activated. Pressing light cover: extinguishes and resets the MASTER FIRE and Second Officer's FIRE lights.



Second Officers FIRE Light.

When illuminated indicates fire condition in any engine nacelle or a fire test switch is activated. Reset by pressing MASTER FIRE light or releasing TEST switch.

ENG COMPT FIRE WARN TEST.

OFF - Spring loaded position.

TEST - Up position. Illuminates corresponding Fire Shutoff Lever light, MASTER FIRE light, Second Officers FIRE light and rings Fire Warning Bell.

Location: a) Overhead Panel, b) Captains Sidewall, c) Glareshield, d) S/O Panel

1 Airfoil Deicing Timer.

Set Knob to existing ram air temperature, which selects the speed of the de-icing cycle. The TEST position provides a rapid cycle for checking the system.

The window shows the position of the timer and which valves should be open at that time. Position 11 and 12 are used only when the Landing gear is down.

LONG CYCLE is used normally to melt "runback" after airplane is clear of icing conditions and provides a de-icing cycle twice as long as NORMAL cycle.

2 AIRFOIL DE-ICE Switch.

TIMER 1 or 2 - De-icing system, outer wing pneumatic shutoff valves and tail duct valve are energized if TAIL DUCT VALVE switch is in NORM. If pneumatic pressure is then available, the de-icing system will operate in flight only.

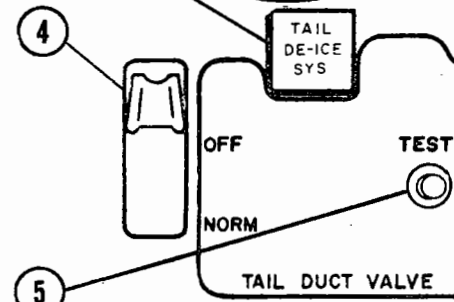
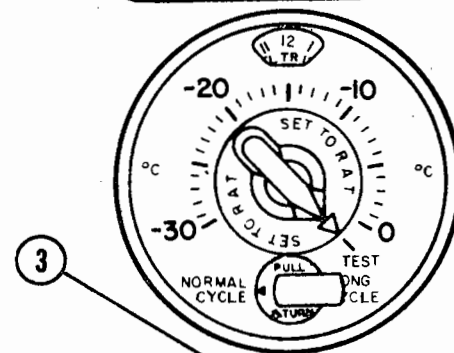
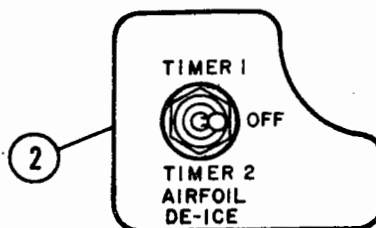
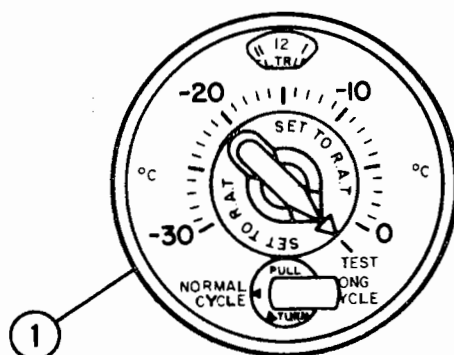
3 TAIL DE-ICE SYS Light.

Illuminates to indicate excessive air-flow to tail system.

4 TAIL DUCT VALVE Switch.

NORM - Guarded position, de-icing air flows to tail de-icing system.

OFF - Closes tail duct valve. Primary use is to test for tail de-icing valve failures or tail duct leaks and to isolate the tail de-icing system, if necessary.

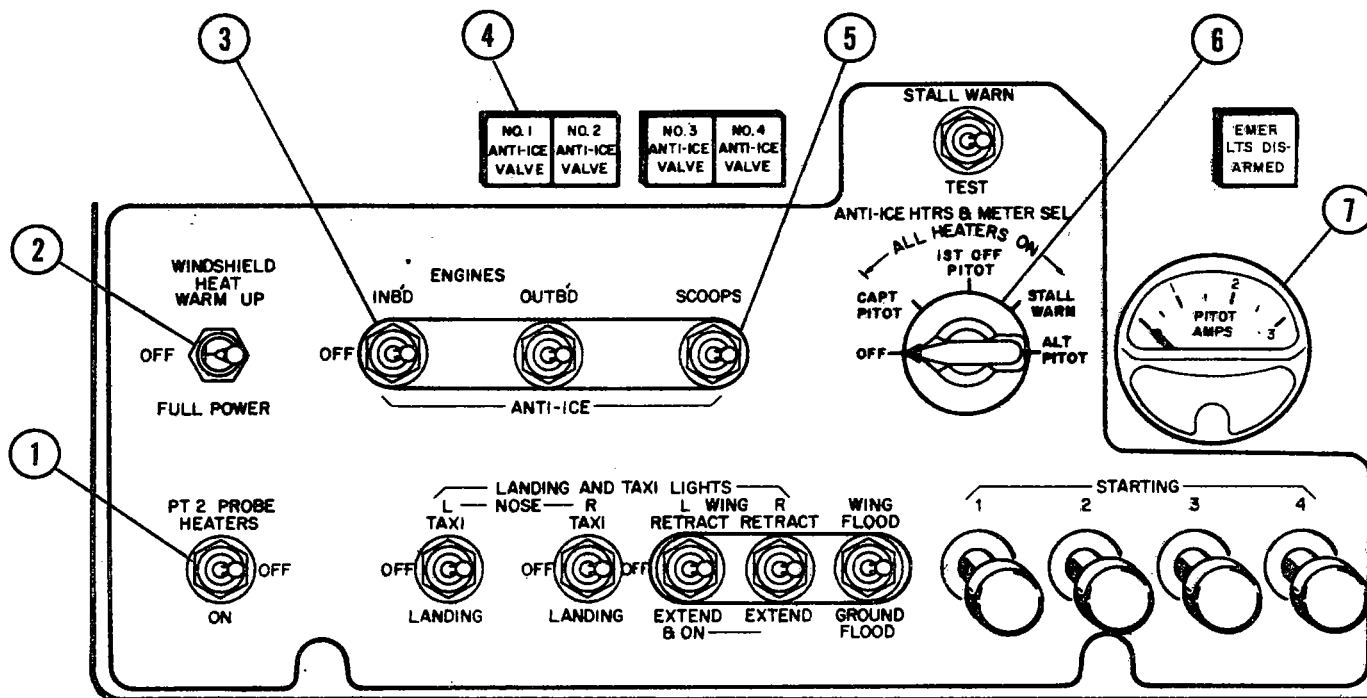


5 TAIL DUCT VALVE Test Switch (When installed).

Spring loaded to center off.

TEST - Opens outboard de-icing valve in each horizontal stabilizer. When TIMER opens one other de-icing valve, excessive airflow results and TAIL DE-ICE SYS light illuminates.

Location: Second Officer's Panel



1 PT 2 PROBE HEATERS Switch.

ON - Energizes the PT 2 heater probe in each engine.

2 WINDSHIELD HEAT Switch.

WARM UP - Reduced voltage to windshields; normal to eyebrow and clear-view windows.

FULL POWER - High voltage to windshield; normal to eyebrow and clear-view windows.

3 ENGINES ANTI-ICE Switches.

INB'D - Controls 3 anti-icing valves on engines 2 & 3.

OUTB'D - Controls 3 anti-icing valves on engines 1 & 4.

4 ANTI-ICE VALVE Lights.

One for each engine, illuminate whenever any of the 3 anti-icing valves is not in the position selected by the ENGINES ANTI-ICE switches, and when valves are moving from one position to another. Will illuminate to indicate a leaking or open nose cowl anti-icing valve when ENGINES ANTI-ICE switch is OFF. Illuminate also to indicate low bleed air pressure when ENGINES ANTI-ICE switch in ANTI-ICE.

Location: Overhead Panel

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5 SCOOPS ANTI-ICE Switch.

Energizes the air conditioning scoops anti-icing valve, and opens the pneumatic crossfeed valve.

7 PITOT AMPS.

Indicates current drawn by the heater selected by the ANTI-ICE HTR'S & METER SEL.

NOTE

A relay prevents the air conditioning anti-icing valves from opening regardless of switch position whenever the landing gear lever is in the DOWN detent and the Landing Gear Warning and Interlock circuit breaker is closed.

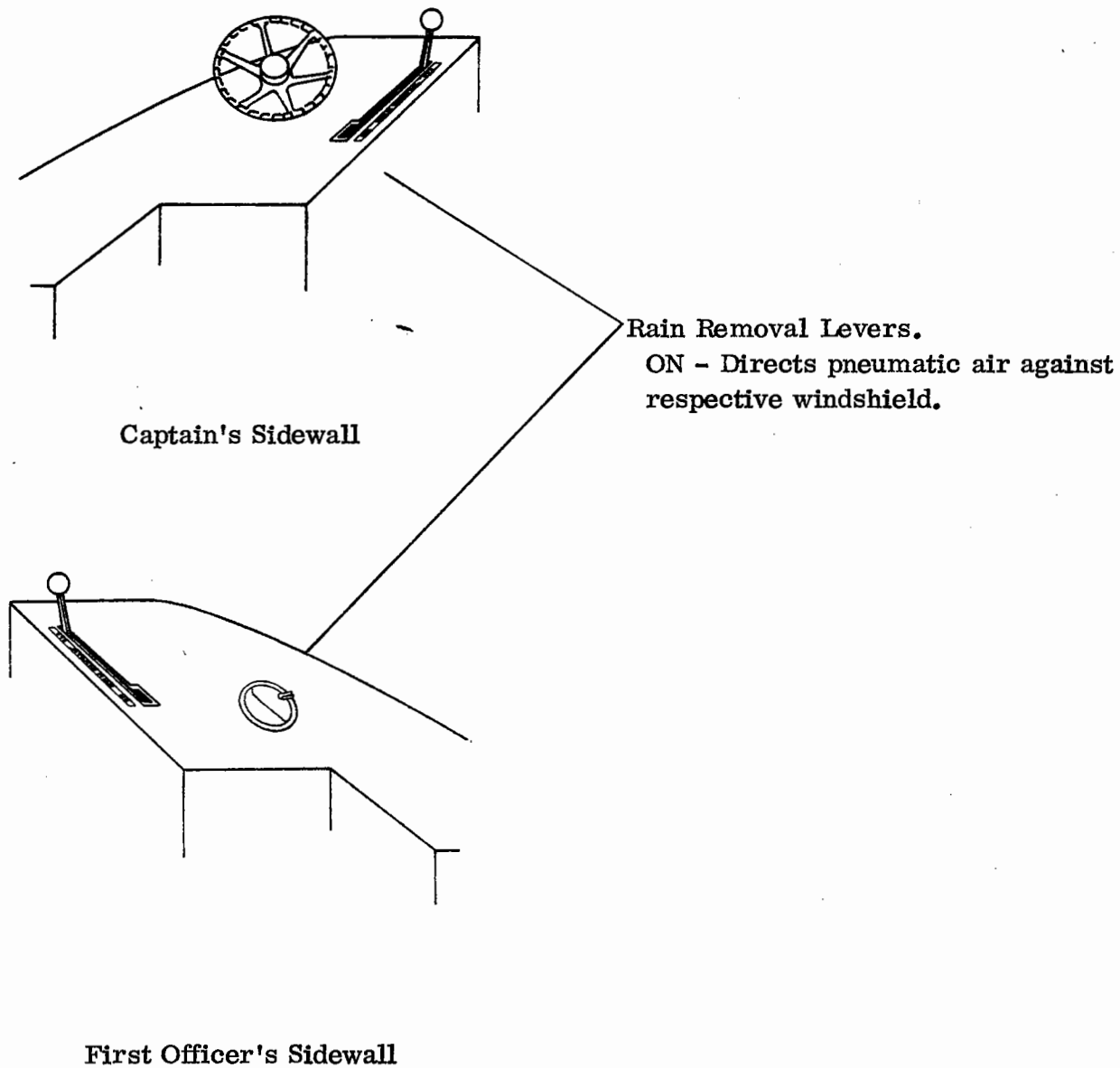
6 ANTI-ICE HTRS & METER SElector.

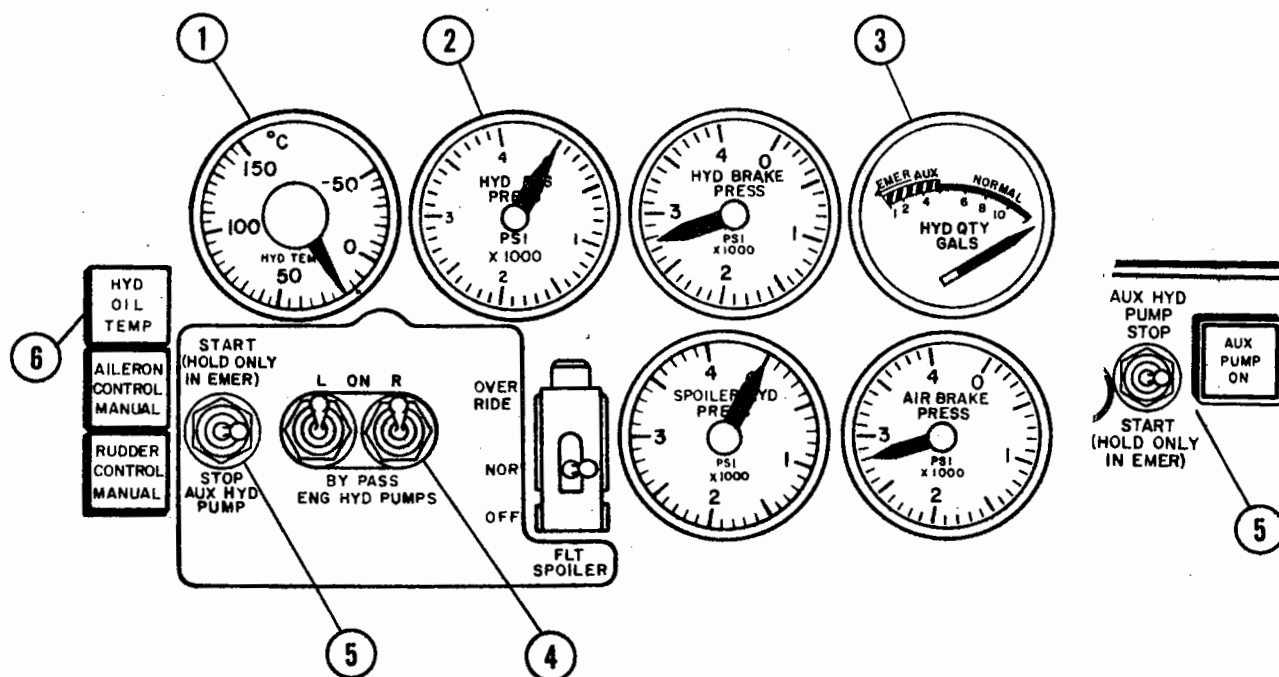
When positioned to any position other than OFF, Captain's pitot heater, First Officer's pitot heater and stall warning sensor heater will be energized. Selections are for checking the current drawn by a specific heater.

NOTE

On airplanes with 3 pitot tubes, a position is also provided for the ALT PITOT heater.

RAIN REMOVAL LEVERS



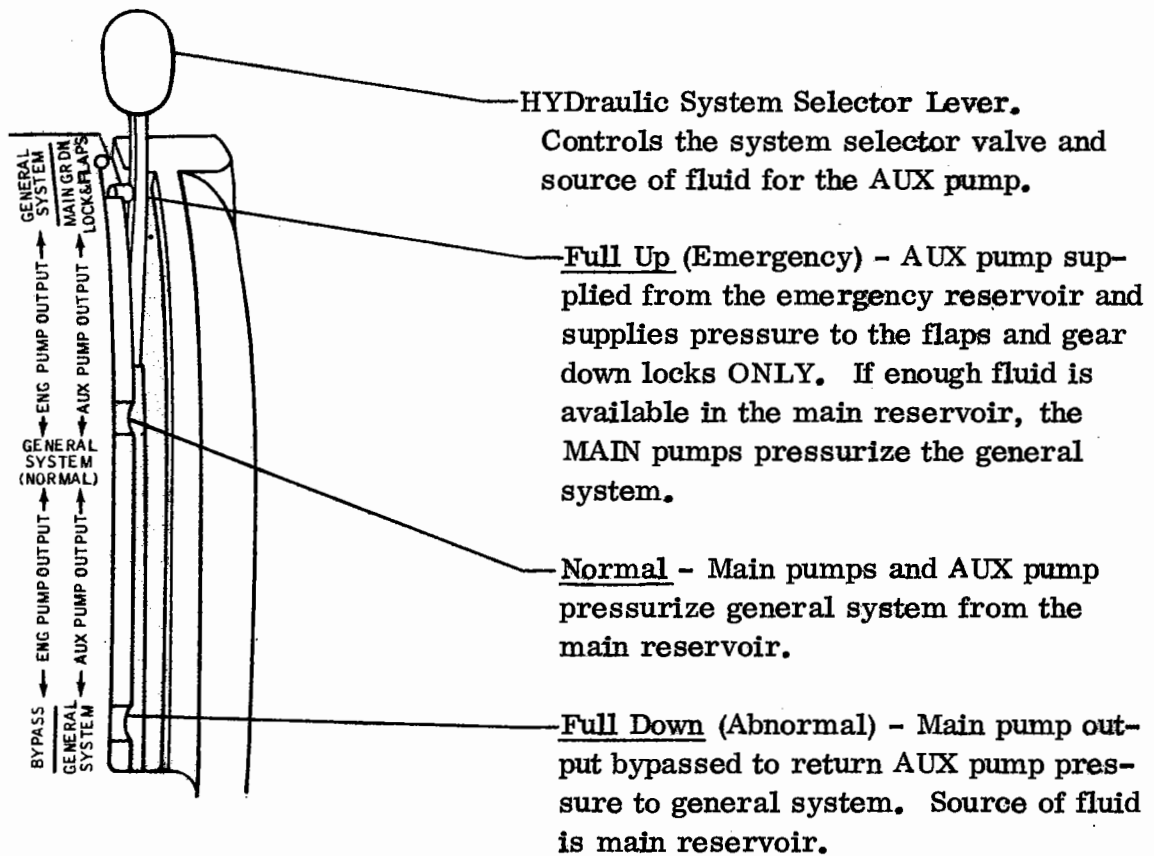


HYDRAULIC PANEL

- 1 **HYD TEMP Gauge.**
Indicates temperature in main reservoir. If electrical power is lost at transmitter on main reservoir, needle moves to low end of scale.
- 2 **HYD SYS PRESS Gauge.**
Pointer tends to remain in last position when electric power is lost.
- 3 **HYD QTY Gauge.**
If electrical power is lost at transmitter on main reservoir, needle will indicate zero. Needle will peg at high end of scale when reservoir is nearly full. The lower 5 gallons are available only to the AUX pump because of a standpipe in the main reservoir.
- 4 **ENG HYD PUMPS Switches.**
ON - Normal operation.
BYPASS - Reduces pump output to zero.
- 5 **AUX HYD PUMP Switch.**
START - Hold in this position to start pump, or in an emergency to override an overheat cutout.
STOP - Turns pump off.

Duplicate switch and AUX PUMP ON light (blue) are on the overhead panel.
- 6 **HYD OIL TEMP Light.**
Illuminates when main hydraulic fluid overheats. Overtemperature condition may be cross checked with HYD TEMP gauge.

Location: Second Officer's Panel.

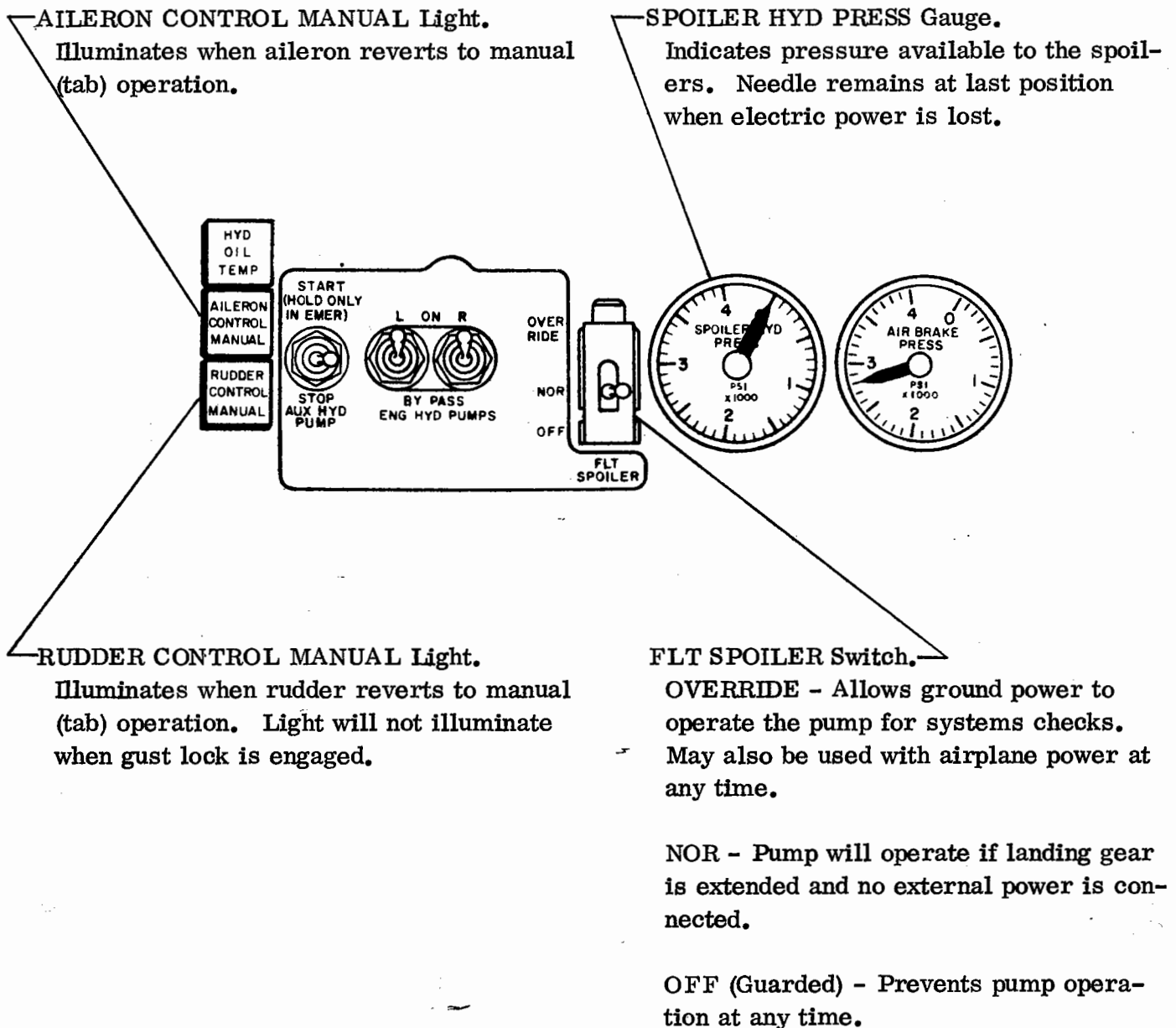


Location: Second Officer's Pedestal

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Location: Second Officer's Panel



EMER HYD LEVEL Light.

Illuminates when the emergency reservoir fluid level drops to one-half. There is no quantity gauge for this reservoir.

GRD SPOILER POWER Switch.

ALT - Main hydraulic system pressure admitted into the spoiler system when airplane is on the ground.

NORMAL - Independent hydraulic system powers the spoilers.

STANDBY RUDDER POWER Light.

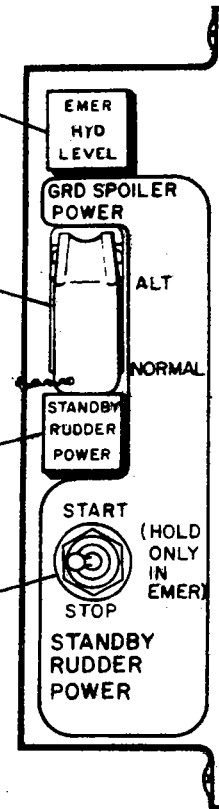
Illuminates when electric power is supplied to standby rudder pump.

STANDBY RUDDER POWER Switch.

Spring-loaded to center position.

START - Energizes electric standby rudder pump. In an emergency, if necessary, switch when held in this position overrides the overheat protection circuit.

STOP - Removes power from pump and light.



PTC EXTEND Light.

Illuminates when PTC is almost fully extended. This should occur at about .86 Mach.

b)



Location: a) Second Officer's Panel, b) Glareshield

LONGitudinal TRIM Handles.

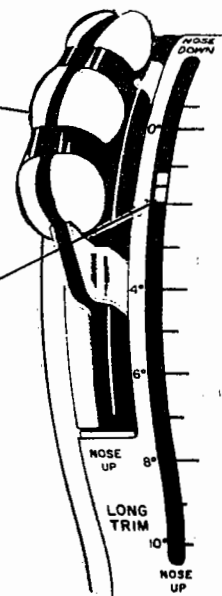
Handles must be moved together to hydraulically move the horizontal stabilizer in desired direction (NOSE UP or NOSE DOWN).

Full travel provides high speed stabilizer movement. At less than full travel, stabilizer moves slower.

Handles are spring loaded to neutral.

LONGITUDINAL TRIM Indicator.

Indicates amount of nose up or nose down trim applied.



ALT LONGitudinal TRIM Switches.

Provides electrical means of trimming stabilizer in case of hydraulic failure. Switches must be moved together and move stabilizer much slower than hydraulic system.



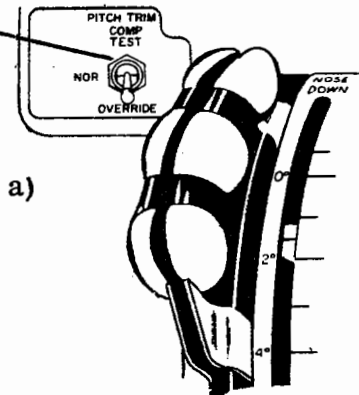
Location: Control Pedestal

**PITCH TRIM COMP Switch.**

TEST - Sends "high speed" signal to PTC computer to test system operation.

NOR - PTC computer controls system operation.

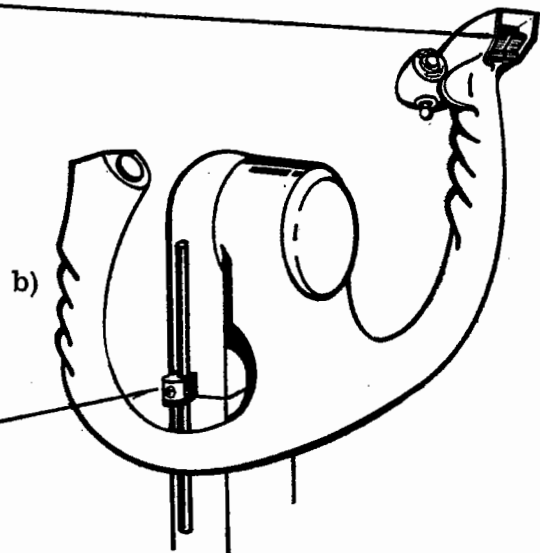
OVERRIDE - Disconnects and retracts the PTC. With the PTC Override Circuit Breaker open, this position will lock the actuator in whatever position it currently occupies.



a)

Longitudinal Trim Switches.

Normal means of providing only maximum speed hydraulic trim to the stabilizer. Operates the same cable and valve system as the Longitudinal Trim Handles. Both switches must be operated as one to obtain stabilizer movement.



b)

PTC Indicator.

Extends in proportion to the degree of PTC extension. Fully extended at M .88.

Location: a) Control Pedestal, b) F/O Control Wheel

SPOILER Control Lever.

RETRACT - Inboard spoilers retract and are inoperative. Outboard spoilers will operate only in conjunction with the control wheel and landing gear down.

ARM - Not placarded. Pull upon lever until painted area is visible. Sets up system for automatic spoiler extension on touchdown. When nose gear strut compresses lever will automatically move to **EXTEND** and **SPOILER EXTEND** light will illuminate.

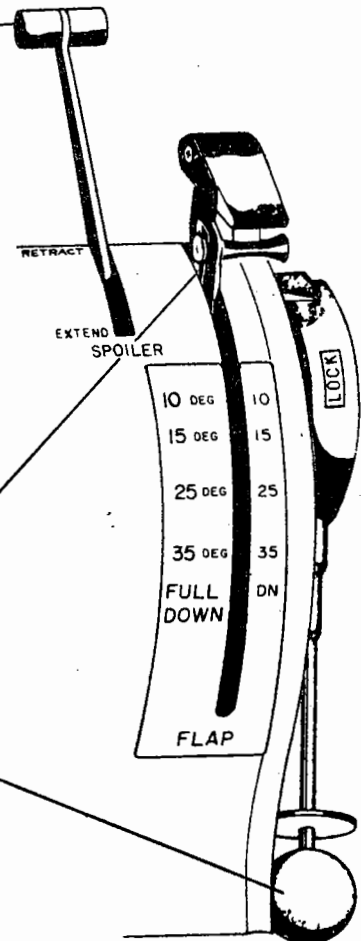
EXTEND - Inboard and outboard spoilers extend simultaneously on the ground.

FLAP Control Handle.

Directs hydraulic pressure to operate the wing flaps.

Gust LOCK Lever.

Engages, or disengages, gust locks on rudder, elevator and throttle blocks.

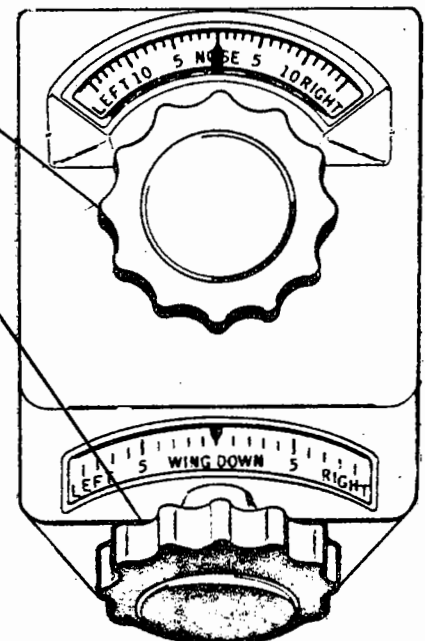


Rudder Trim Knob.

Displaces rudder hydraulically during powered operation, or with trim tab in manual operation.

Aileron Trim Knob.

Displaces aileron hydraulically during power operation or with control tab in manual operation. Also displaces trim tab in either powered or manual operation.



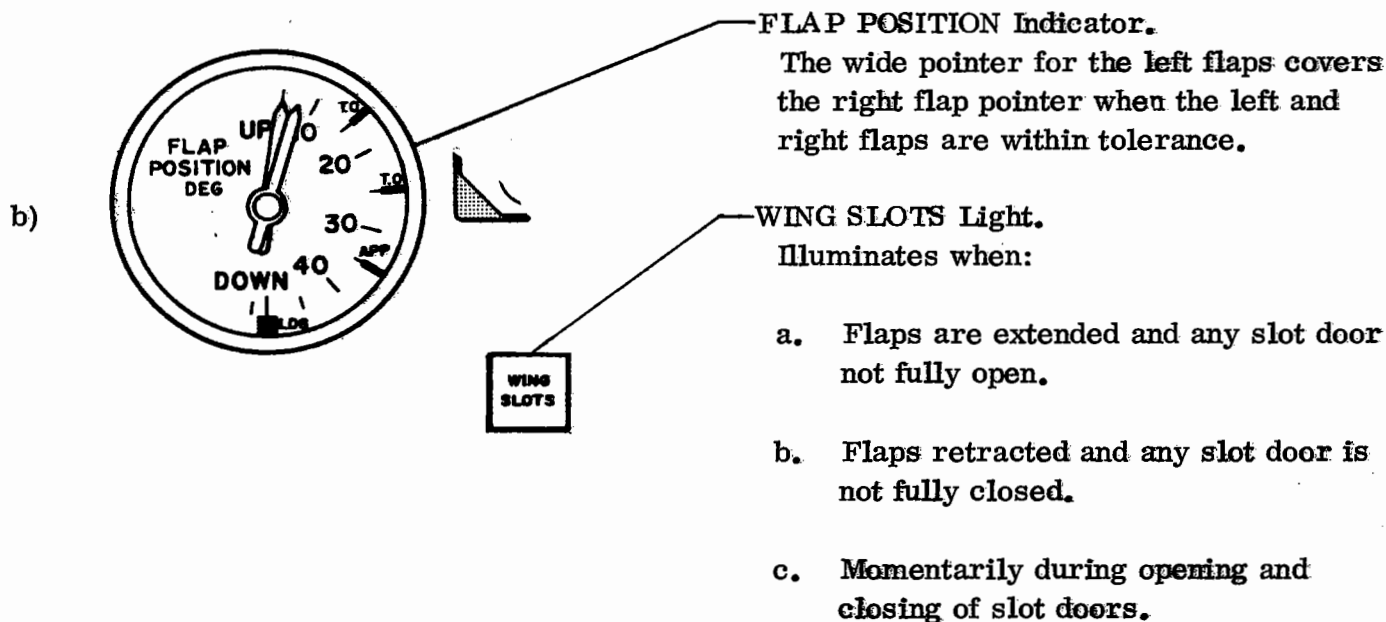
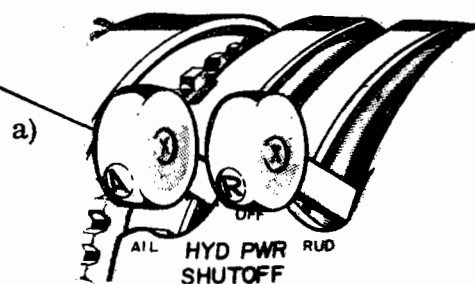
Location: Control Pedestal

**HYDraulic PWR SHUTOFF LEVERS.**

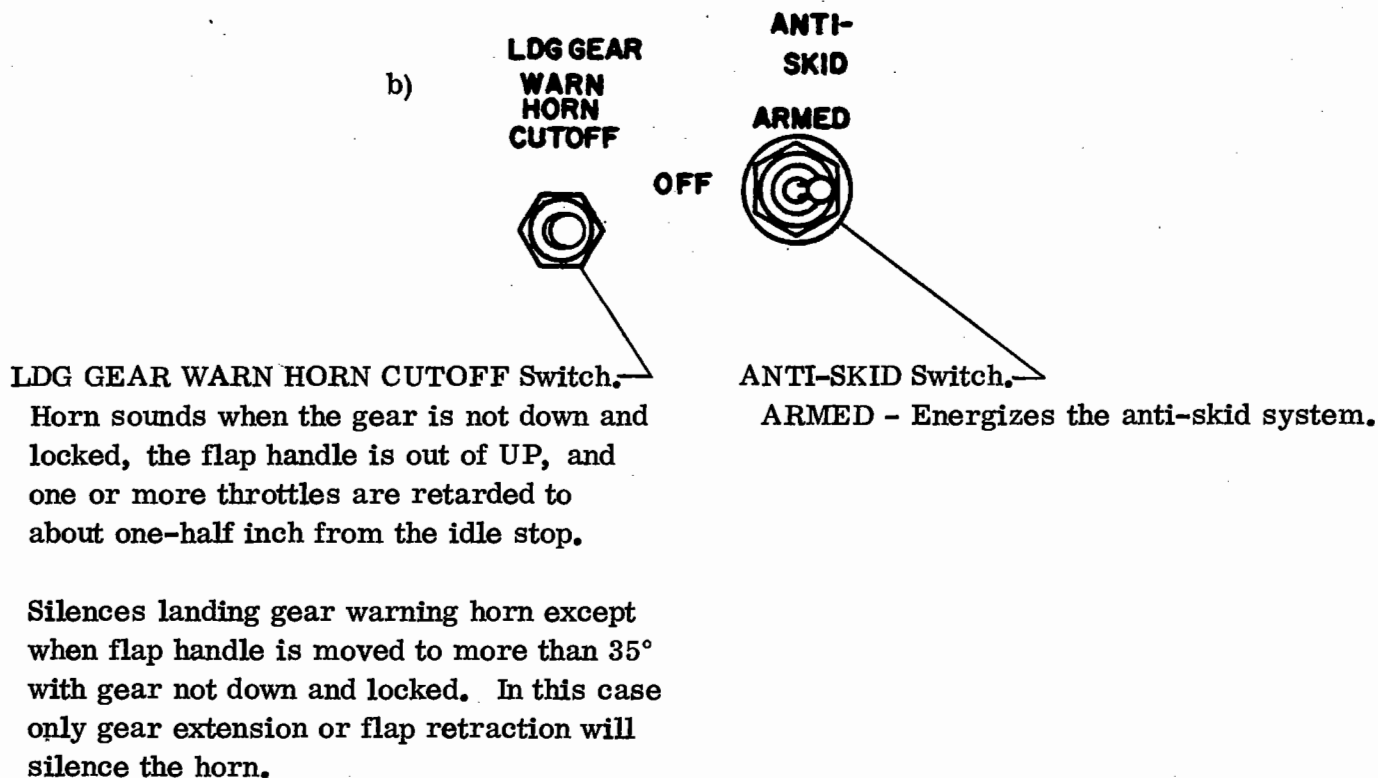
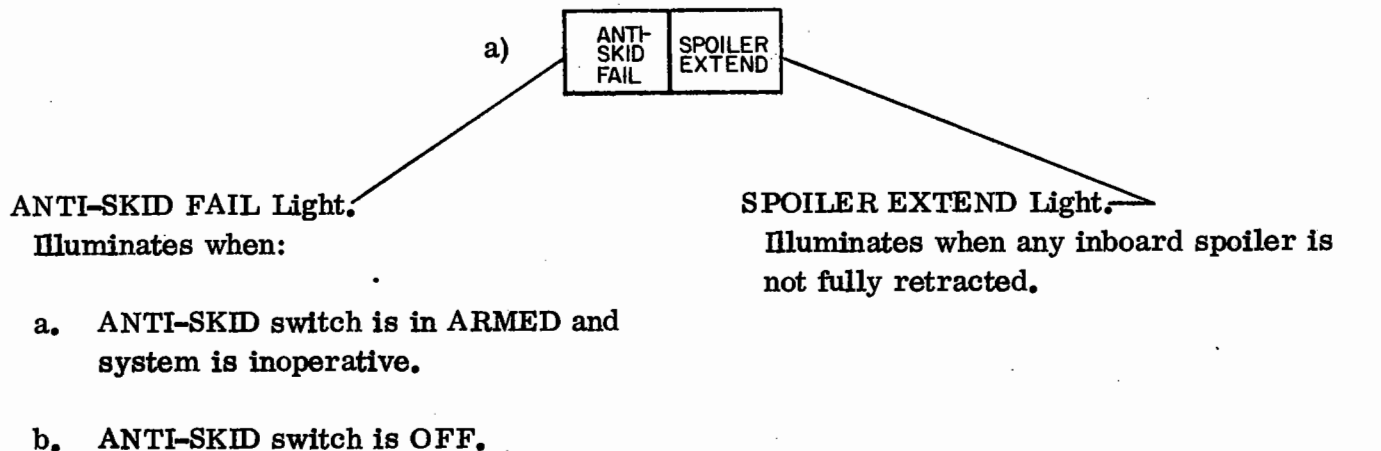
A - Aileron, R - Rudder.

OFF - Closes power shutoff valve and holds it closed. Removes all hydraulic pressure to the aileron or rudder.

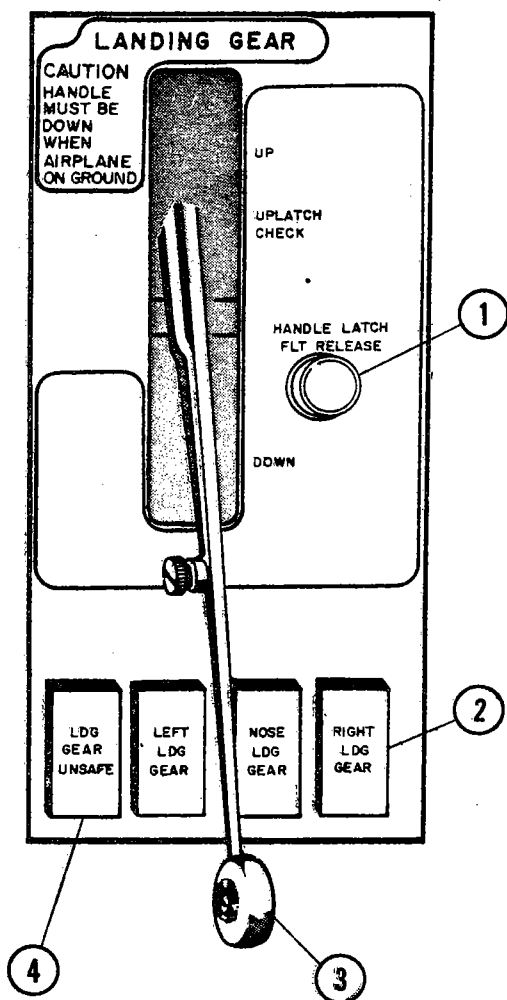
ON - Supplies adequate hydraulic pressure to the hydraulic power unit.



Location: a) S/O Pedestal, b) First Officer Panel



Location: a) Captain's Instrument Panel, b) Glareshield



1 Landing Gear HANDLE LATCH.

Button overrides anti-retract latch which mechanically holds lever in DOWN position to prevent gear retraction on the ground.

2 LDG GEAR Light.

Illuminate when the corresponding landing gear is down and locked and the gear lever is in the DOWN detent.

3 LANDING GEAR LEVER

Dual levers normally fastened together to move in unison.

UP - Retracts landing gear. Wheel brakes applied automatically. Gear and main gear doors supported by hydraulic pressure.

UPLATCH CHECK - Pressure is bypassed, and gear and main gear doors rest on uplatches. If uplatches did not engage on retraction, nose gear will free-fall and main gear will rest on the doors, if they are latched. If main gear doors are not latched, main gear will free-fall.

NOTE

Do not place LANDING GEAR lever in UPLATCH CHECK above 230 Kts. IAS or .65 Mach.

DOWN - Extends landing gear.

4 LDG GEAR UNSAFE Light.

Illuminates on the ground when the LANDING GEAR Lever is out of the DOWN detent.

Illuminates in flight if:

- Gear not down and locked and any throttle lever less than about one-half inch from idle stop.
- Gear and/or main gear doors not up and/or latched following retraction.
- Landing gear in transit.

Location: Center Instrument Panel

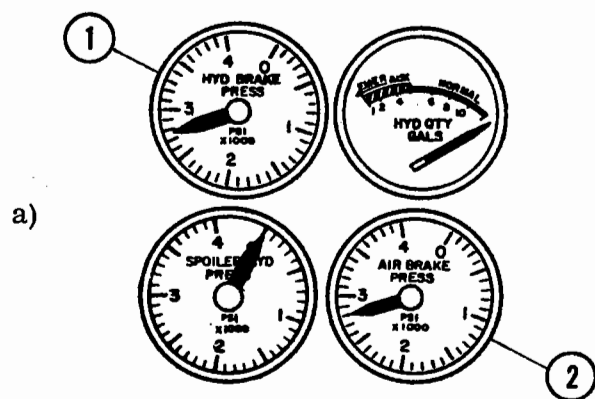
AUG 1/70

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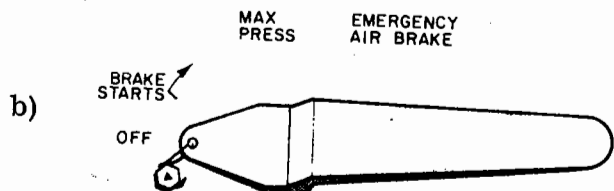
DC-8 FLIGHT MANUAL
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- d. Lever in DOWN detent and gear not down and locked.

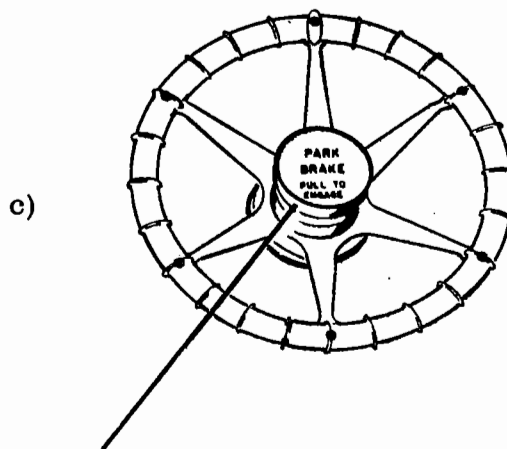
Does not indicate that doors have failed to close following gear extension.



- 1 HYD BRAKE PRESS Gauge.
Normal pressure indication is 3,000 PSI (+200, -150). Pointer tends to remain at last reading when electrical power fails.
- 2 AIR BRAKE PRESS Gauge.
Indicates pressure in nitrogen bottle that is initially charged to 3000 PSI. Pressure readings will vary with outside temperature. Pointer will tend to remain at last reading when electrical power fails.

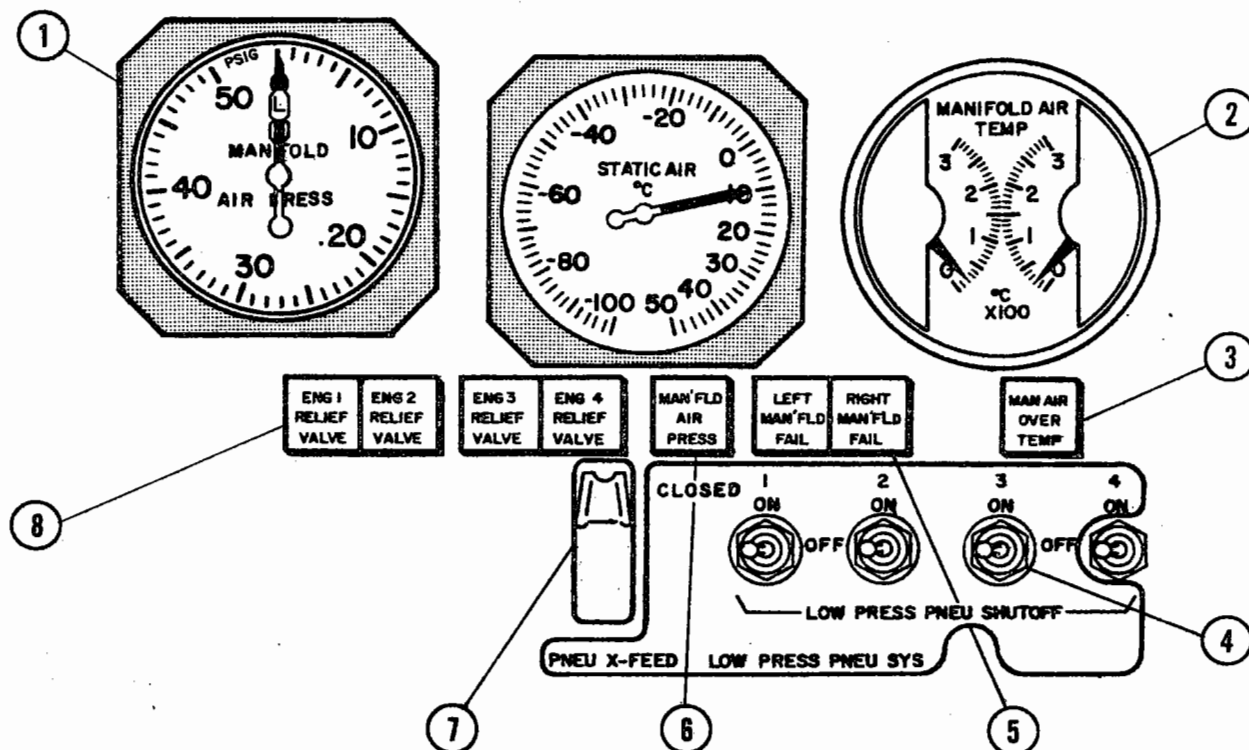


EMERGENCY AIR BRAKE Handle.
Clockwise rotation of the handle meters air pressure to the brakes. Holding handle in MAX PRESS will lock the wheels.



PARK BRAKE Knob.
Holds wheel brakes ON if pulled while brake pedals are depressed. To release, depress pedals.

Location: a) Second Officer's Panel, b) Glareshield, c) Captain's Sidewall



1 MANIFOLD PRESSURE Gauge.
Separate needles indicate air pressure in the two pneumatic manifolds. Not dependent on electrical power.

2 MANIFOLD AIR TEMP Gauge.
Separate scales indicate air temperature in each half of the pneumatic manifold. Needles go to zero if electrical power fails.

3 MANIFOLD OVER TEMP Light.
Indicates temperature in one or both halves of the pneumatic manifold is excessive.

4 LOW PRESS PNEU SHUTOFF Switches.
ON - Opens associated pressure regulator valve to permit pressure air to flow to system. Also energizes lower pressure compressor bleed air valve so it will open to supply air if throttle advanced more than $1\frac{1}{2}$ inches from idle stop on ground.

OFF - System deactivated.

5 MAN'FLD FAIL Light.
Illuminates when an over pressure occurs in either manifold shroud.

Location: Second Officer's Panel



6 MAN'FLD AIR PRESS Light.

Illuminates to indicate low air pressure in one or both halves of manifold.

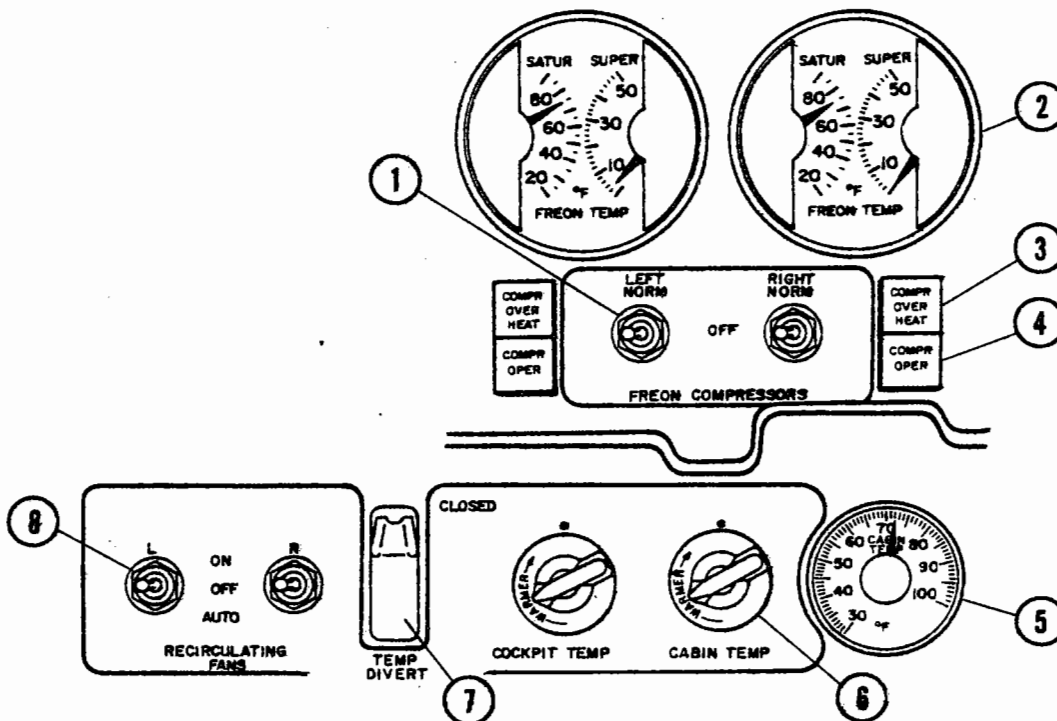
7 PNEU X-FEED Switch.

Normal (guarded) - Crossfeed valve opens automatically when airplane is on ground and electrical power and pneumatic pressure are connected.

CLOSED - Can be used to close cross-feed valve when open.

8 ENG RELIEF VALVE Light.

Illuminates to indicate engine pressure relief valve has opened.



1 FREON COMPRESSOR Switches.

NORM - Arms Freon system for operation. System will operate if mixing valve is set for cooling, pneumatic pressure is available and Freon system is normal.

OFF - Deactivates compressors. Will reset compressor if it has shutdown due to overspeed.

2 FREON TEMP Gauge.

SATUR - Indicates boiling or vaporization temperature of the Freon. Normal range is 20°F to 60°F.

SUPER - Indicates difference between vaporization temperature and additional heat absorbed before Freon leaves the evaporator. Normal range is 0°F to 20°F.

3 Freon COMP OVERHEAT Light.

Illuminates when compressor oil has become too hot.

4 Freon COMP OPER Light.

Illuminates when compressor ON-OFF valve is energized.

5 CABIN TEMP Gauge.

Indicates temperature sensed at aft cabin ceiling.

6 CABIN TEMP Selector.

Selects and automatically controls temperature for the cabin.

7 TEMP DIVERT Switch.

TEMP DIVERT - Normal position. Cockpit receives air from left air conditioning system.

Location: Second Officer's Panel

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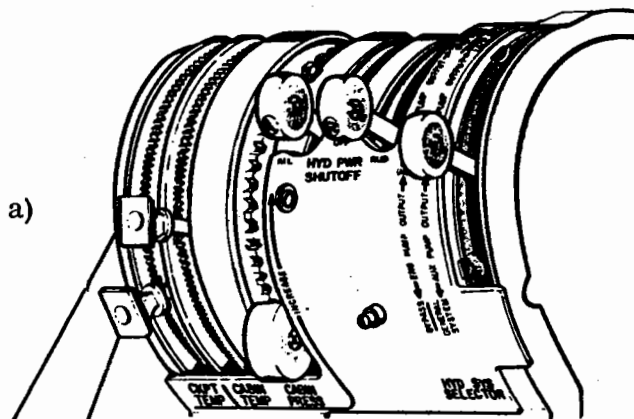
CLOSED - Interconnects the air conditioning systems when either temperature control system has malfunctioned, which allows the operative system to compensate for the inoperative one. Cockpit and cabin both receive air from a mixture of the two systems.

8 RECIRCULATING FAN Switches.

ON - In flight, or on the ground, will recirculate air if hot air port of mixing valve is closed and at least one CABIN COMPRESSOR switch in same system is OFF.

AUTO - Will recirculate air on the ground if hot air port of the associated mixing valve is closed. Cabin compressor cannot operate. This position is inoperative in flight.

OFF - Fan unpowered.



COCKPIT MIXING VALVE Lever.
Manually controls and/or indicates position of cockpit mixing valve.

CABIN MIXING VALVE Lever.
Manually controls and/or indicates position of cabin mixing valve.

b)

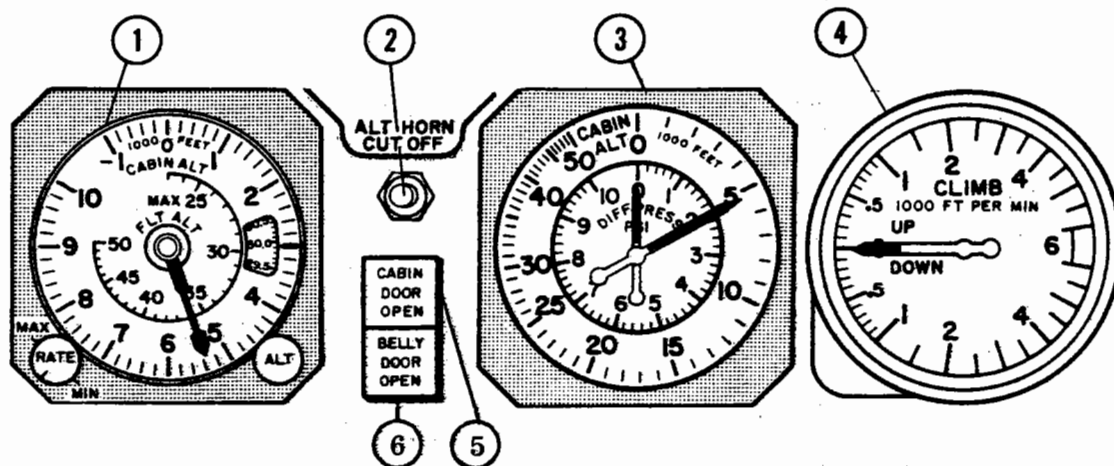


RADIO RACK O'HEAT Light.

Both lights illuminate to indicate a blower malfunction, which causes the cargo compartment valve to close and the radio rack cooling valve to open. When on the ground, the radio rack will have no cooling airflow. In flight, cooling airflow will be adequate because of the cabin differential pressure causing air to flow past and overboard; however, the forward cargo compartment will be cold due to no airflow.

Pushing on light for 10 seconds will close the radio rack cooling valve. The Radio Rack Cooling Valve circuit breaker must be pulled to maintain this position.

Location: a) Second Officer's Pedestal, b) Second Officer's Panel



1 Automatic Pressure Controller.

RATE Knob - Controls rate of change of cabin altitude. Monitor Cabin Rate of Climb indicator to determine actual rate of change.

MIN: approximately 275 ft/min.

MAX: approximately 500 ft/min.

ALT Knob - Used to set:

- Desired cabin altitude on outer scale.
- Planned cruise altitude on inner scale. Resultant cabin altitude will be indicated on outer scale.
- Landing field elevation on outer scale.
- Proper barometric pressure in window by pulling and rotating the knob out.

2 ALT HORN CUTOFF Button.

Silences warning horn that sounds when cabin altitude exceeds approximately 10,000 feet.

3 Cabin Altitude - DIFF PRESS Gauge.

Cabin altitude is indicated on outer scale; the inner scale indicates cabin differential pressure. Limit marks indicate the differential pressure to which the automatic control system normally controls and the maximum value to which the airplane should be subjected.

4 Cabin Rate of CLIMB Indicator.

Shows rate of climb or descent of cabin altitude.

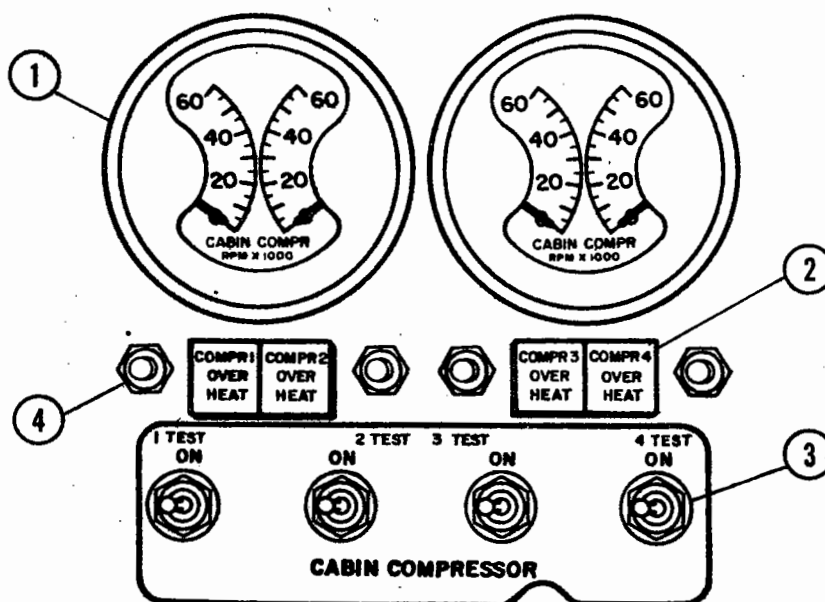
5 CABIN DOOR OPEN light.

Indicates any of the four cabin doors open.

6 BELLY DOOR OPEN Light.

Indicates any of the four cargo doors and/or two accessory compartment doors open.

Location: Second Officer's Panel



1 CABIN COMPR RPM Indicator.

2 Cabin COMPR OVERHEAT Light.

Illuminates to indicate:

- a. Overheat condition in cabin compressor lubricating system, or
- b. Low cabin compressor output.

3 CABIN COMPRESSOR Switches.

ON - Arms cabin compressor on-off valve so if the airplane pneumatic manifold is pressurized, the valve will open and the cabin compressor will operate.

OFF (unplacarded) - Turns off compressor. Resets compressor shutdown by overspeed.

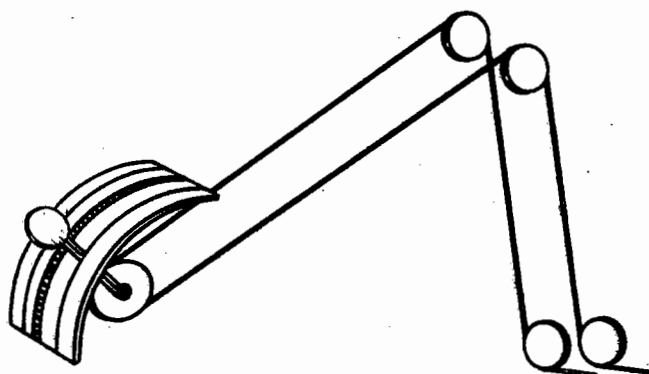
4 Cabin Compressor Overspeed Test Button.

Creates false overspeed signal testing overspeed cutout and causes cabin compressor on-off valve to close.

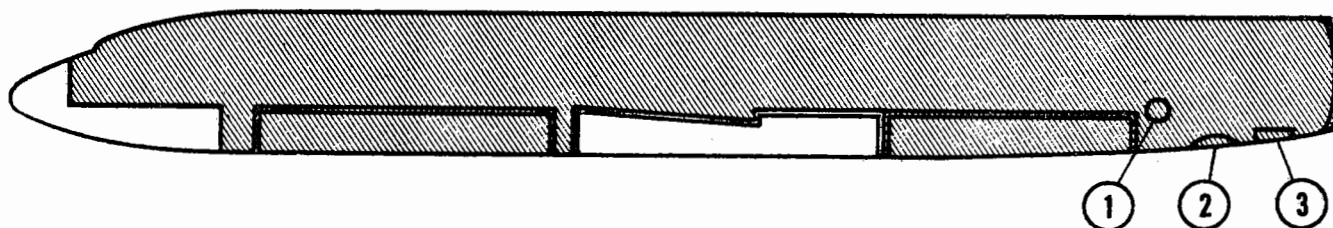
Location: Second Officer's Panel



a)

**Cabin Pressurization Outflow Valve Lever.**

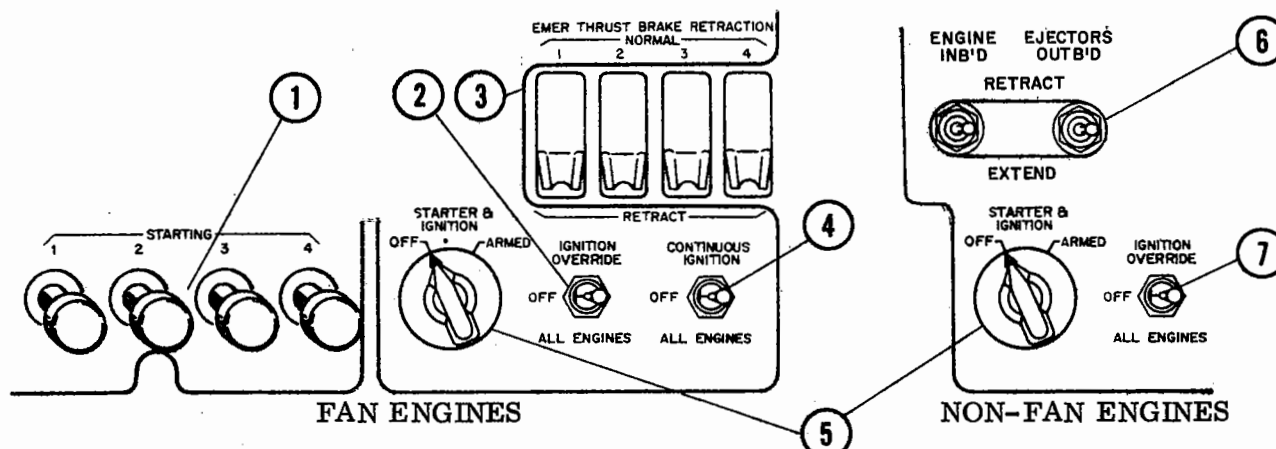
Manually controls and/or indicates position of the cabin air outflow valves.



**Pressurized Areas of the DC-8
(Shaded)**

1. Cabin air pressure relief valve.
- 2 Cabin air outflow butterfly valve.
- 3 Cabin air outflow nozzle valve.

Location: a) Second Officer's Pedestal



1 STARTING Buttons.

When pressed permits pneumatic manifold air to turn the starter. Also when pressed the button will illuminate when the circuit is complete. Do not use when rotation is shown on N₂% RPM gauge.

2 IGNITION OVERRIDE (Fan) Switch.

Energizes high energy ignition circuit and both ignitors on all engines. This ignition circuit overrides starting and continuous ignition circuits.

3 EMER THRUST BRAKE RETRACTION Switches.

RETRACT - Returns reversers to stowed configuration, the cover doors may not retract. After using this switch, do not use thrust brake on that engine for remainder of flight. Should only be used with engine at idle thrust.

4 CONTINUOUS IGNITION Switch.

Provides continuous low energy ignition to one ignitor on each engine.

5 STARTER & IGNITION Switch.

ARMED - Arms ignition and pneumatic starter systems. On the ground, 4 cabin compressor and 2 freon compressor switches must be OFF to complete starter circuit.

6 ENG EJECTORS Switches.

Positions control valve to EXTEND or RETRACT ejectors. Must be placed in desired position when air system is used.

7 IGNITION OVERRIDE (Non-fan) Switch.

Energizes high energy ignition circuit and one ignitor on all engines. This ignition circuit overrides starting and continuous ignition circuits.

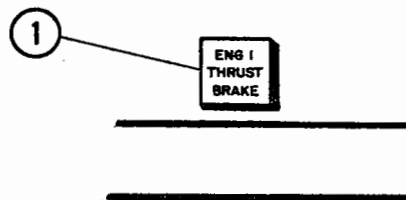
Location: Overhead Panel



1 ENG THRUST BRAKE Lights.

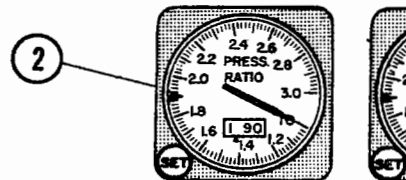
Illuminates, on non-fan engines, when reverse thrust buckets in full reverse thrust position.

On fan engines, illuminates when all three reversers in full reverse thrust position.



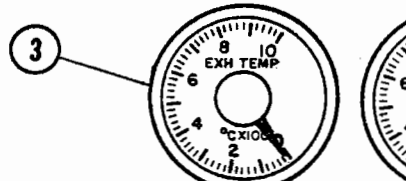
2 Engine PRESS RATIO (EPR) Gauge.

Indicates the turbine discharge pressure divided by the engine inlet pressure, which is an indication of the thrust being produced.



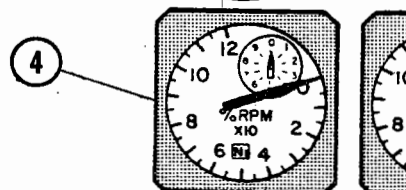
3 EXH Gas TEMP (EGT) Gauge.

Indicates EGT. Not dependent on electrical system.



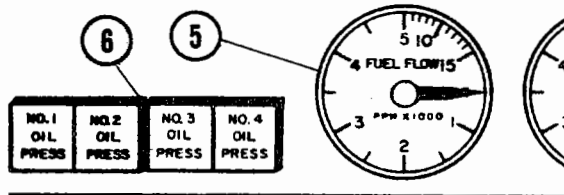
4 N₁% RPM Gauge.

Indicates N₁ compressor speed in percent. N₂ RPM gauges are on S/O panel. Not dependent on electrical system.



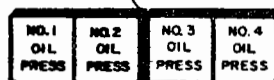
5 FUEL FLOW Gauge.

Indicates fuel flow to the engine in lbs/hr.

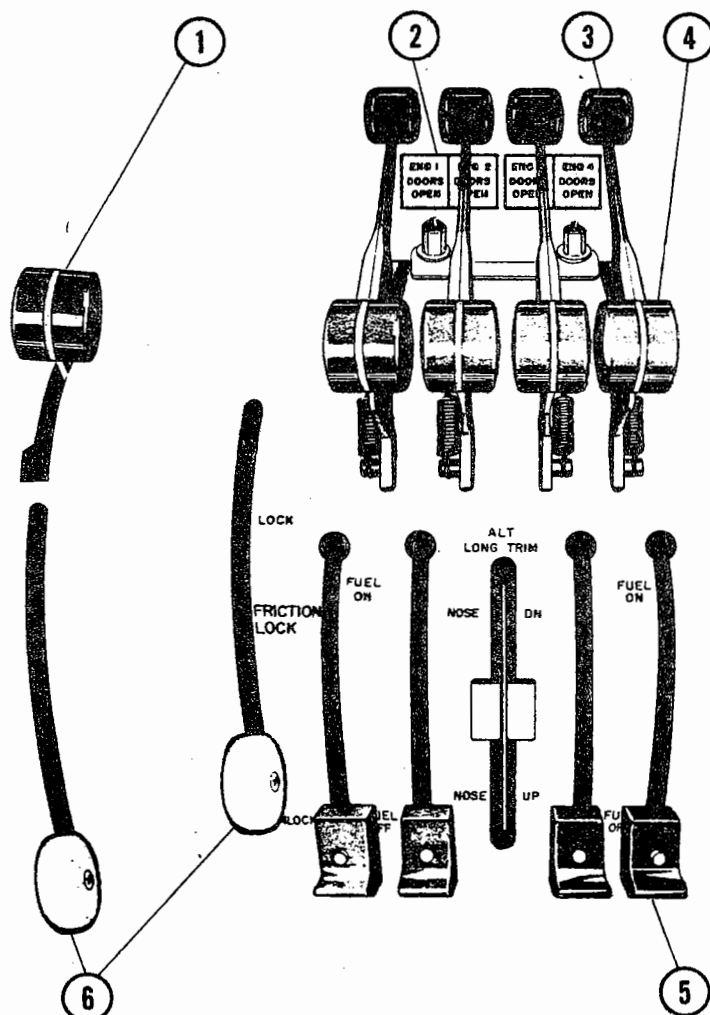


6 OIL PRESS Light.

Illuminates when oil pressure is below normal limit (except idle).



Location: Center Instrument Panel



3 Thrust Reverse Lever.
Selects and modulates reverse thrust.

4 Throttles.
Modulate forward thrust from idle to takeoff. If the gust lock is not disengaged, full takeoff thrust is not available.

5 Fuel Shutoff Levers.
Controls admission of fuel to the engine and activates the ignition system for a limited period.

6 Throttle FRICTION LOCK Lever.
Applies friction to hold throttles in any desired position.

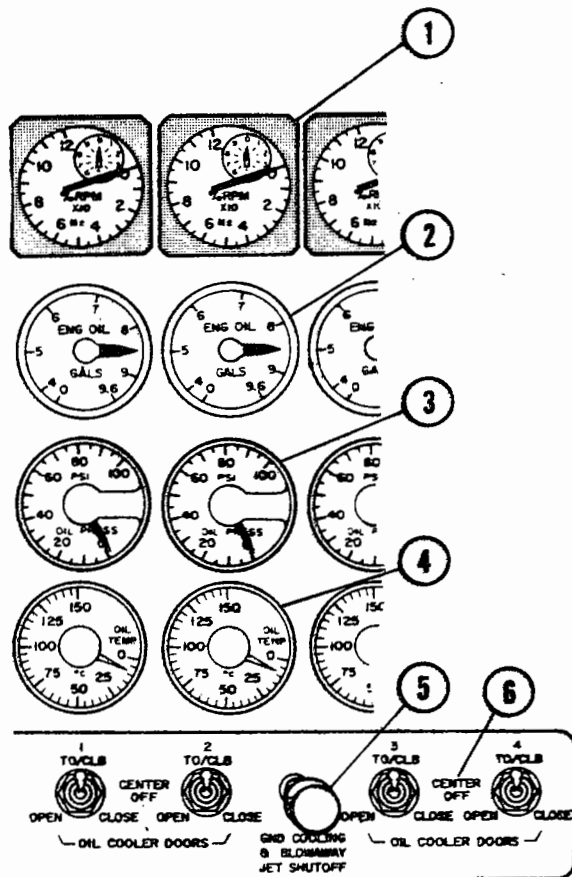
1 Alternate Ejector Lever (Non-fan only).
When lever is moved to detent (aft) position an air bottle actuates the ejector system. Used in case of hydraulic system failure. ENG EJECTOR switches must be in desired position before using.

2 ENG DOORS OPEN Light. (Fan engines only).
Illuminates when any cover door leaves fully stowed position.

ENG EJECTOR EXT'D Light. (Non-fan engines only).

Illuminates steady when ejector is extended; blinks when ejector in transit.

Location: Control Pedestal



1. N₂ RPM Gauge.

Indicates N₂ compressor speed in percent. Not dependent on electrical system.

2. ENG OIL Quantity Gauge.

Indicates oil in each engine oil tank. Calibrated: 0 to 10 gallons on JT4 engines; 0 to 9.6 on JT3D. Pointer will remain at last reading if electrical power fails.

3. OIL PRESS Gauge.

Indicates oil pressure. Pointer tends to remain at last reading when electrical power fails.

4. OIL TEMP Gauge.

Indicates oil temperature. Pointer goes toward zero when electrical power fails.

5. GND COOLING & BLOWAWAY JET SHUTOFF Button.

On the ground, pressing the button extinguishes the light, shuts off jet pump system and reactivates the OIL COOLER DOORS switches to the in-flight condition.

Push button contains blue light. A holding coil holds the button "in" as thruttles are advanced for takeoff. In flight, ground shift will deactivate entire system, button will extend and the light go out.

6. OIL COOLER DOORS Switches.

TO/CLB - Automatically controls oil cooler doors in flight to about 2 inches open.

CLOSE - Momentary contact used to manually close the doors.

OPEN - Momentary contact used to manually open doors. If doors are manually closed to less than the TO/CLB position, this position must be used to open doors to at least the TO/CLB position for that position to regain control.

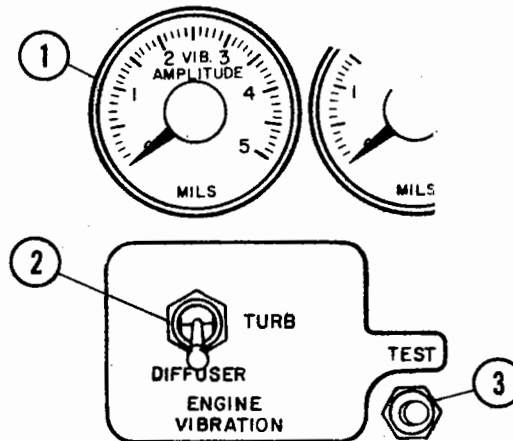
On the ground, doors will open full regardless of switch position.

Location: Second Officer's Panel

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DC-8 FLIGHT MANUAL
REFERENCE AND REVIEW



1 VIB AMPLITUDE Gauge.

Indicates the amplitude of engine vibration.

2 ENGINE VIBRATION Switch.

DIFFUSER - Normal position.

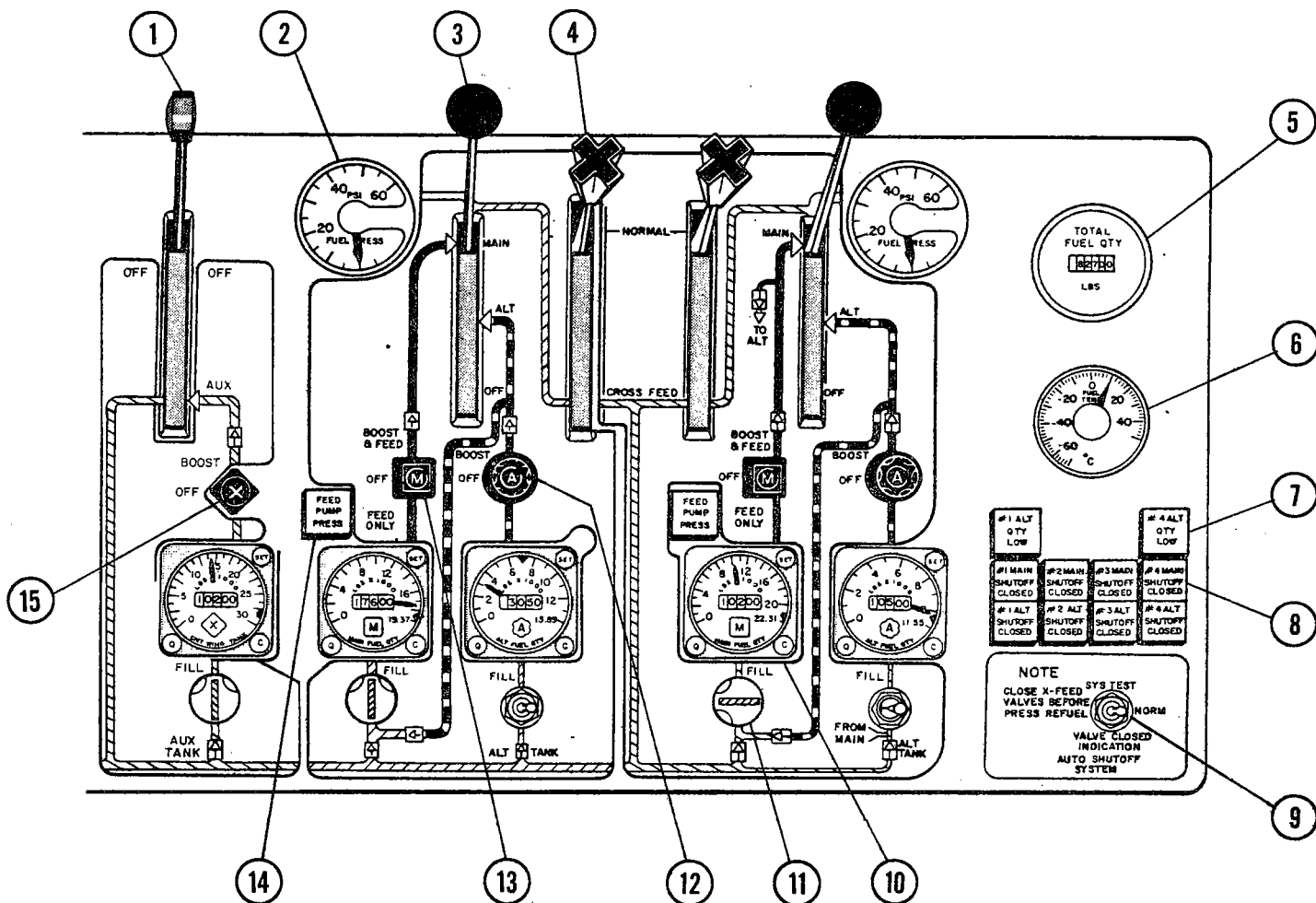
TURB - Operative only on fan engines.

3 ENGINE VIBRATION TEST Button.

Test valid when engines are not running. When pressed, VIB AMPLITUDE gauges should indicate between 2.0 and 3.0.

On fan engines, test both the TURB and DIFFUSER positions on the ENGINE VIBRATION switch. Differences between the two test positions should not exceed 0.1 mils.

Location: Second Officer's Panel



(Tanks 1 and 2 are same as above)

- 1 Center AUX TANK Lever. (If installed)
OFF - Tank outlet closed.

AUX - Outlet to crossfeed manifold is open.

- 2 FUEL PRESS Gauge.
Indicates fuel pressure at main engine pump inlet.

- 3 Tank Selector Lever.
MAIN - Main tank to engine.
ALT - Alternate tank to engine.

OFF - Main and alt. tanks closed.

- 4 CROSSFEED Lever.
NORMAL - Crossfeed valve closed; engine and tanks isolated from crossfeed manifold.
CROSSFEED - Engine supply line open to crossfeed manifold.

- 5 TOTAL FUEL QTY Gauge.
Indicates sum of all individual tank quantity gauges.

Location: Second Officer's Panel

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DC-8 FLIGHT MANUAL
REFERENCE AND REVIEW

- 6 FUEL TEMP Gauge.
Indicates fuel temperature of #4 main tank.
- 7 ALT QTY LOW Light.
Illuminates when respective (#1 or #4) alternate tank is less than full and main tank contains more than 7500 pounds. Deactivated when main tank contains less than 7500 pounds.
- 8 SHUTOFF CLOSED Lights.
Illuminate when shutoff valve is closed.
- 9 AUTO SHUTOFF SYSTEM Switch.
SYS TEST - Simulates full tanks during tank filling causing fuel level shutoff valves to close and illuminate SHUTOFF CLOSED lights.

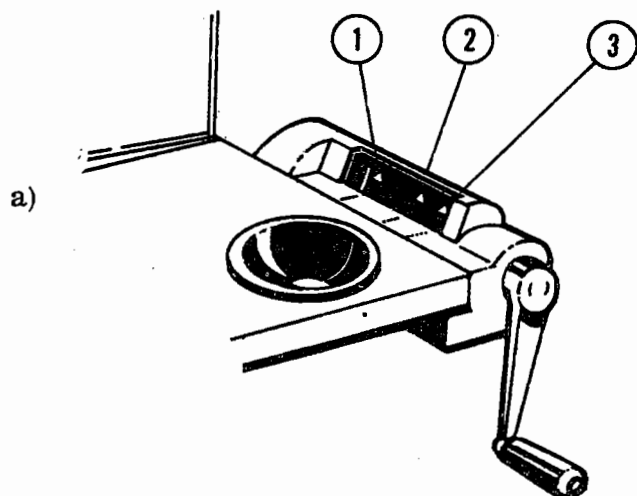
NORM - No shutoff light indication.

VALVE CLOSED INDICATION - Arms lights to illuminate when fuel level control valves are closed.
- 10 FUEL QTY Gauges.
SET Knob - Positions bugs to desired fueling or transfer level for automatic fill valve closing.

Q Button - Simulates empty tanks. Needle goes toward zero.

C Button - Used by Maintenance. Needle goes to full.
- 11 Fill Valve Switches.
FILL - Opens fill valve. Alternate tank switches are toggle type.
- 12 Alternate Tank Boost Pump Switch.
BOOST - Pressurizes fuel tank outlet.
- 13 Main Tank Boost Pump Switch.
BOOST & FEED - Pressurizes tank outlet; boost and feed pumps operating.

FEED ONLY - Tank outlet unpressurized; boost pump off, feed pump ON.
- 14 FEED PUMP PRESS Light.
Illuminates when feed pump is energized but output is low.
- 15 Auxiliary Tank Boost Pump Switch.
BOOST - Pressurizes fuel tank outlet.

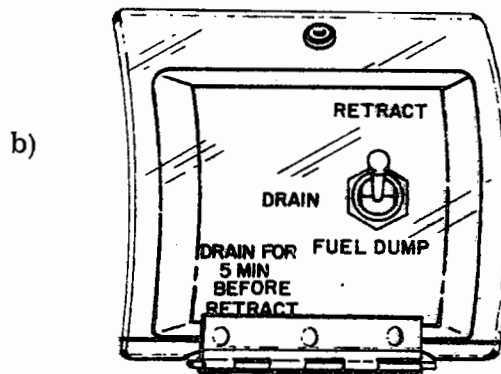


Fuel Dump Chute Indicator

Three positions (1 - Retract, 2 - Drain, 3 - Down) to show the position of the underwing dump chutes. A hand crank stowed aft of the table can be used for manual extension of the chutes should the electric drive motor malfunction.

CAUTION

Do not operate dump system electrically with hand crank installed.



Fuel Dump Chute Switch

FUEL DUMP - Dump chutes extend, valves open and fuel starts dumping.

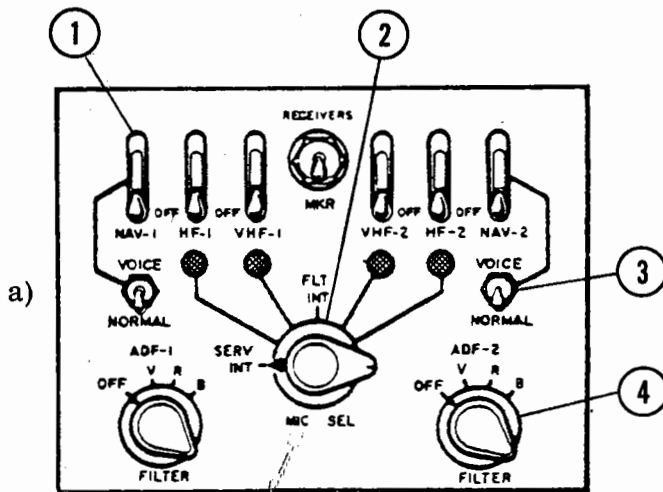
DRAIN - Chutes retract to drain position, dump valves close and system drains.

RETRACT - Chutes retract into wing.

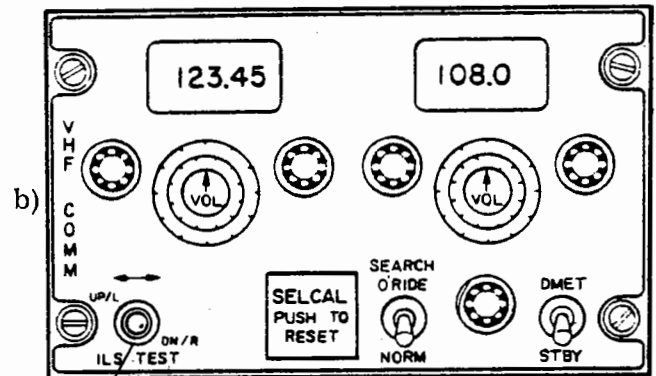
CAUTION

Do not move switch directly from **FUEL DUMP** to **RETRACT** position or chutes will remain extended and fuel will continue to dump.

Location: a) Second Officers table, b) Overhead panel



AUDIO CONTROL PANEL



VHF CONTROL PANEL

1 RECEIVER Switches.

On-off and volume control switch, which connects receiver output to headset.

2 MIC SEL Switch.

Switches microphone to any of 6 noted positions.

3 VOICE Filter Switch.

VOICE - Receive VHF-NAV voice only.

NORMAL - Receive VHF-NAV voice and code, and DME code.

4 ADF Receiver FILTER Switches.

V - Voice - filter passes all frequency tones, except range.

R - Range - filter passes only range tone.

B - Both - No filter, all frequencies passed, both range and voice.

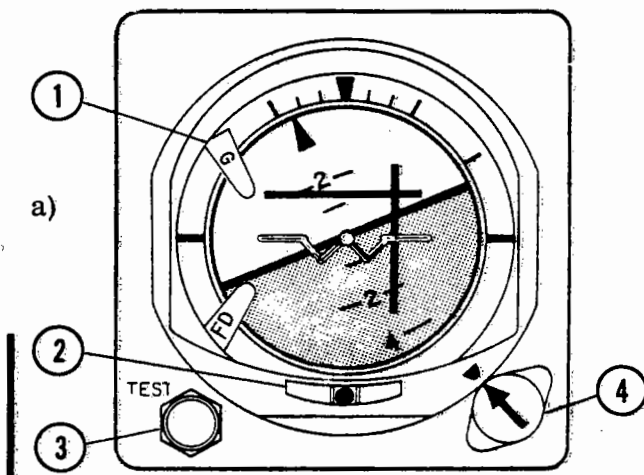
ILS TEST Switch.

Select an ILS frequency and position switch to:

UP/L - Course bar will deflect to left one dot, the GS bar will move up one dot and the NAV and GS flags will appear for a few seconds then disappear for 10-20 seconds.

DN/R - Course bar will deflect to right one dot, the GS bar will move down one dot and the NAV and GS flags appear for a few seconds then disappear for 10-20 seconds.

Location: a) All crew stations, b) Control pedestal



ATTITUDE INDICATOR

- 1 Gyro Flag
Indicates unsatisfactory gyro horizon system.
- 2 Slip Indicator.
- 3 TEST Button.
Produces approximately 20° roll and 10° pitch simulating a climbing right turn.
- 4 Pitch Trim Knob.
No function.

b)

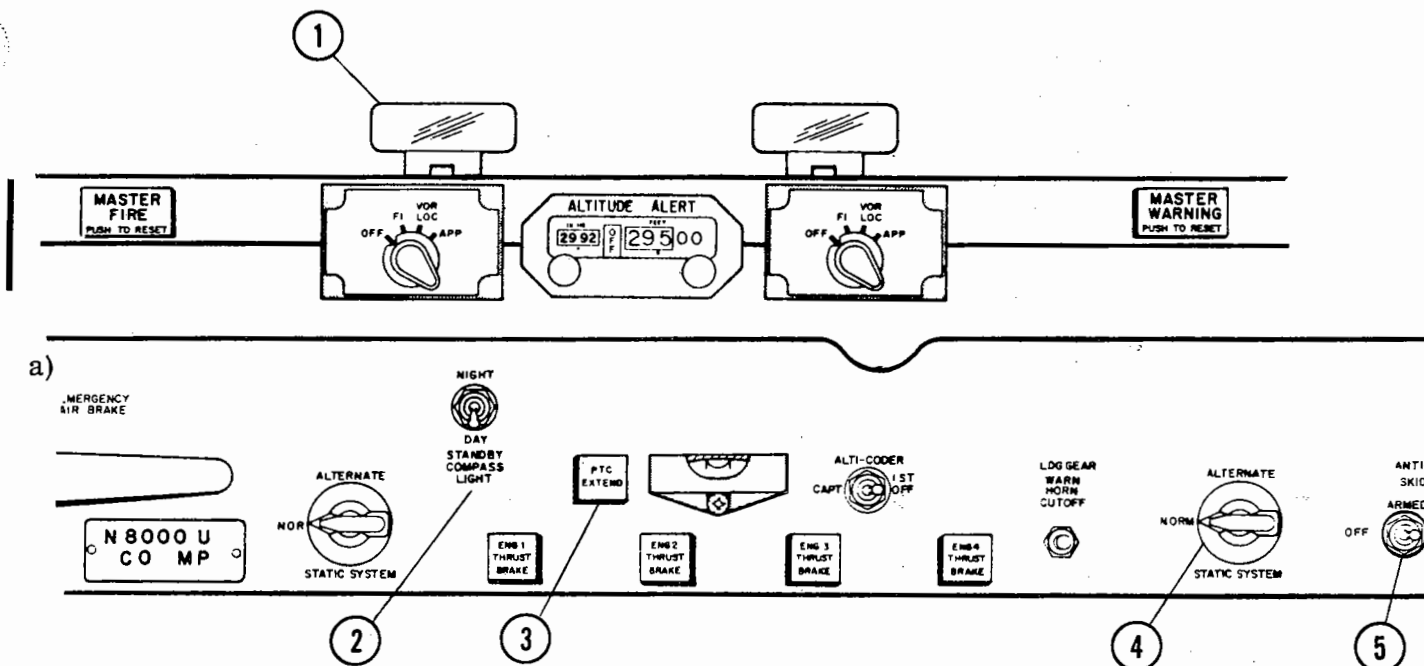
KIFIS CHECK		GROUND
ALT CAPT	IST OFF	200'±25' +FLD ELEV
SAT-CAPT ONLY		-80°±1°C
TAS-CAPT ONLY		496±5K
CAPT		IST OFF
TEST		TEST
		NORM 

KIFIS placard and TEST switches are the same as on other DC-8's but have been moved to the Captain's Instrument Panel.

c)



CADC FAIL WARN Light
On N8095U-99U indicates failure on CADC-1.



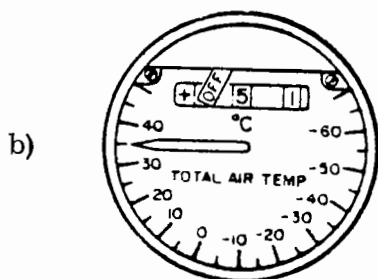
1 Magnetic Compass Mirrors.

Permit viewing of the magnetic compass on the left aft overhead panel. May be folded down when not in use.

2 STANDBY COMPASS LIGHT Switch.

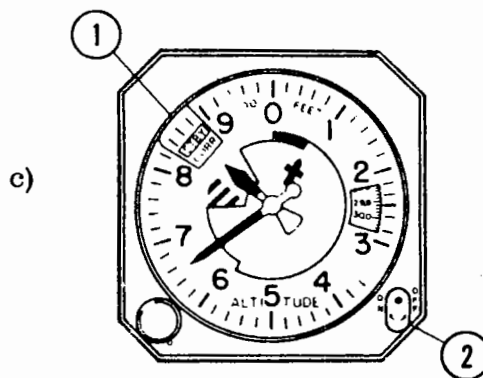
Controls brightness of compass light.

3, 4, 5 Different locations only.



TOTAL AIR TEMPERATURE Gauge (TAT)
(N8095U through N8099U)

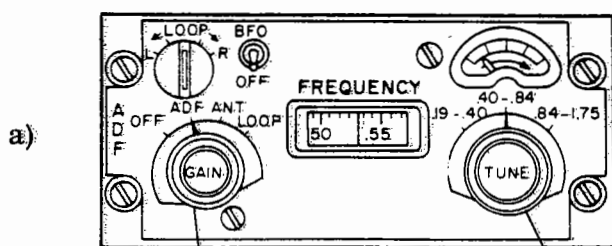
Measures ambient air temperature, plus all ram air rise due to compression. Digital readout is to the nearest tenth of a degree centigrade. OFF flag appears with loss of electrical power to the system.



ALTITUDE (N8095U-99U)

- 1 STBY/CORR Flag - Indicates STBY when power fails or when correction circuit is OFF. CORR appears when altimeter is in SERVO operation.
- 2 ON-OFF Switch.
OFF - Operates as pressure altimeter.
ON - Operates as servo-pneumatic altimeter.

Location: a) Glareshield, b) S/O and NAV Panels, c) Captain and F/O Panels.



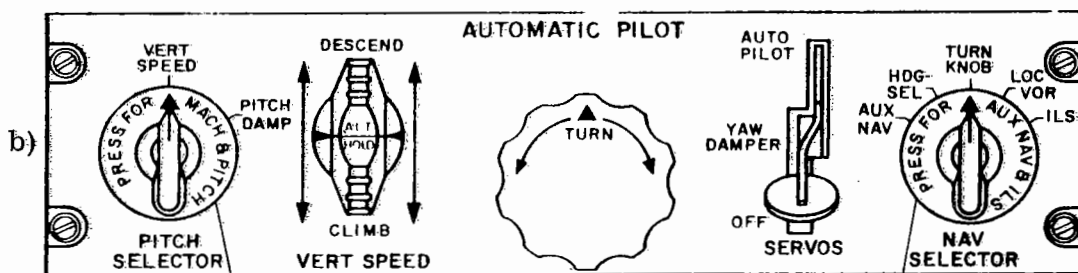
ADF CONTROL PANEL

GAIN Control and Function Switch.

Outer ring selects function. Inner knob is gain control.

TUNE Knob.

Outer ring selects frequency band. Inner knob is for fine tuning.



SP-30 AL CONTROLLER

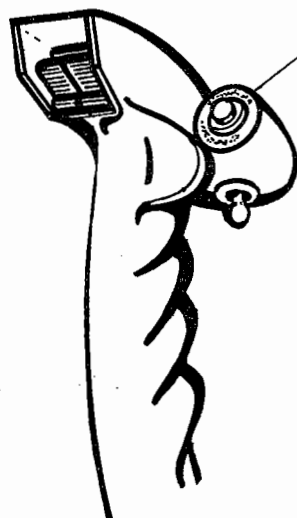
PITCH SELECTOR Switch.

PITCH DAMP - Autopilot horizontal stabilizer trim is disconnected and the AUTO TRIM OFF light comes on. Pitch attitude can be changed without disengaging the autopilot by manual inputs to the control column or by use of the alternate longitudinal trim.

NAV SELECTOR.

ILS - No glide path extension.

Location: a), b) Control Pedestal



AUTOPILOT RELEASE Button.

SP-30AL, when pressed, the autopilot elevator and aileron servos are disengaged and the SERVOS lever goes to YAW DAMPER.

The AUTOPILOT OFF light and MASTER WARNING light will illuminate if:

- (In flight) The PTC switch is in OVER-RIDE and the landing gear is up. The stabilizer-in-motion horn will also sound if flaps are at 10° or less.
- (On ground) The PTC Switch is in NOR. The stabilizer-in-motion horn will sound regardless of flap position.

The system is reset by pressing the MASTER WARNING light or re-engaging the autopilot.

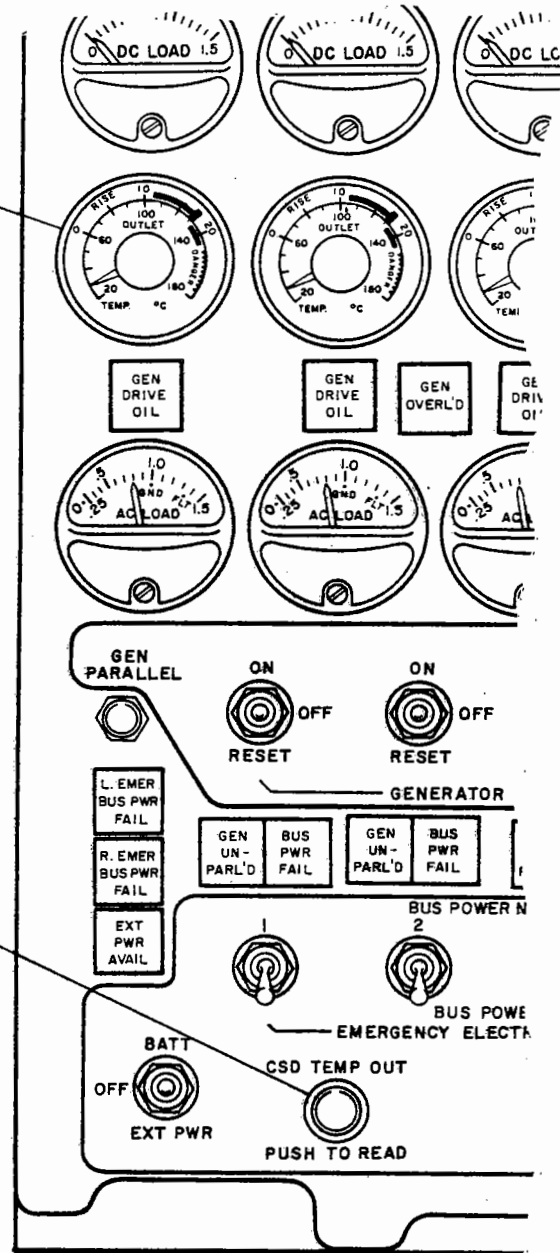
Location: Control Wheels



CSD Oil OUTLET TEMP Gauges.

Normally indicate CSD oil temperature rise. Also indicate oil outlet temperature when CSD TEMP OUT button is pressed.

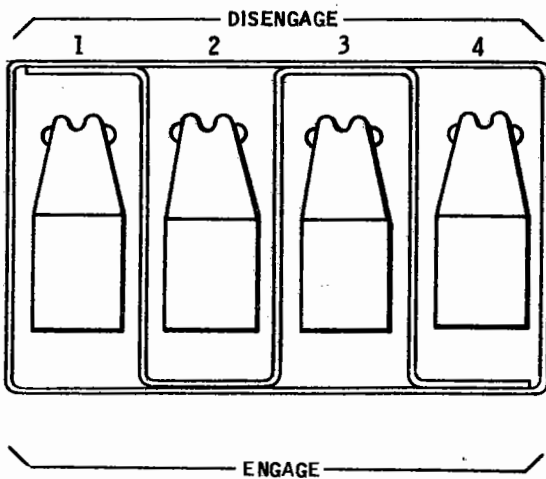
a)



CSD TEMP OUT Button.

When pressed CSD oil out temperature is indicated on the above gauges.

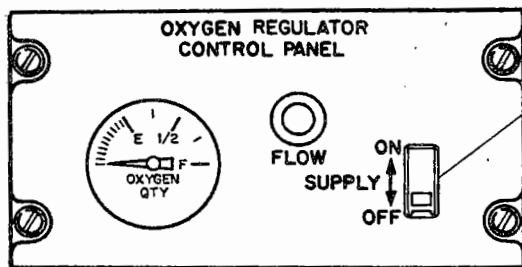
b)



Generator Drive Disconnect Switches.
ENGAGE - Normal position.

DISENGAGE - Electrically energizes
disconnect mechanism.

Location: a) Second Officer's Panel, b) Second Officer's Pedestal



Oxygen Supply Switch.
ON - Normal position.

OFF - Shuts off oxygen supply to mask mounted regulator.

MASK MOUNTED REGULATOR

1 NORMAL/EMERG Selector.

NORMAL - provides aneroid control of oxygen as selected by 100% - DILUTE Knob. Automatically provides 100% oxygen under pressure at cabin altitudes above 28,000 feet.

EMERG - provides 100% oxygen under pressure at all altitudes.

2 Oxygen hose attachment.

3 100% - DILUTE Knob.

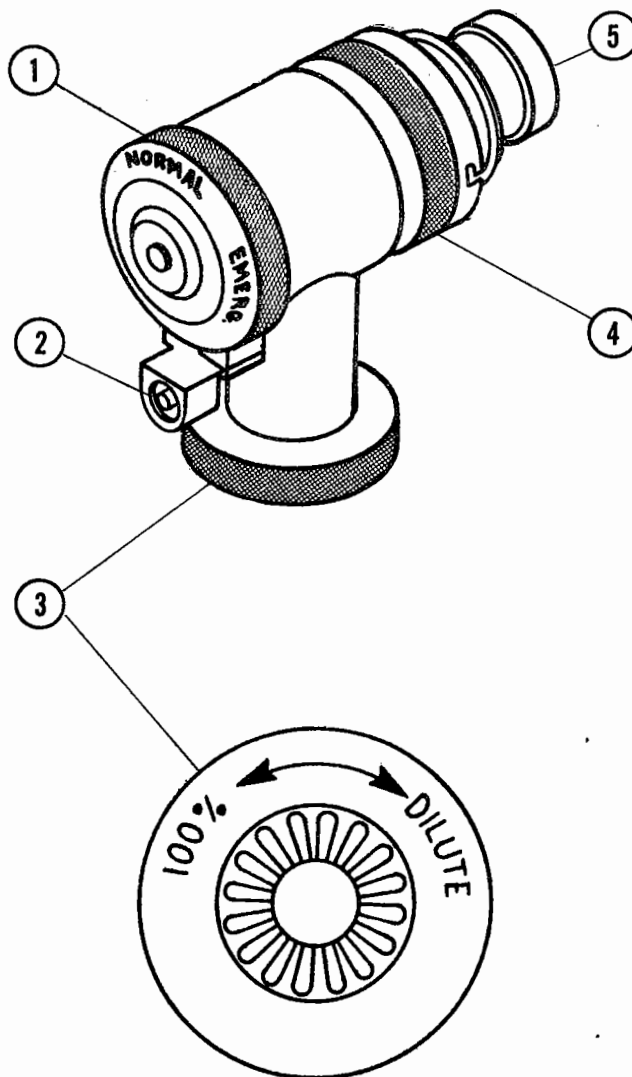
100% - provides pure oxygen to mask.

DILUTE - provides oxygen diluted with air below 28,000 feet cabin altitude; 100% oxygen above.

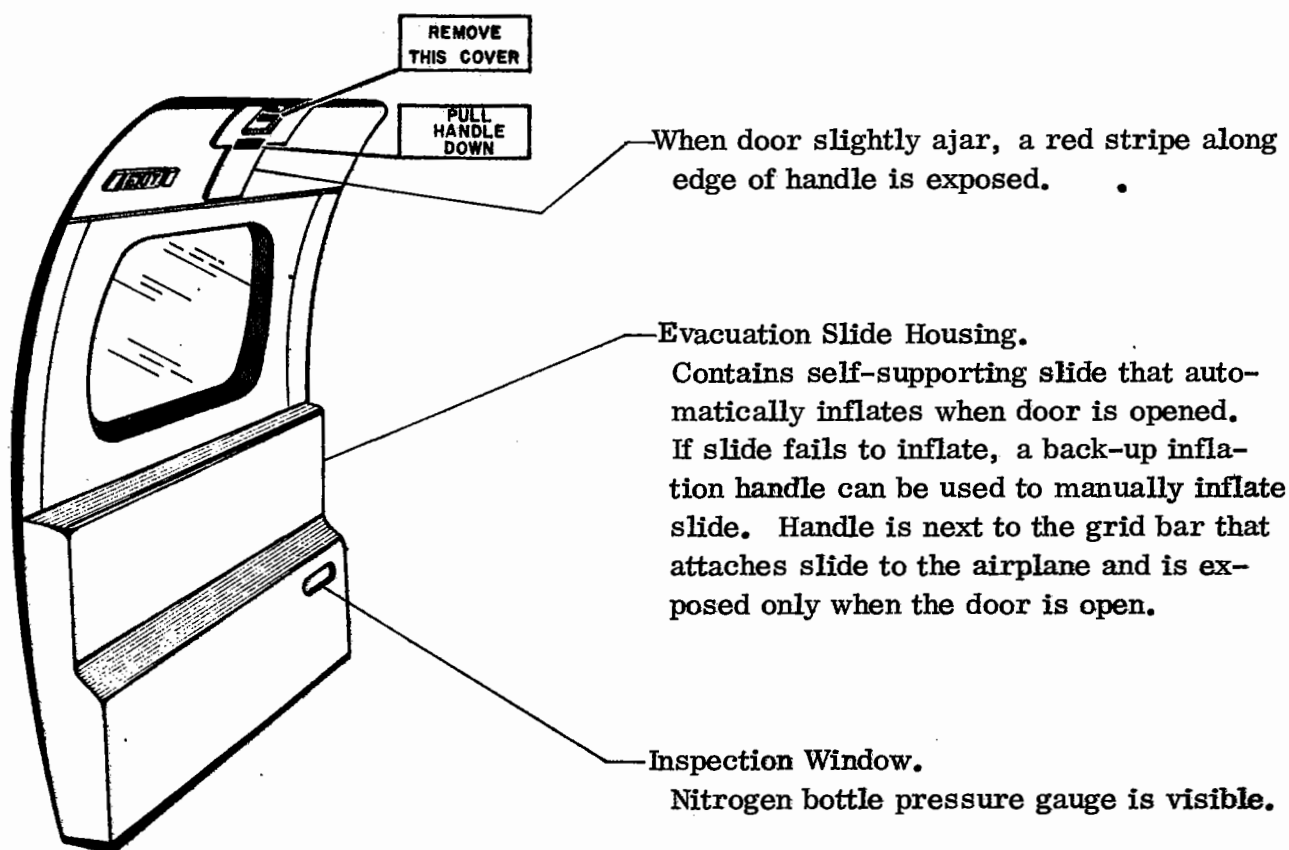
4 Microphone assembly.

5 Quick disconnect.

Connects to mask.



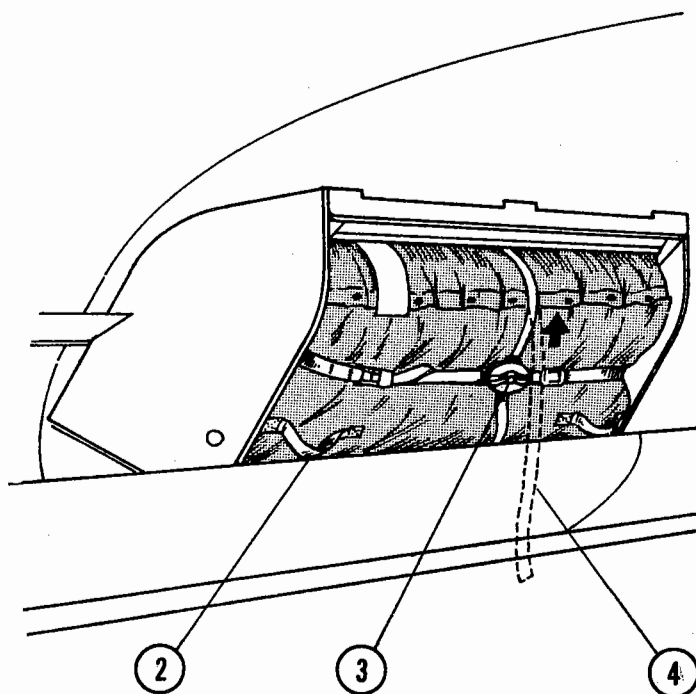
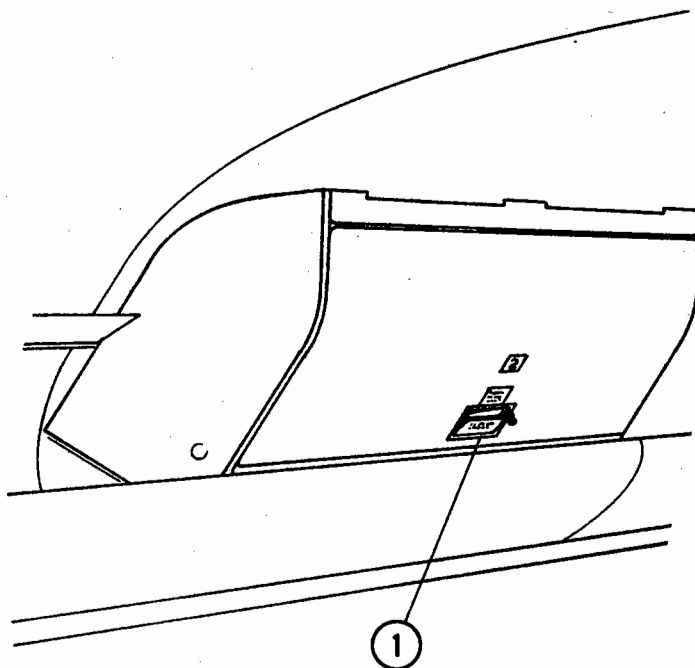
Location: All crew cockpit positions.



TYPE 1 JETESCAPE EMERGENCY EXIT

HATRACK LIFE RAFT

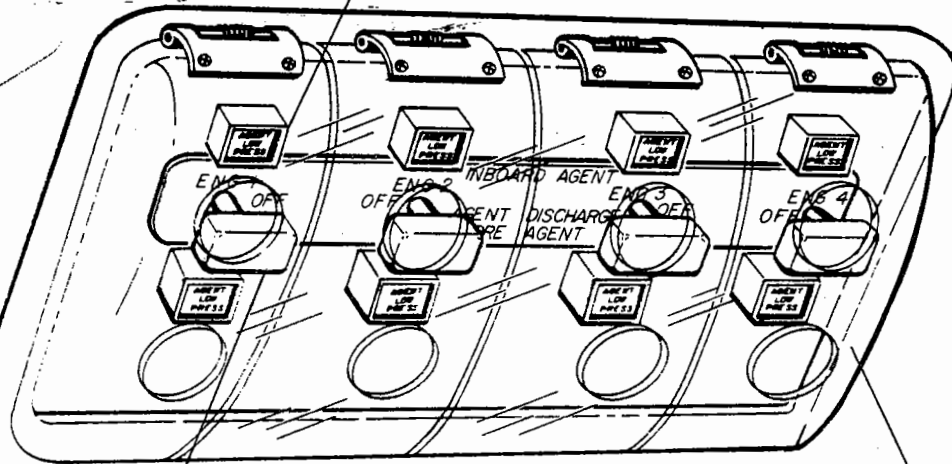
1. Door Latch
Pull down; door free-falls
from compartment.
2. Carrying Handle
3. Strap Release
Rotate to release holding
straps and roll out strap.
4. Roll Out Strap
When straps released, falls
down over hatrack. Pull to
roll raft from compartment.





AGENT LOW PRESS Light.

Two lights for each agent bottle. Both lights illuminate when agent discharged.

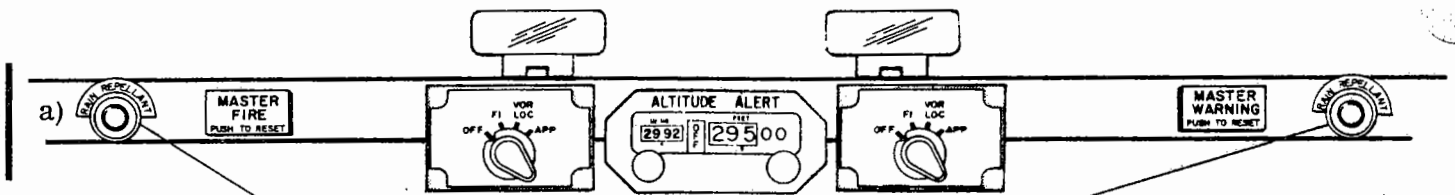


Agent Discharge Switch.

Lever locked, momentary contact, center OFF. Movement aft discharges inboard agent; forward the outboard agent.

Agent Discharge Switch Cover.

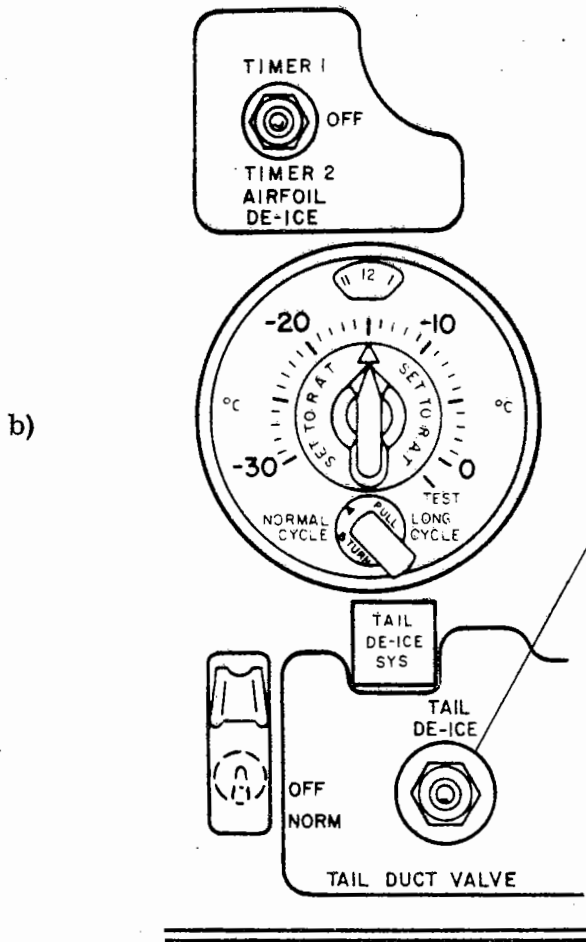
Opens automatically when Fire Shutoff Lever in SELECT AGENT. Holes in cover permit press-to-test of AGENT LOW PRESS light.



RAIN REPELLANT Button.

When depressed, applies a momentary discharge of rain repellant to the respective windshield. A time delay relay controls the fluid discharge.

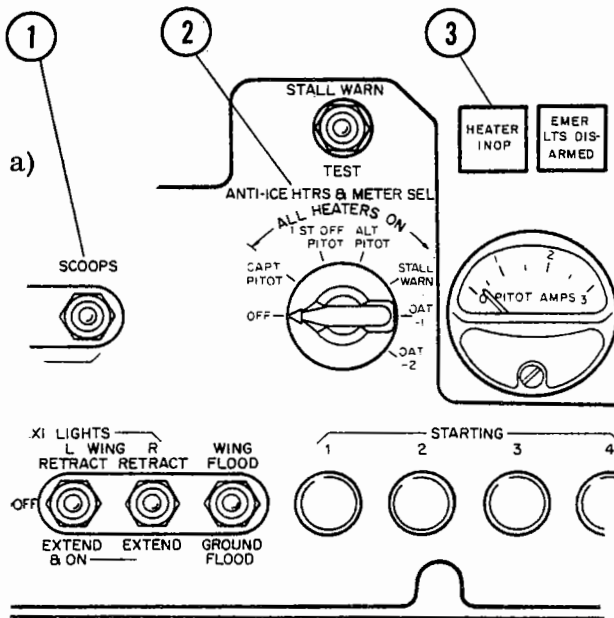
A fluid container on the F/O sidewall provides a fluid level and pressure indication.



TAIL DE-ICE Button. (N8073U and Sub.)

When pressed, actuates TIMER to shut-off wing de-icing. Opens Tail Duct Valve to de-ice all segments of horizontal stabilizer simultaneously for 2½ minutes.

Location: a) Glareshield, b) Second Officer's Panel



1 SCOOPS ANTI-ICE Switch.

Does not energize pneumatic crossfeed valve or outer wing pneumatic shutoff valve on -61's, N8073U and subsequent.

2 ANTI-ICE HTRS & METER SElector.

OAT-1, OAT-2 (N8095U-99U) - Provides ammeter indications to check current drawn by each total air temperature probe (inflight only).

3 HEATER INOP Light.

Illuminates to indicate low current flow to any of the following: CAP PITOT, F/O PITOT, ALT PITOT, STALL WARN.

On N8095U-99U illuminates when ANTI-ICE HTRS AND METER SElector switch is OFF.

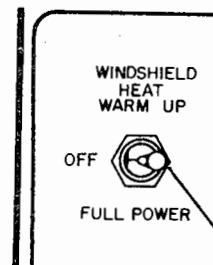
b)



MAST HEATER Switch.

ON - Prevents ice accumulation on waste water drain mast.

c)

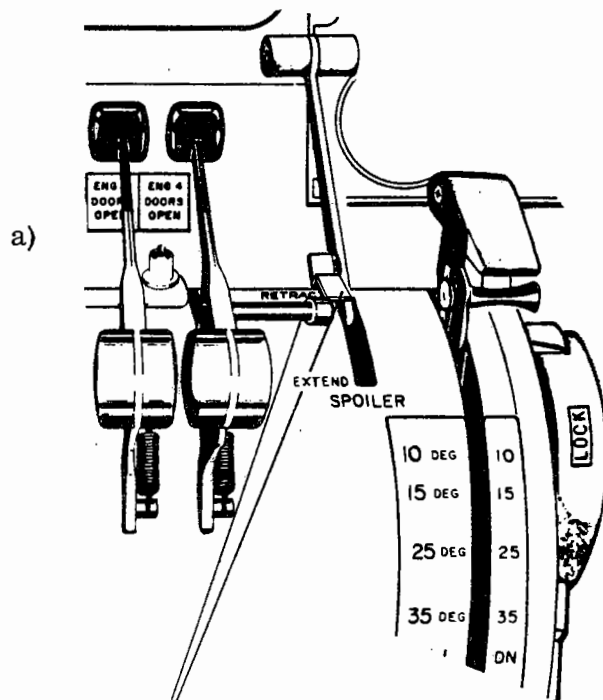


WINDSHIELD HEAT Switch

On -61's N8095U-99U, switch controls window and windshield anti-fogging in addition to controlling windshield heat as on other DC-8's.

The CENTER RIGHT AND LEFT ANTI-FOG C/B's may be pulled to allow a hand-feel check of the windshields to ascertain that the anti-icing system is operative. Unless defogging is required, operate with all window and windshield anti-fog C/B's pulled.

Location: a) Overhead Panel, b) Top of S/O Panel c) Overhead Panel

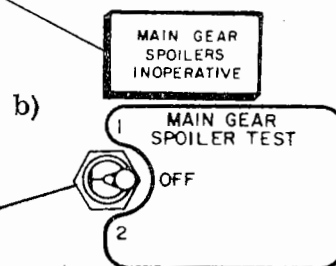


Ramp and Roller.

When throttles are advanced, as on go-around, the roller on #4 throttle will engage the ramp on the spoiler lever, if it is aft, and disarm the spoilers.

MAIN GEAR SPOILERS INOPERATIVE Light.

Two lamps under cover. One or both lights illuminate to indicate a malfunction in the main landing gear ground spoiler circuit. Automatic extension of the spoilers through compression of the nose gear strut, or manual extension through use of the EXTEND position of the control lever are still available.



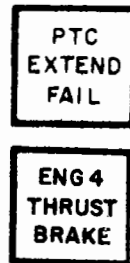
MAIN GEAR SPOILER TEST Switch.

Used for maintenance test on the ground only to check status of main landing gear spoiler lockout circuit.

Location: a) Control Pedestal, b) Second Officer's Panel



DC-8-61 DIFFERENCES
FLIGHT CONTROLS



PTC EXTEND FAIL Light.

Illuminates when PTC extends approximately 80%. In addition, blinks when PTC malfunctions if actuator extension at time of failure is less than 80%. If failure occurs with actuator extended above 80%, light will illuminate steady and will not blink.

Location: Glareshield

DC-8-61 DIFFERENCES
LANDING GEAR



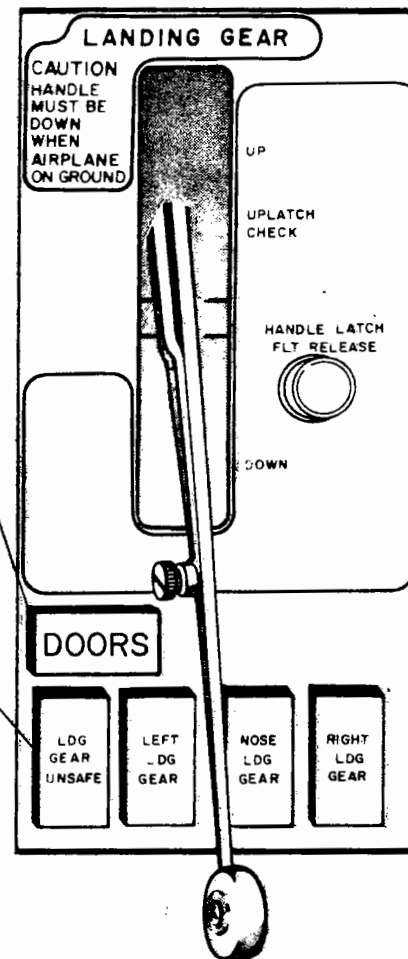
Main Gear DOORS Light.

Illuminates if:

- Either or both main gear inboard doors not closed and latched when landing gear fully retracted.
- Landing gear in transit.
- Landing gear extended using short landing gear lever and either or both main gear inboard doors not closed and latched.

LDG GEAR UNSAFE Light.

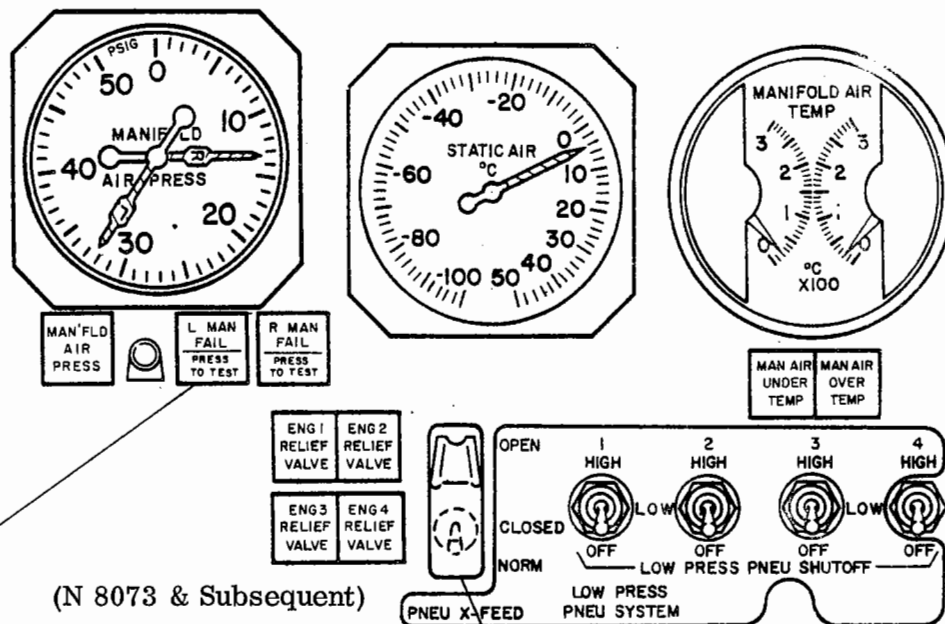
Same as on DC-8's except that light does not illuminate to indicate that MLG doors are not closed following retraction.



ANTI-SKID FAIL Light.

Same as other DC-8's except that it also illuminates when the parking brake is set.

Location: a) Center Instrument Panel, b) Glareshield



(N 8073 & Subsequent)

MAN'FLD FAIL Lights.

Illuminates to indicate a failure of respective pneumatic manifold by sensing an overheat condition. Also illuminates MASTER WARNING light. If one light is on, a lockout circuit prevents the other from illuminating. Press-to-test lights separately.

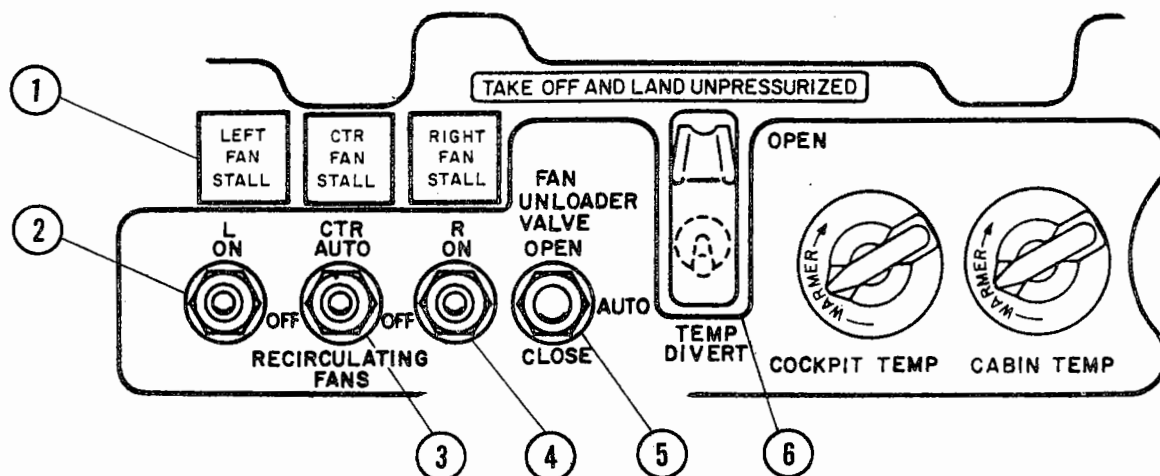
PNEU X-FEED Switch.

OPEN - Used inflight to open valve in case of inadequate pneumatic supply to one side of airplane.

CLOSED - Closes valve for checking or trouble shooting.

NORM - Valve automatically closes in flight; opens on ground if electrical power available.

Location: Second Officer's Panel



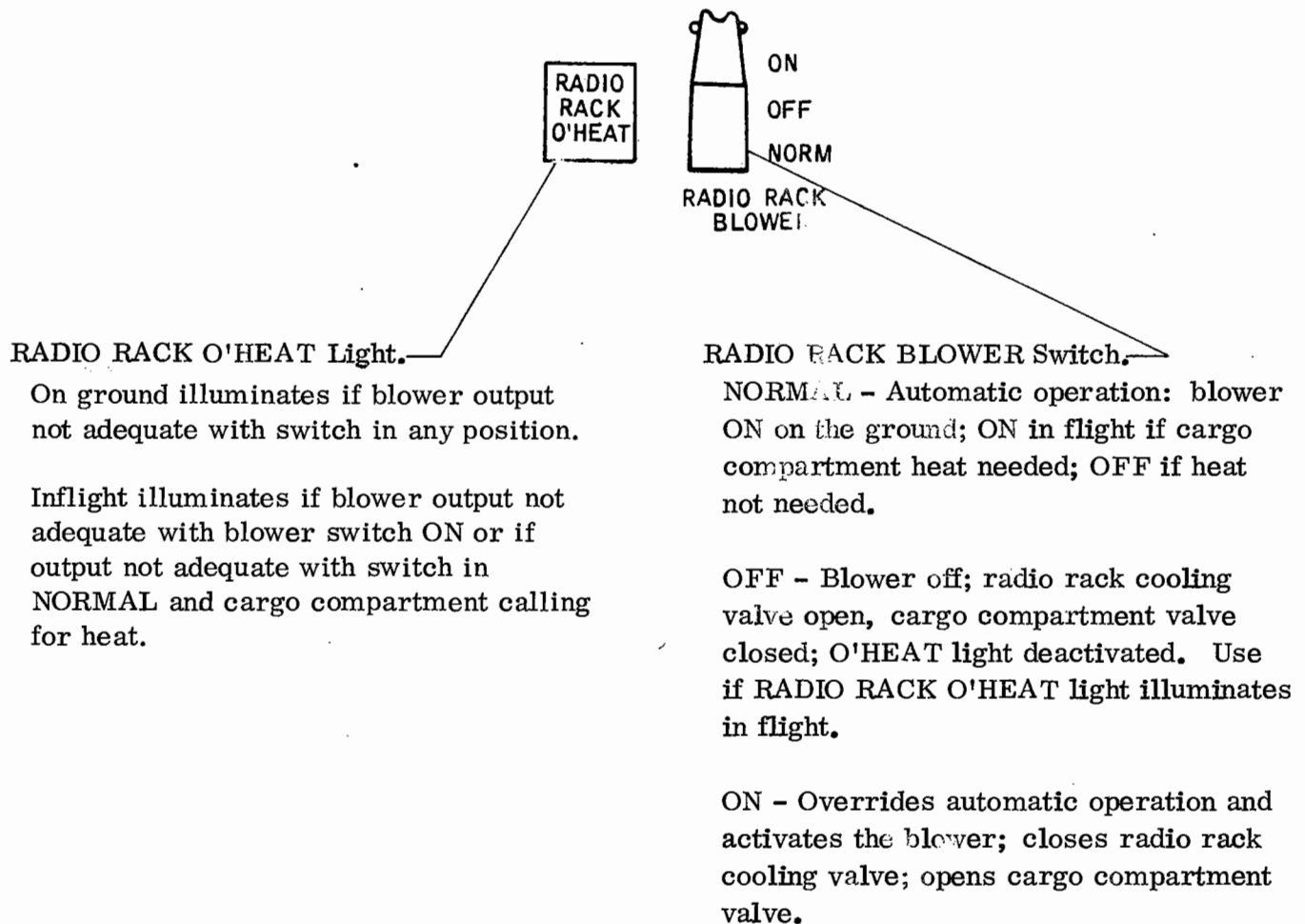
- 1 FAN STALL Lights.
Indicates corresponding fan has stalled, (no air flow).
- 2 Left RECIRCULATING FAN Switch.
ON - fan operates on ground if air conditioning cart not plugged in; in flight, only if Center Fan is OFF.
- 3 CTR RECIRCULATING FAN Switch.
AUTO - fan operates continuously except when air conditioning cart is supplying air or mixing lever in HEAT position and a fan stall has occurred.
- 4 Right RECIRCULATING FAN Switch.
ON - operates in flight or on the ground except when air conditioning cart is supplying air.
- 5 FAN UNLOADER VALVE Switch.
AUTO - valve opens automatically when a fan stall occurs. Closes automatically when stall is relieved.

OPEN - Keeps the valve open. Also can be used to relieve a stall while the air conditioning system is being adjusted to eliminate the stall condition.

CLOSE - Keeps valve closed for maintenance and trouble shooting.
- 6 TEMP DIVERT Switch.
OPEN - Valve open and cockpit conditioned air supplied from air distribution chamber.

TEMP DIVERT - Normal position that provides cockpit conditioned air from left air conditioning system.

Location: Second Officer's Panel

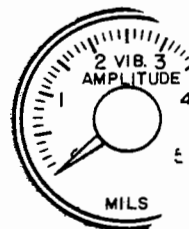
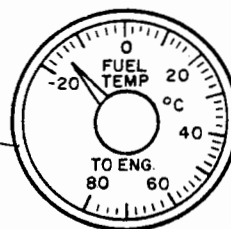


Location: Top of Second Officer's Panel



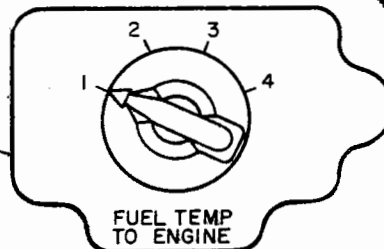
FUEL TEMP To Engine Gauge.

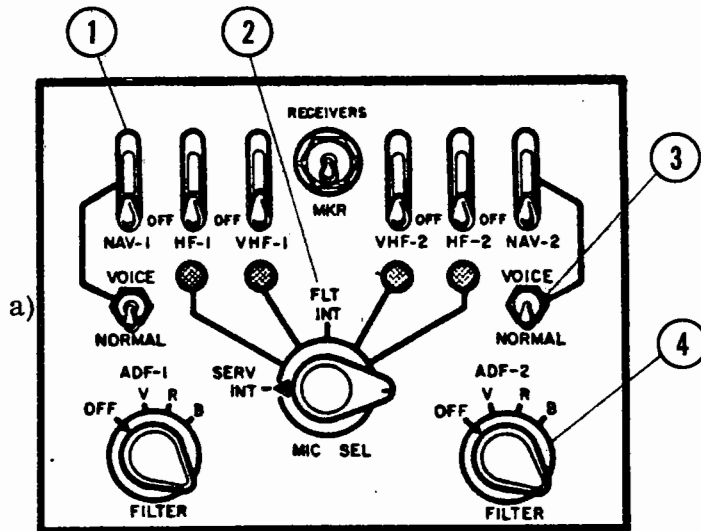
Provides a means to monitor fuel temperature in case CSD heat exchanger heats fuel excessively.



FUEL TEMP TO ENGINE Selector.

Selects each engine position for fuel temperature reading.





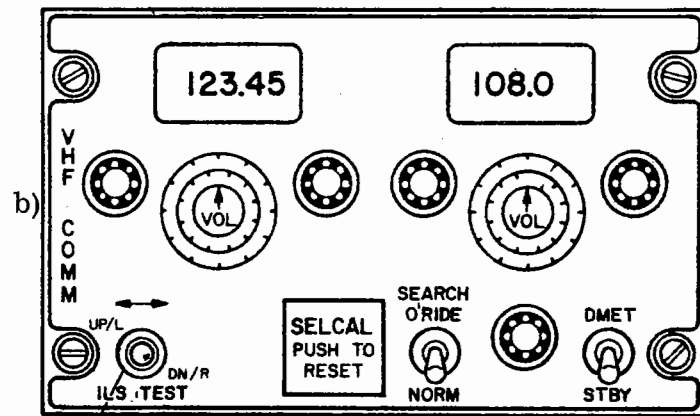
AUDIO CONTROL PANEL

- 1 RECEIVER Switches.
On-off and volume control switch, which connects receiver output to hand-set.
- 2 MIC SEL Switch.
Switches microphone to any of 6 noted positions.
- 3 VOICE Filter Switch.
VOICE - Receive VHF-NAV voice only.

NORMAL - Receive VHF-NAV voice and code, and DME code.
- 4 ADF Receiver FILTER Switches.
V - Voice - filter passes all frequency tones, except range.

R - Range - filter passes only range tone.

B - Both - No filter, all frequencies passed, both range and voice.



VHF CONTROL PANEL

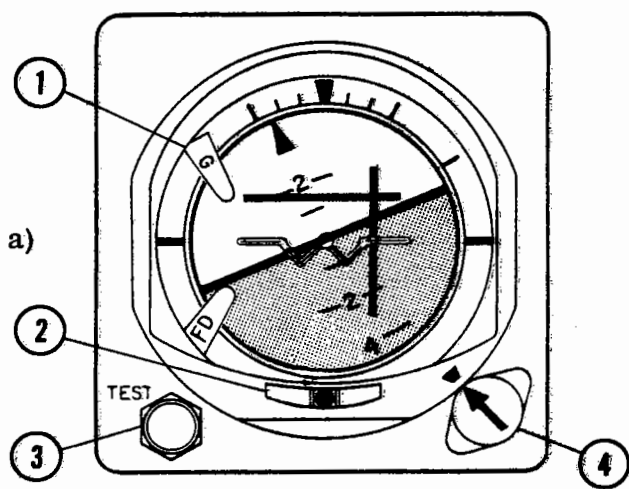
ILS TEST Switch.

Select an ILS frequency and position switch to:

UP/L - Course bar will deflect to left one dot, the GS bar will move up one dot and the NAV and GS flags will appear then disappear for several seconds.

DN/R - Course bar will deflect to right one dot, the GS bar will move down one dot and the NAV and GS flags will appear then disappear for several seconds.

Location: a) All crew stations, b) Control Pedestal



ATTITUDE INDICATOR

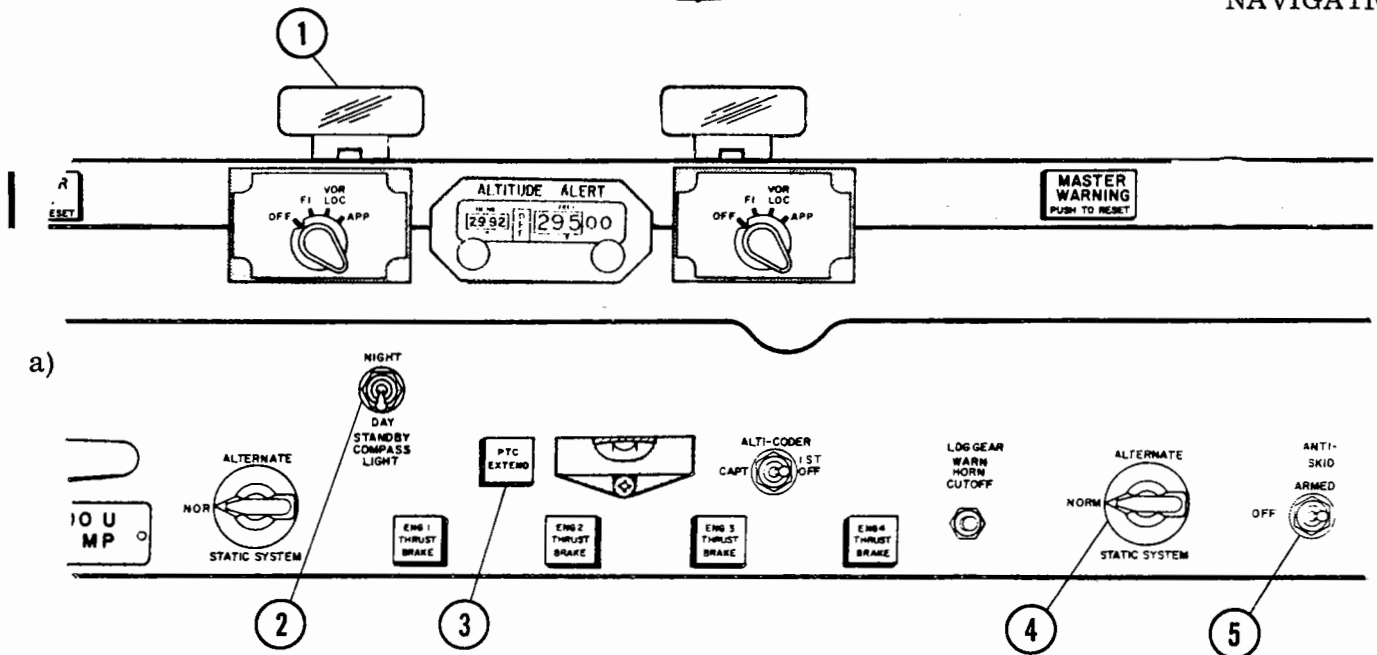
- 1 Gyro Flag.
Indicates unsatisfactory gyro horizon system.
- 2 Slip Indicator.
- 3 TEST Button.
Produces approximately 20° roll and 10° pitch simulating a climbing right turn.
- 4 Pitch Trim Knob.
No function.

b)



CADC FAIL WARN Light
Indicates failure of CADC-1.

Location: a) Capt. & F/O Instrument Panel, b) S/O Instrument Panel



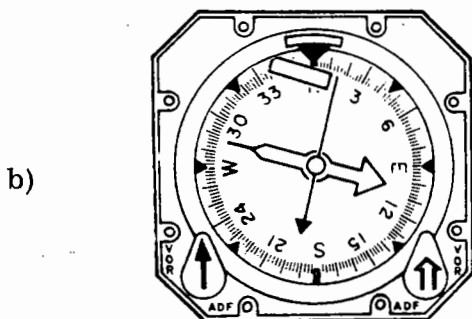
1 Magnetic Compass Mirrors.

Permit viewing of the magnetic compass on the left aft overhead panel.
May be folded down when not in use.

2 STANDBY COMPASS LIGHT Switch.

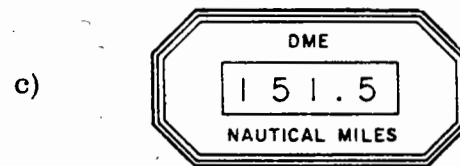
Controls brightness of compass light.

3, 4, 5 Different locations only.



VOR/ADF RMI.

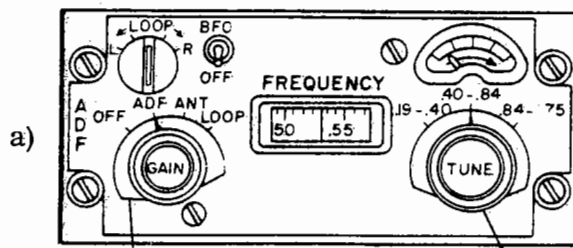
Selector switches incorporated with instrument.



Distance Indicator.

Shows distance to tenths of a mile, has 200 NM range with DME search switch in NORM; 390 NM search capability with the switch in O'RIDE.

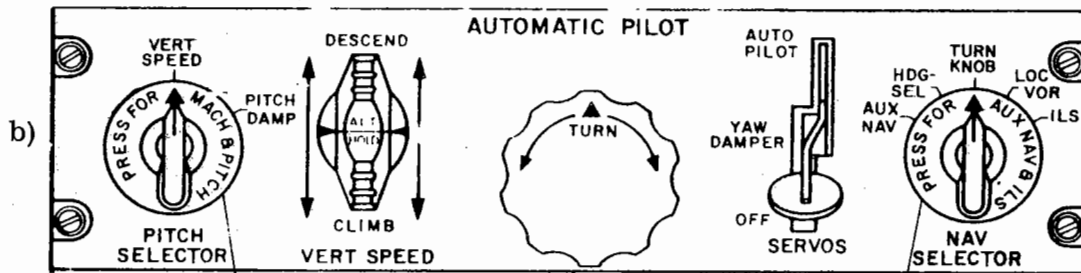
Location: a) Glareshield, b) & c) Capt. & F/O Panels



ADF CONTROL PANEL

GAIN Control and Function Switch.
Outer ring selects function. Inner Knob is gain control.

TUNE Knob.
Outer ring selects frequency band. Inner Knob is for fine tuning.

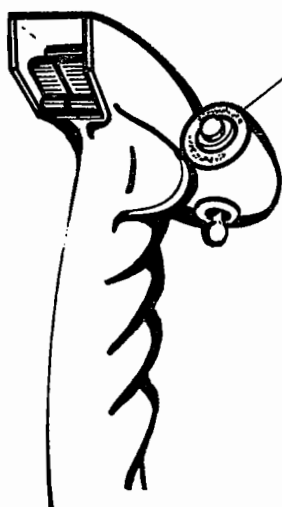


SP-30AL CONTROLLER

PITCH SELECTOR Switch.
PITCH DAMP - Autopilot horizontal stabilizer trim is disconnected, and the AUTO TRIM OFF light comes on. Pitch attitude can be changed without disengaging the autopilot by manual inputs to the control column or by use of the alternate longitudinal trim.

NAV SELECTOR.
ILS - No glide path extension.
AUX NAV - Couples selected INS steering signal to autopilot.

Location: a) Overhead Panel, b) Control Pedestal



AUTOPILOT RELEASE Button.

SP-30AL, when pressed, the autopilot elevator and aileron servos are disengaged and the SERVOS lever goes to YAW DAMPER.

The AUTOPILOT OFF light and MASTER WARNING light will illuminate if:

- (In flight) The PTC switch is in OVER-RIDE and the landing gear is up. The stabilizer-in-motion horn will also sound if flaps are at 10° or less.
- (On ground) The PTC switch is in NOR. The stabilizer-in-motion horn will sound regardless of flap position.

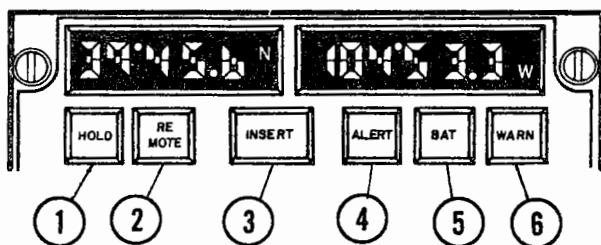
The system is re-set by pressing the MASTER WARNING light or re-engaging the autopilot.



INERTIAL NAVIGATION SYSTEM

DATA DISPLAYS READOUT

Left and right data displays readout the information that is selected by the data selector/test switch. The information to be loaded into the computer of the INS appears in the data display prior to insertion.



1 HOLD Key.

Illuminates white when pushed. Freezes the display of present position. The displays stop changing at the point where HOLD is depressed.

2 REMOTE Key.

Illuminates amber when pushed. Allows simultaneous loading of in-flight positions, waypoints, and post flight updates. Can be used with the HOLD key to freeze displays on both units simultaneously.

3 INSERT Key.

Inserts loaded data into the computer. The Key illuminates whenever the computer expects to receive new information. The light goes out when the data is inserted by pressing INSERT key or when data is cleared by pressing CLEAR key.

4 ALERT Lamp.

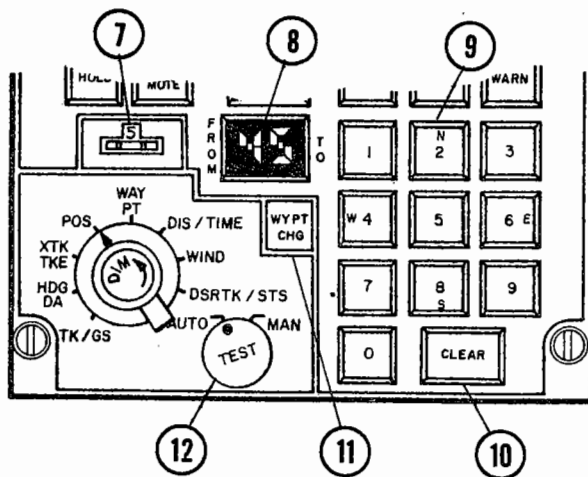
Illuminates amber when approximately 2 minutes from reaching the next waypoint. When the INS automatically switches to the next navigational leg, the light extinguishes. The light blinks after passing a waypoint if the AUTO-MAN switch is in MAN. In this case, the light goes out when either AUTO is selected or a course change is inserted. Will not illuminate when ground speed is less than 250 knots.

5 BAT Lamp.

Illuminates amber when the INS is operating on battery power.

6 WARN Lamp.

Illuminates red when the INS system self-check circuits detect an out-of-tolerance condition.



- 7 Waypoint Selector (thumbwheel).
Used to select waypoint to be read or inserted.

- 8 FROM - TO Display.
Indicates the flight leg, as defined by the From-To Waypoints, for which navigation data is being computed.

- 9 Keyboard.
Ten pushbuttons (0 to 9). Used to load data into the data displays and FROM - TO display.

- 10 CLEAR Key.
Push to cancel a data loading operation when erroneous data is inadvertently loaded prior to insertion.

11 WYPT CHG Key.

Used with the keyboard and INSERT key to make a course change. When pushed the WYPT CHG key illuminates along with the INSERT key. Different waypoint numbers can then be loaded in FROM - TO display. The first keyboard number pressed loads the FROM side and the second loads the TO side.

12 AUTO/MAN Switch.

Controls the sequencing of the waypoints displayed in the FROM - TO window.

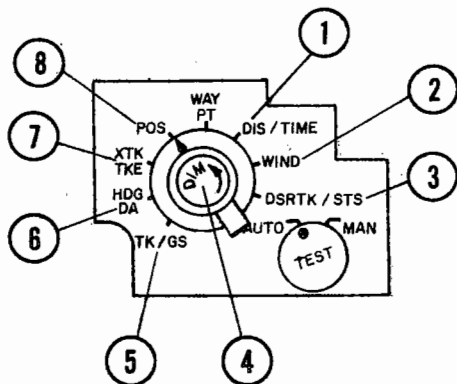
AUTO - Allows automatic navigation leg switching during flight.

MAN - The flight leg shown in the FROM - TO display must be changed through the keyboard.

Location: Control Pedestal



DATA SELECTOR



1 DIS/TIME.

Distance and time from present position to the waypoint shown in the TO side of the FROM - TO display are indicated in the data displays. Time is based on present ground speed.

2 WIND.

Wind direction and speed indicate in the left and right data displays. Both displays show 0 when TAS is less than 170 knots.

3 DSRTK/STS.

Desired track angle with respect to true North is shown on the left data display. The right data display indicates system status. The first position on the right data display indicates a One if the INS is in the NAV mode and a zero for other modes. The second and third positions display action codes or if the TEST switch is actuated, malfunction codes. The fourth position is blank. The fifth position show actual performance index or computer mode of operation during standby and alignment operation. The sixth position shows desired performance index.

4 DIM KNOB.

Adjusts intensity of the data displays.

5 TK/GS.

Track angle is displayed in the left data display with respect to true North. Ground speed is displayed in the right data display. True heading is displayed in place of track angle when ground speed is below 75 knots.

6 HDG/DA.

Heading angle is displayed in the left data display with respect to true North. Drift angle in degrees left or right of airplane heading is displayed on the right data display.

7 XTK/TKE.

Perpendicular distance in nautical miles left or right of the desired track is shown on the left data display. Track angle error is shown on the right data display as the track angle, left or right of the desired track angle.

8 POS.

Airplane present latitude and longitude coordinates are shown on the left and right displays respectively.

9 WAY PT.

Waypoint positions in latitude and longitude are shown on left and right displays. Used in conjunction with the Waypoint Selector, this position allows waypoint and destination positions to be inserted.

NOTE

Upon system turn-on, all waypoint coordinates initialize to zeros.

Location: Control Pedestal

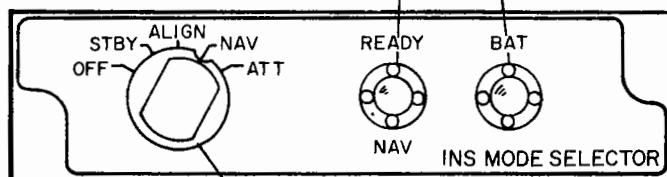
MODE SELECTOR UNIT

READY NAV Lamp.

Illuminates when desired alignment status is attained and mode selector is in ALIGN. This indicates NAV position must be selected prior to moving airplane.

BAT Lamp.

Illuminates only when the INS has shut-down due to a low battery unit voltage if the unit is operating battery power. The INS operates on battery power for a few seconds during the alignment process.



INS Mode Selector.

OFF - INS inoperative.

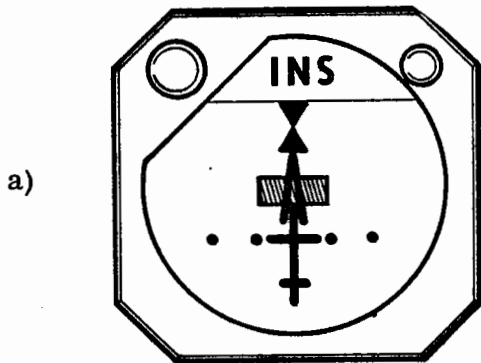
STBY - Setting the mode selector from OFF to STBY cages the inertial reference and turns on the digital computer unit and CDU. STBY is used only during ground operation.

ALIGN - The ALIGN position is used only during ground operation while the airplane is parked. The system is automatically aligned to make the INS ready to navigate.

NAV - The NAV position is used for normal operation after alignment is complete. The NAV position must be selected before moving the airplane.

ATT - The ATT mode serves no purpose on the DC-8-62. Switching to ATT essentially shuts off the INS.

Location: Overhead Panel



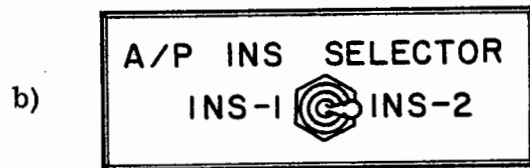
INS Course Deviation Indicator

The vertical bar indicates cross track deviation during normal INS operation regardless of DATA SELECTOR switch position. The deviation is 3.5 NM/dot regardless of the distance from the way-point.

The warning flag indicates an INS malfunction.

Test of the Course Deviation Indicator (CDI) can be accomplished with the system in ALIGN mode and a system status of 0 through 8 as follows:

- 1 Data Selector any position except DSRTK/STS.
- 2 TEST switch pressed and held. The CDI will indicate one dot right deviation and the flag will disappear.

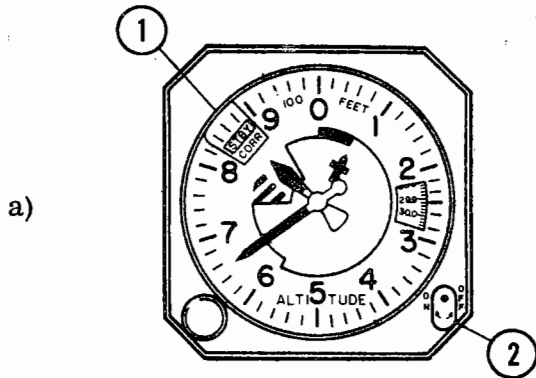


INS Selector

INS-1 - Feeds steering signals from INS-1 to the autopilot if it is on and the NAV SELECTOR is in AUX NAV.

INS-2 - Similarly couples INS-2 to the autopilot.

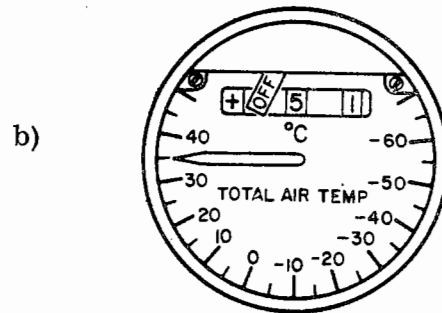
Location: a) Capt. & F/O Panels, b) Capt. Panel



Altimeter.

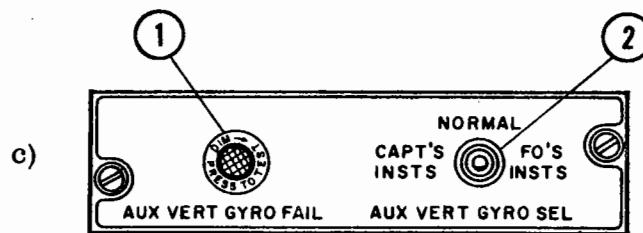
- 1 STBY/CORR Flag - Indicates STBY when power fails or when correction circuit is OFF. CORR appears when altimeter is in SERVO operation.
- 2 ON-OFF Switch.
OFF - Operates as pressure altimeter.

ON - Operates as servo-pneumatic altimeter.



TOTAL AIR TEMPERATURE Gauge (TAT).

Measures ambient air temperature, plus all ram air rise due to compression. Digital readout is to the nearest tenth of a degree centigrade. OFF flag appears with loss of electrical power to the system.



- 1 AUX VERT GYRO FAIL Light.
Illuminated until the auxiliary vertical gyro comes up to speed or when there is a power failure to the system.
- 2 AUX VERT GYRO SElector.
NORMAL - Captain's and First Officer's flight instruments receive inputs from their respective vertical gyros and the auxiliary vertical gyro is in a standby condition.

CAPT's INSTS - Captain's instruments and autopilot receive inputs from the auxiliary vertical gyro.

F/O's INSTS - First Officer's instruments and weather radar receive inputs from the auxiliary vertical gyro.

Location: a) Capt & F/O Instrument Panel, b) S/O & Nav Panels, c) Overhead Panel

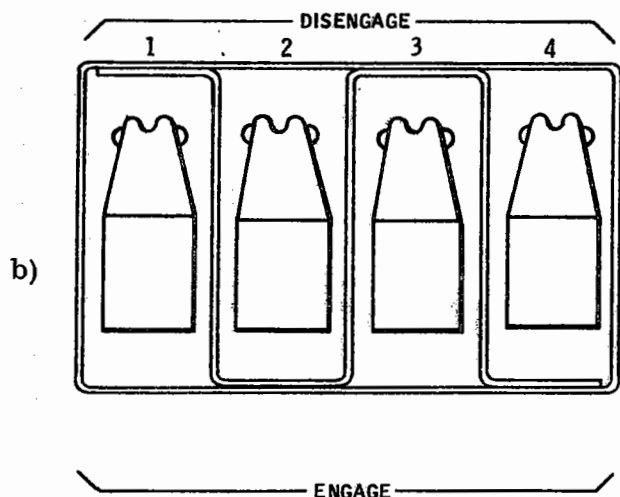


CSD OIL OUTLET TEMP Gauges.

Normally indicate CSD oil outlet temperature. Also indicate CSD oil rise when CSD TEMP RISE button is pressed.

CSD TEMP RISE Button.

When pressed, CSD oil temperature rise is indicated on the above gauges.

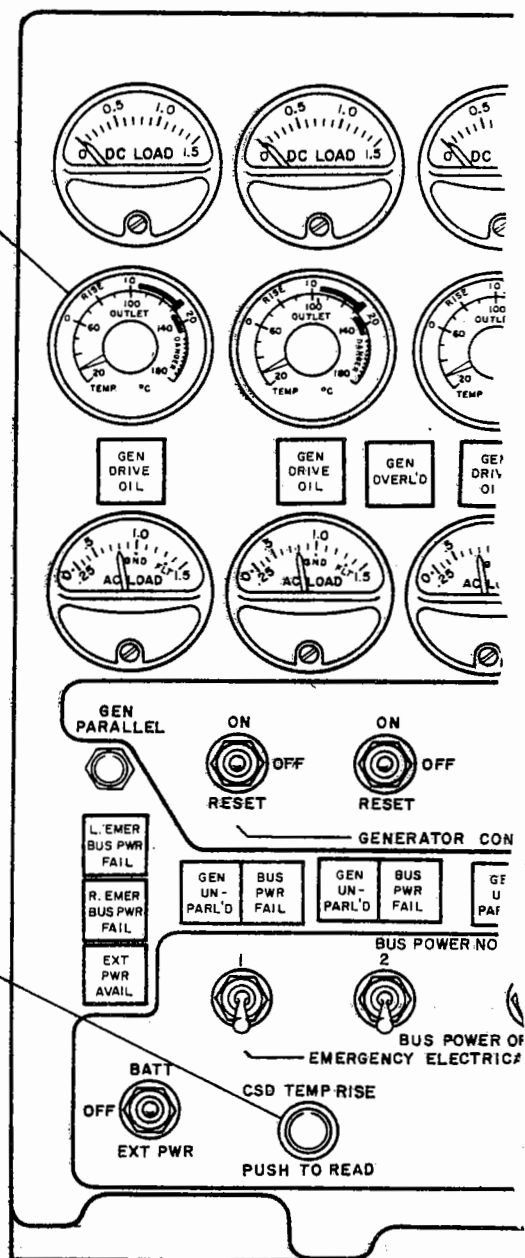


Generator Drive Disconnect Switches.

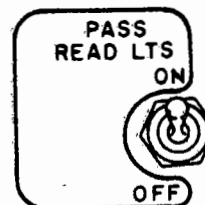
ENGAGE - Normal position.

DISENGAGE - Electrically energizes disconnect mechanism.

a)



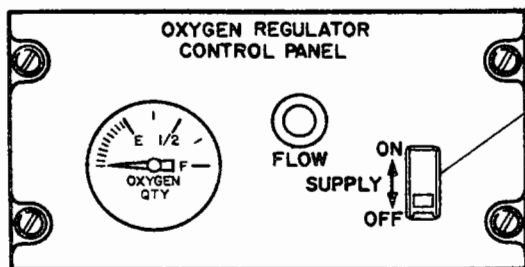
c)



PASS READ LTS Switch.

For maintenance use. S/O should verify that it is in ON.

Location: a), c) Second Officer's Panel, b) S/O Pedestal



Oxygen Supply Switch.
ON - Normal position.

OFF - Shuts off oxygen supply to mask
mounted regulator.

MASK MOUNTED REGULATOR

1 NORMAL/EMERG Selector.

NORMAL - Provides aneroid control of oxygen as selected by 100% - DILUTE Knob. Automatically provides 100% oxygen under pressure at cabin altitudes above 28,000 feet.

EMERG - Provides 100% oxygen under pressure at all altitudes.

2 Oxygen hose attachment.

3 100% - DILUTE Knob.

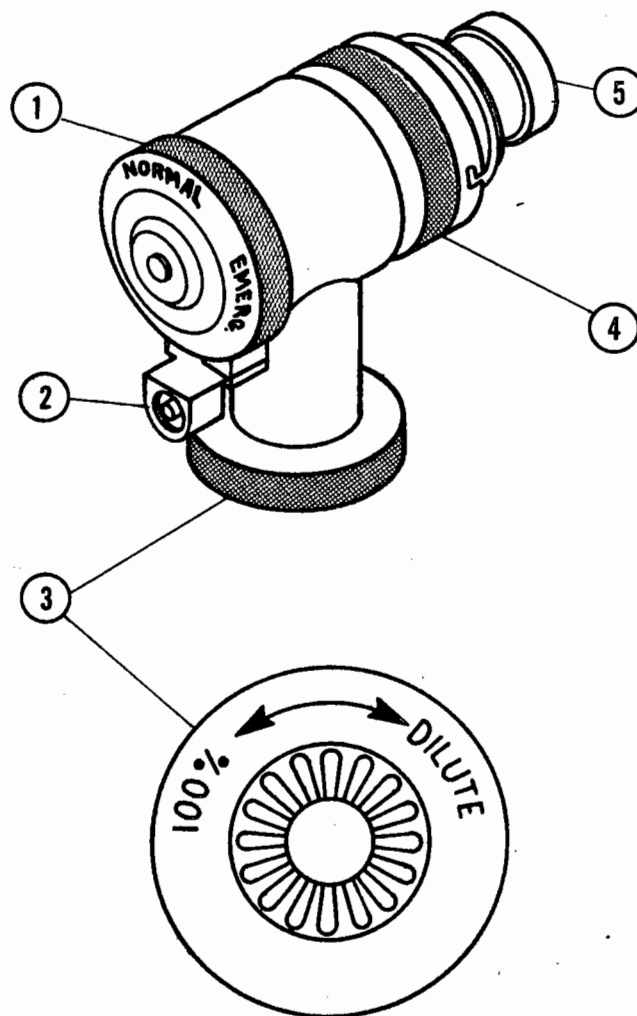
100% - Provides pure oxygen to mask.

DILUTE - Provides oxygen diluted with air below 28,000 feet cabin altitude; 100% oxygen above.

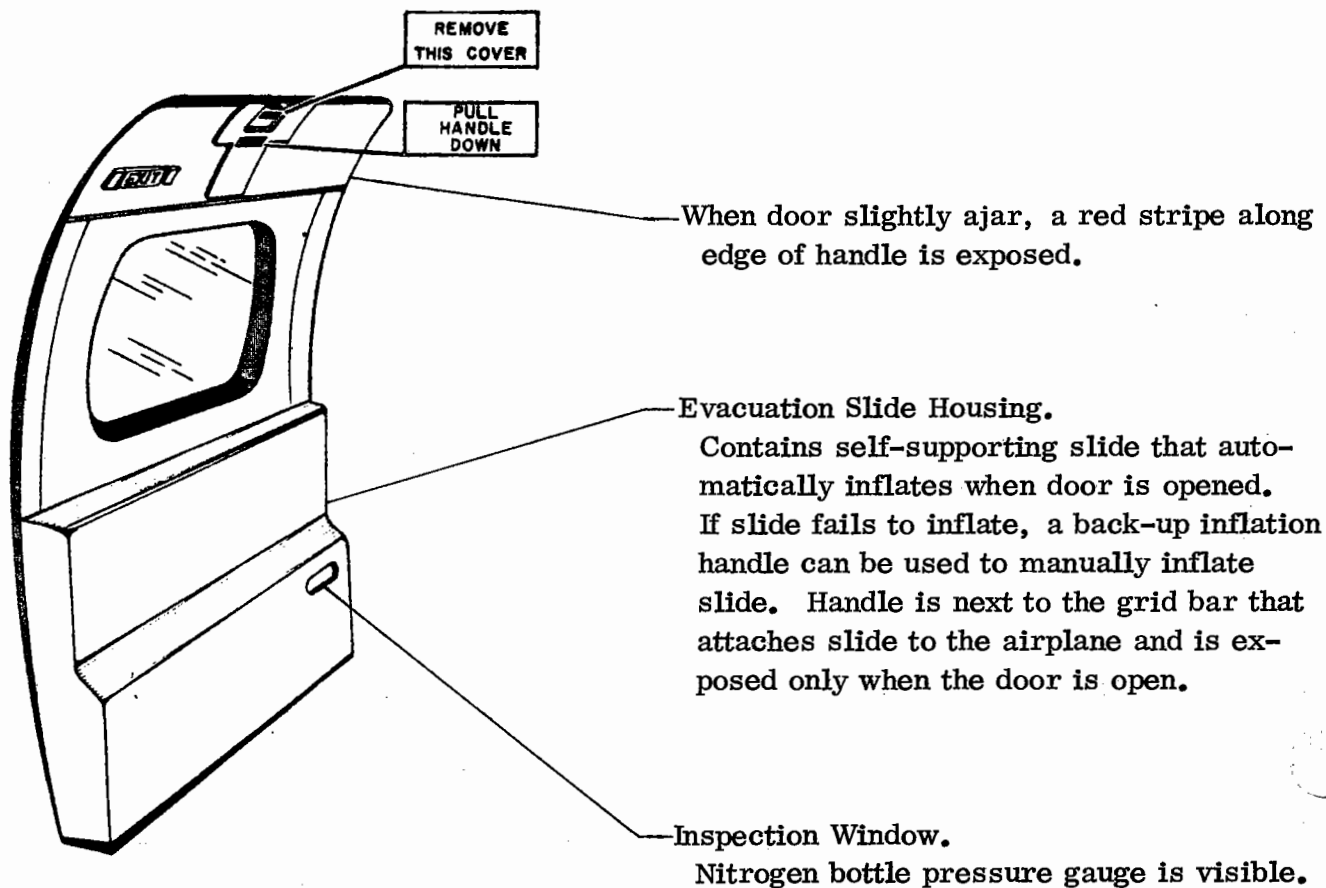
4 Microphone assembly.

5 Quick Disconnect.

Connects to mask.



Location: All crew cockpit positions.

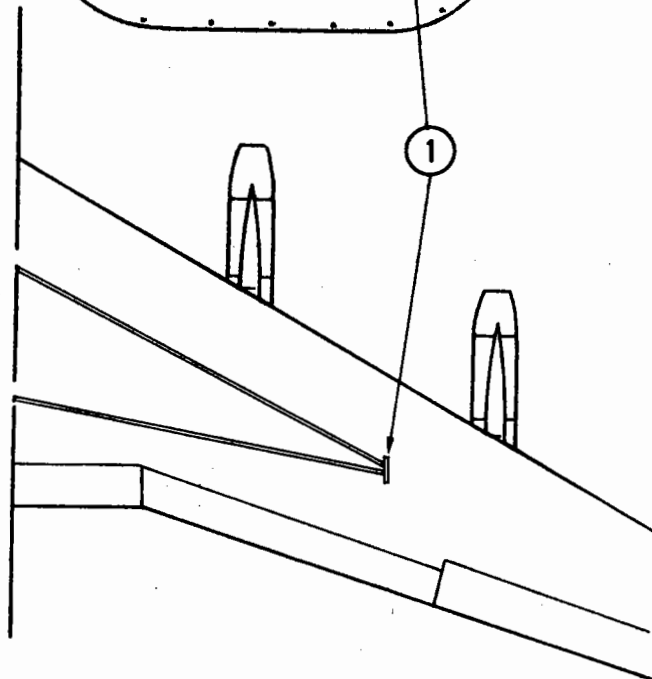
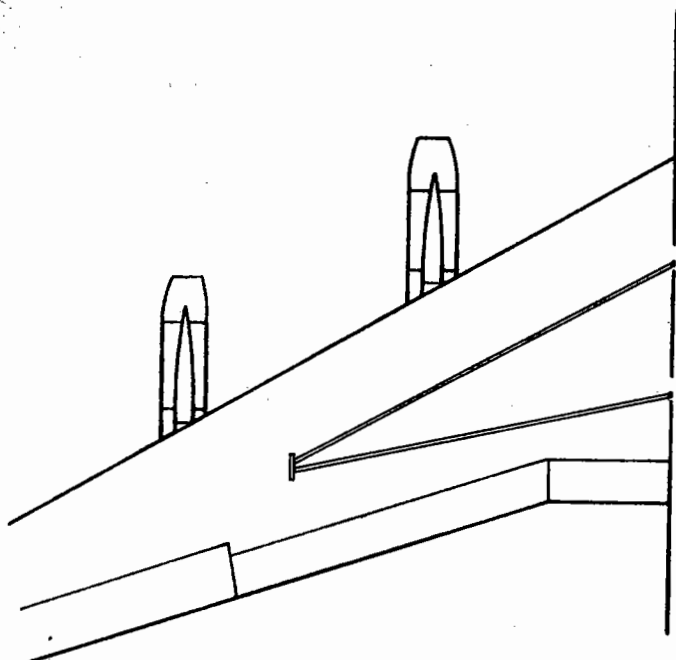
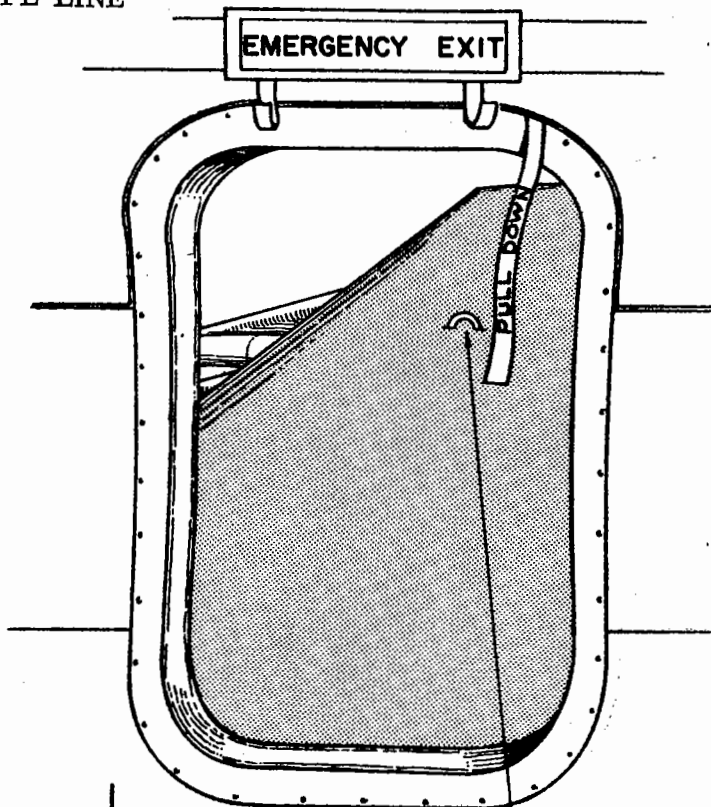
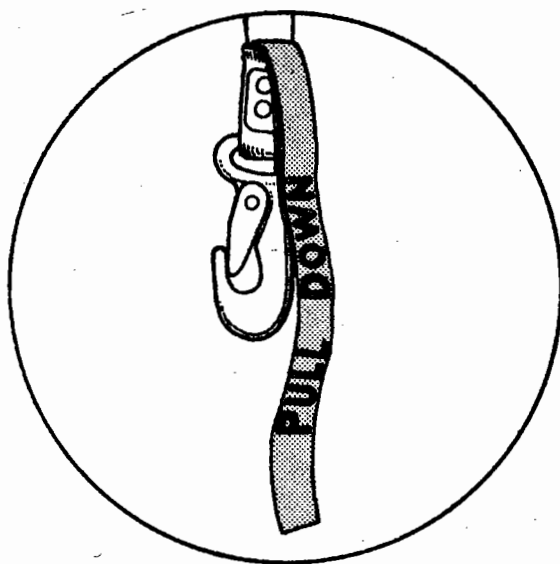


TYPE 1 JETESCAPE EMERGENCY EXIT



DC-8-62 DIFFERENCES
EMERGENCY EQUIPMENT

ESCAPE LINE

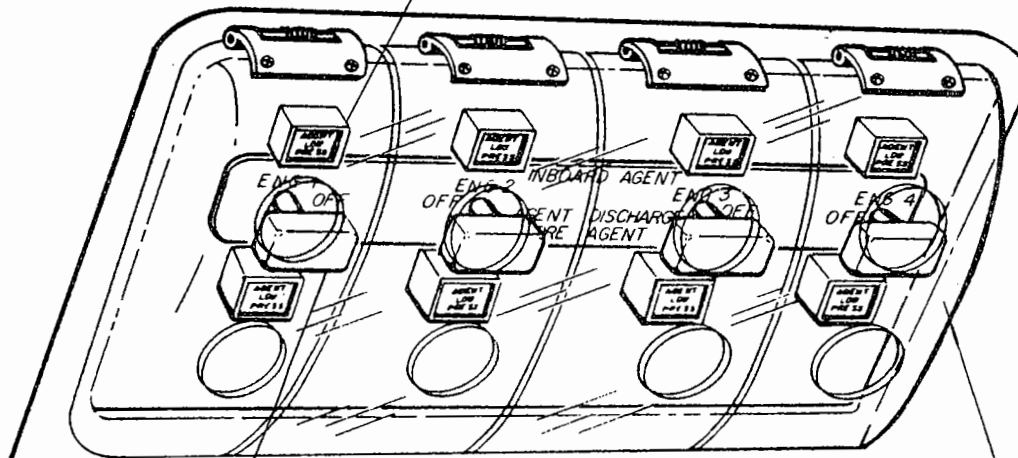


1. Wing Attach Fitting
Attach life line to this fitting.



AGENT LOW PRESS Light.

Two lights for each agent bottle. Both lights illuminate when agent discharged.



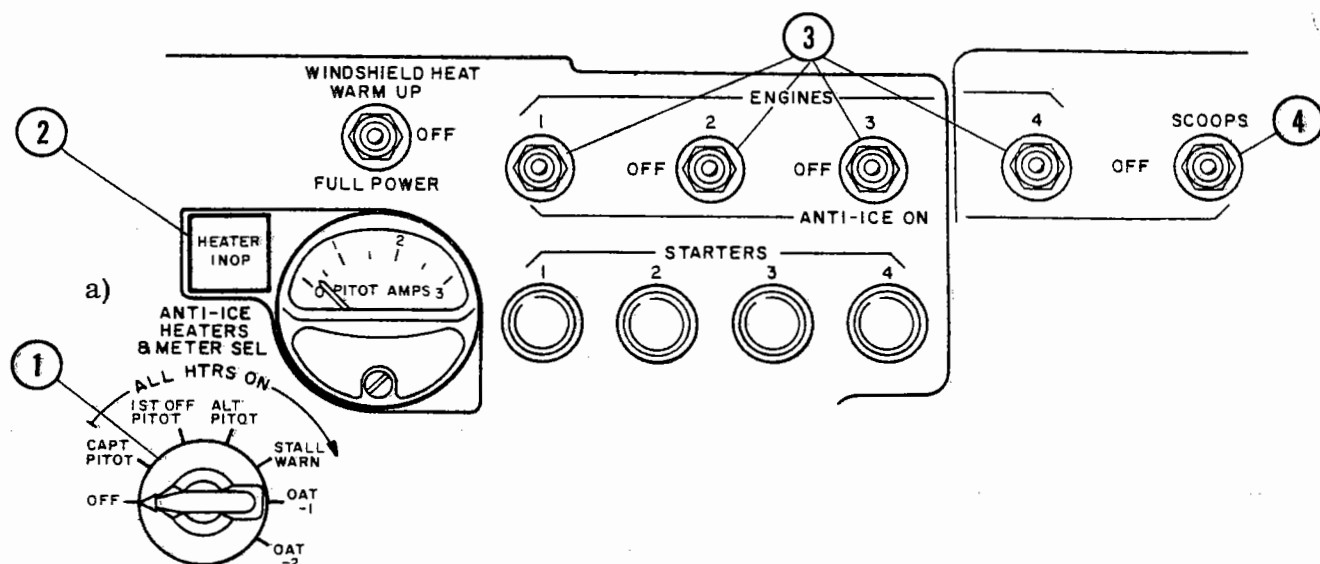
Agent Discharge Switch.

Lever locked, momentary contact, center OFF. Movement aft discharges inboard agent; forward the outboard agent.

Agent Discharge Switch Cover.

Opens automatically when Fire Shutoff Lever in SELECT AGENT. Holes in cover permit press-to-test of AGENT LOW PRESS light.

Location: Overhead Panel



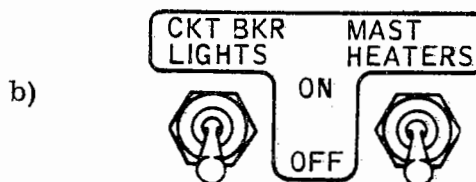
- 1 ANTI-ICE HTRS & METER SElector.
OAT-1, OAT-2 - Provides ammeter indications to check current drawn by each total air temperature probe (inflight only).

- 2 HEATER INOP Light.
Illuminates to indicate low current flow to any of the following: CAPT PITOT, F/O PITOT, ALT PITOT, STALL WARN.

Illuminates when ANTI-ICE HTRS AND METER SElector switch is OFF.

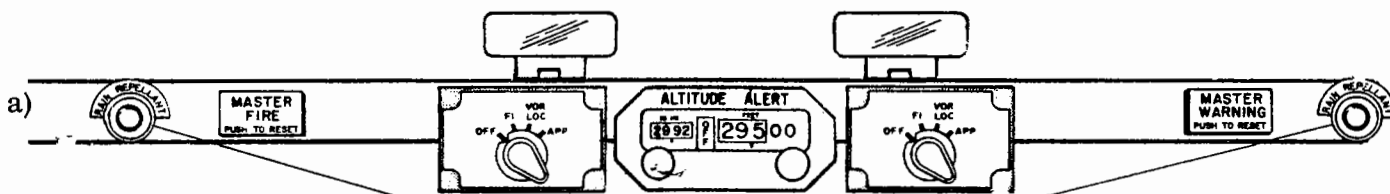
- 3 ENGINE ANTI-ICE Switches.
One switch for each engine.
ANTI-ICE ON - PT₂ probes pneumatically heated in addition to other engine anti-ice functions.

- 4 SCOOPS ANTI-ICE Switch.
Does not energize pneumatic crossfeed valve or outer wing pneumatic shutoff valve.



- MAST HEATERS Switch.
ON - prevents ice accumulation on waste water drain mast.

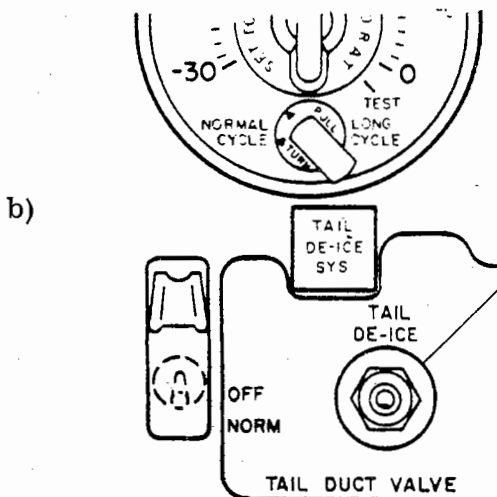
Location: a) Overhead Panel, b) Second Officer's Panel



RAIN REPELLANT Buttons.

When depressed, apply a momentary discharge of rain repellant to the respective windshield. A time delay relay controls the fluid discharge.

A fluid container on the First Officer's sidewall provides a fluid level and pressure indication.



TAIL DE-ICE Button.

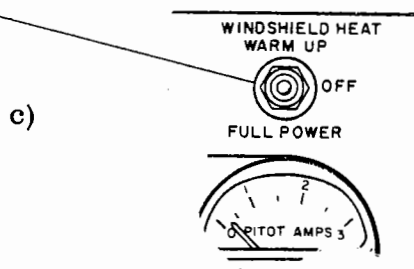
When pressed, actuates TIMER to shutoff wing de-icing. Opens tail duct valve to de-ice all segments of horizontal stabilizer simultaneously for 2½ minutes.

WINDSHIELD HEAT Switch.

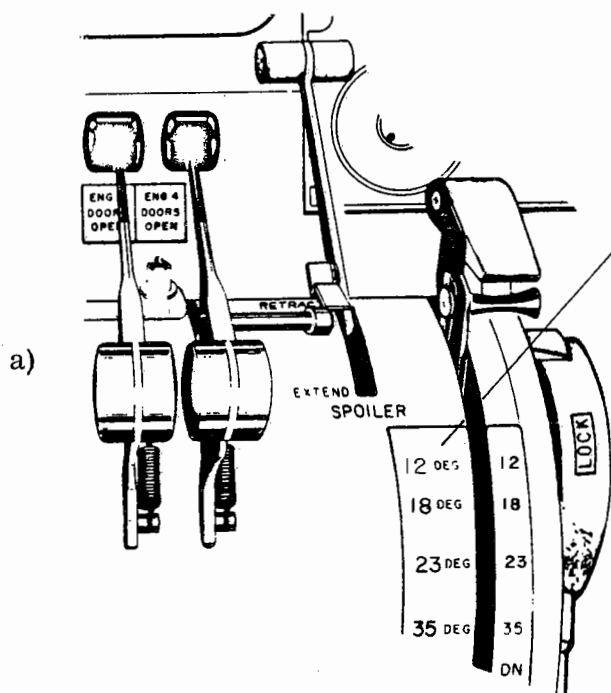
New location.

Controls window and windshield anti-fogging, in addition to controlling windshield heat as on other DC-8's.

The CENTER, RIGHT & LEFT, ANTI-FOG circuit breakers may be pulled to allow a hand-feel check of the windshields to ascertain that the anti-icing system is operative. Unless defogging is required, operate with all window and windshield anti-fog circuit breakers pulled.



Location: a) Glareshield, b) S/O Panel, c) Overhead Panel



Flap Settings.

Different degrees of flap settings. 18 DEG and 23 DEG to be used for takeoff.

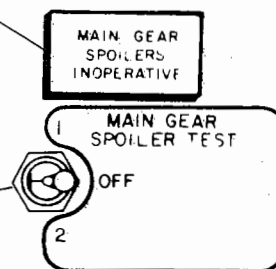
Ramp and Roller.

When throttles are advanced, as on go-around, the roller on #4 throttle will engage the ramp on the spoiler lever, if it is aft, and disarm the spoilers.

MAIN GEAR SPOILERS INOPERATIVE Light.

Two lamps under cover. One or both lights illuminate to indicate a malfunction in the main landing gear ground spoiler circuit. Automatic extension of the spoilers through compression of the nose gear strut, or manual extension through use of the EXTEND position of the control lever are still available.

b)



MAIN GEAR SPOILER TEST Switch.

Used for maintenance test on the ground only to check status of main landing gear spoiler lockout circuit.

Location: a) Control Pedestal, b) Second Officer's Panel



DC-8-62 DIFFERENCES
FLIGHT CONTROLS

PTC
EXTEND
FAIL

ENG 4
THRUST
BRAKE

PTC EXTEND FAIL Light.

Illuminates when PTC extends approximately 80%. In addition, blinks when PTC malfunctions if actuator extension at time of failure is less than 80%. If failure occurs with actuation extended above 80% light will illuminate steady and will not blink.



Main Gear DOORS Light.

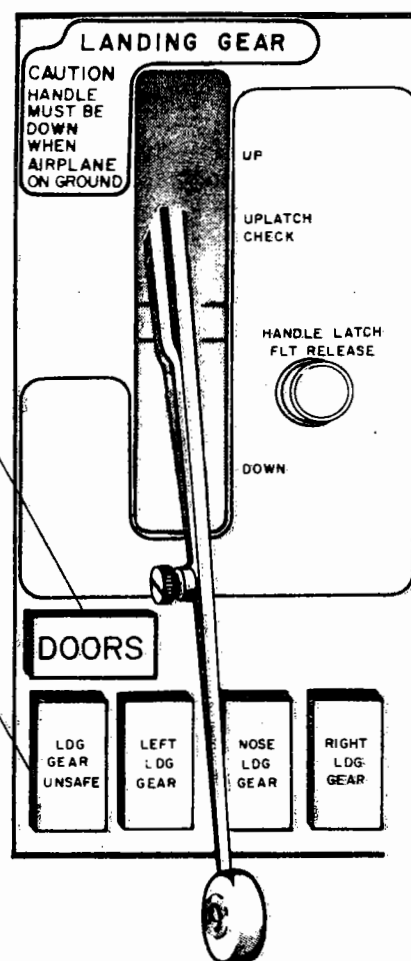
Illuminates if:

- Either or both main gear inboard doors not closed and latched when landing gear fully retracted.
- Landing gear in transit.
- Landing gear extended using short landing gear lever and either or both main gear inboard doors not closed and latched.

LDG GEAR UNSAFE Light.

Same as on other DC-8's except that light does not illuminate to indicate that MLG doors are not closed following retraction.

a)



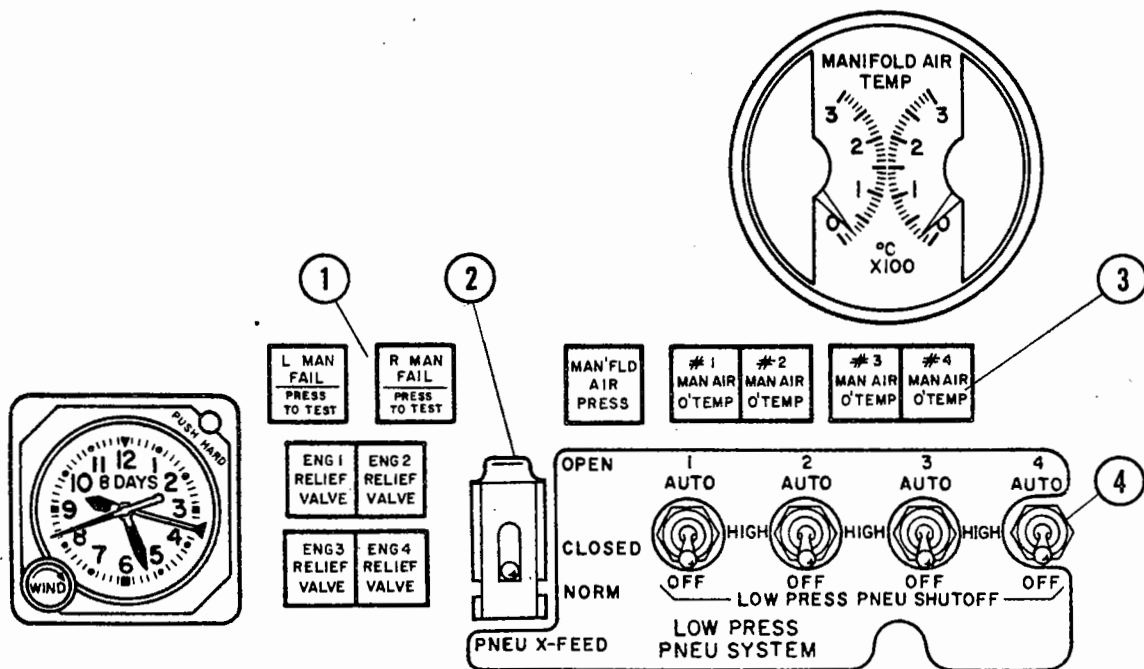
b)



ANTI-SKID FAIL Light.

Same as other DC-8's except that it also illuminates when the parking brake is set.

Location: a) Center Instrument Panel, b) Glareshield



1 MAN'FLD FAIL Lights.

Illuminates to indicate a failure of respective pneumatic manifold by sensing an overheat condition. Also illuminates MASTER WARNING light. If one light is on, a lockout circuit prevents the other from illuminating. Press-to-test lights separately.

2 PNEU X-FEED Switch.

OPEN - Used inflight to open valve in case of inadequate pneumatic supply to one side of airplane.

CLOSED - Closes valve for checking or trouble shooting.

NORM - Valve automatically closes in flight; opens on ground if electrical power available.

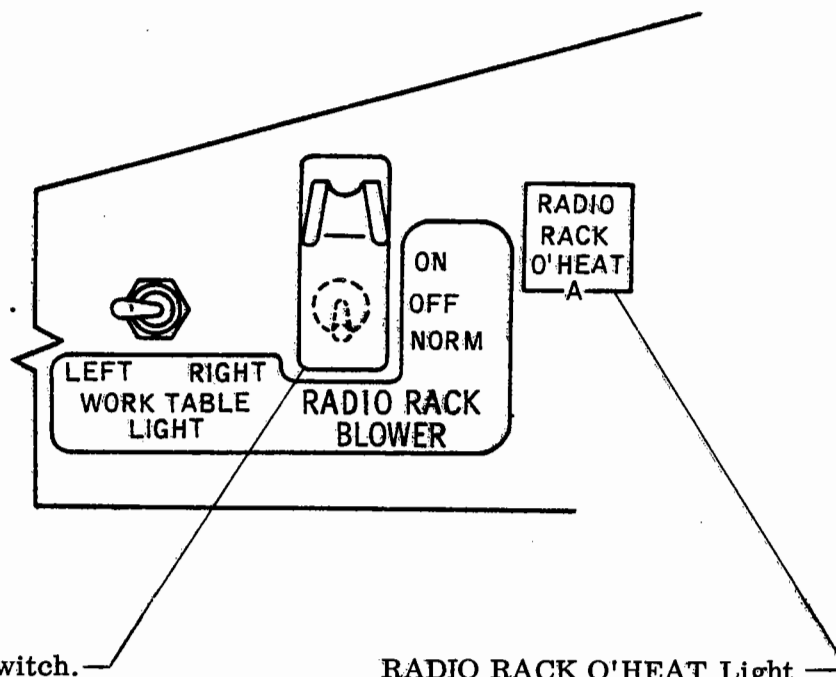
3 MAN AIR O'TEMP Lights.

One for each engine duct.

4 LOW PRESS PNEU SHUTOFF Switches.

AUTO - Normal position, provides automatic selection between either low or high stage bleed when pressure drops to about 20 PSI and/or rises to about 25 PSI.

HIGH - Provides high stage bleed only.



RADIO RACK BLOWER Switch.

NORMAL - Blower on continuously, radio rack cooling valve closed and cargo compartment valve open.

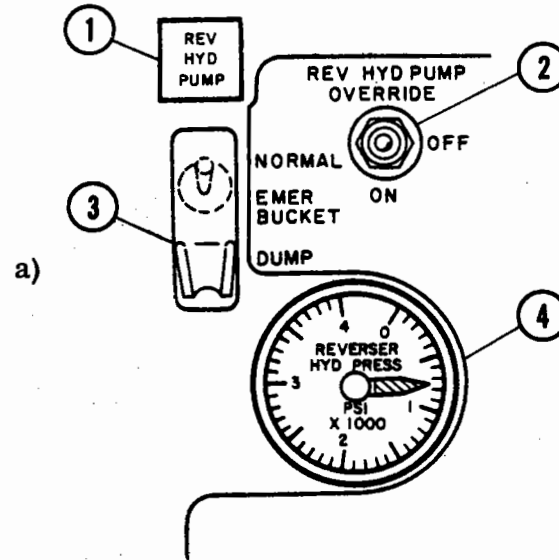
OFF - Blower OFF, radio rack cooling valve open, cargo compartment valve closed and O'HEAT light deactivated. Use if RADIO RACK O'HEAT light illuminates in flight.

ON - Same as **NORMAL**.

RADIO RACK O'HEAT Light.

On ground illuminates if blower output not adequate with switch in any position.

Inflight illuminates if blower output not adequate with blower switch in **NORMAL** or **ON**.



THRUST BRAKE SYSTEM

1 REV HYD PUMP Light.

ON when the standby reverser pump is operating and producing sufficient pressure.

2 REV HYD PUMP Switch.

ON - Turns on the thrust brake standby hydraulic pump. Used during taxi, take-off and landing.

OVERRIDE - Provides means of operating the pump if it was shut down for an overheat condition.

3 EMER BUCKET Switch.

NORMAL - Usual position.

DUMP - Provides positive retraction of reverser buckets in case of a malfunction of the reverser system.

4 REVERSER HYD PRESS Gauge.

Indicates hydraulic pressure supplied to the reverser system by the main system, by the standby pump, or by a combination of both.

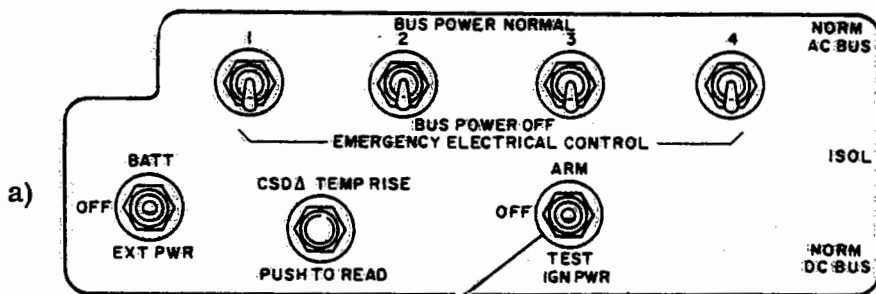
b)



THRUST BRAKE Lights.

ON steady when reverser buckets are fully deployed. OFF when translating ring is latched in stowed position. Blink at any other time.

Location: a) Overhead Panel, b) Glareshield



IGN PWR Switch.

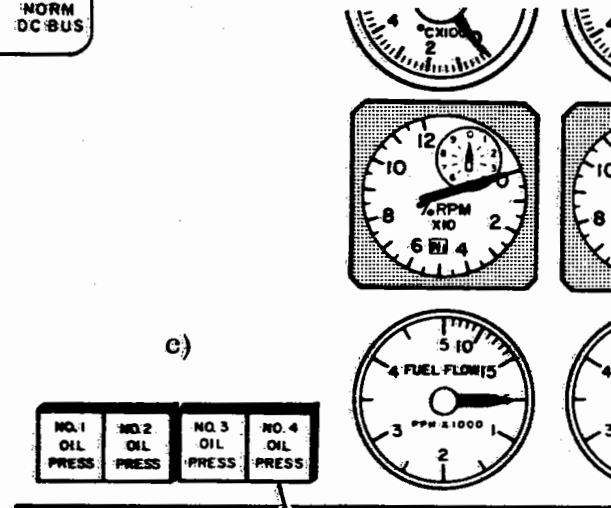
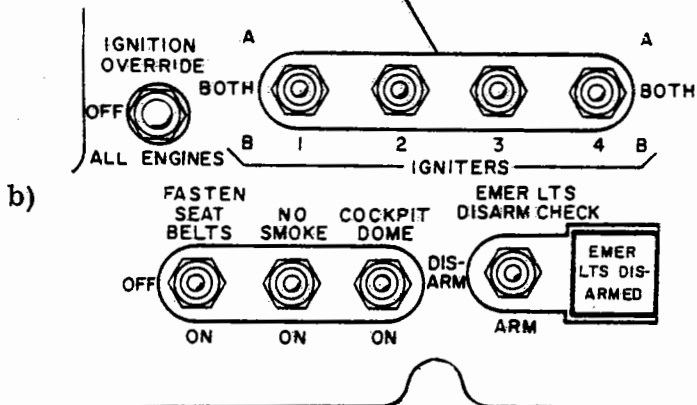
Part of an alternate starting system that uses the battery bus for starting engine 3.

ARM - Completes a circuit which provides AC power in the proper magnitude for use by the number 3 engine igniters.

TEST - Checks ignition inverter output by a readout on the AC Voltmeter. Minimum for start is 70 volts.

IGNITERS Switches.

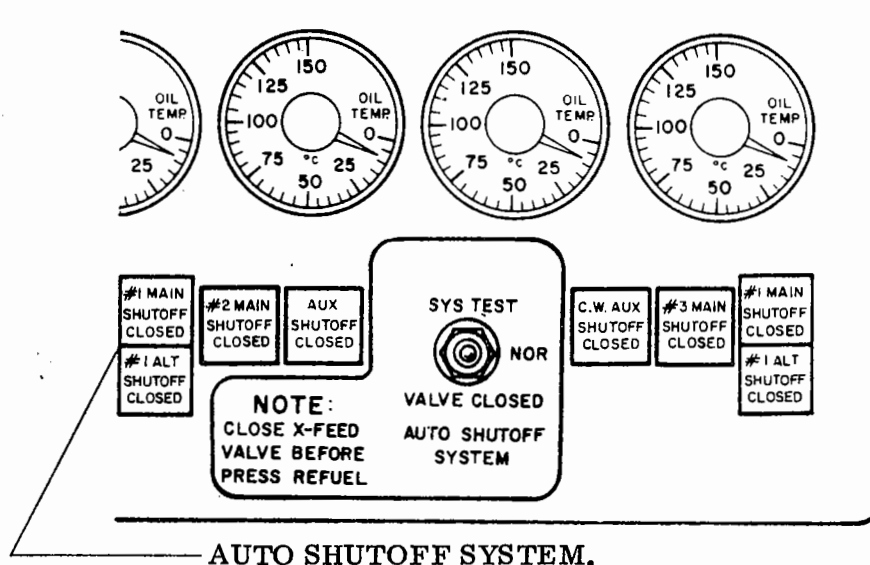
One for each engine provides a means of selecting exciter A, exciter B or BOTH. Selected Igniters will operate when IGNITION OVERRIDE Switch is placed to ALL ENGINES.



OIL PRESS Lights

On when oil pressure is below normal limit (except idle), or when excessive differential pressure exists across the engine oil filter (clogged filter).

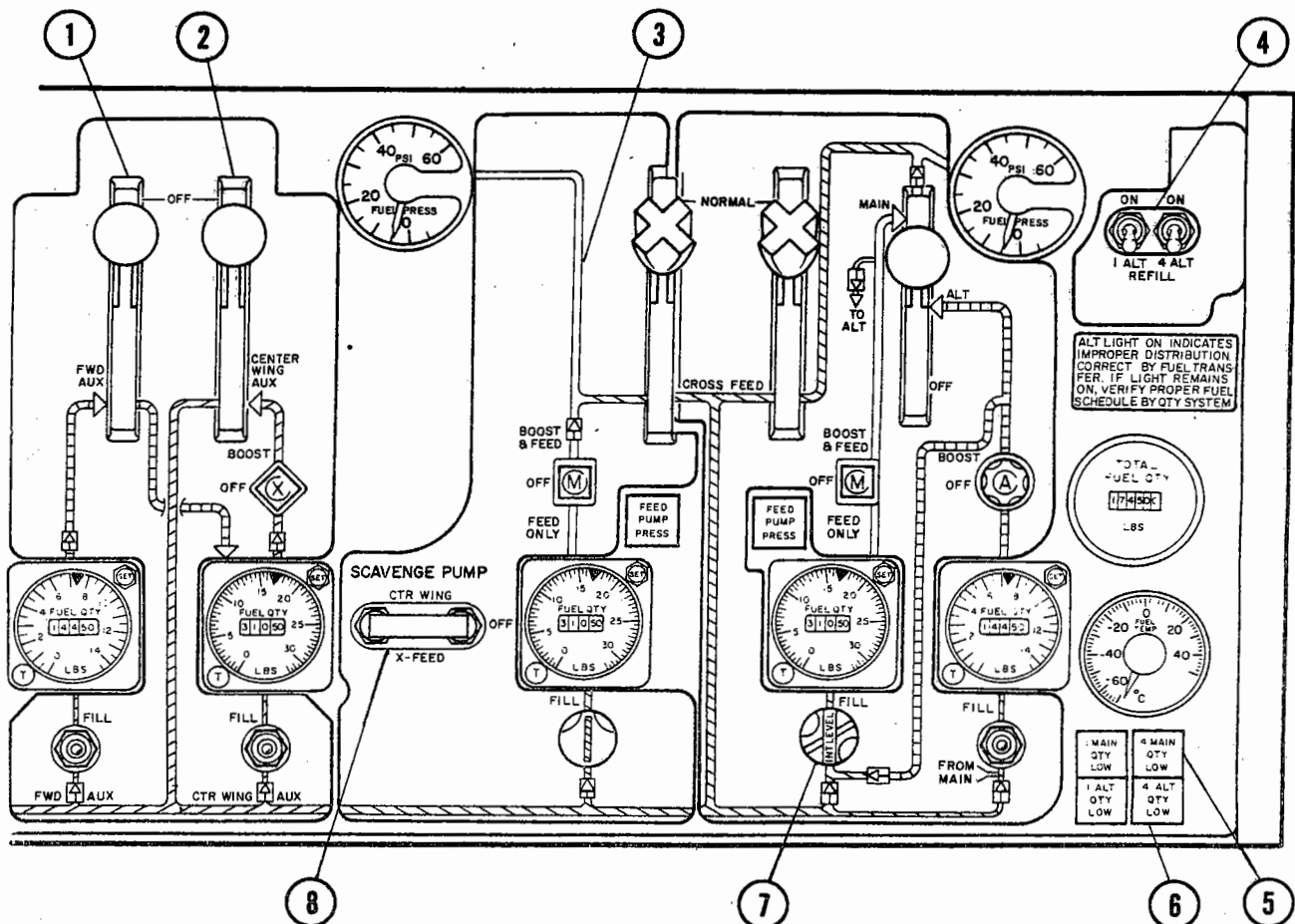
Location: a) Overhead Panel, b) Second Officer's Panel, c) Center Instrument Panel



AUTO SHUTOFF SYSTEM.

New location on Second Officer's panel.

Location: Second Officer's Panel



- 1 FWD AUX Selector Lever.
FWD AUX - Fuel gravity flows into center wing aux. tank.
- 2 CENTER WING AUX Selector Lever.
CTR WING AUX - Fuel enters the crossfeed manifold for replenishing the main tanks.
- 3 No selector valves for the number 2 and 3 main tanks due to the deletion of the inboard alternate tanks.

- 4 ALT Tank (1 & 4) REFILL Switches.
Used when ALT QTY LOW light illuminates and reverse transfer from associated main tank does not extinguish the light.

ON - Allows the outboard section of the alternate tank to be filled when switch held in this position.

NOTE

Fuel pressure must be available from the crossfeed or the adjoining main tank and the alternate fill valve switch in FILL when the ALT TANK REFILL switch is held on.

Location: Second Officer's Panel



5 MAIN (1 & 4) QTY LOW Lights.

Illuminate when fuel in corresponding main tank has dropped to approximately 2000 pounds, indicating fuel level is extremely low, or that fuel transfer from alternate to main should have started.

6 ALT (1 & 4) QTY LOW Lights.

Flash on and off until fuel management schedule is returned to normal. Illuminates when:

- either section of the alternate tank is less than full, and fuel in corresponding main tank is above 4000 pounds.
- the outboard section of the alternate tank is not full when the inboard section is above 1000 pounds.

7 FILL Valve Switches.

Switches for tanks 1 and 4 have two cross stripes; one placarded INT LEVEL, the other is blank. When the switch is moved so that INT LEVEL is aligned with the FILL position, fuel level control is transferred to a float switch in the corresponding main tank, thereby maintaining the tanks fuel level at 3000 pounds.

8 SCAVENGE PUMP Switches.

CTR WING - Allows fuel to be pumped by scavenge pump from the center wing tank to the number 2 main tank.

X-FEED - Allows fuel to be pumped by scavenge pump from the crossfeed manifold to the number 2 main tank.

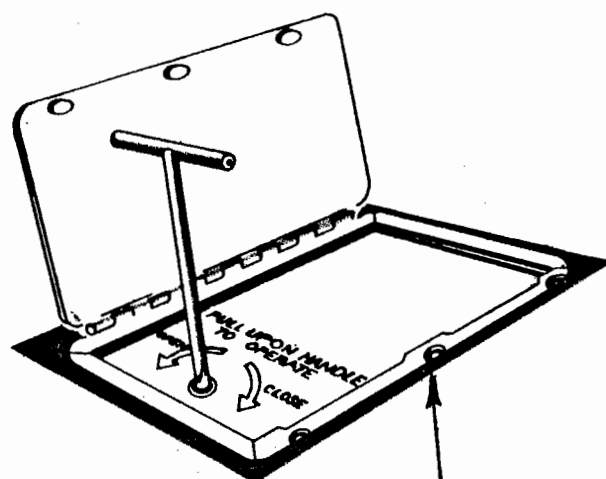
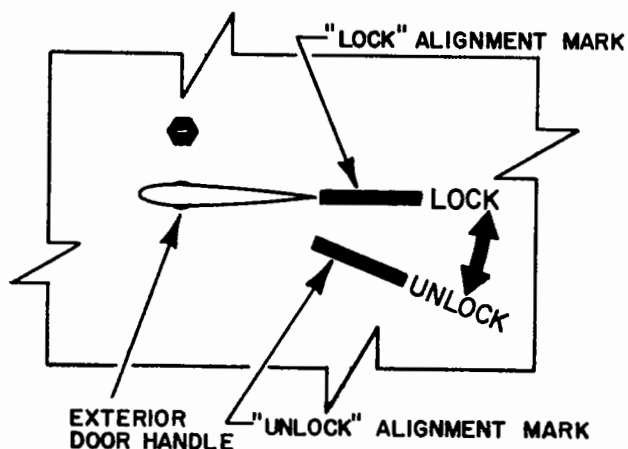
CAUTION

Do not use X-FEED as it may be possible to flameout an engine if the crossfeed manifold is empty and a crossfeed lever is moved from the normal position.



CARGO DOOR SYSTEM

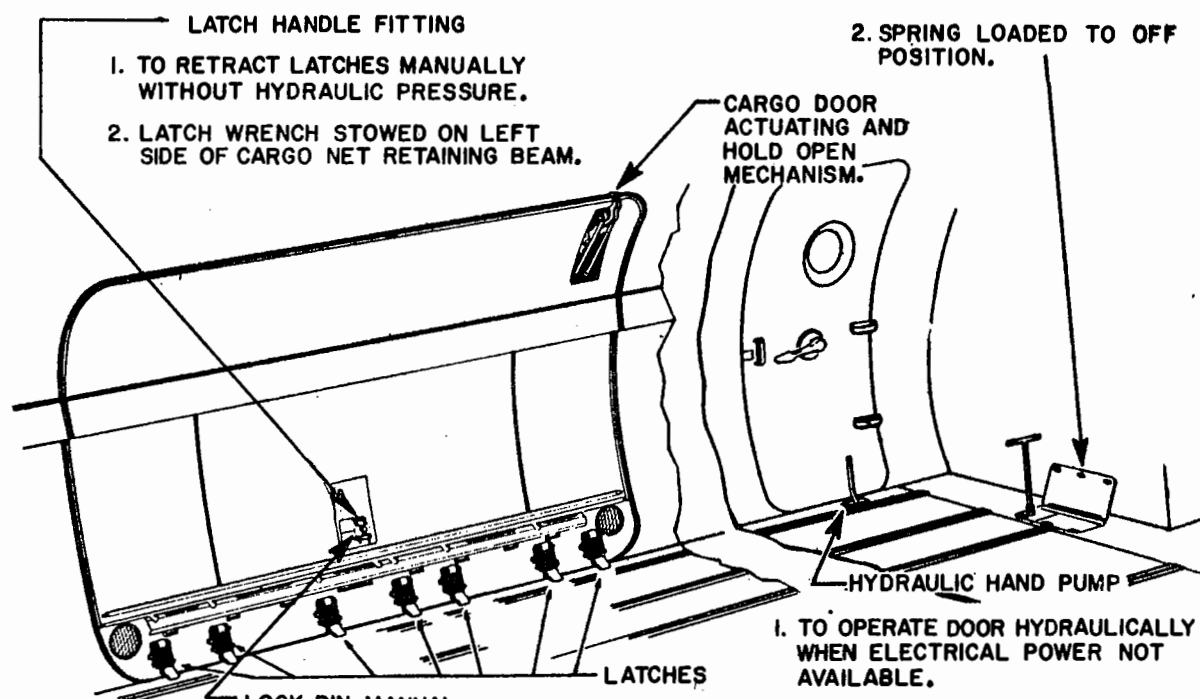
MAIN CARGO DOOR-EXTERIOR



CARGO DOOR OPERATING CONTROL HANDLE

1. USED TO OPEN AND CLOSE CARGO DOOR.

2. SPRING LOADED TO OFF POSITION.



1. TO RETRACT LATCHES MANUALLY WITHOUT HYDRAULIC PRESSURE.

2. LATCH WRENCH STOWED ON LEFT SIDE OF CARGO NET RETAINING BEAM.

CARGO DOOR ACTUATING AND HOLD OPEN MECHANISM.

HYDRAULIC HAND PUMP

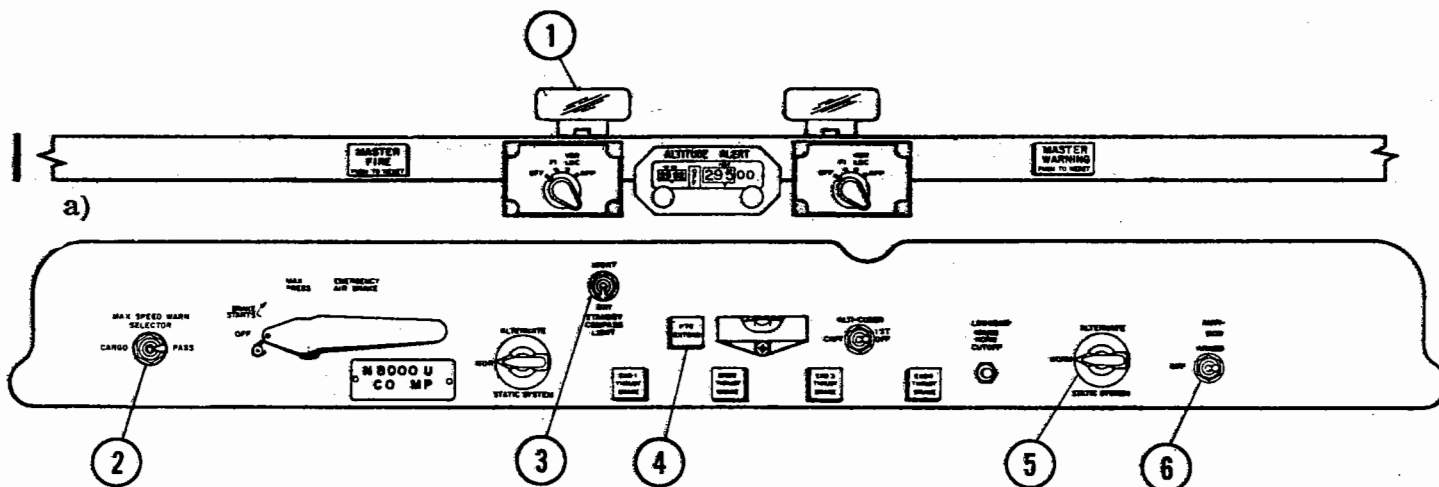
1. TO OPERATE DOOR HYDRAULICALLY WHEN ELECTRICAL POWER NOT AVAILABLE.

2. TWO MAN OPERATION, ONE TO OPERATE PUMP WHILE SECOND HOLDS DOOR CONTROL VALVE HANDLE.

3. HANDLE FOR PUMP IS LATCH WRENCH STOWED ON LEFT SIDE OF CARGO NET RETAINING BEAM.

LOCK PIN MANUAL RETRACT HANDLE

1. PULLS LOCK PINS FROM LATCH MECHANISM BEFORE MANUALLY UNLATCHING DOOR WITH LATCH WRENCH.
2. FOR USE WHEN HYDRAULIC PRESSURE NOT AVAILABLE TO OPEN DOOR.



1 Magnetic Compass Mirrors.

Permit viewing of the magnetic compass on the left aft overhead panel. May be folded down when not in use.

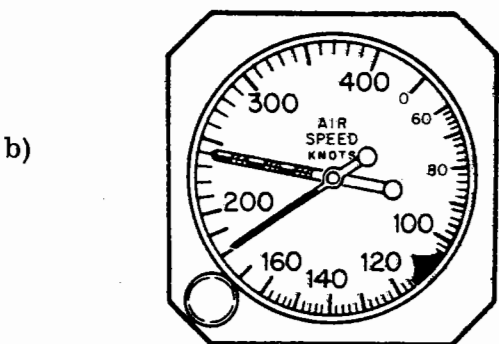
3 STANDBY COMPASS LIGHT Switch.

Controls brightness of compass light.

4, 5, 6 Different locations only.

2 MAX SPEED WARN SELECTOR.

Selects speed limit appropriate to weight limitations. Safetied in CARGO. Do not use PASS position.



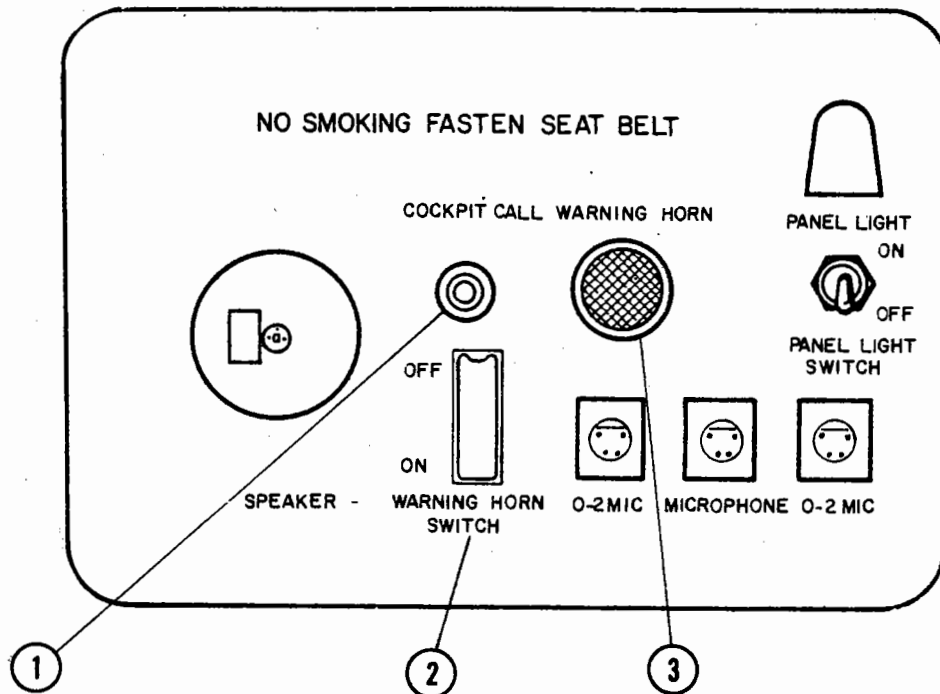
AIRSPPEED Indicator.

Set screw and indicating window sealed to C (cargo) position, which programs the barber pole operation.

Location: a) Glareshield, b) Capt. & F/O's Panels



MAC COURIER
CONTROL PANEL



1 COCKPIT CALL Button.

When pressed, activates Captain's call chime.

2 Altitude WARNING HORN Switch.

ON - Warning Horn armed. Safetied in this position.

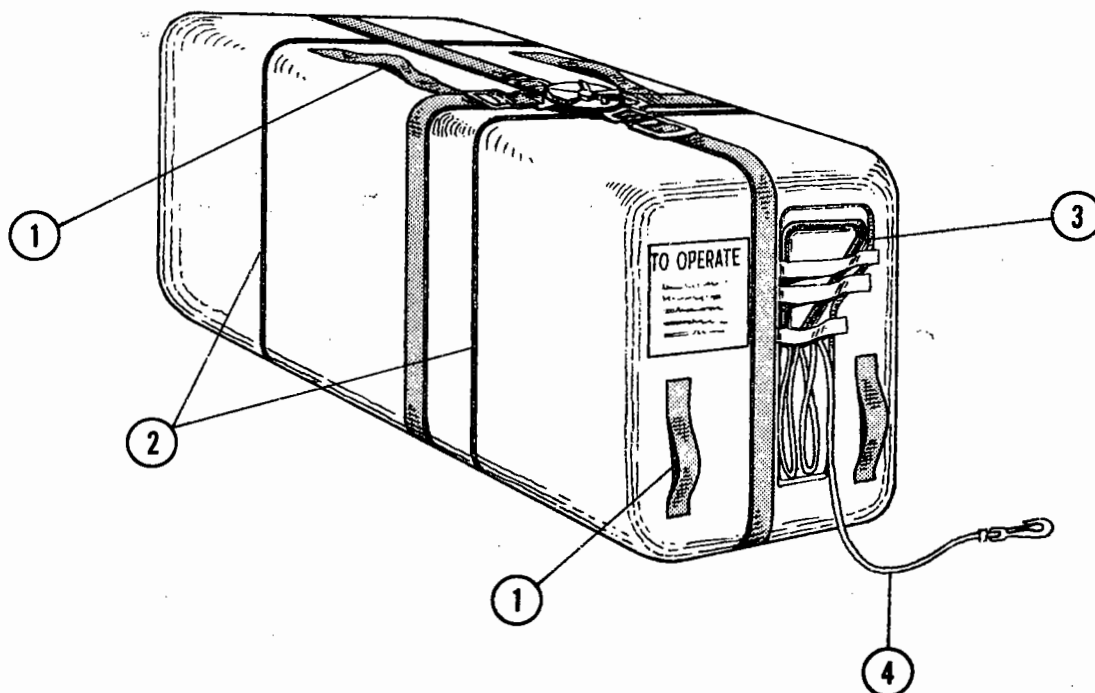
3 Altitude WARNING HORN.

Activated when cabin altitude exceeds 11,500 feet $\pm$ 500 feet. Alerts occupants of courier seats to don oxygen masks.

Location: Aft compartment of main cabin



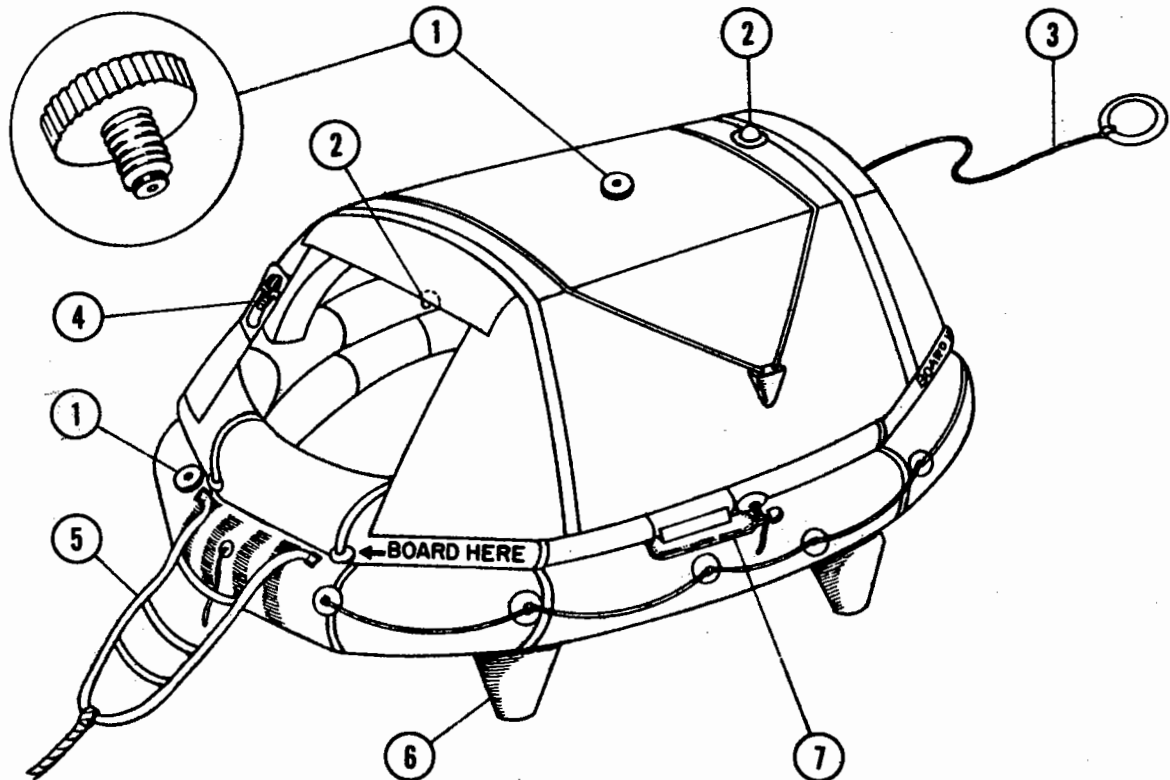
6 MAN LIFE RAFT CONTAINER



1. Carrying Handle
2. Fiber Break-away bands
3. Inflation Mechanism
4. Static Line
Nylon strap attached by
snap hook to aircraft and
to inflation mechanism of
raft.



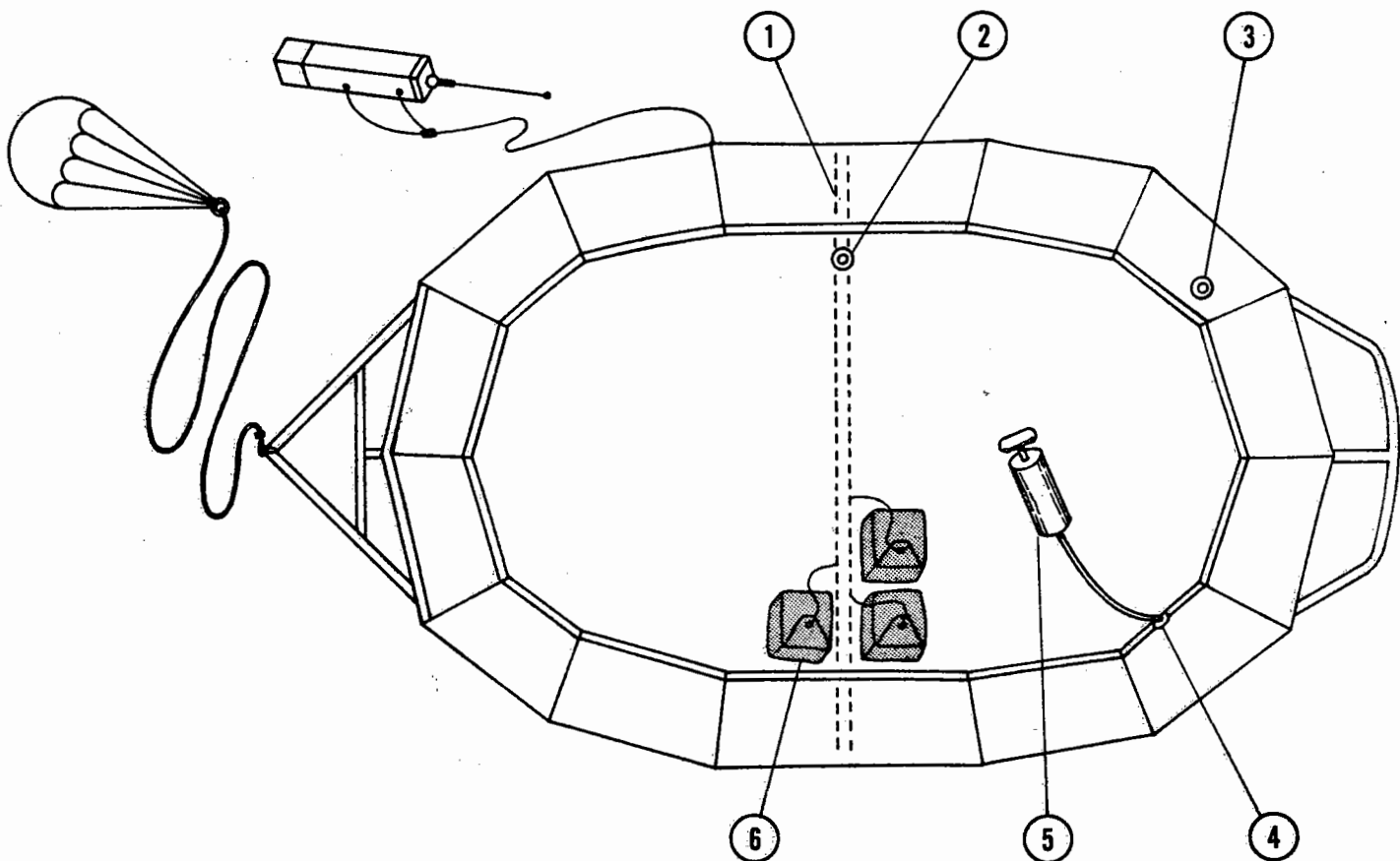
6 MAN LIFE RAFT



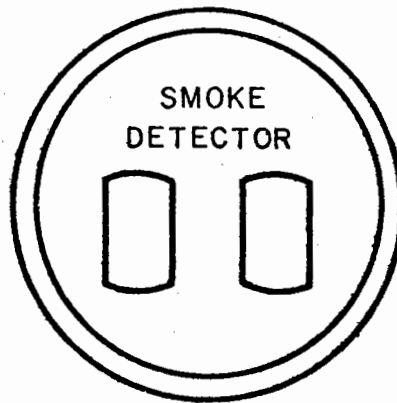
1. Pressure Relief Valve and Plug (2) Plugs stowed in survival equipment bags. Valves for upper & lower tubes.	4. Knife
2. Water Activated Light (2)	5. Boarding Ladder
3. Heaving Line and Quott Stowed, coiled on a covered retainer, to the left of the aft entrance.	6. Stabilizing Pockets Fill with water when raft is inflated.
	7. CO ₂ Inflation Cylinder



6 MAN LIFE RAFT (Canopy removed)



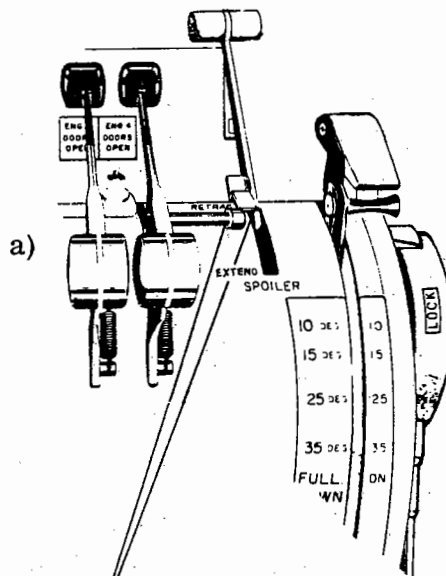
1. Righting Line Across bottom of raft. 2. Manual Inflation Valve - Deck 3. Manual Inflation Valve - Top Tube Also inflates canopy support tubes.	4. Manual Inflation Valve - Lower Tube 5. Hand Pump For manual inflation of raft. Stowed attached to the lower tube manual inflation valve. 6. Survival Equipment Bags (3)



SMOKE DETECTOR.

Luminous glow in left window indicates smoke in forward portion of main cabin; right window indicates smoke in aft portion of cabin.

Illuminated small light above each window indicates corresponding source light is operating.



Ramp and Roller.

When throttles are advanced, as on go-around, the roller on #4 throttle will engage the ramp on the spoiler lever, if it is aft, and disarm the spoilers.

MAIN GEAR SPOILERS INOPERATIVE Light.

Two lamps under cover. One or both lights illuminate to indicate a malfunction in the main landing gear ground spoiler circuit. Automatic extension of the spoilers through compression of the nose gear strut, or manual extension through use of the EXTEND position of the control lever are still available.

MAIN GEAR
SPOILERS
INOPERATIVE

b)

1 MAIN GEAR
SPOILER TEST

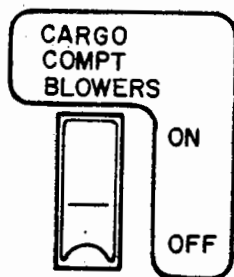
OFF

2

MAIN GEAR SPOILER TEST Switch.

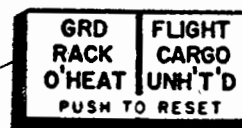
Used for maintenance test on the ground only to check status of main landing gear spoiler lockout circuit.

Location: a) Control Pedestal, b) Second Officer's Panel

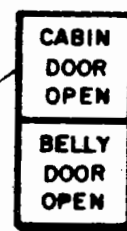
**CARGO COMPT BLOWERS Switch.**

ON - Guarded position that operates the radio rack blower and the aft cargo compartment blower.

OFF - Blowers deactivated and reset feature of RADIO RACK O'HEAT light is inoperative.



— GRD RACK O'HEAT Light.
Does not press-to-test.



— CABIN DOOR OPEN Light.
Also illuminates to indicate main cargo door open.



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DC-8-61, DC-8-62, DC-8F



COCKPIT PANEL FOLD-OUTS (Inside back cover)

Captain's Instrument, First Officer's Instrument, Center Instrument, Overhead, Control Pedestal, Second Officer's Panels

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CHAPTER 1

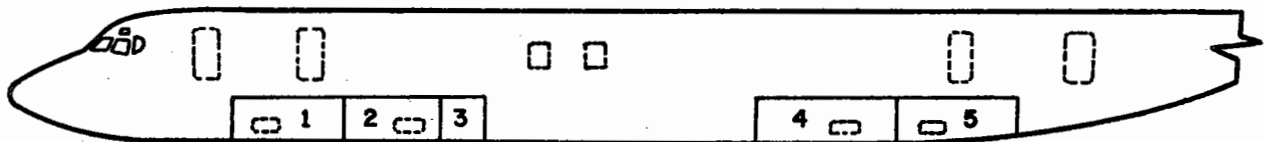
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CARGO LOADING AREAS
(Containerized)



CARGO LOADING AREAS
(Bulk)



CHAPTER 2

AVIONICS

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AVIONICS

The majority of the Avionics equipment is located in the Radio Rack and the Aft Accessory Compartment. Description and operation of the equipment is in three related sections -- Communications, Navigation and Autopilot.

COMMUNICATIONS

The Radio Communications System consists of two VHF systems on all airplanes. Overwater airplanes also have two HF systems installed. The ability to select any desired unit to transmit or receive is provided by Audio Control Panels. The Captain, First Officer and Observer-Navigator stations each have an Audio Control Panel. This arrangement permits simultaneous use of the same or different radio equipment by different crew members. The Second Officer may also transmit and receive at his station by selecting any of the three audio control panels, by means of a selector switch at his station. The audio control panels provide additional functions for interphone and navigational purposes.

VHF COMMUNICATION

The transmitters and receivers for the VHF communications system, which operate in the frequency range 118.00 to 135.95 megahertz, are located in the radio rack at the left rear of the cockpit. The two VHF communications and navigation receivers are all interchangeable. Control panels for the VHF radios are located on the control pedestal. Transmitter and receiver frequencies are changed simultaneously by the tuning knob. The radios do not have an ON-OFF switch; they are powered when their power source is available.

Overwater airplanes also have VHF Squelch Control Switches on the overhead panel.

HF COMMUNICATION

Two HF communications systems, using a common antenna, are installed in overwater airplanes to provide long range air-ground communications. World wide frequency coverage is provided in the range from approximately 2 to 8 megahertz. The control panel is located at the forward right side of the control pedestal.

TRANSMITTERS

The transmitters are located in the radio rack. Each has a green light that may be seen through holes in the radio rack covers. When the green light is illuminated, the transmitter tuning cycle is complete.

RECEIVERS

Each receiver is tuned along with its associated transmitter. A red light on each receiver may be seen through holes in the radio rack cover. When the light is illuminated, the receiver is going through its tuning cycle. When tuning is complete, the light extinguishes.

ANTENNA

The HF antenna consists of an upper section of the vertical fin and rudder. It serves both HF transmitters and receivers and also LORAN by means of a switching arrangement.



AUDIO CONTROL PANEL

Panels are located at Captain's, First Officer's and Observer Navigator's stations. They provide switching and volume control to allow the reception of any radio receiver, and the selection of any radio transmitter or the flight interphone. A blue light illuminates when its associated radio transmitter is selected.

SELCAL

Selcal (Selective Calling) monitors a radio receiver and alerts the flight crew to a call from a ground station. Selcal sounds a repeating chime and illuminates the SELCAL light (Blue) when a call is received. Pushing the light silences the chime, extinguishes the light and resets the system for a subsequent call.

Dual Selcal is installed on all airplanes; on domestic airplanes it operates on VHF-1 and VHF-2; on overwater airplanes on HF-1 and VHF-2.

Selcal operates even when the receiver volume is turned down. Failure of a Selcal unit does not affect the operation of the associated receiver.

HEADSET, MINITEL

Headsets at the Captain and First Officer positions have clip-on boom microphones and screw-on ear plugs. The ear plugs are personal issue to the flight crew. The boom microphone is selected by switching the MIC SELECTOR on the sidewall to BOOM NORM. Push-to-talk control of the mike is accomplished by a pendant switch or by the control wheel mike switch. The pendant is plugged into a wall receptacle marked

PEND SW or HAND MIC. Standard headphones and hand held mikes may be used in place of the minitels when required.

HEADPHONES AND MICROPHONES

Headphones and hand held mikes, with push-to-talk switches, are provided at Second Officer's and Observer-Navigator's stations. They plug into jacks nearby.

LOUDSPEAKERS

Two loudspeakers, each with an ON-OFF switch and/or volume control are installed above the Captain's and First Officer's head and are connected in parallel with their respective earphones. A third cockpit speaker, located in the ceiling forward of the cabin door, monitors the passenger address.

FLIGHT INTERPHONE

Each audio control panel and a Flight Interphone jack at the external power receptacle are connected to the flight interphone system. It is used for cockpit/ground crew communication and for cockpit communications when the oxygen mask is being worn. The MIC SELECTOR switch on the audio control panel must be positioned to INT.

SERVICE INTERPHONE

Service interphone provides communications between exterior locations of the airplane and the Second Officer's station. Numerous jacks are provided for this system.

CABIN INTERPHONE

Cabin interphone provides communications between the flight crew and stewardesses and between stewardesses. Telephone type handsets, with a push-to-talk switch, are provided on the aft end of the control pedestal and at the forward and aft stewardess stations.

Call buttons are located at each stewardess station and on the cockpit overhead panel. When a call button is pushed, it activates a chime in the cockpit or the chime and indicator lights in the cabin. Each stewardess station has a reset button to extinguish the light.

PASSENGER ADDRESS

The Passenger Address (PA) system is used for making announcements to passengers from either the cockpit or the stewardess panels. The output is through hatrack, aisle ceiling and blue room speakers and the movie-music system earphones. A priority circuit controls the signal output to the PA system in the following order:

1. Cockpit handset or oxygen mask mikes.
2. Stewardesses handsets.
3. Passenger entertainment.

The handsets are the same as are used for the cabin interphone. To operate the handset for passenger address it is necessary to:

1. Lift handset from cradle;
2. Push the PUSH TO ANNOUNCE button (Blue) which illuminates;
3. Depress handset switch and make announcement, talking close enough to handset to make the volume level meter flicker about mid-scale;
4. Replacing the handset on cradle extinguishes the button light and the handset is disconnected from the PA system.

When wearing oxygen masks, the Microphone Selector switch must be positioned to the PA position to make announcements. The oxygen mask mike is "hot" when the switch is in the PA position for either Captain or First Officer. The Second Officer must position the MASK MIC switch (red guarded NORMAL) at the top of his panel to the PA position and key the oxygen mask transmitter switch to make an announcement.

PASSENGER ENTERTAINMENT

Passenger entertainment provided to each passenger seat back consists of a choice of tape recordings or motion picture sound.

Background music can be provided through the loud speakers from tape decks located on the floor of the aft coatroom.

Motion picture projector's installed in ceiling pads, viewing screens, and Channel 1 outlet of the audio system comprise the motion picture system. Projector switches are located on the Second Officer's panel.

VOICE RECORDER

The control panel for the Voice Recorder is on the overhead panel. The recorder operates whenever the airplane is electrically powered. It may be tested by pushing the TEST button momentarily and observing that the MONITOR needle flickers twice into the white scale area.

All data may be erased, after external power has energized airplane circuits, by pushing the ERASE button for approximately seven seconds.



FLIGHT RECORDER

The Flight Recorder automatically records selected flight data. Its operation is controlled by a landing gear relay wired in parallel with the FLT REC ON-OFF switch on the Second Officer's panel.

The recorder operates whenever the airplane is airborne, regardless of the switch position; however, on the ground it operates only when the switch is in the ON position.

A FLT REC PWR OFF warning light (Amber) indicates there has been an AC power failure or improper movement of the tape. The warning light may remain illuminated up to 60 seconds until the first rewind cycle is completed when the recorder is turned on. Normal recording action occurs during this period.

A trip and date encoder is located on the Second Officer's panel. To start the encoding process, the REPEAT button must be pushed for about 10 seconds. Encoding requires approximately 15 minutes and during this time the REPEAT button will remain illuminated. If the recorder is turned OFF after encoding has been initiated, the encoding process will automatically restart and complete its 15 minute cycle when the recorder is turned on prior to takeoff. A special scribe mark is made on the tape to identify an area of desired read-out by pushing the EVENT button. When possible, holding EVENT button in for 10 seconds will make a more recognizable scribe mark.



NAVIGATION

The DC-8 is equipped with a complete and separate flight instrument and navigation system for each pilot. A "cross-over" system is used to display magnetic heading from both systems on each instrument panel.

PITOT SYSTEM

Two, or three, pitot tubes are located on the airplane's upper nose section. The left tube supplies pressure to the Captain's Machmeter and Indicated Airspeed (IAS). The right tube supplies pressure to the First Officer's Machmeter, IAS and, on three pitot tube airplanes, the overspeed warning system. On two pitot tube airplanes the right tube also supplies pressure to the autopilot, central air data computer, pitch trim compensator, and overspeed warning system. A PITOT SYSTEM switch on the glareshield when in CUTOFF allows these items to be isolated from the First Officer's system. His Machmeter and IAS may then be used if a leak develops in any other unit. The third pitot tube on the centerline, where applicable, supplies all auxiliary equipment except the overspeed warning system. The pitot tubes are electrically anti-iced.

STATIC SYSTEMS

Separate static systems are provided for the Captain's instruments, First Officer's instruments, and the autopilot. An alternate static system is used for the cabin pressurization, but may be selected for either or both the Captain's and First Officer's instruments.

Each static system is supplied by two ports; one on each side of the airplane. The static ports are in an ice-free area and are unheated.

On some airplanes the alternate static system is supplied by a single port in the unpressurized section of the tail. This source has considerable pressure error; therefore, when operating instruments on alternate source on these airplanes, the airspeed and Machmeter corrections in the Flight Handbook should be applied. The resultant error in static air temperature (SAT) due to Machmeter error will be negligible but the True Air Speed (TAS) indicator will be greatly in error and should not be used when the Captain's STATIC SYSTEM selector is on ALTERNATE. The static source in the tail is significantly affected by operation of the tail deice system which exhausts to the tail compartment. When the tail alternate source is used, flight crews should be alert to the possibility of additional errors if the tail deicing system is operating.

RAM AIR TEMPERATURE SYSTEM

A temperature sensing probe in a recess on the underside of the fuselage supplies measured temperature directly to the Ram Air Temperature (RAT) indicator on the First Officer's instrument panel. Small corrections are necessary to obtain total temperature (T_{t2}) used in engine operation. These corrections are included on the Engine Pressure Ratio (EPR) card in the applicable engine operations. Where not included, corrections may be computed by reference to a chart in the Flight Handbook.



STATIC AIR TEMPERATURE SYSTEM

In the Static Air Temperature (SAT) indicator, measured temperature from a temperature sensing probe in a recess on the underside of the fuselage is combined with a Mach number function signal from the Captain's Air Data Computer to indicate ambient air temperature. Indicated SAT may be in error on the ground and at low airspeeds. The SAT indicator provides the static air temperature signal to the True Airspeed indicator. On overwater airplanes a "slave" SAT indicator is installed on the Navigator's panel.

AIR DATA COMPUTERS

The Captain's and First Officer's Air Data Computers each produces a corrected altimeter reading when the static source selector is in the NORMAL position.

Some airplanes have the altimeter correction deactivated, which is noted by a placard installed adjacent to the altimeters. Also, the altimeter OFF flag will be in view.

NOTE

Airplanes with registration numbers in the N 8200 series have uncorrected pneumatic altimeters with no OFF flags. These airplanes are placarded.

In the Captain's computer, the Mach number input also produces two Mach function signals. One is directed to the SAT indicator and one to the TAS indicator. On overwater airplanes, a dial type "slave" TAS indicator is installed on the Navigators panel.

Failure of electrical power to either computer will cause an OFF flag to appear in the corresponding altimeter. The altimeter will then indicate uncorrected pressure altitude. Failure of the Captain's computer will also cause the SAT and TAS indicators to remain at about their last readings.

CENTRAL AIR DATA COMPUTER

The Central Air Data Computer uses pitot/static inputs to provide selected data to the flight recorder. A CADC FAIL WARN light (amber) on the S/O's instrument panel illuminates when the central air data computer fails.

OVERSPEED WARNING SYSTEM

A pressure sensitive switch is connected to the First Officer's pitot system and autopilot static system. It is set to activate a distinctive aural clacker whenever the airspeed exceeds the maximum operating speed (V_{MO}/M_{MO}).

Electrical power is required to operate the system. If the PITOT SYSTEM switch is placed in the CUTOFF position, the overspeed warning system will be without pitot pressure (two pitot tube airplanes only).

VHF NAVIGATION RECEIVERS

These receivers provide signals to the instrumentation units and their audio outputs may be made available to the headsets of the crew through the audio control panels. Frequencies between 108.00 and 117.95 megahertz may be selected and read in the indicator windows. The VHF Navigation and Communications receivers are interchangeable.

The receiver output goes to an associated instrumentation unit where it is combined with heading information from the compass system and desired course information set into the instruments manually by the flight crew. The output of the instrumentation unit operates the Deviation Bar of the course Indicator and also the To-From indicator. Relative bearing and magnetic heading signals are also sent to the VOR Radio Magnetic Indicators (VOR RMI) and compass cards respectively.

GLIDE SLOPE RECEIVERS

A Glide Slope Receiver associated with each VHF NAV receiver is tuned automatically when the associated NAV receiver is tuned to a localizer frequency. The No. 1 receiver supplies information to the Captain's Course Indicator and the No. 2 to the First Officer's Course Indicator.

DISTANCE MEASURING EQUIPMENT (DME)

Two DME systems are installed and each interrogator is automatically tuned to the VOR station/ILS localizer tuned on the associated VHF NAV receiver.

AUTOMATIC DIRECTION FINDER (ADF)

Two independent ADF systems are installed. The range of frequencies covered is 90 to 1800 kilohertz. The ADF systems may be used for automatic determination of bearing to the station being received, manual determination of bearing in the LOOP position, or reception of weather and other broadcast programs.

COURSE INDICATOR

The Course Indicator shows airplane position with respect to a selected VOR or Localizer course. Magnetic heading is also displayed. Two independent compass systems are installed to provide heading information to the Captain and First Officer on compass cards, and to the autopilot, flight directors and flight recorder.

The No. 1 flux valve and directional gyro supply the Captain's Course Indicator. The No. 2 flux valve and directional gyro supplies the First Officer's Course Indicator.

The Course Indicator is combined with the master compass. On the Captain's panel the Course Indicator is master compass 1, the ADF RMI compass is a repeater of compass 1 and the VOR RMI compass is a repeater of compass 2.

RADIO MAGNETIC INDICATOR (RMI)

The arrow end of a VOR pointer, read against the compass card, indicates the magnetic bearing from the airplane to the VOR station. The reading of the lubber line at the top of the instrument, against the compass card, is the airplane heading. The single pointer operates from VHF NAV 1, the double pointer from VHF NAV 2. VOR RMI compass cards operate from "opposite" compass systems: i.e., the First Officer's VOR RMI compass is a repeater from compass system 1.



ATTITUDE INDICATOR

Two independent vertical gyros in the aft accessory compartment provide pitch and roll attitude signals to the horizon sphere of the Attitude Indicators. Both gyros are powered when electrical power is available. The No. 1 gyro provides attitude information to the Captain's horizon and the autopilot; the No. 2 gyro provides information to the First Officer's horizon. Attitude information to the weather radar system is provided by the No. 1 gyro on some airplanes, the No. 2 gyro on others. A TEST button is provided to check the operation of the Attitude Indicator and the warning flags.

FLIGHT DIRECTOR SYSTEM

A Flight Director system is installed for each pilot and provides a visual "command" signal for following a preselected flight path. The flight path may be a magnetic heading, VOR course, or Localizer/glide slope approach. The Flight Director computers receive information from the associated compass system, VHF Navigational radio and vertical gyros. These inputs are combined to produce flight director commands.

Mode Selector: Each system has a Mode Selector which permits the following selections:

OFF - Command bars biased out of view.

FI (Flight Instruments) - The vertical, or Roll Command Bar, appears and commands a roll to acquire the heading selected with the Heading Bug on the associated master compass.

VOR/LOC

(Prior to capture)

The Flight Director is still operating in FI mode. The Roll Command Bar commands a roll to acquire selected headings.

(VOR/LOC Capture)

As the airplane approaches the selected course, VOR or Localizer, and the signal strength is sufficient, the Flight Director will automatically shift to the VOR/LOC mode of operation. The Command Bars command a roll to acquire the selected VOR or LOC course and then to maintain zero course deviation. The Heading Bug will no longer have any effect on the Roll Command Bar.

(Glide Slope Capture)

Nearing the glide slope, when sufficient signal strength is attained, the Flight Director will automatically shift to the Approach mode of operation. In the Approach mode the horizontal or Pitch Command Bar appears and, in conjunction with the Roll Command Bar, displays commands to acquire approach course and glide slope, and to maintain zero deviation. Automatic crosswind correction is provided.

APP

Commands roll and pitch to intercept the localizer and glide slope. APP may be used if automatic localizer or glide slope capture fails in VOR/LOC. Also used any time immediate capture is desired.

CAUTION

The Flight Director Mode Selector must be in the detent for the desired Mode to indicate properly. When the Selector is positioned between the detents the Command Bars may center.

SMART SYSTEM

A dual SMART system is installed to provide superior flag monitoring and bar biasing circuits. Various system failures may cause Compass, VHF NAV, Glideslope, Gyro and/or Flight Director warning flags to appear. If failures do occur, the SMART system will bias out of view the associated Command Bar on the Attitude Indicator and/or the Glideslope Bar on the Course Indicator. The SMART system will also disconnect the autopilot if the GS or NAV flag appears during an automatic approach after the glideslope is captured. The SMART system also keeps the Glideslope flag out of view when not tuned to an ILS frequency.

STANDBY ATTITUDE INDICATOR

Located on the center instrument panel. It is a self-contained, electrical driven gyro instrument with integral lights. Under normal conditions, electrical power for operating the Standby Attitude Indicator, lighting the indicator and maintaining the Standby Attitude Indicator battery charge is supplied by the RH Emergency DC Bus. If RH Emergency DC Bus power is lost the Standby Attitude Indicator battery will automatically power the indicator and its lighting. The Standby Attitude Indicator battery will operate the system for about one hour. A PULL TO CAGE knob permits manual caging. A DIM knob permits indicator light intensity adjustment between bright and a preset minimum level. An ON-OFF switch is located above the instrument. A standby Attitude Indicator Battery Monitor is installed outboard and to the rear of the Second Officer's panel. The monitor consists of a voltmeter and a push-to-test button. When the button is depressed, the battery powers the Standby Attitude Indicator and the voltmeter reads the battery voltage.

MARKER BEACON

A conventional marker beacon system is installed to provide both visual and aural indication of airplane passage over airways or ILS markers. The system is powered whenever electrical power is on the airplane. Three indicator lights are installed to the right of each instrument panel with a MKR BCN SEN switch on the center instrument panel. The audio control panel Marker (MKR) switch must be ON in order to hear the marker beacon tone.

RADIO ALTIMETER

One radio altimeter system with two indicators is installed in the airplane. A DH (decision height) light (Amber), on each pilot's instrument panel, will illuminate automatically during descent at approximately 2500 feet above the ground or when the Altitude indicated is below the Altitude Bug. TEST buttons are installed to check operation of the indicators and the warning flags.

ALTITUDE ALERT SYSTEM

The altitude alert system provides aural and visual signals as the airplane approaches or departs from a preset flight altitude. The system receives altitude inputs from the air data computer. The control panel is located in the glareshield panel. The ALTIMETER SETTING knob on the left side is used to set the current altimeter setting. The ALERT ALT knob on the right side is used to set the desired alert altitude. If this knob is pushed in while turned the alert system may be tested for the 300 feet and 900 feet alert indications. An OFF flag appears between the dials if the system loses electrical power or if the air data computer fails. An amber ALT ALERT light on the Captain's and First Officer's instrument panel illuminates as the airplane approaches within 900 feet of the preset altitude. A beeper on the overhead panel



will also sound momentarily. Dimming for the ALT ALERT lights is controlled by the Warning Light Dim switch on the overhead panel. When illuminated, the lights can be canceled independently by pressing the individual lights. If this is not done, the lights should go out as the airplane approaches within 300 feet of the preset altitude. The lights and beeper will again warn the crew if the airplane climbs or descends more than 300 feet from the preset altitude.

ATC TRANSPONDER

Two complete transponder systems are installed in the airplane with controls on the overhead panel. Only one transponder should be operating at a time; therefore, an amber warning light on each control panel will illuminate if both transponders are selected to NORMAL or LOW.

Automatic altitude reporting is accomplished by leaving both ALT/RPTG switches in the ON position. An ALTI-CODER switch on the glareshield allows selection of either Captain's or First Officer's system to provide the altitude information.

WEATHER RADAR

The weather radar system provides the pilots a presentation of areas of rain, hailstorm and possible turbulence. The indicator and control panel are below the center instrument panel.

LORAN (Long range navigation)

Loran equipment is in overwater configured airplanes only and is used to determine geographic position over the surface of the earth.

The Loran receiver-indicator is located in the radio rack, with controls and indicator scope exposed, for operation from the Navigator's station.

DOPPLER

Doppler is in overwater airplanes to provide indications of the Airplane's true ground speed and drift angle. Cockpit controls and indicators are located on the Navigator's panel.



AUTOPILOT

Two models of the SP-30 autopilots are installed on the DC-8. Airplanes with registration numbers N 8001 U - N 8039 U and N 8200 series have the -14 model. N 8041 - N 8069 have the -15 model.

The autopilot system provides an automatic means of controlling airplane altitude, attitude, and heading. It also provides automatic capture of, and guidance to the localizer, glide path, and VHF omni range facilities. Modes of autopilot operation are selected on the Autopilot Controller located on the Control Pedestal. Cockpit controls and indications include those on the Autopilot Controller plus trim meters, associated flight instrumentation, and warning and indicating lights.

Signal, or sensing, sources which are required for operation, but are not a part of the autopilot, are the vertical gyro (pitch and roll reference), directional gyro (heading), localizer and omni range receiver, course indicator, compass card on master compass, and pitot and static air pressure. Autopilot radio and compass operations use the Captain's (#1) systems. Pitot and static air pressures are supplied by the First Officer's pitot system and the autopilot static system on two pitot tube equipped airplanes. On other airplanes, pitot pressure is supplied by a third pitot tube.

The autopilot aileron, rudder and elevator servos move the same flight control cables (and thus the control surfaces) that are used during normal flight of the airplane. Stabilizer trim is accomplished by use of an electric motor, which is also the alternate method of trimming during manual flight operations. An interlock system, consisting of electrical and mechanical interlocks, is provided so that the autopilot cannot be operated unless proper operational procedures are followed.

The Autopilot Controller provides the means of engaging the autopilot and selecting its various modes of operation.

The interlock system requires three minutes of uninterrupted electrical power to the autopilot for satisfactory operation. During autopilot operation, a power interruption of longer than twenty (20) seconds requires a full three minutes waiting period before re-engaging the autopilot.

The interlock system also requires proper positioning of controls prior to engagement of the autopilot.



AUTOPILOT CONTROLS AND OPERATION (SP-30-14 Model)

Servos Lever:

OFF - All autopilot servos disengaged.

YAW DAMPER - Only the rudder servo is engaged and only yaw damping control is provided by the autopilot.

AUTOPILOT - All servos are engaged and the autopilot controls the airplane about all axes.

Pitch Selector:

ALT - Autopilot provides altitude hold control.

PITCH KNOB - Pitch knob provides pitch control. Must be in this position to engage the autopilot.

Pitch Knob: Provides pitch control of airplane and is spring-loaded to centered position. When the PITCH KNOB is moved, the PITCH SELECTOR returns to the PITCH KNOB position.

Turn Selector:

TURN KNOB - Must be in this position to engage autopilot. Autopilot makes turns as signaled by the TURN knob. Maintains heading when TURN knob is in neutral detent.

HDG SEL (Heading Select) - Autopilot turns to and maintains the heading selected by the Heading Bug on Captain's master compass.

LOC-VOR - Autopilot intercepts and maintains course selected on Captain's Course Indicator and VHF NAV receiver.

GLIDE PATH - Autopilot controls heading and pitch in response to ILS signals from No. 1 VHF NAV receiver.

Turn Knob: Controls airplane heading. Autopilot makes coordinated turns proportional to the amount of knob rotation. Not spring-loaded to neutral detent.

Trim Meters: On the Captain's instrument panel indicate the input signals to the autopilot servos.

Indicator Lights:

AUTOPILOT OFF (Red) - Illuminates when the autopilot is disengaged by any means other than the Release button on either control wheel.

GLIDE PATH ARMED (Blue) - Illuminates when autopilot is armed for glide path operation. Light is extinguished when glide path is captured.

GLIDE PATH ON (Green) - Illuminates when the glide path has been intercepted and the automatic glide path capture sequence has been initiated. Light is extinguished when the autopilot is disengaged or the TURN SELECTOR is moved from GLIDE PATH position.

AUTO TRIM OFF (Amber) - Illuminates to indicate stabilizer trim malfunction.

Autopilot Release Button: An AUTOPILOT RELEASE button is located on each control wheel. When pressed the Servos lever moves to the OFF position.

Attenuation: A timed signal strength reduction (attenuation) is automatically initiated by glide path capture. However, when reaching 2,500 feet, the Radio Altimeter will increase and maintain glide path and localizer gains at maximum signal strength to 1,500 feet. At 1,500 feet attenuation will be reinitiated by the Radio Altimeter.

If the Radio Altimeter is inoperative, the autopilot should be coupled at about 1,500 feet above the ground since glide path and localizer gains may be reduced to undesirable levels and cause deteriorated performance.

Glide Path Extension: Glide path extension is initiated automatically upon interception of the middle marker signal. Through a programmed reduction, glide slope beam is reduced to zero although the zero strength beam signal is not normally reached until below the 100 foot decision height in the approach. A "memorized" rate of descent or vertical path acceleration is used after glidepath extension occurs.

SP-30-15 MODEL

This autopilot controls the airplane in the same manner as does the SP-30-14 model.

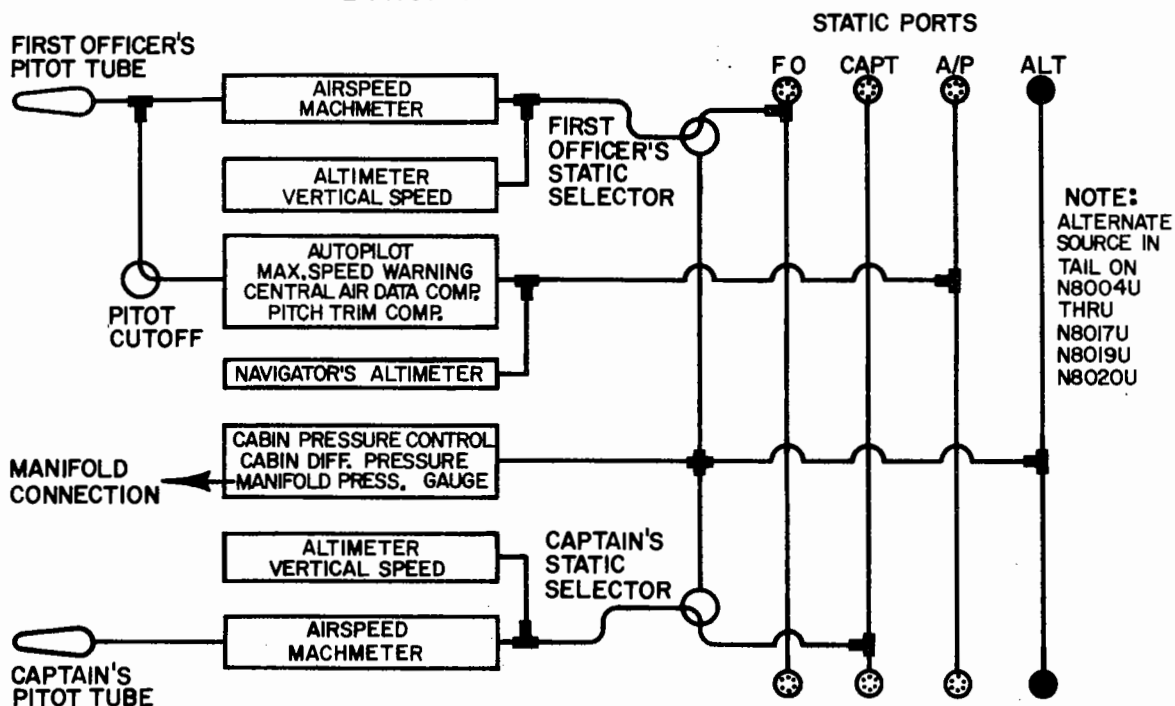
The -15 model provides VERT SPEED (Vertical Speed) control instead of PITCH control; Altitude HOLD is selected by the center detent of the VERT SPEED knob.

On the -15 model, attenuation is initiated by the Radio Altimeter at 1,000 feet. Glide path extension is initiated automatically by the Radio Altimeter at 300 feet. If the Radio Altimeter is inoperative, glide path extension is initiated by the Middle Marker. Glide path extension may also be manually selected by placing the PITCH SELECTOR to the G/P EXT position.

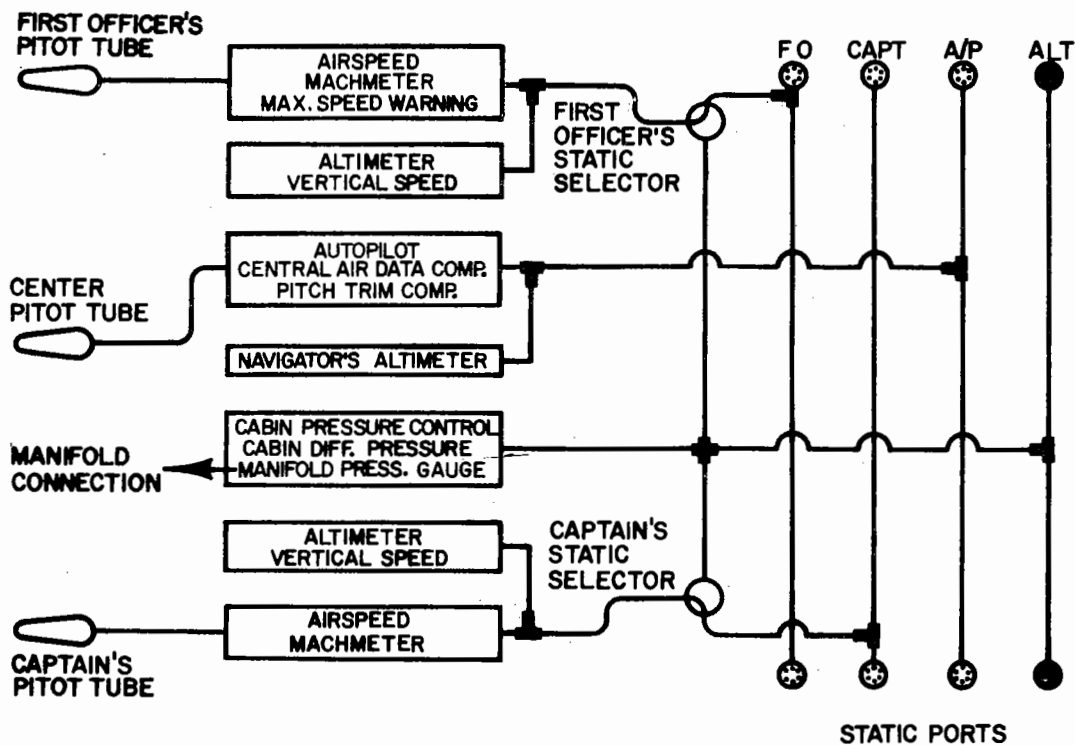
Another position on the PITCH SELECTOR, labelled PITCH HOLD, may be used in turbulence to maintain a pitch attitude.



2 PITOT TUBE SYSTEM

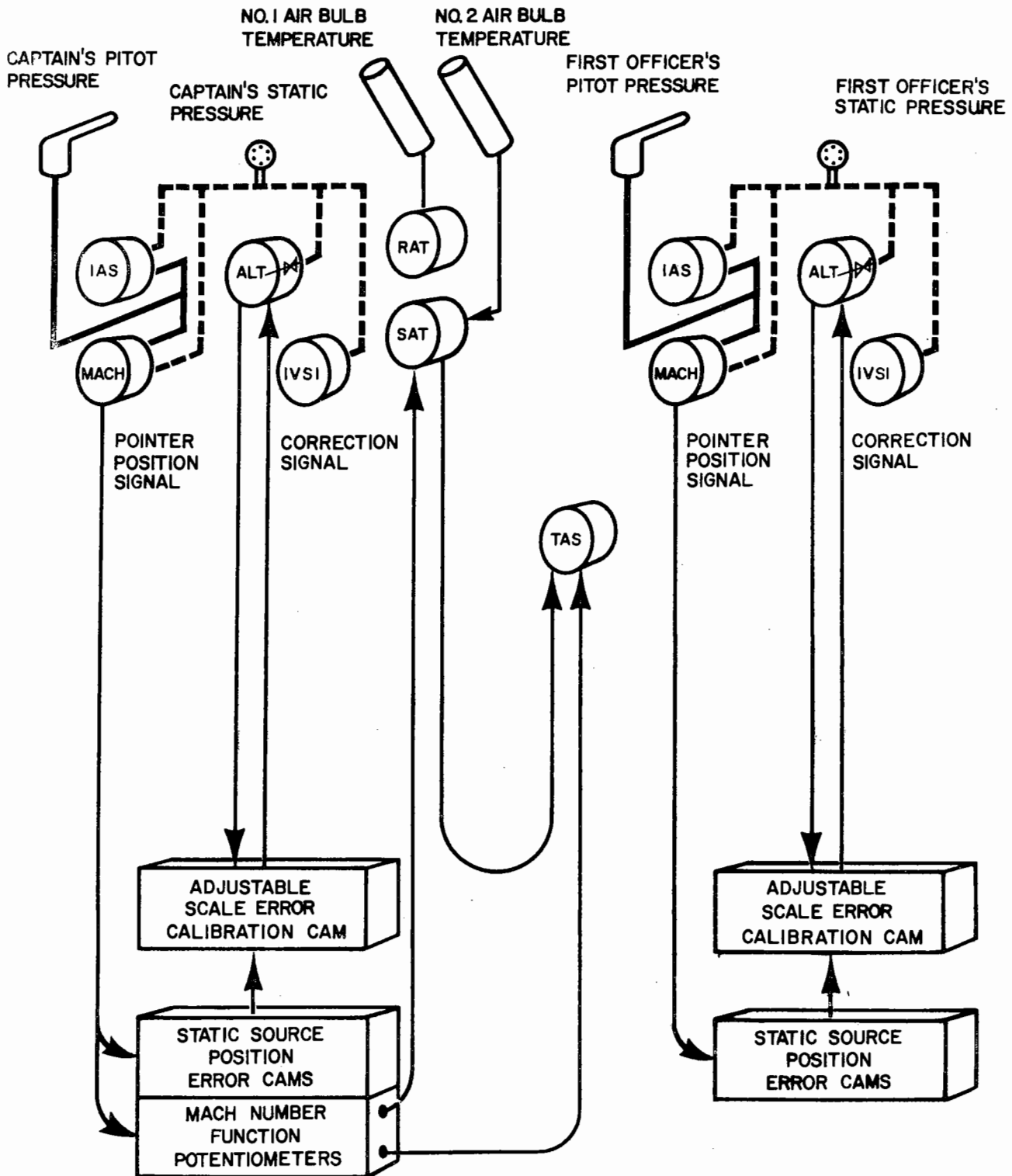


3 PITOT TUBE SYSTEM



AIR DATA SYSTEM

FIG. 1



AIR DATA INSTRUMENT SYSTEM

FIG. 2



CHAPTER 3

ELECTRICAL AND LIGHTING

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ELECTRICAL AND LIGHTING

ELECTRICAL

The power sources for the AC systems are four airplane engine driven 115V AC 400 cycle generators. The power sources for the DC systems are four Transformer Rectifier (TR) units. A 115V AC external power source is normally used for ground servicing and can be used to supply the entire electrical system. A 24V battery is installed which can provide power for engine ignition, generator control, starter valve and service interphone when external power is not available.

The electrical system allows each generator to supply its own loads, or it permits all generator outputs to be connected in parallel to supply all loads.

An AC Tie Bus connects all operating generators together in parallel through their respective Bus Tie Relays (BTR's). Normal distribution of AC power from the ground source is through an External Power Relay to the AC Tie Bus. Power is distributed to all loads through the BTR's. For towing and cabin servicing, external power may be applied to #4 Cabin Bus for cabin lighting, navigation lights, and auxiliary hydraulic pump without energizing the entire electrical system.

Voltage regulators, load controllers, and generator control panels regulate the output of each generator; provide for equal division of loads during paralleled generator operation; and provide automatic protection to the generator and electrical system.

Normal distribution of AC power is as follows:

1. All four generators are connected in parallel.
2. Each generator supplies 115V AC power to its AC Load Bus through both a Generator Relay (GR) and a Load Monitor Relay (LMR). In addition, each AC Load Bus is connected through its LMR and BTR to the AC Tie Bus, which allows equal division of the total load between the four generators.
3. Most of the airplane loads draw power from one or other of the four AC Load Buses.



4. Emergency circuits are supplied from the Left or Right Emergency AC and DC buses, which are supplied by #2 and #3 generators respectively. These buses are supplied directly through the GR's and/or BTR's; not through LMR's.

The 28V DC system is supplied by the four TR units, which convert AC power to 28V DC power. TR units #1 and #4 are supplied from their respective generators. TR units #2 and #3 are supplied from the Left and Right Emergency AC buses respectively. All four TR units are normally connected to a DC Tie Bus which powers all DC loads. All except #1 TR may be disconnected from the Tie Bus by use of a DC Isolation Switch and relay.

GROUND POWER CONTROLS and INDICATIONS

External Power Available Light (Blue):

Illuminates when a suitable external power source is connected to the airplane; does not indicate correct voltage or frequency for use on the airplane.

Ground Service Switch: With external power available and the Battery-External Power Switch OFF, this switch, on the Forward Entry Door Switch Panel, will power only Cabin Bus #4. This provides wheel well lights, cockpit overhead lighting, miscellaneous cabin lighting, navigation lights, operation of the auxiliary hydraulic pump, and brake pressure gauges.

Battery-External Power Switch: Is a three position (BATT-OFF-EXT PWR) switch, which when in the BATT position closes the Battery Relay and connects the battery to the Battery Bus.

When in EXT PWR, the External Power Relay will be closed and the ground power source will energize the entire electrical system. The Battery Relay will then be open.

In OFF, both the External Power Relay and Battery Relay are open and all power from the buses is disconnected, unless the Ground Service Switch is ON - see above.

AC Voltmeter, Frequency Meter and Selector: When the Selector is placed in AC TIE, the voltage and frequency of the external power will be indicated on the meters if external power is supplying the airplane.

BATTERY POWER, CONTROLS AND INDICATIONS

Battery-External Power Switch: When in the BATT position, the battery can supply power to the Battery Bus. The Battery Bus normally receives power from the DC Tie Bus. A blocking rectifier prevents the battery from feeding the tie bus.

Battery Charging: The battery is charged from the DC Tie Bus only when the Battery Relay is closed by the BATT- EXT PWR switch being in BATT and airplane electrical power is supplying the DC Tie Bus. The battery is not charging when external power is supplying the airplane.

DC Voltmeter: When the VOLT & FREQ. SELECTOR is placed to the BATT position, battery voltage is indicated on the voltmeter. This also can be battery charging voltage. To read the true battery voltage, the battery must be in a "static" condition, (no load and not being charged). The battery is in a static condition when the Battery Relay is open; that is, when the BATT EXT PWR switch is in either OFF or EXT PWR.

TR UNITS AND DC BUSES

There are four Transformer Rectifier (TR) units that supply the DC systems. Each TR unit converts AC power to 28V DC power. TR units #1 and #4 supply DC Bus 1 and DC Bus 4 respectively. These buses carry the largest DC loads. TR unit #1 additionally supplies the Battery Bus through the DC Tie Bus when the TR units are operating isolated. TR units #2 and #3 supply the Left and Right Emergency DC buses and DC Bus 2 and DC Bus 3 respectively. All four TR units normally are connected to a DC Tie Bus to equalize the load distribution. One TR unit can supply the entire normal DC loads of the airplane through the DC Tie Bus.

DC Loadmeters and DC Voltmeter: The DC Loadmeters indicate the current drawn from the corresponding TR unit, in percentage of TR rating. When all TR units are tied together the Loadmeters should read equal values. When all TR units are operating isolated, the #1 and #4 Loadmeters may indicate higher than #2 and #3 since they supply the larger load buses.

The DC Voltmeter indicates the voltage of the DC Tie Bus when that position is selected by the VOLT & FREQ. SELECTOR.

GALLEY POWER

Galley Power Switch: A two position (ON and OFF) switch, which when ON makes power available to the galleys for the coffee makers, ovens, hot plates and work lights. Electrical power is removed when the switch is in OFF. The galleys may impose heavy electrical loads. Circuit breakers for the galley power are located on the cockpit circuit breaker panel.

ENGINE DRIVEN GENERATORS, CONTROLS AND INDICATIONS

Generator Drive Units: Each generator is connected to the engine by a hydromechanical Constant Speed Drive (CSD) unit that has an independent oil system. The CSD oil is cooled by circulation through oil to fuel heat exchangers, which are part of the fuel temperature regulating system; therefore, no cockpit controls are provided. Caution lights and gauges on the Second Officer's panel indicate the operation of the CSD's.

The CSD maintains the generator at a constant rpm from engine idle through takeoff thrust setting, in order to maintain a fixed frequency output from the generator.

Generator Drive Oil Temperature Gauges: Each generator drive unit has a temperature gauge connected to its oil system, which indicates the temperature rise of the oil as it passes through the CSD and indicates how much work the drive unit is doing. The gauges are calibrated in three ranges, NORMAL, CAUTION, and DANGER.

Generator Drive Oil Caution Lights (Amber):

Illuminates to indicate that the associated generator drive oil pressure is below minimum operating limit.

Generator Drive Disconnects: A GENERATOR DRIVE DISCONNECT lever for each generator drive unit may be used to manually disconnect the CSD unit from the engine accessory drive.

NOTE

If a DISCONNECT Lever is moved to the DISCONNECT position it should be reset only by ground maintenance.

Aircraft Engine Generators: A 115V AC, 400 cycle, 20 KVA generator is connected by a drive unit to each engine. The generator is cooled in flight by ram air and on the ground by operation of a fan mounted on the generator rotor shaft. Cooling air is ducted overboard. A valve operated by the fire shut-off system will block cooling air flow to the generator on JT4A engines. On the JT3D fan engines, generator cooling air is never shut off.

Each generator can supply its own load buses, or all generators may be paralleled to supply all load buses.

Generator Relays (GR): Isolate a generator from the Generator Bus when the bus is being supplied by another power source. They also allow the generator to develop proper output before being connected to its bus.

Each GR is controlled by its associated GENERATOR CONTROL switch.

A GR cannot be closed unless the associated Bus Tie Relay (BTR) is open. This prevents connecting an airplane generator with the external power source, or with another airplane generator when phase and voltage relationships are not compatible.

Bus Tie Relays (BTR): Connect the four generator buses to an AC Tie Bus for load sharing between generators. They also allow all loads to be supplied from one power source, or allow other generators to supply a generator bus if the normal generator is inoperative.

The BTR's are controlled by various generator and bus control circuits, and by fault detection circuits. During engine starting all BTR's are initially closed, and external power from the tie bus is supplied through them to each load bus. As each airplane generator comes up to speed, load is automatically transferred from the external power source to the airplane generator by opening the BTR and closing the GR. When all generators are operating, placing the BATT-EXT PWR switch to BATT and pressing the GEN PARALLEL button will cause the auto parallel circuit to close the BTR's provided the voltage and phase relationships coincide.

An AC Bus Isolation Switch (guarded NOR) provides a means of opening all the BTR's.

Load Monitor Relays (LMR): Quickly disconnect the power source from the major AC and DC load buses in the event of failures, or faults, in the system. Each main AC LMR is controlled by an EMERGENCY ELECTRICAL CONTROL (EEC) switch. When the EEC switches are in OFF, the LMR's are opened and their associated load buses de-energized. Both AC and DC LMR's open when power is removed. No LMR's are installed in the Emergency Bus circuits.

AC Loadmeters: An AC Loadmeter for each of the engine driven generators indicates the load being supplied by the generator. The loadmeters are calibrated in percentage of the rated power output of the generators.

Generator Unparalleled Lights (Amber): The Generator Unparalleled light (GEN UN-PARL'D) illuminates to indicate that the respective generator is not supplying power to the AC Tie Bus. This light will illuminate when either the GR is open, the BTR is open, or both relays are open.

Bus Power Fail Lights (BUS PWR FAIL) (Amber): When illuminated, they indicate that the main AC LMR's are open and the associated load buses are de-energized.

Emergency Bus Power Fail Lights (Red): The Left and Right EMER BUS PWR FAIL lights illuminate to indicate a loss of power to the respective Emergency AC load bus.

Generator Control Panels: Located behind the main circuit breaker panels, the generator control panels contain circuits for sensing frequency, voltage and phase relationship between load buses and the tie bus. They contain the Generator Field Relays (GFR) and most protective circuits.

The GFR's provide a means of opening the generator field, thus rendering the generator electrically inoperative. The relay is tripped by automatic fault sensing circuits, and incorporates a three second time delay to prevent tripping from transient conditions. The GFR can be reset by placing the GENERATOR CONTROL switch to RESET momentarily. Manual tripping of a GFR can be accomplished only by operating a corresponding Fire Shutoff Lever. The field relay does not open for over or under frequency, such as when an engine is shut down.

Voltage Regulators: The voltage regulator circuits automatically control output voltage to approximately 115 Volts and provide load division between paralleled generators. They are located inside the electrical power center behind the circuit breaker panel.

Load Controllers: Located in the electrical power center, they provide power balance between paralleled generators. Power division is accomplished by regulating the speed commands to each generator through voltages applied to a magnetic trim control on the generator drive speed governors.



Tuning Fork Control: A tuning fork control in the electrical system provides a precision 400 ± 0.1 HZ signal as a reference frequency for the Load Controller.

Preferential Tie Circuit: Insures that the AC Tie Bus and all generator buses are never without power as long as any airplane generator is operative. When external power is removed after normal starting, generator number 3 BTR will close and energize the tie bus. If less than four generators are operating, the first operative generator in the sequence will connect to the tie bus. The order of preference is 2-3-1-4. If external power is not available for starting, the first generator to be started will connect to the AC Tie Bus and to all generator buses.

Auto-Parallel Circuit: Senses differences in voltage, frequency and phase between generator buses and the AC Tie Bus. When the GEN PARALLEL button is pressed the circuit function is initiated, and when voltage, frequency and phase relationships are correct, the auto-parallel circuit causes the corresponding BTR to close. There is no particular sequence, or time, involved in which the generators will parallel after the GEN PARALLEL button is pressed.

Battery: A nickel-cadmium unit of 5 ampere-hour capacity, located in the forward outboard corner of the right main wheel well, provides 24 volts to the battery bus.

Fuses and Circuit Breakers: Heavy duty fuse protection is provided for the external power supply and for each bus except Left and Right Emergency Buses. These emergency buses are protected only by basic generator protective systems.

Each AC and DC circuit is protected by either a fuse or circuit breaker.

Fuses may be the conventional type mounted in clips or a type with light caps which glow when the fuse is blown, or the blade type with indicator pins which extend when blown.

Circuit breakers provided for most circuits are conventional, pull to open, push to close type with white band which shows when open.

Spare fuses are provided aft of the Second Officer's station and aft of the main circuit breaker panel. Some spares are also provided on the main circuit breaker panel and in the buffet area. Fuse tongs are carried in the fuse access panel at the aisle side of the main circuit breaker panel. If the fuse or circuit breaker for one phase of a three phase motor is open, the motor will probably continue to run on the remaining two phases; however, it may overheat so it should be used only if required.



AIRCRAFT LIGHTING

Lighting on the DC-8 may be divided into five sub-systems as follows: Exterior Lights, Service Lights, Cockpit Lights, Passenger Cabin Lights, Emergency Lights. The lighting described in this section does not include system warning, caution, or indicating lights, which are covered with their appropriate systems.

Fluorescent lighting is operated from 115V AC, incandescent from 28V or 6V AC. Power from 115V AC buses is stepped down in voltage by transformers located near their associated lighting circuits. Emergency lighting and flight compartment dome lights operate from 28V DC.

EXTERIOR LIGHT SYSTEM

Retractable Landing Lights: Two landing lights are mounted under each wing between the engine nacelles and just aft of the rear spar. Each light can be extended, retracted, or stopped in any intermediate position by the control switches on the overhead panel. These switches are labelled WING L-R and have three positions RETRACT, OFF, EXTEND & ON. The lights will illuminate only during extension or in the fully extended position.

CAUTION

Unless the Landing Light switches are set to RETRACT after use, it is possible to extinguish the lights without retracting them. There are no speed restrictions when these lights are extended, but they do increase drag.

Nose Landing and Taxi Lights: Two landing and taxi lights, mounted on the nose gear strut, provide lighting during takeoff, landing and taxi. The control switches on the overhead panel are identified NOSE L-R and have three positions TAXI, OFF, LANDING.

In the LANDING position the lights provide high intensity lighting; in TAXI they provide a lower intensity lighting. The Landing Gear Lever must be DOWN and in the detent to complete the circuit for these lights.

Wing and Ground Flood Lights: The Wing Flood Lights, one on each side of the upper fuselage just ahead of the wings, provide lighting of the leading edge of the wings and engine nacelles. Ground Flood Lights, in the leading edge of the wing roots, provide lighting of the ground. The control switch for these lights is on the overhead panel and identified WING FLOOD - GROUND FLOOD. The WING FLOOD position illuminates the wings only; GROUND FLOOD illuminates both the wings and the ground.

Oscillating Navigation Lights: These position lights are of high intensity with red on the left wing tip; green on the right wing tip; and white on the tail cone. The wing oscillating lights can be observed from the cockpit. These lights are controlled by the NAV LIGHTS switch on the overhead control panel which has three positions: FIXED, OFF, OSC & FIXED.



Fixed Navigation Lights: Adjacent to the oscillating lights, they are also controlled by the NAV LIGHTS switch.

Anti-Collision Lights: Two red, dual oscillating anti-collision lights are mounted on the top and bottom of the fuselage near the center of the airplane. These lights generate high intensity red flashes. They are controlled by a switch on the overhead panel placarded ANTI-COLLISION with two positions OFF and ON.

SERVICE LIGHTS

Forward and Aft Cargo Compartment Lights: Provide general interior and door area lighting. Lights are controlled by switches located adjacent to the cargo loading doors.

Forward and Aft Accessory Compartment Lights: Provide accessory compartment lighting. Lights are controlled by switches adjacent to the compartment doors.

Tail Compartment Lights: Provide tail compartment lighting. Lights are controlled by a single switch adjacent to compartment door.

Air Conditioning Compartment Lights: Provide compartment lighting. Switch for left and right forward air conditioning compartment lighting is located in the nose wheel well. Switch for aft portion of air conditioning compartment is located near access door.

Nose Wheel Well Spotlight: Provides illumination of the nose wheel well so that the Nose Gear Over Center Lock Links can be viewed in flight. The Nose Wheel Well light is controlled by a switch near the nose wheel well inspection station in the access panel that contains the DC Tie Bus Limiter fuses.

COCKPIT LIGHT SYSTEM

The cockpit lighting provides general and local illumination of control panels, instruments, and controls. Red and white lights are used, and nearly all lights have variable intensity controls. Cockpit lights are powered, with a few exceptions, by 28V AC. A spare bulb stowage box is mounted in the electrical power center equipment panel and is placarded SPARE BULBS.

Pilot's Panel Edge and Instrument Lights: Provide instrument lighting on pilot's instrument panels and glare shield panel. Lighting intensity may be varied by controls on the overhead control panel marked: Capt's INST LIGHTS & BACKGROUND, 1st OFF'S INST LIGHTS and ENGINE INST LIGHTS. The Captain's control is a dual concentric unit, the center knob of which controls low intensity lights which illuminate all instrument backgrounds.

Pilot's Instrument Panel Flood Lights: Provide white, high intensity lighting for pilot's instrument panels and glare shield panel. Intensity is varied by a control on the overhead control panel marked MAIN INST LIGHTS WHITE. These are fluorescent lights mounted under the glare shield and powered from the Right Emergency Bus. (See: Override later in this chapter.)

Pilot's Instrument Panel Background Lights: Incandescent lights under the glare shield that provide white background light on pilot's instrument panels. They are controlled by a combined off-on, intensity knob on the overhead control panel marked BACKGROUND LIGHTS WHITE.

Overhead Control Panel Edge and Instrument Lights: Provide instrument red lighting on overhead control panels. Intensity is varied by a control on overhead control panel marked OVERHEAD LTS RED.

Pedestal Edge, Stabilizer Trim and Flap Handle Illumination: Provide red edge lighting on electronic control panels and post lighting on stabilizer trim and flap handle. Intensity is varied by a control on overhead control panel marked PEDESTAL LIGHTS RED.

Pedestal Red Flood Light: Provides red flood lighting of the control pedestal. Intensity is controlled by a rotary switch on the overhead panel. The light and control are located near the fire shutoff lever panel. The lens can be adjusted to vary the flood lighted area.

Pilot's Map Lights: Provide white or red spot illumination at Captain's and First Officer's stations. A red filter on each light may be selected if desired. The intensity is controlled by a knob adjacent to each light at the left and right sides of overhead control panel.

Pilot's Briefcase Lights: One on each pilot sidewall, provide red illumination of briefcase stowage areas. Controlled by push button under each light, (push-on, push-off).

Pilot's Floor Lights: Provide red illumination of floor area at pilot's stations. Intensity is controlled by knobs at pilot's left and right side panels.

Second Officer's Instrument Panel Edge Lights and Instrument Lights: Provide instrument lighting on Second Officer's instrument panels. Intensity is varied by a control on the Second Officer's panel marked INST PANEL.

Second Officer's Panel Red Flood Lights: Two red fluorescent tubes mounted on the ceiling provide instrument background red lighting on Second Officer's instrument panel. Intensity is varied by a control on Second Officer's panel marked RED FLOOD.

Second Officer's Panel White Flood Lights: White fluorescent tubes in the ceiling provide white high intensity lighting for Second Officer's instrument panels and general cockpit area. Intensity is varied by a control on Second Officer's panel marked WHITE FLOOD. (See: Override later in this chapter).

Second Officer's Work Table Light: Provides white or red illumination of Second Officer's work table. A red filter may be selected if desired. Intensity is varied by a control on Second Officer's panel marked WORK TABLE.

Navigator's Instrument Panel Edge Lights and Instrument Lights: Provide lighting to instruments on Navigator's instrument panel.

Intensity is varied by a control on the Navigator's control panel marked NAV INST LIGHTS RED.



Navigator's Work Table Lights: Provide white or red illumination of Navigator's work table area. Intensity is varied by a control on the Navigator's control panel marked NAV WORK TABLE LIGHTS. Red or white light is selected by a toggle switch marked RED - WHITE.

Navigator's Floor Light: Provides red illumination of floor area at Navigator's station. Controlled by a toggle switch marked FLOOR, ON.

Observer's Map Light: Provides white or red spot illumination at observer's station. Intensity is varied by a control adjacent to map light, located at left rear side of overhead control panel. A red filter on the light may be selected if desired.

Electrical Power Center Lights: Provide illumination of various cockpit areas. Controlled by a switch on the aft side of Second Officer's work table. The specific areas illuminated are: 1) Left and right consoles, 2) control cable area, 3) all equipment panels, 4) generator bus bay, 5) generator control rack, 6) upper radio rack. These lights are not visible unless the panels are opened.

Crew Coatroom Light: Provides white illumination of crew coatroom. Controlled by an ON-OFF switch adjacent to the light in crew coat room area.

Circuit Breaker Panel Flood Lights: Provides illumination of circuit breaker panel. The lights are fluorescent tubes under a red filter controlled by an ON-OFF switch located on upper frame of Second Officer's instrument panel.

Cockpit Dome Light: Provides white illumination of flight compartment generally. Controlled by a switch on overhead control panel marked COCKPIT DOME. Powered from the Left Emergency Bus.

Override: A switch on the overhead control panel, with positions marked OVERRIDE RED, NOR, WHITE, enables selection of any of the following:

RED - S/O panel white flood lights are without power.

NOR - power is available at all light controls.

WHITE - pilot's instrument panel flood lights and Second Officer's panel white flood lights will illuminate at full intensity.

Red lights are not affected by this OVERRIDE switch.

PASSENGER CABIN LIGHTS

The passenger cabin lights consist of:

Variable intensity, indirect ceiling lights; controlled from a switch at the stewardess's panels.

Aisle lighting installed in the ceiling; controlled by either of two switches, one at aft stewardess's panel, and the other at the forward end of the forward cabin.

Passenger reading lights installed in the hat racks; each controlled by a switch adjacent to its light.

Blue Room dome and mirror lights; each controlled by a switch operated by the respective Blue Room door.

Buffet lights; controlled by switches at stewardess's panels.

Coatroom dome light; controlled by switch at coatroom.

Passenger cabin entrance spotlights at all entrance doors; controlled by switches at stewardess's panel and at forward passenger entrance door.

NO SMOKING and FASTEN SEAT BELTS lights; controlled by switches on the pilot overhead panel. The FASTEN SEAT BELT switch has three positions; the rear position is OFF, the center position is ON - FASTEN SEAT BELTS, and the forward position - CHIME - is momentary.

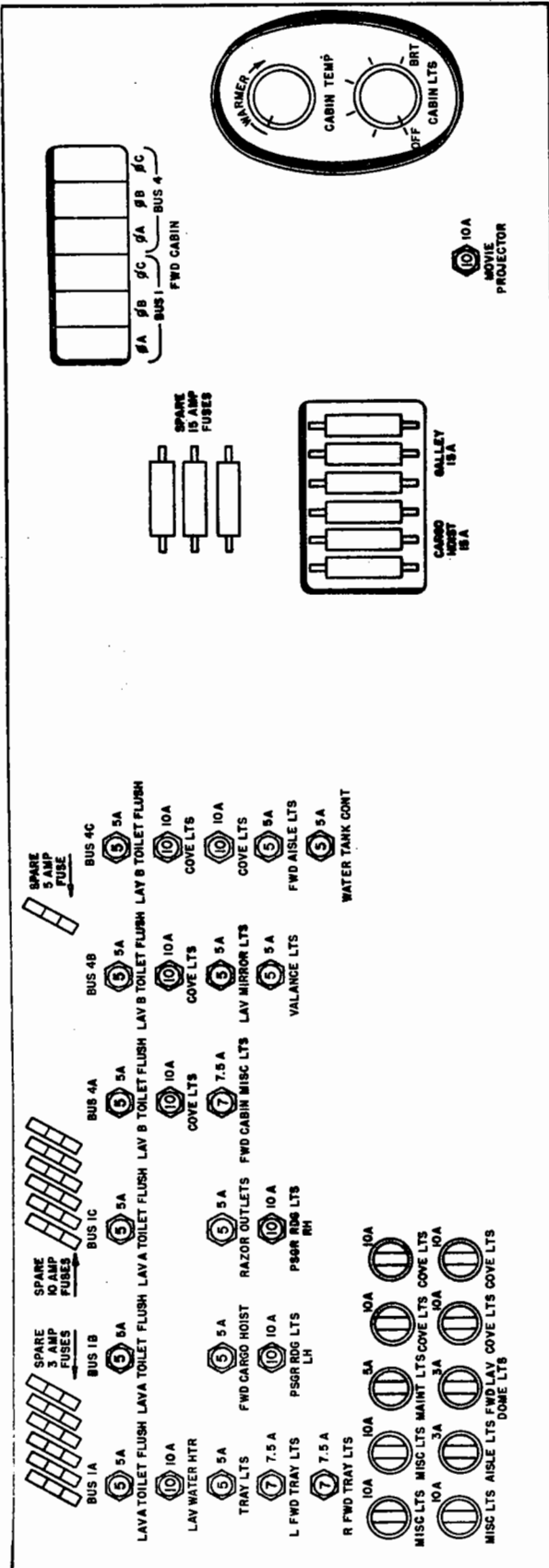
An additional emergency lights switch is located at the AFT stewardess communication panel. The two position switch, NORM and ON is guarded NORM. If emergency lights fail to illuminate under emergency conditions, the switch can be used to turn on the emergency lights manually. (See Emergency Equipment, Chapter 4).

CAUTION

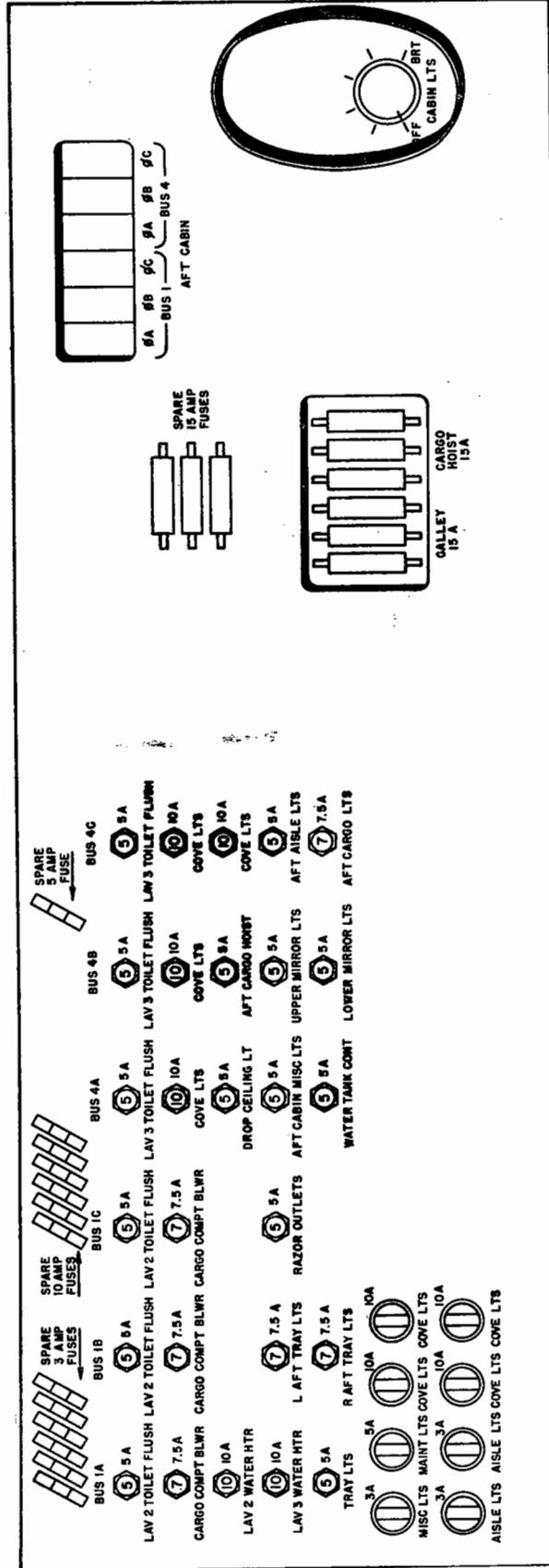
Except under emergency conditions, the switch should be in the guarded position to prevent discharge of the emergency lights' batteries.

EMERGENCY LIGHTING

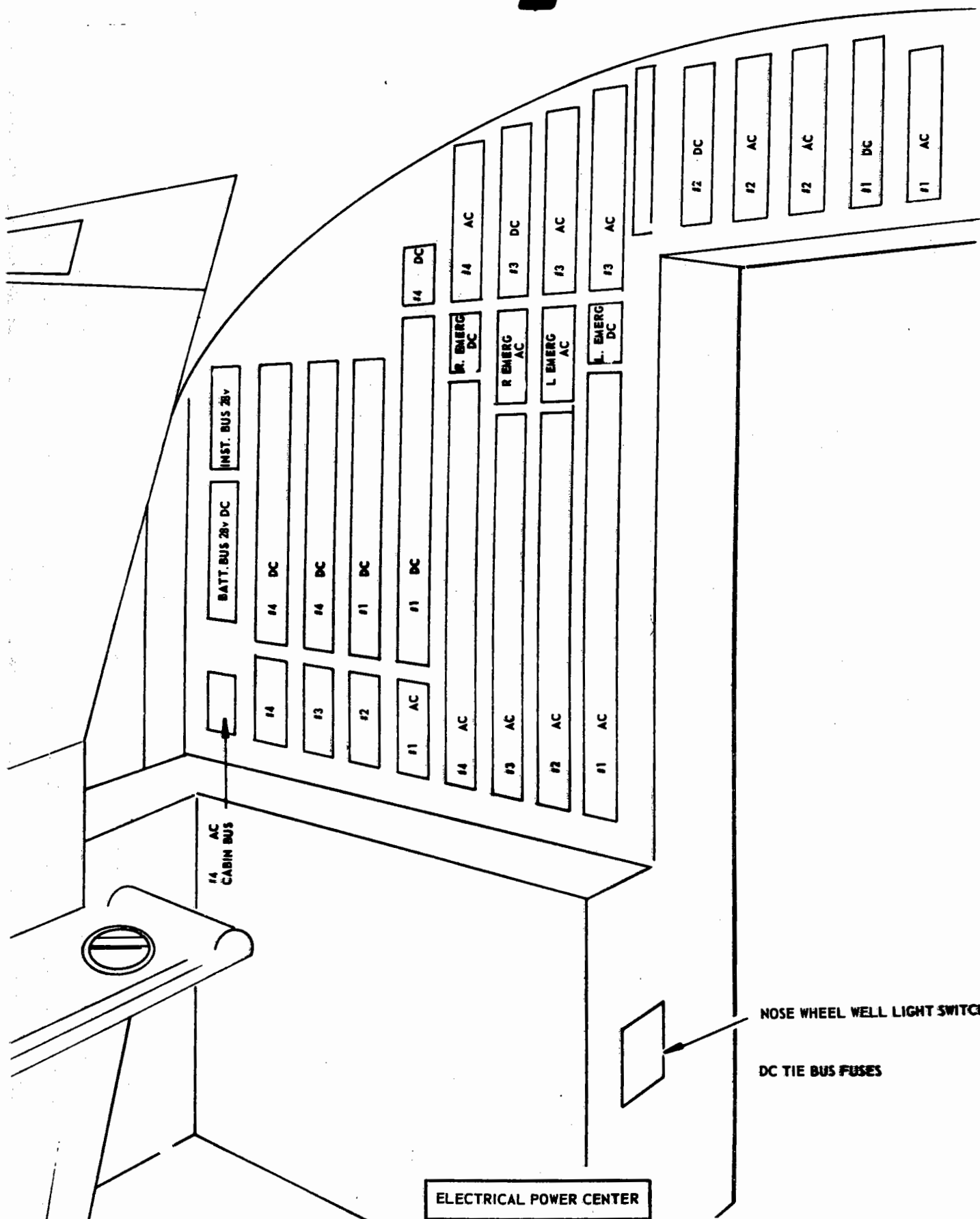
The emergency lighting consists of four separate circuits which light the forward, center and aft interior sections of the fuselage and the exterior overwing area if normal electrical power is lost. Batteries, one for each circuit, are located in the passenger cabin ceiling. They are charged from 115V AC Left Emergency Bus. Control of the system is from a switch on the overhead control panel marked EMER LIGHTS, with three positions: ARM, DISARM, DISARM CHECK. Adjacent to this switch is an amber light marked: EMER LTS DISARMED which indicates the condition of the emergency lighting circuits.

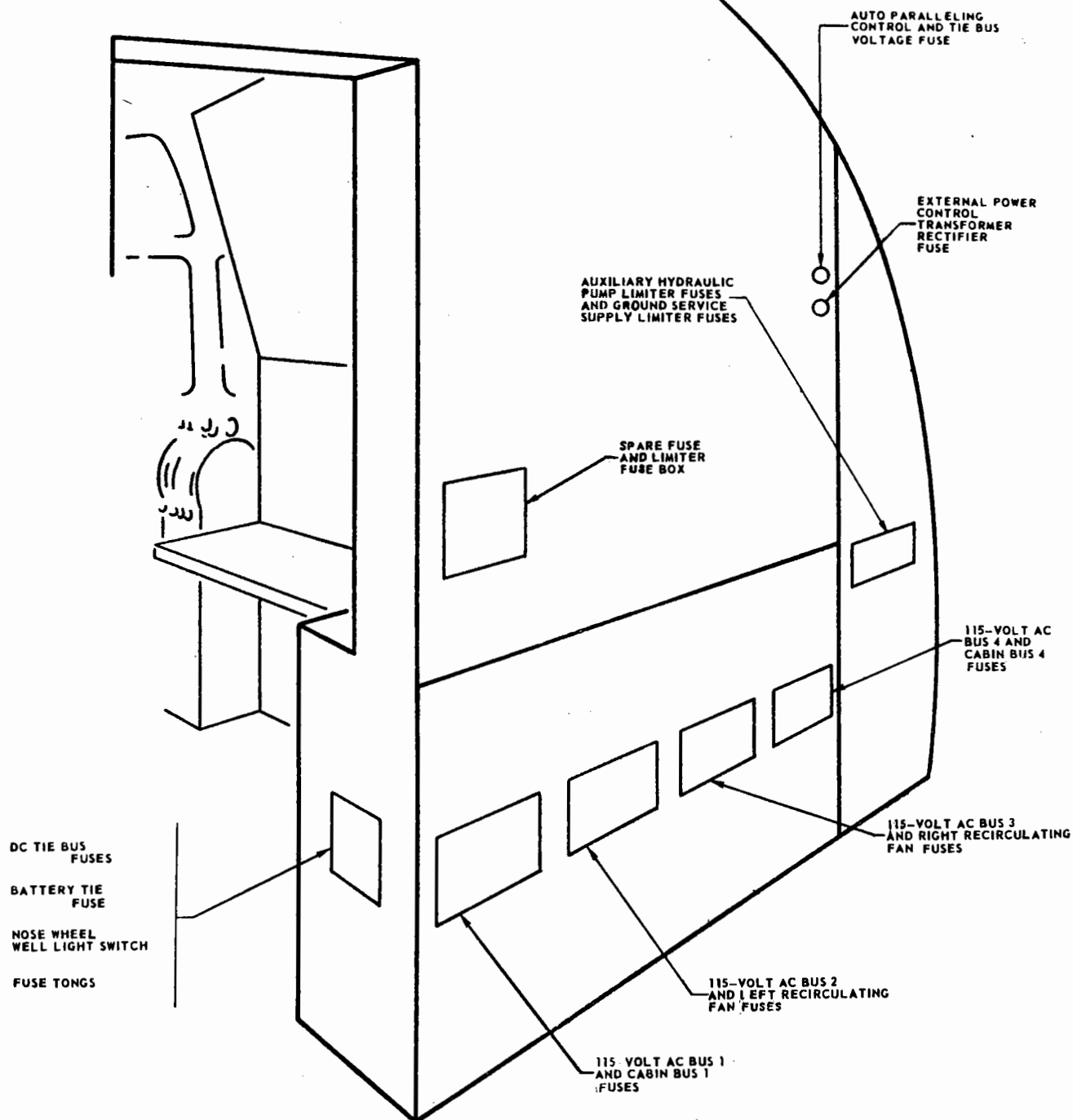


FWD GALLEY PANEL



AFT GALLEY PANEL





ELECTRICAL POWER CENTER (VIEW LOOKING FORWARD AND OUTBOARD)



CHAPTER 4

EMERGENCY EQUIPMENT

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EMERGENCY EQUIPMENT

The airplane emergency equipment consists of: built-in crew and passenger oxygen systems which operate independently; portable oxygen bottles; fire extinguishers; smoke goggles; fire axe; first aid kit; megaphones; an emergency lighting system; an emergency radio transceiver; and overwater gear consisting of life vests, life rafts and flashlights. Evacuation slides and escape ropes also are installed.

CREW OXYGEN SYSTEM

The crew supply bottle is located in the crew coat room. It has a shutoff valve, which should be left open, and a pressure gauge. It also has a thermal discharge plug which ruptures at a preset value. It releases pressure overboard through a line to the right forward side of the fuselage, which in turn, blows out a green disc in the end of the line.

OXYGEN REGULATOR PANELS

A panel which contains a quantity indicator, three control switches and a flow indicator is located at each crew member and observer positions.

Quantity Indicator: Indicates the quantity of oxygen in the crew cylinder.

Supply Switch: When ON, permits the flow of oxygen to the individual regulator. It is normally safetied in the ON position.

Oxygen Selector: Controls regulator operation and is labeled NORMAL OXYGEN and 100% OXYGEN. In the NORMAL position, a mixture of cabin air and oxygen is supplied to the mask on demand up to a cabin altitude of 28,000 feet. In the 100% OXYGEN position, pure oxygen is supplied to the mask on demand.

When cabin altitude reaches 28,000 feet the regulator automatically supplies 100% oxygen under pressure regardless of switch position.

Mask Selector: In NORMAL, the regulator operates as selected by the Oxygen Selector switch. The EMERGENCY position overrides the selector switch and provides 100% oxygen under pressure to the mask at all times. The TEST MASK position, spring loaded to NORMAL, provides 100% oxygen under greater pressure than EMERGENCY. It is used to blow out any contaminants from the mask prior to putting it on and to check for proper functioning.

NOTE

Do not leave the switch in the EMERGENCY position or the supply will be quickly depleted.

Flow Indicator: Indicates whether oxygen is flowing through the regulator. A black flag indicates no oxygen flow; a white one indicates that oxygen is flowing through the regulator.

Quick Donning Masks: The mask is hung in a quick-release holder at the Captain's, First Officer's and Second Officer's crew position.



The Navigator's and Observers masks are in containers near their Oxygen Regulators and are NOT quick donning type.

PASSENGER OXYGEN SYSTEM

A Supplemental and First Aid bottle in the left aft coatroom has a shutoff valve, that should be open, and a pressure gauge. A thermal relief valve on the bottle vents oxygen to the cabin if excess temperatures occur. Two Emergency bottles, above the center aisle in the aft low ceiling area, have thermal discharge lines which lead to a green blowout disc just forward of the aft entry door. Masks are located in the seat backs, stewardess stations and blue rooms.

PASSENGER EMERGENCY OXYGEN

The system is automatically activated when a depressurization occurs. A manually selected electrical backup is also provided in the cockpit to activate the system.

Mask Containers: When the cabin altitude reaches approximately 11,500 feet an aneroid switch causes a high pressure surge of oxygen from the First Aid bottle to release the container latches. PASSENGER OXY MASK switch on the Second Officer's panel when placed to EJECT will activate the system at any time; however, if the masks have been ejected, operating the switch will not send an additional surge of pressure through the system. If the First Aid bottle is empty, or electrical failure occurs, the Emergency Bottle Regulators, which increase system pressure with cabin altitude increase, will unlatch the doors and present the masks at approximately 20,000 feet.

All mask container doors have manual releases which may be used to open the doors at any time. Each container has one more mask than the number of seats. The additional mask is connected to the Supplemental and First Aid outlet, as well as the Emergency outlet.

Emergency Oxygen: When the masks are presented, Emergency Oxygen flows to each outlet valve at a cabin altitude of 12,000 to 15,000 feet and above. When the mask is pulled to the face, a pin is pulled from the Oxygen Shutoff Valve which allows oxygen to flow to the mask. If Emergency Oxygen does not flow automatically during a depressurization, a toggle on the Emergency Bottle regulator assembly may be used to start the flow. Flow to the masks will stop when cabin altitude is decreased below approximately 13,000 feet.

NOTE

If Emergency Oxygen has ceased to flow due to cabin altitude, a continual supply of Supplemental Oxygen may be obtained from the Supplemental and First Aid mask adjacent to the outlet valve knob by setting the knob to SUP.

PASSENGER FIRST AID OXYGEN

Passenger First Aid oxygen is available from one mask in each mask container.

Control Panel: The First Aid Automatic Supply Valve is located directly above the oxygen bottle in the coat room. The valve has a three position toggle switch placarded OPEN, AUTOMATIC and RESET.

The toggle switch should be left in the AUTO (center) position to permit the First Aid bottle surge pressure to unlatch the mask container doors when required. In the OPEN (up) position, oxygen flows to the Mask Outlet Valves; however, the pressure is not sufficient to unlatch the container doors and they must be opened manually. To administer the oxygen, the Outlet Valve knob of the first aid mask, (normally OFF), must be rotated to the LOW or HIGH position. The HIGH position has double the flow of LOW and is used when First Aid oxygen is required.

In the Five-Abreast seating configuration, only HIGH flow rate First Aid oxygen is available from the First Aid mask. A "green tabbed" pin, labeled **FIRST AID OXYGEN**, must be pulled to allow oxygen to flow from the manifold (if pressurized) to the First Aid mask. In addition to the First Aid mask, supplemental oxygen is available from a K-S mask which may be plugged in below the mask container door.

When the oxygen is no longer required it should be turned off at the seat, the system reset, and the pressure bled off. The RESET position (down) of the Supply Valve is spring loaded to AUTO and must be held down while the Bleed Valve button, directly above the toggle switch, is pushed in to bleed the manifold. A gauge attached to the Supply Valve indicates line pressure.

PORTABLE OXYGEN BOTTLES

There are 6 portable oxygen bottles in the airplane. (Figure 3). Each bottle has an ON, OFF valve (normally OFF) and a direct reading pressure gauge. Each bottle has at least one continuous flow outlet for use with an oxygen mask and a thermal safety plug which will burst and vent the oxygen to the cabin in the event of excess temperature.

COCKPIT PORTABLE OXYGEN BOTTLE

Is installed outboard and aft of the Captain's seat. It has a continuous flow outlet for use with a disposable mask and a 100% demand regulator with a full face mask attached. Crew masks may be attached to this outlet.

CABIN PORTABLE OXYGEN BOTTLES

These 5 bottles are in both the overhead racks and stewardess stations throughout the cabin. Each bottle has either two continuous flow outlets, HI (red) and LO (yellow), or a single continuous flow outlet, HI (red). A disposable mask in a manila envelope is secured to each bottle. To use, remove the mask from the envelope, plug it into one of the outlets (normally HI), open the shutoff valve, and fit the mask to the face.

PORTABLE FIRE EXTINGUISHERS

There are three types of fire extinguishers: CO₂, Water and Dry Chemical. Each has a safety wire and seal that are broken when the bottle is used. See the Emergency Equipment Diagram (Figure 3) for number and location of portable extinguishers.

EMERGENCY LIGHTS

The emergency lighting consists of four separate circuits which light the forward (including the cockpit), center and aft interior sections of the fuselage and the exterior overwing area. When armed, the lights illuminate with a loss of normal power and are supplied from an Emergency Bus. If no power is available they will be powered by their own batteries which are located in the passenger ceiling and are normally charged from the 115V AC Left Emergency Bus.



EMERGENCY EXIT LIGHTS SWITCH AND DISARM LIGHT

A three position (ARM, DISARM, DISARM CHECK) switch on the overhead panel controls and checks the Emergency Exit Lights circuits. Adjacent to the EMER LIGHTS switch is the EMER LTS DISARMED light (Amber) which should illuminate with the switch in DISARM and DISARM CHECK and extinguish in ARM when the system is operating normally. The switch and light are powered by the Battery Bus.

An additional emergency lights switch is located at the AFT stewardess communication panel. The two position switch, NORM and ON is guarded NORM. If emergency lights fail to illuminate under emergency conditions, the switch can be used to turn on the emergency lights manually.

CAUTION

Except under emergency conditions, the switch should be in the guarded position to prevent discharge of the emergency lights' batteries.

MISCELLANEOUS

FIRST AID KIT

Located in the aft right overhead rack.

FIRE AXE

Mounted on the crew coatroom wall.

MEGAPHONE

Battery operated megaphones are located in the left overhead rack; one forward and one aft.

SMOKE GOGGLES

Three pairs are in a container on the left cockpit wall.

EMERGENCY VHF TRANSCEIVER

Mounted on the left cockpit wall. The unit can be used for emergency radio contact on either of two emergency frequencies. Range is approximately 25 miles from inside the cockpit and 100 miles outside.

ESCAPE SLIDES

Inflatable escape slides are installed on all entry and galley service doors.

ESCAPE TAPES or ROPES

Located at each overwing exit, and at the pilots' windows.

LIFE PRESERVERS

On overwater configured airplanes, life vests are located under each passenger seat with additional children's vests located in the forward and aft coatroom areas. The seat cushions may also be used as flotation devices. All aircraft carry life vests for flight crew members in their seatback pockets. Cabin attendants have vests at their respective stations.

LIFE RAFTS

Six 25 man life rafts are carried on overwater flights and are located along the ceiling area of the cabin.

FLASHLIGHTS

Carried on overwater flights. 5 are located in the crew coatroom or on the aft cockpit wall, 3 at the forward blueroom storage area and 3 at the aft coatroom area.



OVERWING ESCAPE LINES

When the overwing window is removed the end of the escape line is exposed. In a ditching situation, when the airplane comes to a stop, the visible end should be pulled and fastened to the attach point on top of each inboard engine fairing.

ESCAPE SLIDES

Inflatable escape slides are installed on all entry and galley service doors.

MISCELLANEOUS

EMERGENCY SIGNALLING EQUIPMENT

Megaphone: Battery operated megaphones are located in the left overhead rack in the cabin; one forward and one aft.

VHF Transceiver: A VHF Transceiver, mounted on the left cockpit wall, can be used for emergency radio contact on one of two frequencies. Range is approximately 25 miles from within the cockpit; 100 miles outside.

FIRST AID KITS

Located in the aft right overhead rack, and one in each life raft.

CRASH AXE

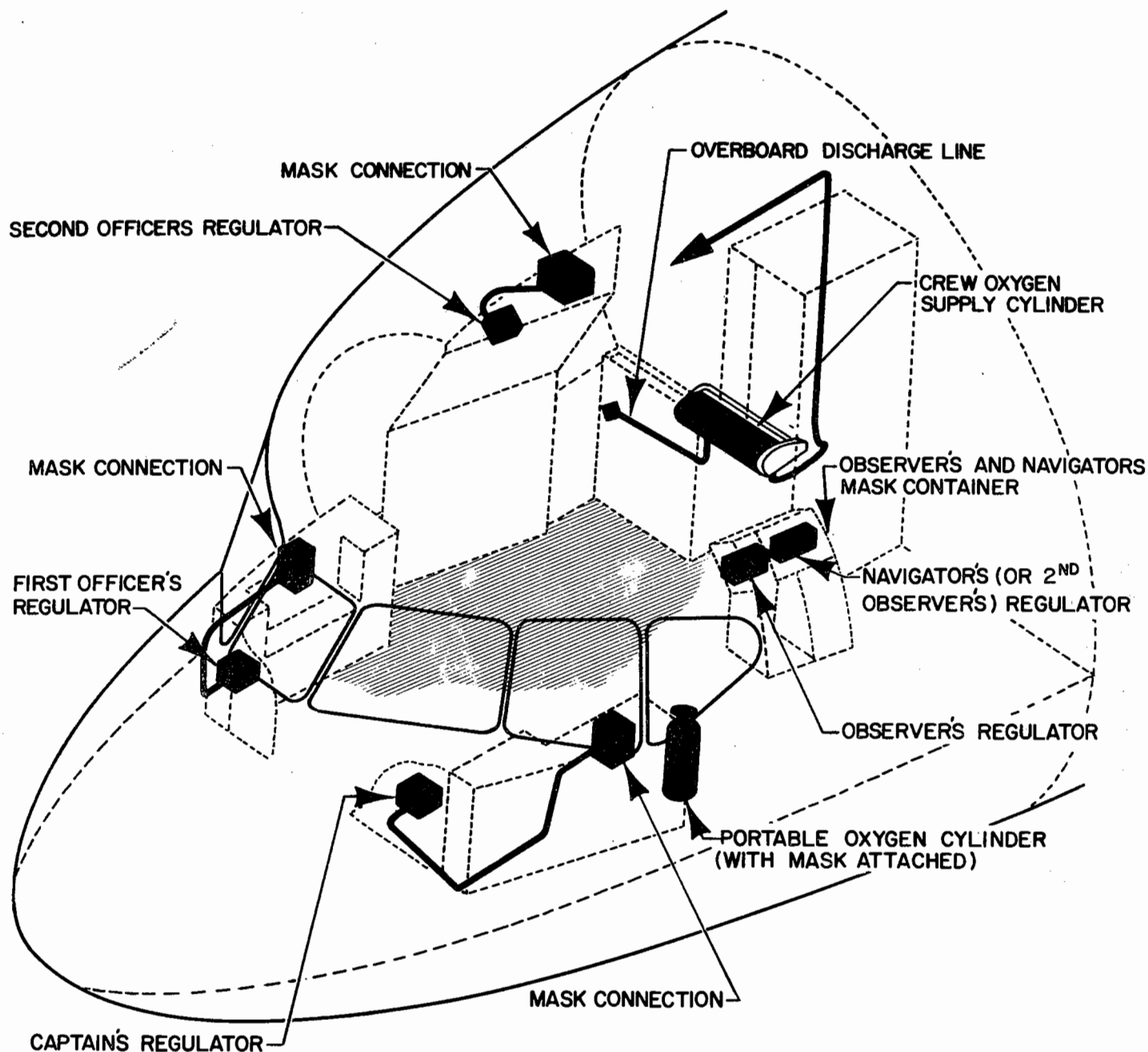
Mounted on the crew coatroom wall.

SMOKE GOGGLES

Three pairs are in a container on the left cockpit wall.

FLASHLIGHTS

Carried on overwater flights. 5 are located in the crew coatroom or on the aft cockpit wall, 3 at the forward blue-room storage area and 3 at the aft coatroom area.



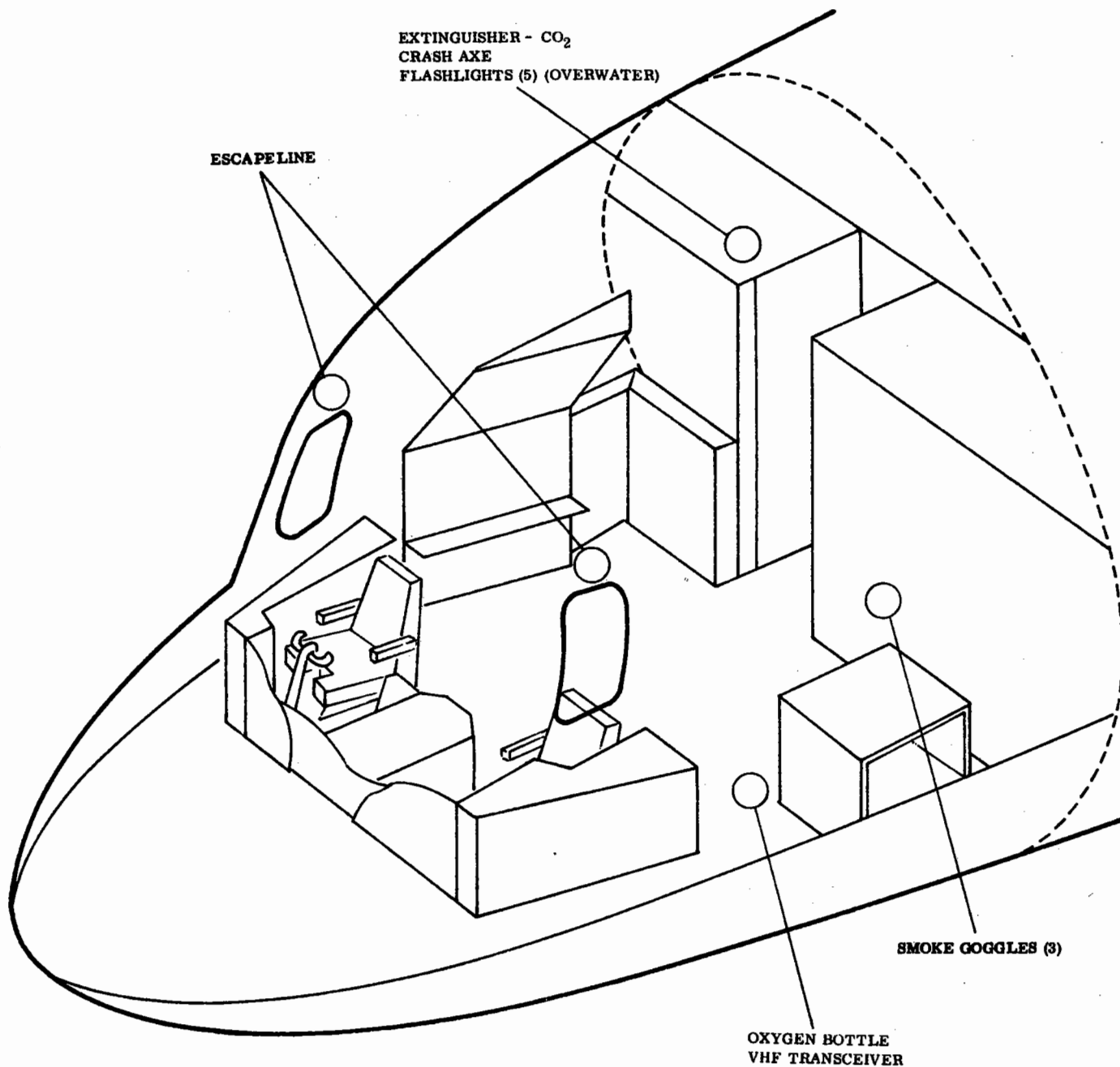
NOTE: PASSENGER CONFIGURATION SHOWN. ON DC-8F COCKPIT PORTABLE O₂ BOTTLE WITH MASK ATTACHED LOCATED AFT OF SECOND OFFICER'S POSITION, *2 PORTABLE O₂ BOTTLE WITH MASK ATTACHED ON LAVATORY WALL. MAIN O₂ SUPPLY BOTTLE AND REGULATOR BEHIND PANEL IN LAVATORY.

CREW OXYGEN SYSTEM

FIG. I

EMERGENCY EQUIPMENT LOCATIONS

FIGURE 4



NOTE

1. Life vests in back of each crew seat



CHAPTER 5

FIRE PROTECTION

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FIRE PROTECTION

The Fire Protection system is divided into two parts, detection and fire extinguishing. Fixed fire extinguishing systems are provided only for the engine nacelles. Portable fire extinguishers are provided for localized cabin or cockpit fires.

FIRE DETECTION

ELECTRICAL POWER

The fire detector control boxes, Fire Shut-off Lever Warning lights, and Engine Fire Warning Test switches require power from the corresponding engine AC Bus. When the AC Bus is unpowered, the fire detection system for that engine is inoperative. The fire warning bell, the Master Fire Warning light and reset switch, and the Second Officer's Fire Warning light require DC power.

MASTER FIRE WARNING LIGHT (Red)

The MASTER FIRE warning light on the glareshield illuminates when an engine fire condition exists, or when any fire warning test switch is activated. Pressing the light cover will extinguish the Master and Second Officer's Warning Lights, silence the bell, and reset the warning system.

SECOND OFFICER'S FIRE WARNING LIGHT (Red)

A repeater of the MASTER FIRE warning light is on the Second Officer's panel and is labelled FIRE.

FIRE SHUTOFF LEVER WARNING LIGHTS (Red)

Each of the four engine Fire Shutoff Levers contain two warning lights. They illuminate when an engine fire condition exists, or when any Fire Warning Test switch is activated.

The lights go out when the engine fire condition no longer exists, or during TEST when the FIRE WARN TEST switch is released.

AURAL WARNING

A bell is actuated by a fire or by the test switch and is silenced and reset by pressing the MASTER FIRE WARNING light or releasing test switch.

ENG COMPT FIRE WARNING TEST SWITCHES

Four test switches on the Second Officer's panel are spring loaded off. The test position (switch up) actuates the fire bell, illuminates the corresponding Fire Shut-off Lever warning lights, the MASTER FIRE WARNING light, and the Second Officer's FIRE warning light.

FIRE EXTINGUISHING

FIRE SHUTOFF LEVERS

The levers are located on the overhead panel. Pulling a lever fully down electrically shuts down the generator, shuts off pneumatics, fuel, and on inboard engines hydraulic fluid to the pump. It also opens the discharge agent cover and positions an agent directional valve to direct the extinguishing agent to that engine. On JT4 airplanes only, the lever also shuts off generator cooling air and accessory section ventilation.



EXTINGUISHING AGENT

Four freon agent bottles, two in each wing, provide fire protection to the two engine nacelles on their corresponding side only.

COCKPIT CONTROL

Cockpit control is limited to releasing the agent by pulling the Discharge Handles on the overhead panel.

AGENT DISCHARGE HANDLE

Pulling the handle corresponding to the engine selected by the Fire Shutoff Lever discharges the agent from one bottle.

AGENT LOW PRESSURE LIGHTS (Amber)

Located next to each Discharge Handle, illuminate to indicate low pressure in the corresponding agent bottle.



CHAPTER 6

ICE AND RAIN

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ICE AND RAIN

The DC-8 is equipped with anti-ice protection for the engines, air conditioning scoops, pitot tubes, stall warning sensor, PT2 probes, and cockpit windshields and windows. De-ice protection is provided for the wings, slots and horizontal stabilizers. The airplane is also equipped with a pneumatic rain removal system for the left and right windshields ONLY.

ENGINE ANTI-ICE

The nacelle leading edge is anti-iced by hot air bled from the pneumatic system, supplied through a control valve, and exhausted overboard. The inlet guide vanes and bullet nose are anti-iced by hot air bled from the engine, supplied through a control valve on each side of the engine, and exhausted into the engine inlet. Either of these engine bleed valves alone can supply the total requirements of the inlet guide vanes and bullet nose.

ENGINES ANTI-ICE SWITCHES

An INBD ANTI-ICE switch controls the three anti-icing valves on engine 2 & 3, the OUTBD ANTI-ICE switch controls the valves on engines 1 & 4.

ENGINE ANTI-ICE VALVE INDICATING LIGHTS (Amber)

One light for each engine, will illuminate whenever any of the three anti-icing valves on the associated engine are not in the position selected by the control switch. They will also illuminate to indicate a leaking, or open, nacelle leading edge anti-icing valve when the control switch is OFF. They illuminate to indicate low pneumatic air pressure to this valve when the switch is positioned to ANTI-ICE.

SCOOPS ANTI-ICE

The air conditioning scoops are anti-iced by hot air bled from the pneumatic system, supplied through control valves, and exhausted overboard. The air conditioning scoops control valves are automatically closed when the landing gear is DOWN to provide additional air for wing slot de-icing.

SCOOPS ANTI-ICE SWITCH

Controls the two air conditioning scoop valves and the outer wing pneumatic shut-off valves and in ON position opens the crossfeed valve.

ELECTRICAL ANTI-ICE

Heaters for the pitot tubes, stall warning sensor, PT2 probes, cockpit windshields and windows are controlled by switches on the overhead panel.

ANTI-ICE HEATERS AND METER SELECT-OR SWITCH

When positioned to any selection except OFF, the pitot heaters and stall warning sensor heater will be energized. Selector positions are provided to check current drawn by each unit.



WINDSHIELD HEAT SWITCH

A 3 position switch (OFF, WARM UP, FULL POWER) energizes the heaters for the windshields and cockpit windows. WARM UP is used during normal ground and flight operations to provide anti-icing, defogging, and birdproofing for the LH, Center, and RH windshields, two eyebrow and sliding clearview windows. FULL POWER is used to increase the anti-ice capability of the three windshield sections, when required.

PT2 PROBE HEATER SWITCH

A single switch that energizes a heater in each engine's PT2 probe to prevent ice accumulation and possible erroneous EPR gauge readings.

PITOT HEAT AMMETER

Indicates current drawn by the heater selected on the ANTI-ICE HEATERS & METER SEL switch.

AIRFOIL DEICING

The wing, slots and horizontal stabilizer areas are deiced by hot air bled from the pneumatic system, supplied through control valves, and exhausted overboard. Additional slot deicing occurs with the landing gear down.

NOTE

A ground control relay prevents operation of the deicing valves when the airplane is on the ground.

AIRFOIL DEICE TIMERS

Are activated by positioning the AIRFOIL DE-ICE switch to a timer position (TIMER 1 or TIMER 2) and setting the Timer Knob to the existing RAM Air Temperature (RAT). The Timer Knob selection determines the speed of the deicing cycle, with the cycle slowing down as temperature settings decrease. A TEST position provides a rapid cycle for checking the system. The timers have twelve (12) positions with a window provided to show timer position and the valves that are operating at that time. A cycle selector is provided with NORMAL CYCLE and LONG CYCLE positions. LONG CYCLE provides a deicing cycle approximately twice as long as NORMAL CYCLE and is used to melt the "runback" ice after the airplane is clear of icing conditions.

AIRFOIL DEICE SWITCH

A three position switch (TIMER 1, TIMER 2, and OFF) to select and start timer operation.

TAIL DUCT VALVE TEST SWITCH

Installed on some airplanes. A momentary contact switch, springloaded to OFF. The TEST position arms two horizontal stabilizer deicing valves and the TAIL DUCT VALVE. When the timer opens an additional valve, excess flow results and the indicating light illuminates.

TAIL DUCT VALVE SWITCH

A Red guarded (NORM) switch is provided to close the Tail Duct Valve and isolate the tail deicing system if tail duct leakage is suspected.



TAIL DEICING SYSTEM INDICATING
LIGHT (Amber)

The TAIL DEICE SYS light illuminates to indicate probable tail duct leakage. It also illuminates momentarily when the Deicing Timer is activated.

RAIN REMOVAL

High pressure hot air, from the pneumatic system manifold, is directed over the left and right windshields to provide rain removal. The air is routed through shut-off valves to nozzles on the fuselage nose ahead of the windshields.

RAIN REMOVAL LEVERS

One for each pilot position. The Levers control the shutoff valves which direct the pneumatic air across the respective windshield.



CHAPTER 7

HYDRAULICS AND FLIGHT CONTROLS

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HYDRAULICS AND FLIGHT CONTROLS

The DC-8 has one main hydraulic system to operate the following components:

- Ailerons
- Rudder
- Horizontal Stabilizer
- Landing Gear and Main Gear Doors
- Brakes
- Nose Wheel Steering
- Flaps
- Wing Slots
- Main Gear Bogie Unlock and Leveling Cylinders
- Alternate Power for Spoilers
- Ejectors

Two pumps driven by the inboard engines furnish 3000 pounds of hydraulic pressure. An electrical auxiliary pump can also be used to supply pressure. Fluid contained in a main reservoir normally supplies the pumps. An emergency reservoir contains fluid only available to the auxiliary pump. A system selector lever at the Second Officer's panel is used to determine which source of fluid is used and to what hydraulic components the pressure will be directed. Pressure relief valves prevent overpressure. In the event of reduced pressure a priority valve directs available pressure to the flight controls. Hydraulic system gauges, lights and controls are on the Second Officer's panel with one auxiliary pump switch and operating light on the overhead panel.

Two independent hydraulic pressure sources are provided for:

Normal Spoiler Operation	(See Flight Controls)
Standby Rudder Operation	

HYDRAULIC SYSTEM

RESERVOIR

Located in the left wheel well, the reservoir is the only source of fluid for the engine driven pumps and the normal source for the auxiliary pump. The reservoir has a sight gauge attached, and a quantity gauge, temperature gauge and overtemp light on the Second Officer's panel. A standpipe prevents use of all fluid by the main pumps; however,

all fluid is available to the auxiliary pump. The reservoir is automatically pressurized by a regulator-aspirator unit which forces cabin air into the top portion of the reservoir.

EMERGENCY REPLENISHMENT TANK

A 5 gallon inflight replenishment tank in the cockpit may be used in an emergency to supply fluid to the main reservoir by pumping it through a cockpit floor receptacle.



EMERGENCY RESERVOIR

The Emergency Reservoir supplies fluid to only the Auxiliary Pump, and only when the HYD SYS SELECTOR lever is in the FULL UP (EMERGENCY) position labelled: GENERAL SYSTEM/MAIN GR DN LOCK & FLAPS. An EMERG HYD LEVEL light (Amber) on the Second Officer's panel illuminates when the quantity is low.

FIRE SHUTOFF VALVES

The Valves shut off fluid to the engine-driven pumps at the pylon when actuated by their associated Engine Fire Shutoff Lever.

PUMPS

The main pumps, one on each inboard engine, are engine-driven, self-regulating, variable displacement pumps controlled individually by the ENG HYD PUMPS switches. When these switches are in BYPASS the pumps are feathered and their outputs are reduced to zero. With an electrical power failure, the pumps will remain in (or revert to) a "pressure on" condition.

An auxiliary pump, electrically driven, can be used to pressurize the main system. Auxiliary pump switches (AUX HYD PUMP) on the Second Officer's and Overhead Panels are momentary contact START and STOP switches. In an emergency they may be held in START to override a protective thermostatic overheat switch in the pump. An AUX PUMP ON light (Blue), next to the switch on the overhead panel, illuminates when the pump is energized.

SYSTEM SELECTOR LEVER

The HYD SYS SELECTOR lever on the Second Officer's pedestal controls the distribution of hydraulic pressure and fluid from the engine-driven and auxiliary pumps.

The lever has three detent positions. The center NORMAL position admits main reservoir fluid to the auxiliary pump and/or engine-driven pumps to pressurize the main hydraulic system.

In the FULL DOWN (ABNORMAL) position the auxiliary pump output is directed to general system and the output of the engine-driven pumps is bypassed to return.

In the FULL UP (EMERGENCY) position the engine-driven pumps output is directed to general system, the auxiliary pump output is directed to only the main gear downlocks and flaps, and the source of fluid for the auxiliary pump is changed to the emergency reservoir.

NOTE

In FULL UP (EMERGENCY) position no pressure is directed to the slots or to the main system pressure transmitter when using the auxiliary pump.

HYDRAULIC POWER MANIFOLDS

These manifolds are hydraulic distribution points in the left and right wheel wells.

PRIORITY VALVE

Whenever main system pressure drops to approximately one-half of normal, the priority valve closes in an attempt to retain pressure for the flight controls. When the valve is closed, pressure is not available to the rest of the hydraulic system. The valve will re-open as pressure builds up, again pressurizing the entire hydraulic system.

ACCUMULATORS

Various accumulators throughout the system are used for either surge damping or storage. The only true storage-type accumulators are for reserve nosewheel steering pressure (2 accumulators) and reserve brake pressure (3 accumulators).

SYSTEM PRESSURE TRANSMITTER

The Transmitter, located downstream of the Priority Valve, provides system pressure readings to the HYD SYS PRESS Gauge.

HYDRAULIC TEMPERATURE GAUGE AND HYDRAULIC OIL TEMPERATURE Light (Amber)

The Gauge shows fluid temperature in the main reservoir. The light illuminates when the reservoir fluid overheats.



FLIGHT CONTROLS

The primary flight controls are the ailerons, elevators, and rudder. Trailing edge flaps and leading edge slots give the wing additional lift at low speeds. Spoilers on each wing assist the ailerons, under certain conditions, and reduce lift after landing for more effective braking. A movable horizontal stabilizer trims the airplane in the pitch axis.

The ailerons, rudder, horizontal stabilizer, flaps and slots are actuated by hydraulic pressure from either the main or auxiliary pumps. The spoilers are actuated by their own independent hydraulic system. The elevators are positioned aerodynamically by tabs.

In the event hydraulic pressure is not available from the main or auxiliary pumps, the ailerons are operated by mechanically controlled tabs; the rudder by its own standby hydraulic system or a mechanically operated tab; and the horizontal stabilizer by an electrical system.

An emergency reservoir provides reserve fluid for flap operation using the auxiliary pump. No backup is provided for the slots.

The spoilers, which are powered by their own hydraulic system may, if necessary, be powered by main system pressure for ground operation only.

A gust lock system mechanically locks the elevators, hydraulically locks the rudder, and blocks the throttles out of the takeoff position.

The aileron, rudder, and elevator systems are each provided with a spring mechanism to provide artificial load feel to the pilots.

AILERONS

Each aileron is divided into an inboard and outboard section which are connected by a torsion linkage. The two sections operate as one until increasing airspeed produces aerodynamic loads which cause the outboard sections to lag. Hydraulic dampers provide gust protection in lieu of a control lock, and act as flutter dampers inflight.

The control wheels are connected to the inboard section of the ailerons through a spring-cam mechanism which permits aileron movement by either wheel. If one aileron or its control system jams, the other aileron may be operated by either control wheel by exerting enough force to override the spring-cam mechanism.

With adequate hydraulic pressure and the Aileron Hydraulic Power Shutoff lever ON, the ailerons are positioned by moving the control wheel in the cockpit, which directs hydraulic pressure to the ailerons. In this case, hydraulic pressure locks the control tabs in a faired position.

Without hydraulic pressure to the ailerons, the control wheels position the control tabs which move the aileron surfaces. An AILERON CONTROL MANUAL light (Amber) on the Second Officer's panel illuminates whenever the ailerons are not powered hydraulically.

Trimming is accomplished by displacing the aileron hydraulically, or with no hydraulics available by the control tab. A trim tab on each inboard aileron is positioned while trimming in either configuration.

Aileron Power Shutoff Lever: The HYD PWR SHUTOFF lever marked AIL on the Second Officer's pedestal, will admit hydraulic pressure to the aileron power units. If adequate pressure is available, the ailerons may be operated hydraulically. If pressure is not adequate, the ailerons will be operated manually, regardless of the position of the HYD PWR SHUTOFF lever. When the lever is placed in the OFF detent, no hydraulic pressure will be available to the ailerons.

RUDDER

The rudder is controlled by either the Captain's or First Officer's pedals and is normally powered hydraulically by pressure from the main system. A complete standby hydraulic system for the rudder is provided in case of main hydraulic system failure. The rudder may also be operated manually through a control tab. During hydraulic power operation, the rudder responds to pedal movement. Without hydraulic pressure, the control tab is unlocked and responds to pedal movement. A RUDDER CONTROL MANUAL light (Amber) illuminates on the Second Officer's panel when the rudder is not powered hydraulically.

To protect the tail structure at high speed, rudder pressure and throw are reduced to approximately 1/3 when the wing flaps are up. When the flaps are lowered (10° or more), full throw and pressure are available, whether the source is the main hydraulic system or the standby rudder system. Trimming is accomplished by displacing the rudder hydraulically, or, with no hydraulic power available by the control tab.

The gust lock system locks the rudder power mechanism in the power condition. Trapped hydraulic fluid in the actuating cylinder then provides gust protection. The RUDDER CONTROL MANUAL light will not illuminate with the gust lock engaged.



Rudder Power Shutoff Lever: The HYD PWR SHUTOFF lever marked RUD is the same as the Aileron Power Shutoff Lever. In ON, with adequate pressure, the rudder is powered hydraulically; in OFF, or with inadequate pressure, the rudder is operated manually.

Rudder Pressure Reducing Valve: Controlled by the wing flap bus system. It reduces available pressure to the rudder when the flaps are up and allows full pressure to the rudder when the flaps are lowered.

Rudder Throw Limiter: Controlled by the wing flap bus system. It reduces available rudder throw when the flaps are fully retracted, and allows full rudder throw when the flaps are extended.

STANDBY RUDDER SYSTEM

The standby rudder power system is a self-contained hydraulic system containing an electric pump, a reservoir and an accumulator, and may be used to provide pressure for the rudder if main hydraulic system pressure is not available.

Standby Rudder Power Switch: Controls operation of the Standby Rudder Pump. It is a momentary contact, two position (STOP, START) switch.

Standby Rudder Power Light (Blue): Illuminates when electrical power is being supplied to the Standby Rudder Pump. There is no pressure gauge provided for the pump.

ELEVATORS

The elevators, which are hinged to the horizontal stabilizer aft spar, are operated by aerodynamic control tabs, and are interconnected to operate in unison. Initial movement of either cockpit control column displaces a control tab on each elevator giving aerodynamic boost to move the surfaces. After the control tabs reach full travel, further movement of the control column moves the elevator directly. Also, a gear tab on each elevator assists the control tab in displacing the elevator. No trim is provided in the elevator system. Viscous dampers are installed to prevent flutter.

STABILIZER

The horizontal stabilizer, hinged at its aft spar, is adjustable to provide longitudinal (pitch) trim.

Jackscrews at the front spar are powered by either a hydraulic motor or an electric motor to drive the stabilizer up or down. Hydraulic trim is the primary method of positioning the stabilizer but the electric trim, much slower than the hydraulic trim, may be used at any time if desired. During autopilot operation, the stabilizer is positioned by the electric trim system. The hydraulic trim will override the electric trim at any time.

Longitudinal Trim Controls: Each LONG TRIM handle on the control pedestal positions a valve for hydraulic operation of the stabilizer. These handles may be positioned manually or by dual switches on each control wheel. Either method will position the hydraulic valves for stabilizer movement. The LONG TRIM handles are spring-loaded to neutral when not in use.

Shutoff and Control Valves: In the fuselage tail section, are positioned by the LONG TRIM handles or the Wheel trim switches. Both handles or switches must be operated simultaneously and in the same direction to obtain stabilizer movement. The dual control system is provided to prevent unwanted stabilizer movement from a single component failure.

Electric Longitudinal Trim: Two switches on the control pedestal labelled ALT LONG TRIM (Alternate Longitudinal Trim) control the electric motor which may be used as an alternate means of trimming the stabilizer. The motor operates the same jackscrews as the hydraulic motor to position the stabilizer, but at a much slower rate.

Travel Limit Stops: Will shut off either the hydraulic or electric trim motor when maximum nose up or nose down trim is reached. Hydraulic trim limits are slightly greater than electric.

Trim Indicator: On the control pedestal, adjacent to the LONG TRIM handles, indicates the stabilizer position from $\frac{1}{2}$ degree nose down to 10 degrees nose up.

PITCH TRIM COMPENSATOR

A Pitch Trim Compensator (PTC) system counteracts the nose down (tuck) tendency when the center of lift on the wing shifts aft at high speeds. An electric actuator, controlled by a speed computer, applies back pressure to the First Officer's control column as the airplane enters the tuck speed range at approximately MACH .70. The back pressure increases in proportion to the speed increase. This system has no direct affect on the stabilizer.

Control Switch: The PITCH TRIM COMP switch is a three position (TEST, NOR, OVERRIDE) switch located on the left side of the control pedestal. The TEST feature allows preflight test of the unit.

PTC Warning Light: A PTC EXTEND Light (Amber) under the glareshield, illuminates whenever the PTC approaches full extension.

PTC Extended Indicator Rod: On the First Officer's control column, extends to indicate the amount of pressure being applied by the PTC actuator. It is fully extended when the airplane reaches limiting MACH, and is fully retracted into a tube when no pressure is being applied by the PTC.

STICK SHAKER (Stall Warning)

The stick shaker provides a warning of an impending stall. When the wing flaps are down and slots are open, a stall warning sensor on the right wing sends a signal to operate an actuator on the Captain's control column when the airplane approaches a stall.

The system is not designed to provide stall warning with the flaps up and slots closed. In this case, aerodynamic buffet will provide stall warning.

A STALL WARN switch on the overhead panel tests the unit.

WING FLAPS

The wing flaps on each wing consist of an inboard and an outboard section which are linked together to operate in unison. The left and right wing flaps are bussed together by cables to assure symmetrical operation. Exhaust doors in each outboard



flap permit passage of exhaust gases from the inboard engines when the flaps are extended.

Excessive airloads force extended flaps up to a structurally safe degree of extension. When the excessive airloads are relieved, the flaps return to the selected position. Lockout cylinders in the flap down lines protect flap position should leakage occur between any one lockout and its flap actuators. This would also prevent complete loss of main system hydraulic fluid should a leak occur in any actuator line.

If takeoff is started with the wing flaps not in a safe position, an intermittent warning horn will sound.

Flap Control Handle: On the control pedestal has several detents for flap positioning. This handle mechanically directs main system hydraulic pressure to operate the flaps. Should a hydraulic malfunction occur, fluid is also available for the flaps from the emergency reservoir, with pressure provided by the auxiliary pump.

Flap Position Indicator: A double-needle instrument on the First Officer's instrument panel which shows the position of the left and right wing flap systems. The left flap pointer covers the right flap pointer as long as the flap systems are in tolerance.

SLOTS

Slots on the wing leading edge, inboard of each pylon, increase lift at low speeds. Slot position is hydraulically controlled by follow-up cables in the wing flap system. When the wing flaps are lowered, the slots are opened; when the flaps are retracted fully, the slots are closed. A WING SLOTS

light (Amber) on the First Officer's instrument panel illuminates whenever the slots are not in the proper position relative to flap position.

Once opened, the slots will not close should failure of the main hydraulic system occur. The slots will remain closed if the flaps are extended by using Emergency Reservoir fluid.

SPOILERS

There are 5 spoiler sections on each wing, just forward of the wing flaps. The two inboard spoilers on each wing are used on the ground only, the three outboard spoilers operate on the ground or in flight when spoiler pressure is available and the landing gear is down.

Pressure for spoiler operation is provided by an independent hydraulic system in the right wheel well. Unless an external electrical source is powering the airplane, the spoiler pump will operate and provide pressure whenever the landing gear is down. The spoiler pump is limited to 20 minutes of continuous operation. Closing the External Power Relay, or retracting the landing gear will stop the pump. A control switch (FLT SPOILER) on the Second Officer's panel may also be used to turn OFF the pump.

In flight, when the landing gear is down and pressure is available, the flight spoilers extend partially when the aileron control wheel is rotated to approximately one-half (45°) travel. Further extension is proportional to additional control wheel movement.



Spoiler operation on the ground is controlled by the SPOILER Lever on the control pedestal.

With nose strut compression on landing, if the lever is armed, all 10 spoiler sections extend fully for use as ground spoiler. An intermittent warning horn will sound if takeoff is attempted when the ground spoilers are not fully retracted.

Flight Spoiler Switch: The FLT SPOILER switch is a three position (OVERRIDE, NOR, OFF) switch on the Second Officer's panel which controls operation of the spoiler hydraulic pump. In NOR the pump operates as dictated by landing gear or external power relay position. The OVERRIDE position may be used to operate the pump at anytime if the switch is held in this position.

Spoiler Control Lever: The SPOILER lever on the control pedestal is used to control spoiler operation on the ground. It may be "armed" for automatic spoiler extension when nose strut is compressed or it may be operated manually. Positions are:

RETRACT: Spring loaded to this position, retracts the ground spoilers. Flight spoilers remain available if spoiler system is pressurized.

ARM: Used inflight to arm the spoiler system for automatic extension on landing. When pulled up into a detent, a pin on the lever engages a hook inside the control pedestal. Flight spoilers remain available at this time.

EXTEND: Extends all spoiler, if previously armed, at mechanical ground shift. The hook's rearward travel causes the SPOILER lever to also

move aft, which provides spoilers. Flight spoiler operation is now not available.

For manual extension (as during an aborted takeoff), the SPOILER lever should be pulled straight back, which extends all spoilers. If the lever is then pulled up into the hook, it will remain aft.

Should go-around become necessary after the ground spoilers have extended, striking down on the SPOILER Lever will disengage it from the hook. The lever will move full forward (spring loaded), and all spoilers will retract.

Spoiler Hydraulic System: An independent system in the right wheel well, consisting of a hydraulic pump, reservoir and an accumulator. A Spoiler Hydraulic Pressure Gauge (SPOILER HYD PRESS) is on the Second Officer's panel.

Spoiler Power Selector Valve: If the spoiler hydraulic system is inoperative, this valve may be used to admit main hydraulic system pressure into the spoiler system on the ground ONLY.

Ground Spoiler Power Switch: This red guarded two position (ALT, NORMAL) switch on the Second Officer's panel when placed in ALT, arms the Spoiler Power Selector Valve. Then when the nose gear strut compresses, electrical ground shift opens the valve and main system pressure provides ground spoiler extension. Main system pressure will now reflect on the SPOILER HYD PRESS Gauge.



Spoiler Extend Light (Blue): On the Captain's instrument panel, illuminates when any inboard spoiler is not fully retracted.

LANDING GEAR

Retraction and extension of the nose gear, main gear and main gear doors is by hydraulic power. Nose gear doors are mechanically operated by nose gear retraction and extension. In the event of hydraulic failure the landing gear may be extended by "free fall". The nose wheel is steered by a steering wheel or by rudder pedals.

Each main gear is equipped with four wheels mounted on a beam called a "bogie beam". The front and rear portions are normally locked in tandem. The rear half of each bogie is hinged allowing the rear wheels on the inside of a turn to unlock and pivot, thereby permitting small radius turns without tire scrubbing. Hydraulic trim cylinders are installed to position the bogie beams perpendicular to the shock struts during airborne operations and to dampen oscillations during ground operations.

GROUND SHIFT MECHANISM

The ground shift mechanism is located on the nose gear strut. At liftoff and landing the ground shift mechanically and electrically activates or deactivates functions of certain equipment.

Mechanical Functions Of Ground Shift:

Locks the Landing Gear lever in the DOWN position when the airplane is on the ground.

Automatically extends the spoilers at touchdown (if armed), and deactivates the inflight spoiler-aileron interconnect.

Activates the rudder pedal nose wheel steering system and makes nosewheel accumulator pressure available for nose-wheel steering.

Allows full reverse thrust on all engines.

Electrical Functions of Ground Shift:

Through the Left Ground Control Relay Circuit Breaker the following are affected:

- Automatic Depressurization
- Takeoff Warning System
- Left Recirculation Fan
- Left Freon System
- Airfoil Deicing
- Automatic Low Pressure Bleed For Ground Operation
- Flight Recorder (Airplanes 41 and Subsequent)
- Pneumatic X-feed Valve OPEN On The Ground
- Jet Pump Operation On The Ground

Through the Right Ground Control Relay Circuit Breaker, the following are affected:

- Automatic Depressurization
- Stall Warning
- Right Recirculation Fan
- Right Freon System
- Spoiler Power Selector Valve
- Automatic Low Pressure Bleed For Ground Operation
- Flight Recorder (Airplanes 01-39)
- Generator Overload Indicating Light
- Jet Pump Operation On The Ground



LANDING GEAR LEVER

The LANDING GEAR lever assembly consists of a long and a short lever fastened together with a knurled screw. The knurled screw may be removed to operate either lever independently in the event of a mechanical or hydraulic jam.

Operation: With the levers fastened together and hydraulic pressure available, the short lever positions hydraulic valves for normal gear operation, and the long lever actuates a Lever Limit Switch which controls certain light indications, anti-skid and deicing functions. With the levers fastened together and no hydraulic pressure available, the short lever moves but has no function, and the long lever mechanically releases the gear and door uplatches and allows the gear to "free fall".

Detents: There are detents at each of the three gear lever positions, DOWN, UP-LATCH CHECK, and UP. The handle must be pulled out of a detent to be moved. With the LANDING GEAR lever in a detent, its function is:

UP: This position directs hydraulic pressure to:

Unlock the downlocks.

Retract and hold up the landing gear and doors.

Stop main gear wheel rotation.

NOTE

Nosewheel rotation is stopped during retraction by friction pads in the ceiling of the nosewheel well.

UPLATCH CHECK: This position bypasses hydraulic pressure to the UP line of the gear and main gear doors and they drop onto their uplatches.

DOWN: This position directs hydraulic pressure to:

Unlock the uplatches.

Extend the gear.

Lock the main gear down locks. (Nose gear locks mechanically).

INDICATING LIGHTS

Landing Gear Lights (Green): On the center instrument panel, one for each individual gear illuminate when the related gear is down and locked and the LANDING GEAR Lever is in the down detent.

Gear Unsafe Light (Red): On the center instrument panel, one light for all three gear and main gear doors illuminates for any of the following conditions:

(Aircraft On the Ground)

LANDING GEAR lever out of the DOWN detent.

(Inflight Conditions)

Landing gear not down and locked and any throttle retarded close to idle thrust.

Landing gear and/or main gear doors not fully up following retraction.

Landing gear in transit.

Any uplatch failure during UPLATCH CHECK.



FLIGHT CONTROLS

LANDING GEAR lever in DOWN detent and gear not down and locked.

NOTE

Does NOT indicate when the doors fail to close following gear extension.

LANDING GEAR HANDLE LATCH

The HANDLE LATCH FLT RELEASE is a mechanical anti-retract latch which holds the LANDING GEAR lever in the DOWN position to prevent gear retraction on the ground. When the nose strut extends on takeoff, the anti-retraction latch is mechanically released by the nose gear ground shift mechanism. The release button is used to override the anti-retract latch if necessary.

LANDING GEAR WARNING HORN AND CUTOFF BUTTON

The horn sounds when the gear is not down and locked, the Flap Handle is out of the UP position and one or more throttles are close to the idle stop position. The horn may be silenced with the LDG GEAR WARN HORN CUTOFF button except when flaps are at 35° or more and the landing gear is not down and locked. The button is above the gear handle on the First Officer's glareshield panel.

GEAR VIEW PORT

Nose Gear: A view port in the cockpit floor permits inspection of the Nose Gear Down Lock. When the gear is down and locked three red stripes are aligned on the nose gear overcenter linkage. The Down Lock is illuminated by a spotlight in the nosewheel

well which is controlled by a switch beneath the BATTERY and DC TIE BUS fuses.

Main Gear: The main gear visual downlock indications are mechanically actuated indicators that project slightly above the wings when the gear is down and locked.

NOSE WHEEL STEERING

Hydraulic system pressure provides steering power. Nose wheel steering is controlled by a steering wheel (spring loaded to the center position) on the Captain's side panel. Limited nose wheel steering is also available through either set of rudder pedals. The steering wheel will override pedal steering. A small accumulator holds limited pressure on the steering actuators to prevent nose wheel shimmy. Rotation of the steering wheel beyond 45 degrees actuates the bogie unlock allowing the rear wheels on the inside of the turn to pivot. The steering wheel must be centered and the aircraft allowed to roll forward to re-lock the bogie in the trail position. Yellow tapes on the steering wheel and the cockpit side wall will be aligned when the nose wheel is centered. The nose wheel centers automatically when the nose gear strut is extended. In the event of a hydraulic failure, two accumulators provide a limited reserve supply of pressure for steering.

Towing: The nose wheel scissors must be disconnected for towing and if necessary the bogie must be unlocked by use of the steering wheel.

WHEEL BRAKES

Each main gear wheel is fitted with a multi-disc hydraulically actuated brake controlled by the brake pedals. Three accumulators hold reserve pressure for the brakes and to hold the brakes for parking. An emergency air brake system is also available in the event hydraulic pressure is lost. Anti-skid systems control applied brake pressure to avoid skidding.

ACCUMULATORS

Three brake accumulators are in the right wheel well; each has a direct reading pressure gauge, and provides reserve pressure for several brake applications and for holding the brakes in the parked position. A hydraulic brake pressure gauge (HYD BRAKE PRESS) is on the Second Officer's panel.

BRAKE LOCKOUT CYLINDERS

The brake lockout cylinders are on each main gear strut. They isolate the forward and aft sets of brakes and prevent main system fluid loss in the event of a hydraulic leak between the cylinder and the wheel brakes. An indicator with an index mark is located on the top of each lockout cylinder and is covered by a rubber or plastic dust cover.

PARKING BRAKE KNOB

The PARK BRAKE knob in the hub of the nosewheel steering wheel, when pulled out while depressing either set of brake pedals will set the parking brake. The parking brake is released by fully depressing and releasing either set of brake pedals.

ANTI-SKID

The anti-skid system is an automatic, electrically controlled means of preventing main gear wheels from skidding during brake application.

Operation: The anti-skid system senses an impending skid and fully releases the brakes until rapid deceleration ceases at which time it reapplies pressure. Simultaneously, the system activates foot thumpers on the rudder pedals to warn the pilot.

Anti-skid Arming Switch and Fail Light (Amber): The ANTI-SKID ARMED switch is under the First Officer's glareshield and the ANTI-SKID FAIL light is on the Captain's instrument panel. The system is ARMED prior to takeoff and disarmed for taxiing. The ANTI-SKID FAIL light illuminates when the:

System is armed and partially or completely inoperative.

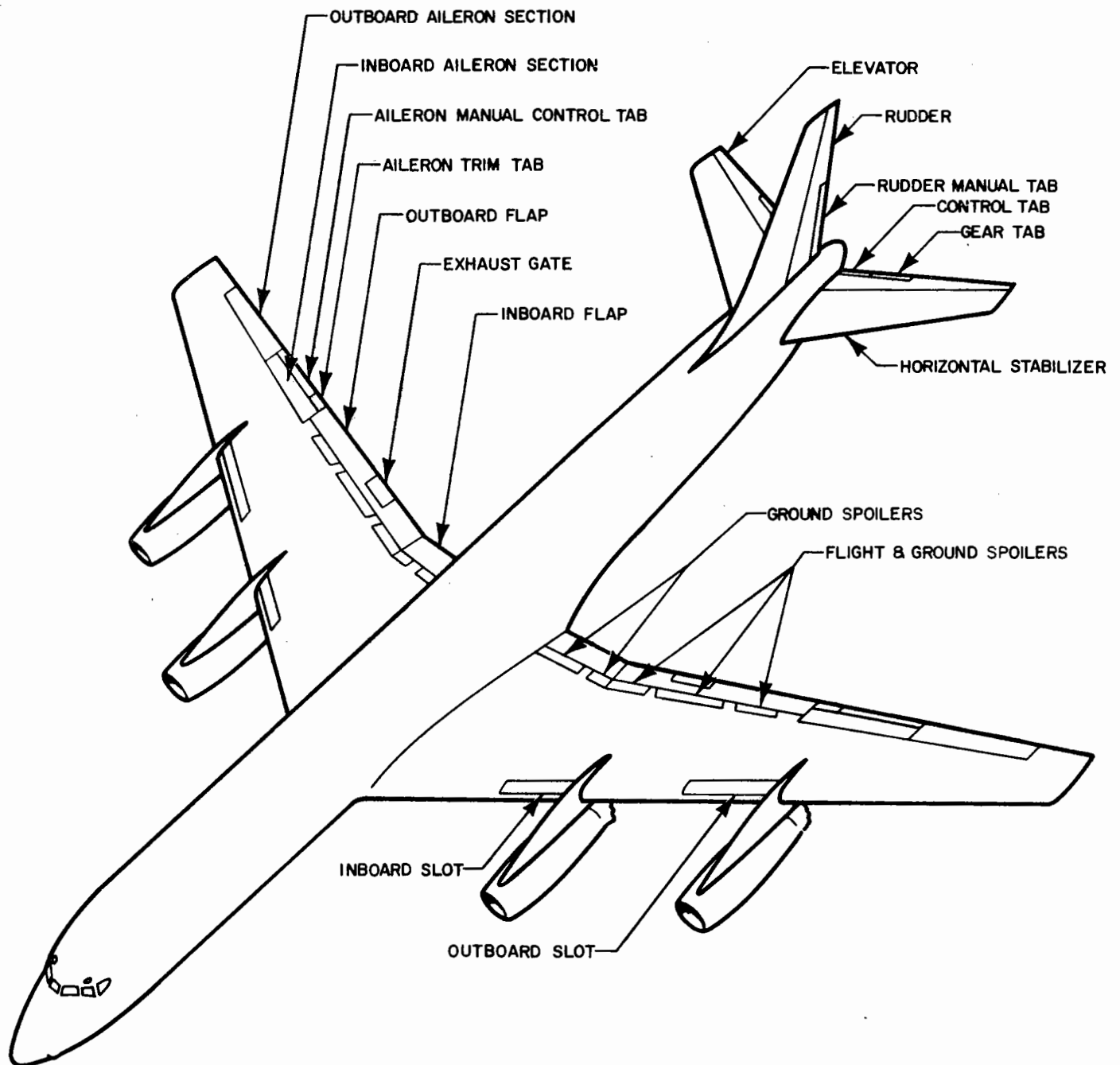
ANTI-SKID ARMED switch is in OFF.

AIR BRAKES

The emergency air brake system consists of an air storage bottle with an attached pressure gauge in the left wing root, a pressure gauge on the Second Officer's panel and a control handle under the Captain's glareshield.



Operation: Rotation of the EMERGENCY AIR BRAKE handle meters air to the brakes in proportion to handle rotation. When the handle is rotated to OFF the air is vented overboard and the brakes released. In the event a skid develops during air brake operation, the Foot Thumpers will operate to warn the pilot, but the anti-skid system will not release the brakes.



FLIGHT CONTROLS
FIG. 2



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TAKEOFF DATA CARD

FLAP	<u>25°</u>	TEMP	<u>45°</u>
CG	<u>26.0%</u>	STAB	<u>2.4°</u>
GW	<u>214.5</u>		
V ₁	<u>111</u>		
V _R	<u>123</u>		
V ₂	<u>135</u>		
EPR	<u>2.55</u>		
DUMP	<u>3 MIN</u>		

Takeoff flap position Verify takeoff flap setting with Captain.

Field reported temperature.

Percent MAC from weight manifest.

Stabilizer setting from Stabilizer Setting Table.

Gross weight from weight manifest.

Takeoff speeds from Takeoff Speeds Table.

Takeoff EPR from Takeoff EPR Table.

Dump time in minutes to structural landing weight computed at rate of 5,000 lbs. per minute.

LANDING DATA CARD

TEMP	<u>57°</u>
LDG. WT.	<u>190.0</u>
M	<u>154-164</u>
A	<u>134-144</u>
R	<u>129</u>
EPR	<u>2.49</u>

Field reported temperature.

Landing gross weight computed from zero fuel weight plus fuel on board.

Maneuvering speed for 15° flaps - Ref + 35 kts.

Maneuvering speed for 25° flaps - Ref + 25 kts.

Approach speed for 35° flaps (non-precision approach) - Ref + 15 kts.

Approach speed for 50° flaps - Ref + 5 kts.

Reference speed for 50° flaps landing from cockpit Checklist card.

Go Around EPR from cockpit EPR card.

CRUISE DATA CARD

T_s⊕	<u>10</u>
M_(TAS)	<u>.80</u> (481)
IAS	<u>298</u>
F.F.	<u>15,079</u> (3770)
EPR	<u>2.11</u> <u>2.25</u> -OTBD -INBD MAX CR
ROUGH IAS	<u>240K</u>
6F-7945-2	<u>215-326</u>

Deviation from standard temperature.
May be verified with the SAT gage and
"TAS, SAT and RAT to T_t" chart on the
cockpit card.

Cruise Mach from the flight plan.

TAS from Cruise Table and corrected
for temperature deviation.

IAS from Cruise Table.

Total fuel flow computed from the
Cruise Table (TAS divided by
NAM/1,000 lbs. fuel).

Average fuel flow per engine.

Cruise EPR from Cruise Table

Maximum Cruise EPR from cockpit
EPR card.

Rough Air Speed from cockpit card.

High and Low speed buffet boundaries
from the "Initial Buffet Speed at
1.5G" Table.

ENGINE PERFORMANCE CALCULATOR

A gas turbine engine performance calculator is installed at the Second Officer's table. The calculator is used to determine engine fuel flow, EGT, and rotor speeds for any combinations of altitude, Ram Air Temperature, EPR, and Mach number. It is intended for use in monitoring engine performance and does not indicate limitations or required EPR for any particular weight/speed.

The following conditions are listed to illustrate the use of the calculator.

1. Ram Air Temperature = -30°C .
2. EPR = 1.75
3. Mach No. = .82

Operation: Determining engine RPM and EGT. See Figure I.

STEP 1. Set Total Air Temperature index to -30° RAT . (The word Total on the temperature index is misleading; use indicated RAT directly.)

STEP II. Set Flight Level 370 (inner disk) on fuel flow EPR of 1.75.

STEP III. Opposite N_1 EPR of 1.75, read N_1 of 97.85%.

STEP IV. Opposite N_2 EPR of 1.75, read N_2 of 92.4%.

STEP V. Holding the disk settings in previous steps, swing cursor to intersect FLT LVL 370 (outer portion of cursor) with EGT EPR of 1.75. Under arrow on cursor read EGT of 364°C .

Determining engine fuel flow. See Figure II.

STEP VI. Holding the disk settings in previous steps, swing cursor to align lower portion of cursor centerline with Mach .82 (outer scale of inner disk). Read FUEL FLOW of 2837 PPH under upper portion of cursor centerline.

NOTE

On JT4A calculators, there is a graduated scale on the cursor showing Total Air Temperature from 20° to -40°C . When finding fuel flow set cursor so that Mach number is aligned with the corresponding Total Air Temperature (RAT) line.

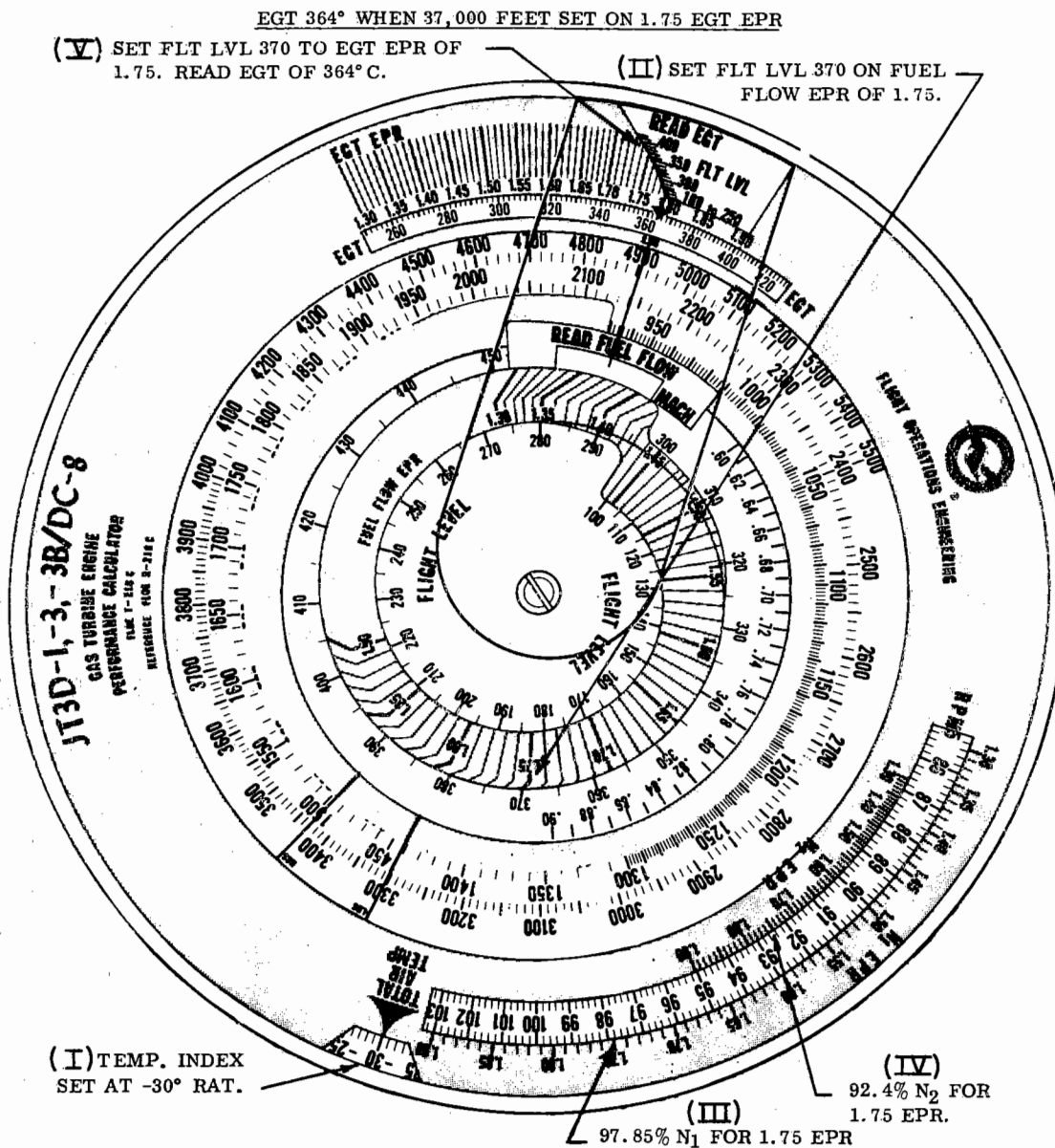


FIGURE I

FUEL FLOW 2837 PPH WHEN MACH
.82 SET ON CENTERLINE OF CURSOR

(VI) SET CENTERLINE OF CURSOR WITH
MACH .82 ON INNER DISK, READ FUEL
FLOW OF 2837 PPH UNDER UPPER
PORTION OF CURSOR CENTERLINE.

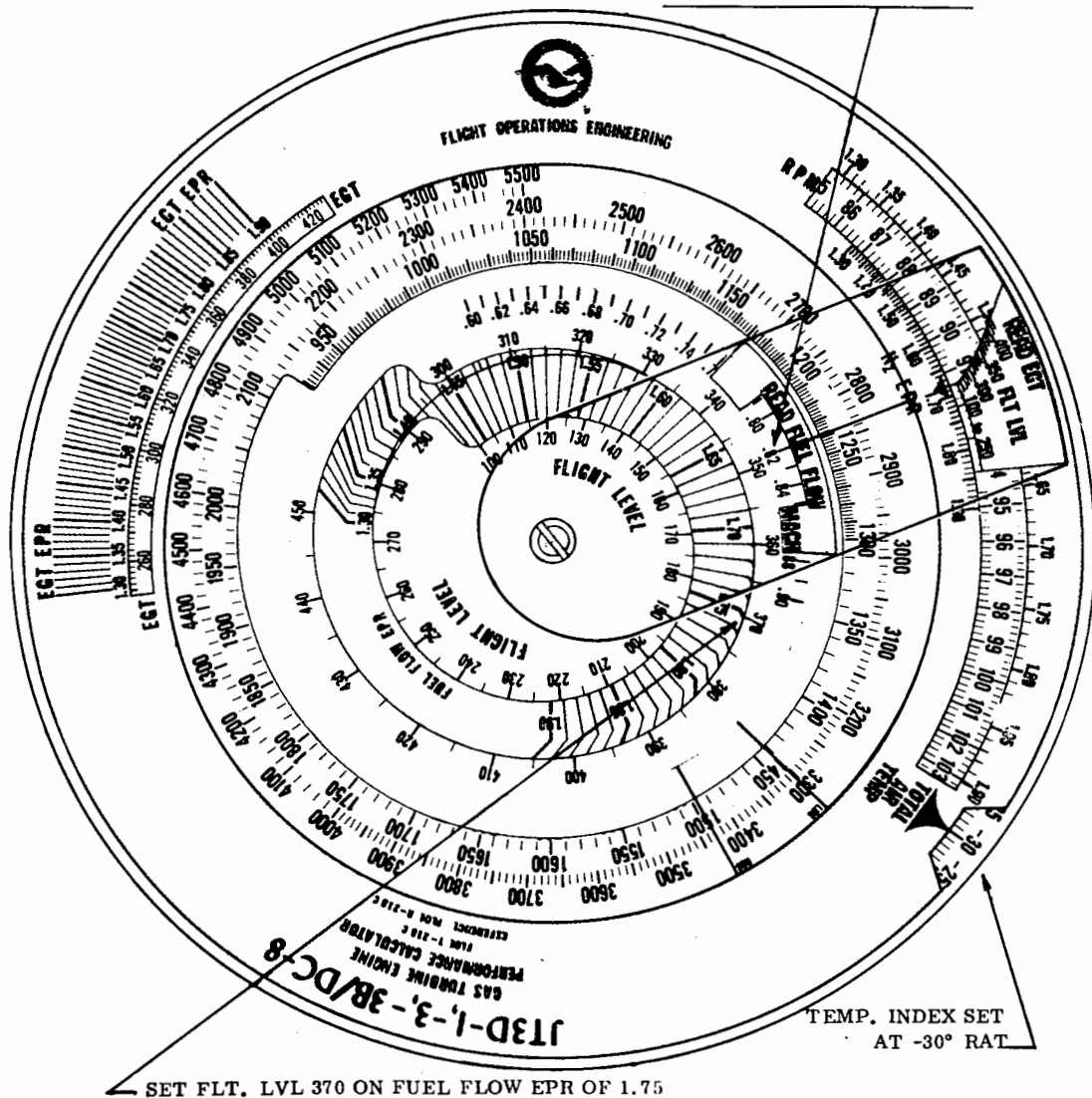


FIGURE II



CHAPTER 9

PNEUMATICS

AIR CONDITIONING AND PRESSURIZATION

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PNEUMATICS

AIR CONDITIONING AND PRESSURIZATION

PNEUMATICS

The pneumatic system bleeds hot, high pressure air from the high and low compressor sections of each engine for distribution to the various pneumatically operated components. Pneumatic air is used for engine starting, air conditioning, pressurization, ice control, rain removal and the reverse thrust mechanism. (Figure 1 & 2)

Ground pneumatics supply the airplane's pneumatic manifolds through a hose attached to a check valve connector on the underside of the nose section.

AIRPLANE PNEUMATIC SYSTEM

Pressure Regulating Valves: One on each engine case regulates the pressure bled from the high compressor section. These valves are called 3-way valves because they function as ON-OFF, pressure regulating, and check valves.

These are controlled by the Second Officer's LOW PRESS PNEU SHUTOFF switches which are two position (ON, OFF) switches. These switches are over-ridden by moving a Fire Shutoff lever to, or beyond, the white index mark on the Fire Shutoff Lever panel, which closes the 3-way valve.

Each valve remains in its last selected position in the event electrical control is lost.

Pressure Relief Valves: Pressure-activated valves on each engine open to relieve pneumatic overpressure. Individual ENG RELIEF VALVE (Amber) lights illuminate when the valve is not fully closed.

Pneumatic Heat Exchangers: Ram air heat exchangers on the lower right side of each engine nacelle cool the pneumatic air from the high compressors. In flight the heat exchanger doors modulate to maintain a desirable pneumatic operating temperature range. On the ground the doors are normally closed due to low pneumatic temperatures but will go wide open as throttles are advanced.

Low Compressor Bleed Valves: On the ground, individual low compressor bleed valves open automatically as the throttles are advanced simultaneously closing the 3-way valve. The Low Compressor Bleed Valve is called a 2-way valve because it functions as an ON-OFF and check valve. After take off, ground shift relays cause the pneumatic source to revert to 3-way operation. The 2-way valve is closed electrically when the Fire Shutoff lever is moved to the white dot.

Pneumatic Fire Shutoff Valves: A cable operated valve in the top of the pylon is closed when the Fire Shutoff lever is moved to FUEL AIR & HYD OFF.



Pneumatic Manifolds: Left and right manifolds begin near the corresponding outboard engine pylon, enter the fuselage pressurized area at the wing root, extend forward under the cabin floor and join in the nose section through a Pneumatic Crossfeed Valve. The manifold is encased in a protective shroud under the cabin floor.

Ground pneumatic air is supplied through a duct connected to the right manifold.

Other ducts extend from the manifolds to the various pneumatically operated components.

Outer wing pneumatic valves in each wing and a tail duct valve in the fuselage open during operation of the airfoil de-icing system. The outer wing valves are also opened by the SCOOPS ANTI-ICE switch.

After being used, pneumatic air is exhausted overboard.

COCKPIT CONTROLS

Controls, gauges and lights are located on the Second Officer's panel.

Manifold Pressure Gauge: Dual pointers (L & R) on a single gauge indicate individual pneumatic manifold pressures in pounds per square inch.

Manifold Air Temperature Gauge: Dual scales and pointers indicate corresponding manifold temperatures. The high temperature limitation is marked by a red line on the gauge.

Manifold Overtemperature Light (Red): Indicates an overtemperature in either or both manifolds.

Manifold Failure Lights (Amber): Left and Right MAN FAIL lights indicate a leak inside the corresponding shrouded manifold below the cabin floor.

Manifold Air Pressure Light (Amber): Indicates low pressure (approximately 14 PSI) in either or both manifolds. Illumination is normal at low thrust settings, both on the ground and in flight.

Pneumatic Crossfeed Valve Switch: A guarded, two position switch (normal, closed) used to close the pneumatic crossfeed and separate the Left and Right halves of the pneumatic system.

With the PNEU X-FEED switch in its normal guarded position, the Crossfeed Valve is open on the ground and closed in flight. When the switch is moved out of the guarded position, the Crossfeed Valve closes.

Placing the SCOOPS ANTI-ICE switch to ANTI-ICE is the only method to open the Crossfeed Valve in flight.



AIR CONDITIONING

Air, heated by compression, is supplied by the cabin compressors to two (left and right) similar but independent air conditioning systems. The left system (cabin compressors 1 and 2) normally supplies conditioned air to the cockpit; the right system (cabin compressors 3 and 4) normally supplies conditioned air to the cabin. Due to area requirements, a large percentage of the left system is directed to the cabin. Either system alone can supply air conditioning for the entire airplane. Cabin compressor air is routed through heat exchangers and freon (refrigeration) units to provide warm and cold air. Each air conditioning system has the capability of mixing direct cabin compressor (hot) air, heat exchanger (warm) air, and Freon Unit (cold) air in proper proportions to provide desired temperature levels.

Ground air conditioning equipment can supply conditioned air to the cockpit and cabin through a connector on the right side of the fuselage nose section. This air bypasses all temperature control components and is distributed via the normal air conditioning ducting. (Figure 3)

SYSTEM COMPONENTS

Air Distributing System: Cockpit air is distributed through overhead diffusers, floor vents, and sidewall outlets. It is exhausted through the radio rack to provide radio rack cooling and forward cargo compartment heating. Cabin air is distributed through a system of ducting to outlets that run the length of the cabin. It is exhausted through floor level vents, into side tunnels below the floor, and overboard through pressurization outflow valves. Radio rack and aft cargo compartment blowers assist air movement for heating the cargo compartments. Eyeball air outlets are located at each crew and passenger position to provide the coldest air available.

Heat Exchangers: One in each system, use ram air from airplane nose scoops to cool a portion of cabin compressor air. Heat exchanger doors automatically regulate flow of ram air across the heat exchangers as required by the temperature controls.

Freon Units: One in each system, may be operated to obtain coolest air possible from the system. Each unit contains a compressor, condenser, evaporator and receiver-dryer. The units will operate only when cool air is being called for by the air conditioning system. Controls and indicators are located on the Second Officer's panel.

Mixing Valves: Three inlet ports (cold, warm and hot) act in response to their respective automatic or manual controls to deliver air at the desired temperature to cockpit and cabin. Automatic control is by electric actuation of the valves. Manual control is by levers at the Second Officer's pedestal.



Recirculating Fans: Two fans, one in each air conditioning system, draw air from the forward accessory compartment and augment, or substitute for, the cabin compressor airflow. These fans will not operate if hot air is selected, but will operate when warm or cold air is being called for by the temperature controls. The fans are electrically operated and controlled by switches on the Second Officer's panel.

Radio Rack Cooling: Cockpit airflow, assisted by the Radio Rack Blower Fan, passes over and cools various radio and electronic equipment. If the blower fails during flight, cabin differential pressure, exhausting overboard through the Radio Rack Cooling Valve, should provide adequate radio rack cooling. The Radio Rack Cooling Valve will open automatically if the blower fails.

Ground Conditioned Air Inlet Check Valve: Is located in the ground conditioned air inlet duct on the forward right side of the fuselage. When ground equipment is supplying air, the valve is open and a switch is actuated to de-energize the recirculating fan circuits.

During airplane systems operation, differential pressure keeps the valve closed to prevent discharge of air overboard.

COCKPIT CONTROLS

The air conditioning systems are operated and monitored by controls and indicators on or near the Second Officer's panel.

Cockpit and Cabin Temperature Selectors: Can be set to automatically control temperature in cockpit and cabin. An additional control, located in the forward galley, provides for minor adjustments of cabin temperature.

Mixing Valve Levers: Individual levers, located on the Second Officer's pedestal are connected by a cable to the corresponding mixing valve and each moves in direct response to mixing valve position. The levers may be used as indicators of mixing valve position during automatic operation, with full down the coldest and upward movement indicating progressively hotter air. The levers can be used to manually control cockpit or cabin temperature by lifting the lever and moving it upwards for heating and downward for cooling. A lever may be held in position by rotating the knob 90° and engaging notches on the quadrant.

Cabin Temperature Gauge: Indicates temperature near the aft cabin ceiling. Additional thermometers are provided in the cabin.

Freon Compressor Switches: Arm the corresponding freon compressor for automatic operation according to temperature control requirements.

Freon Compressor Operating Lights (Blue) Illuminate when corresponding freon system's ON-OFF valve is energized.

Freon Compressor Overheat Lights (Amber) Illuminate when oil supply of corresponding freon compressor is too hot.

Freon Temperature Gauges: Monitor system demand on the saturation scale and system effectiveness on the superheat scale. Green bands on the gauges indicate normal ranges. Insufficient cooling may occur with temperatures out of the normal range.

Temperature Divert Switch: A guarded switch used to change the source of cockpit air from the left air conditioning system to the main distribution chamber. This combines the entire output of both air conditioning systems and permits a fully operative system to compensate for a malfunctioning system.

Recirculating Fan Switches: Left and right RECIRCULATING FAN switches (ON, OFF and AUTO) control the corresponding fan. Electrical interlocks with other units prevent certain operating conditions. One interlock prevents either fan from operating whenever ground air conditioning equipment is supplying air to the airplane.

Other interlocks affect fan operation as follows:

AUTO - fans will operate only while the airplane is on the ground. To begin operating in AUTO, the corresponding Mixing Valve lever must be in nearly the full down position; once started in AUTO, operation will continue until the Mixing Valve lever moves near mid-position. Fan operating in AUTO has priority over the corresponding cabin compressors, preventing both from operating.

ON - fan operation is identical, ground or flight. Since a fan's output can only be delivered when cold or warm air is called for, a fan will not operate when the Mixing Valve lever is at or above approximately the mid position of the quadrant.

A fan will not operate in the ON position if more than one of the corresponding pair of cabin compressors is operating.

Radio Rack Blower Failure Light (Amber): Located above the Second Officer's panel illuminates to indicate radio rack blower failure.

On the ground, the concern about a blower failure is overheating the radio rack and maintenance should be informed. In the air, concern is limited to an unheated forward cargo compartment.

A sensor, detecting radio rack blower failure, illuminates the dual GRD RACK O'HEAT/ FLIGHT CARGO UNH'T'D light (Amber) and automatically opens the radio rack cooling valve. A spring-loaded PRESS TO RESET function of the light will reclose the valve temporarily for verification. It may be permanently closed by pulling the Radio Rack Cooling Valve Circuit Breaker on the right emergency bus while continuing to press the light.



PRESSURIZATION

Airplane pressurization is provided by four pneumatically driven cabin compressors located in the nose section. Cabin compressors take in ambient air through scoops on each side of the nose section and the pressurized output is distributed through ducts to the cabin and cockpit. A selected cabin altitude is automatically attained and maintained by regulating the outflow of the pressurized air. (Figure 4)

COMPONENTS

Air Conditioning Scoops: Ram air scoops on each side of the nose section provide individual ambient air inlets for the cabin compressors. A large center duct in each scoop provides ram air for cooling the cabin compressor oil, a portion of the cabin compressor output air, and the Freon condenser.

Cabin Compressors: Mounted in pairs on each side of the nose centerline. Individual switches on the Second Officer's panel control pneumatic flow to the compressor turbine sections.

Compressors 1 and 2 discharge compressed ambient air through individual check valves into a common delivery duct to the left air conditioning system. Compressors 3 and 4 discharge similarly to the right air conditioning system.

Cargo Compartment Pressurization: Forward and aft cargo compartments are pressurized to cabin altitude by equalization valves. Absence of internal airflow qualify these as Class D (smother) compartments.

Pressurization Outflow Valves: The outflow butterfly and nozzle valves are located on the lower centerline of the aft fuselage and operate through an electrically actuated linkage controlled by the automatic pressure controller. Manual control of outflow valves is also provided. A ground control relay function causes both outflow valves to be open on the ground. After takeoff, the butterfly closes followed by modulation of the outflow nozzle to maintain a selected cabin altitude by controlling the outflow of cabin air.

Cabin and Cockpit Pressurization: Compressor output is distributed to the pressurized areas through the air conditioning ducts. Outflow is to the underfloor area, aft to the outflow valves.

Plug-type passenger entrance and buffet service doors provide vacuum relief.

Pressurization Relief Valves: Pressure operated valves on each side of the tail section open to prevent cabin pressure from exceeding the certification limits indicated by a red line on the differential pressure gauge at 9.27 PSI.



Windows: Cabin and cockpit windows are constructed of multiple panes and are capable of withstanding normal pressurization with one pane cracked.

COCKPIT CONTROLS

Electrical control and monitoring of the pressurization system is provided by switches, gauges, and indicating lights on the Second Officer's panel.

Cabin Compressor Switches: Individual switches control the compressors by opening and closing pneumatic valves to the turbine sections.

The switches must be OFF to complete the engine start circuit and allow starter valves to open.

Cabin Compressor RPM Gauges: Individual compressor speed is indicated on a pair of dual-scaled RPM indicators.

Compressor overspeed is indicated by a red line on each scale. Automatic overspeed protection within the indicator will shut off a compressor exceeding the red line.

Cabin Compressor Overheat Lights (Red): Warn of undesirable compressor operation caused by either (1) oil over-temperature; or (2) compressor low flow persisting for approximately 15 seconds.

Cabin Compressor Overspeed Test Buttons: Test the overspeed protection circuit by creating a false overspeed, thus shutting off the compressor. Re-cycling the CABIN COMPRESSOR switch restores compressor operation.

Cabin Rate of Climb Indicator: Indicates cabin altitude rate of change.

Cabin Altitude and Differential Pressure Gauge: Cabin altitude is indicated on the outer scale by the long pointer. Differential pressure is indicated on the inner scale by the short pointer. The automatic pressure controller normally maintains a maximum differential pressure of 8.77 PSI.

Automatic Pressure Controller: The ALT knob positions a pointer to select a desired cabin altitude on the outer scale. The inner scale indicates a flight level compatible with the selected cabin altitude at a differential pressure of 8.77 PSI. A cabin altitude selection higher than necessary for the planned flight level decreases the differential pressure. Pulled and rotated, the ALT knob adjusts the barometric setting.

The RATE knob controls cabin altitude change at a variable rate between approximately 200 to 500 feet per minute.

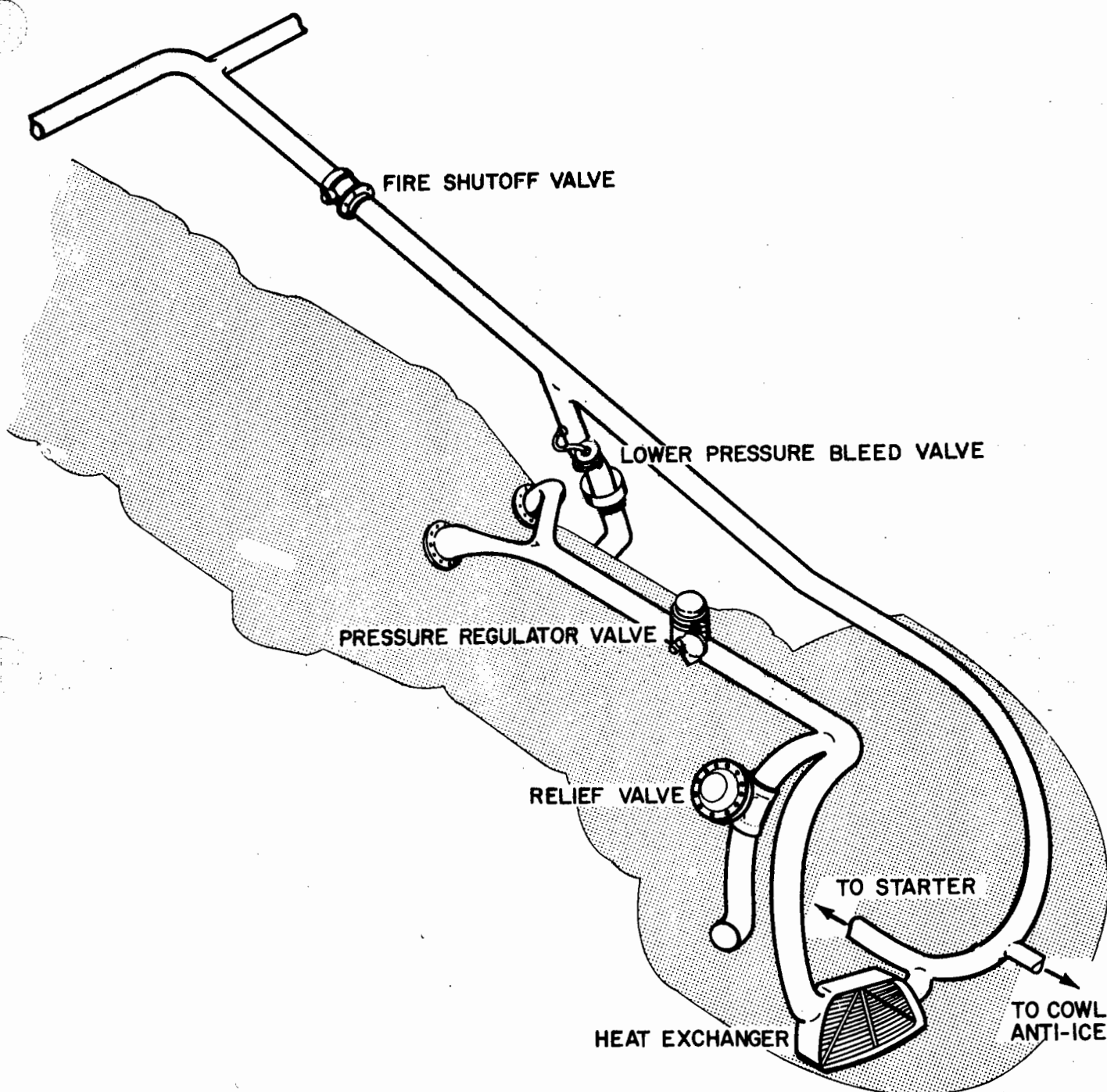
Cabin Pressurization Outflow Valve Lever Located on the Second Officer's pedestal, is connected by cable to the outflow valves operating mechanism and indicates the position of the valves.

Pulling the lever out disengages the automatic control, permitting manual control of outflow valve position. The lever will remain in any manually selected position by rotating the handle 90° and lowering it into notches on the quadrant.



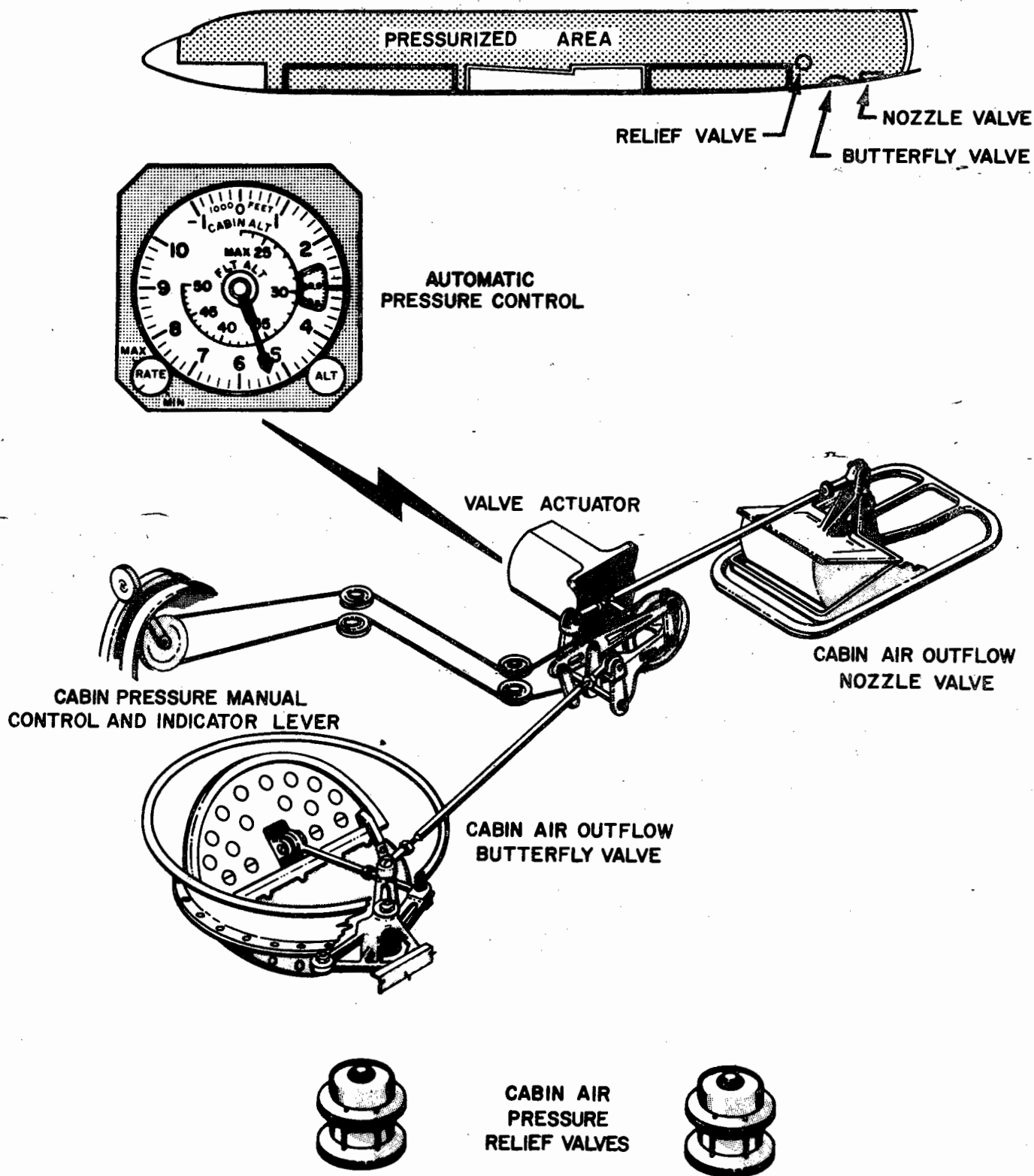
Door Open Lights (Red): Indicate one or more doors are not closed in the cabin or lower fuselage (belly) areas.

Altitude Horn Cutoff Button: Silences the intermittent warning horn which sounds if the cabin altitude has exceeded approximately 10,000 feet.



ENGINE PNEUMATIC SYSTEM

FIG. I



PRESSURIZATION COMPONENTS

FIG. 4



CHAPTER 10

POWER PLANTS & FUEL

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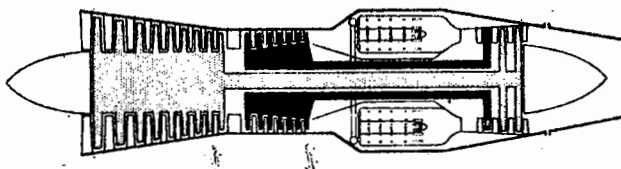
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POWER PLANTS & FUEL

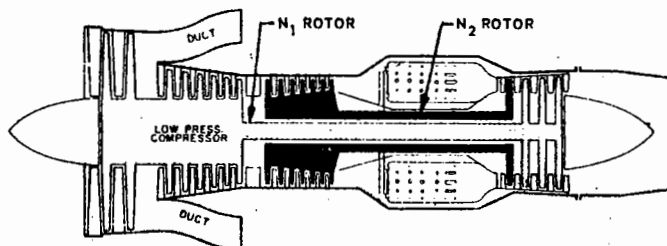
POWER PLANT

Four Pratt and Whitney, twin spool turbo-jet engines provide thrust for the DC-8. Some airplanes are equipped with fan engines and others with non-fan engines. Rated thrust for the various type engines at takeoff is approximately 16,000 to 18,000 pounds.



NON-FAN TYPE

JT4 engines are non-fan engines. All inlet air is exhausted through the tailpipe.



FAN TYPE

JT3D engines are fan type engines whose jet output exhausts from outlets on the left and right side of the engine and from the tailpipe.

All engines have a lubrication system, a fuel system, a ground cooling/blow-away jet system and a reversing system.

Each engine drives a generator and each inboard engine drives a hydraulic pump.

All engines provide hot high pressure bleed air for their own anti-icing and provide pressure throughout the airplane to operate certain equipment and systems that are described in other sections of the Flight Manual.

Engine control for starting, forward and reverse thrust, and engine shutdown is accomplished by levers and switches at the pilot's positions.

Oil temperature control and ground cooling/blowaway jet control are on the Second Officer's panel.



Engine monitoring gauges and indicating lights are located on the overhead panel, forward instrument panel, control pedestal and Second Officer's panel.

ENGINE START AND IGNITION SYSTEM

(Figure 1)

A STARTING pushbutton with a blue light in the button, is used to initiate a start. Pneumatic air from a ground source or another operating engine rotates the starter and turns the engine.

When adequate rotation (15% N₂ RPM) is attained, ignition is activated and then fuel admitted by movement of the Fuel Shutoff lever forward to FUEL ON. Starter use is discontinued at 35% N₂ RPM by releasing the STARTING pushbutton. Ignition discontinues automatically after 70 seconds.

Electrical power for ignition is obtained from either a ground source or the airplane battery.

Starter and Ignition Switch: Arms the ignition and pneumatic starter circuits.

Engine Starting Buttons: When each is depressed it arms the starter valve to that engine. A blue light in the button will illuminate if the starter circuit is complete.

Four (4) CABIN COMPRESSOR switches and two (2) FREON COMPRESSOR switches must be OFF and the STARTER and IGNITION switch must be ARMED to complete the circuit to the starter button.

Fuel Shutoff Levers: When moved forward to the FUEL ON position activates ignition if STARTER and IGNITION switch is ARMED. Fuel is also admitted to the engine at this time.

Continuous Ignition Switch: On fan engine equipped airplanes, it permits continuous low energy ignition to all engines regardless of the STARTER and IGNITION switch position.

Ignition Override Switch: This switch overrides other circuits to provide high energy ignition to all engines.

GROUND COOLING AND BLOWAWAY JET SYSTEM (Figure 2)

For ground cooling, engine bleed air is used to provide jet pump action and draw outside air across the oil cooler and through the engine accessory compartment.

Foreign object damage is reduced by a jet of bleed air directed downward from below the engine inlet. This jet disrupts a vortex which forms during engine ground operation.

The system operates automatically on the ground and shuts off in flight or when manually shut off on the ground. It also causes the oil cooler door to open fully on the ground.

Ground Cooling & Blowaway Jet Shutoff Button: When depressed on the ground, shuts off the blowaway jet system, extinguishes the light in the button and returns control of the oil cooler doors to the OIL COOLER DOOR switches. A holding coil will keep the button depressed when throttles are advanced to near the takeoff setting.

ENGINE FUEL SYSTEM (Figure 3)

The engine fuel system consists of that part of the fuel system from the fire shutoff valve at the wing, through the pylon and in the engine nacelle.

Included are: a fire shutoff valve controlled by the Fire Shutoff lever, engine driven fuel boost pump, a main engine driven fuel pump, pressure regulators and transmitters, a fuel flow transmitter, a fuel control unit, fuel drain can, and necessary fuel manifolds and nozzles.

Fuel flow is read on the FUEL FLOW gauge on the center instrument panel. Fuel boost pump pressure is read on the Second Officer's panel.

The fuel control unit starts or stops fuel to the engine when the Fuel Shutoff lever is moved ON or OFF. The unit also meters the proper amount of fuel to the engine when the throttle is advanced or retarded.

ENGINE OIL SYSTEM

The engine oil system supplies lubrication and cooling for bearings and engine accessory units. The oil system includes quantity, temperature and pressure gauges, low pressure warning lights and oil cooler door switches. Engine oil is cooled in flight by ram air passing across an oil cooler. Ground oil cooling is accomplished by the blowaway jet system (previously described).

EJECTOR (JT4) REVERSE SYSTEM (Figure 4)

Reverse thrust for slowing the JT4 equipped airplanes is obtained by deflecting the jet exhaust forward at the tailpipe. An ejector shroud (or sleeve) containing stowed reverse buckets encloses the aft part of the engine. This ejector shroud must be extended behind the engine tailpipe before the reverse buckets can be closed to deflect thrust forward.

Ejectors also provide noise suppression and a slight thrust increase at low speeds. They are extended during takeoff and landing.

Ejector position is controlled by Switches on the overhead panel, or if necessary by the Thrust Reverse Levers mounted on the forward top of the throttles.

Electrical power positions a directional valve to the extend or retract position, and hydraulic pressure moves the ejector to the selected position. Stored high pressure air is available to move the ejector when hydraulic pressure is not available.

When the ejector is extended, pneumatic air pressure, either from the engine itself or from the airplane pneumatic system, closes the reverse buckets when the Thrust Reverse Levers are rotated aft. When the buckets are closed, further rearward rotation of the levers applies increasing reverse thrust.

A protective interlock prevents aft rotation of the reverse thrust lever's past idle reverse until the reverse buckets are closed.



Ejector Switches: The ENG EJECT-OR switches EXTEND or RETRACT the ejectors if hydraulic pressure (or alternate air bottle pressure) is available.

Ejector Extend Lights (Blue): The ENG EJECTOR EXT'D lights indicate the position of the ejector by blinking in-transit and illuminating steadily when ejectors are fully extended.

Thrust Reverse Levers: Can only be rotated aft when throttles are at idle. Rotation aft causes ejectors to extend (if not already extended by ENG EJECTOR switches) and reverse buckets to close.

Continued rearward movement of the levers applies increasing reverse thrust.

Forward rotation of the reverse levers decreases reverse thrust, opens the reverse buckets and will cause ejectors to retract if ENG EJECTOR switches are still positioned to RETRACT.

Thrust Brake Lights (Amber): Illuminate when reverse buckets on that engine are in reverse position.

Alternate Ejector Lever: In the event of hydraulic failure, directs high pressure air from a storage bottle to move the ejectors to the position selected by the ENG EJECT-OR switches.

NOTE

In flight, the outboard engine Thrust Reverse levers are blocked and only idle reverse is possible on those engines.

FAN (JT3D) REVERSE SYSTEM (Figure 4)
Reverse thrust for slowing the fan equipped airplanes is obtained by deflecting the jet exhaust forward at the tailpipe and at the fan exhausts on either side of the engine.

Tail exhaust is deflected forward by closing reverse buckets in the tailpipe. Simultaneously, fan reverse panels aft of the side fan exhausts pivot outward to deflect the fan exhaust air forward.

Streamlining cover doors at the fan exhausts and at the tailpipe, open and close in conjunction with the movement of the reversers.

Control of the reversing mechanism is by use of the Thrust Reverse levers mounted on the forward top of the throttles. Aft rotation of the levers sequentially opens the streamlining cover doors, causes the fan reverse panels to pivot outward, and the reverse buckets in the tailpipe to close. Further rearward rotation of the levers applies increasing reverse thrust. Forward rotation of the levers stops reverse thrust and sequences the reversers and covers in an opposite manner.

Pneumatic air from the engine or from the airplane pneumatic system moves the reversers and covers.

An emergency system to stow the reversers is controlled by switches on the overhead panel. This emergency stow system uses only airplane pneumatic system air and may not affect the streamlining cover doors.

A protective interlock prevents aft rotation of the Thrust Reverse Levers past idle reverse until the reverse buckets in the tail-pipe are closed.

Thrust Reverse Levers: Can only be rotated aft when throttles are at idle. Initial rotation causes covers to open and reverse panels and reverse buckets to position for reversing. Further rotation gives reverse thrust. Forward rotation causes opposite effect.

Engine Doors Open Lights (Amber): Illuminate when any (of 3) cover door on that engine is not fully closed.

Engine Thrust Brake Lights (Amber): Illuminate when all (of 3) reversers and fan reverse panels on that engine are in reverse position.

Emergency Thrust Brake Retraction Switches: Located on overhead panel, these switches can be used to retract reversers if the normal system fails. These red guarded switches use airplane pneumatic system air only.

NOTE

In flight with gear up, the outboard Thrust Reverse levers are blocked, and no reverse is possible on those engines.

ENGINE CONTROLS AND INDICATORS

These are arranged in groups of four on the overhead and center instrument panels, control pedestal and the Second Officer's panel.

Engine Pressure Ratio (EPR) Gauges: Show discharge/inlet pressure ratio for engine thrust control. A knob on the gauge positions a target counter and "bug" as guides for setting thrust.

Exhaust Gas Temperature (EGT) Gauges: Indicate engine temperature. Maximum takeoff EGT and maximum continuous EGT are indicated by a red line and the bottom of a yellow arc respectively. The gauges are self powered.

N₁ Percent RPM Gauges: Show N₁ compressor speed in percent. Maximum limits are shown on the gauges which are self powered.

Fuel Flow Gauges: Show fuel flow to the engine in pounds per hour.

Oil Pressure Lights (Amber): Illuminate when oil pressure is below a safe value.

Throttles: Used to adjust engine forward thrust.

Fuel Shutoff Levers: Turn fuel to the engine on or off. They also start ignition to the engine if ignition system is armed.

Engine Vibration Gauges: Show engine vibration at the Turbine or Diffuser section of the engine.

Engine Vibration Switch: Selects Turbine or Diffuser vibration pickup. TURBINE position is not operative on JT4 engines. Normal switch position is DIFFUSER.



Engine Vibration Test Button: Permits system test on turbine and diffuser positions. Test is valid only when engines are not running.

N₂ Percent RPM Gauges: Show N₂ compressor speed in percent. Maximum limits are shown on the gauges which are self powered.

Engine Oil Gauges: Show oil quantity in gallons.

Oil Pressure Gauges: Show engine oil pressure. The normal limits are shown on the gauges.

Oil Temperature Gauges: Show engine oil temperature. The normal limits are shown on the gauges.

Oil Cooler Door Switches: In flight, these switches permit control of the oil temperature by opening or closing the oil cooler door. The switches have no effect on the oil cooler doors on the ground when the doors are full open through action of the ground cooling and blowaway jet system.



AIRPLANE FUEL SYSTEM

Fuel is carried in 4 Main and 4 Alternate wing tanks; some airplanes have an additional (9th) center wing Auxiliary tank. Total capacity is approximately 120,000 pounds on 8 tank airplanes and 150,000 pounds on 9 tank airplanes. Pressure fueling adapters under each wing admit fuel through a crossfeed line to all tanks. Overwing fueling can be accomplished through individual tank caps.

Fuel is admitted to a tank through an electric fill valve and a pressure operated fuel level control valve. A fill valve is controlled by its switch or by a "bug" on the tank quantity gauge. The fuel level control valve opens when pressure is exerted against it and closes when pressure is removed or when the fuel level reaches a float inside the tank.

All tanks are vented.

All tanks are connected to a fuel dump system capable of dumping fuel at the rate of approximately 5000 pounds per minute.

The crossfeed line permits fuel transfer from any tank to any other tank, or from any tank to any engine.

All tanks have internal boost pumps to provide fuel pressure to the engines, or pressure to transfer fuel to other tanks.

Main tanks also have a feed pump to draw fuel from the low points in the tank to fill a feed reservoir from which fuel flows to the engine or to crossfeed lines. Tank fuel system controls, gauges, switches and indicating lights are located on the Second Officer's panel. Crossfeed lines, transfer lines and check valves are diagrammatically displayed on the fuel panel.

Engine fuel controls and fuel flow gauges are located on the control pedestal and center instrument panel.

A Fire Shutoff Lever to cut off fuel in the wing is on the overhead panel.

A Fuel Dump Switch is on the overhead panel with a dump chute indicator and manual crank at the Second Officer's position.

Fuel loading and management to maintain structural weight limits is accomplished in accordance with the limitations section of the flight manual.



CONTROLS AND INDICATORS

Fuel Quantity Gauges: Show individual tank quantity in pounds.

Set Knob: Positions a bug on the fuel quantity gauge. When the quantity needle reaches or exceeds the bug setting, the tank fill valve will close. The bug is primarily used to stop tank filling at intermediate levels.

Q Button: On the fuel quantity gauge, tests the fuel quantity measuring circuit. When button is pressed, quantity indication should decrease.

An associated C button on the gauge is used by Maintenance.

Fill Valve Switches: These rotary or toggle switches electrically open or close the tank fill valves unless a valve is held closed by a tank quantity bug.

Main Tank Boost Pump Switches:

Pressurize main tank outlet and/or turn on the feed pump. The boost pump produces approximately 15 psi fuel pressure.

Alternate Tank Boost Pump Switches:

Pressurize alternate tank outlet. Additionally #1 and #4 switches when ON, during fuel transfer, cause their respective main tanks to accept only approximately 7000 pounds of fuel (rather than full tanks) to maintain wing structural design limits.

Feed Pump Pressure Lights (Amber): Illuminate if feed pump is energized and pump output is low.

Tank Selector Levers: Select fuel for a respective engine from Main or Alternate tank or close tank outlets.

Center Wing Aux Tank Selector Lever: (On 9 tank airplanes) Opens or closes the tank outlet to the crossfeed manifold.

Crossfeed Levers: Admit fuel from a tank into the crossfeed lines, or from crossfeed lines to an engine.

Fuel Pressure Gauges: Show tank boost pump pressure and engine boost pump pressure.

Total Fuel Quantity Gauge: Indicates the sum of all individual tank quantity indicator readings.

Fuel Temperature Gauge: Indicates temperature of the fuel in the wing tanks.

Alternate Quantity Low Lights (Amber): Illuminate to warn of an undesirable fuel unbalance between #1 or #4 Main tank and its respective Alternate tank. Structural limitations require #1 and #4 Alternate tanks be kept full until their respective Main tanks contain less than 7500 pounds of fuel.

Shutoff Closed Lights (Blue): Illuminate when the corresponding shutoff valve is closed.

Auto Shutoff System Switch: In SYS TEST, this switch simulates full tanks during tank filling testing the full tank shutoff system and illuminating the lights. In VALVE CLOSED INDICATION, the SHUTOFF CLOSED lights will illuminate when a corresponding Fuel Level Control Valve is closed. In NORM, the lights will not illuminate.



Fuel Dump Switch: On the overhead panel extends, drains or retracts the dump chutes, and opens and closes the fuel dump valves.

NOTE

The Dump switch must not be moved directly from FUEL DUMP to RETRACT without stopping in DRAIN position, or chutes will remain extended and continue to dump.

Dump Chute Actuator: A mechanical pointer on the actuator shows the position of the dump chutes. It may be operated electrically by the Fuel Dump switch or manually with the hand crank located on the aft side of the Second Officer's table.

Fire Shutoff Levers: These levers close a fuel shutoff valve at the leading edge of the wing when moved to the FUEL, AIR & HYD OFF position.

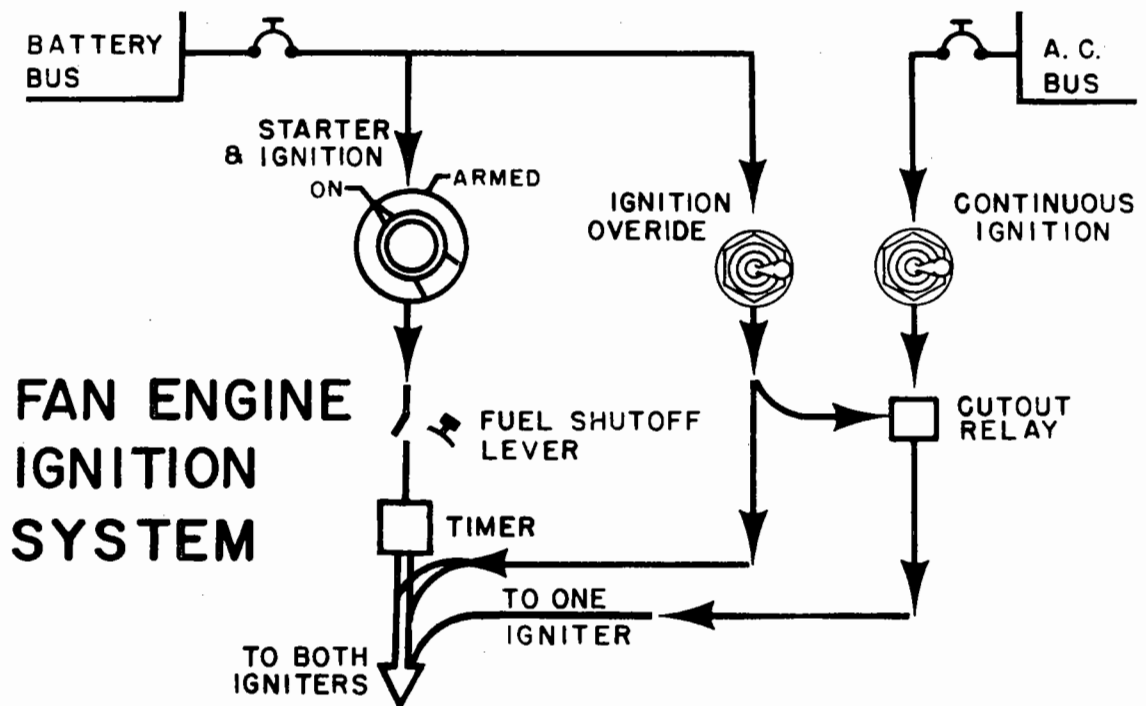
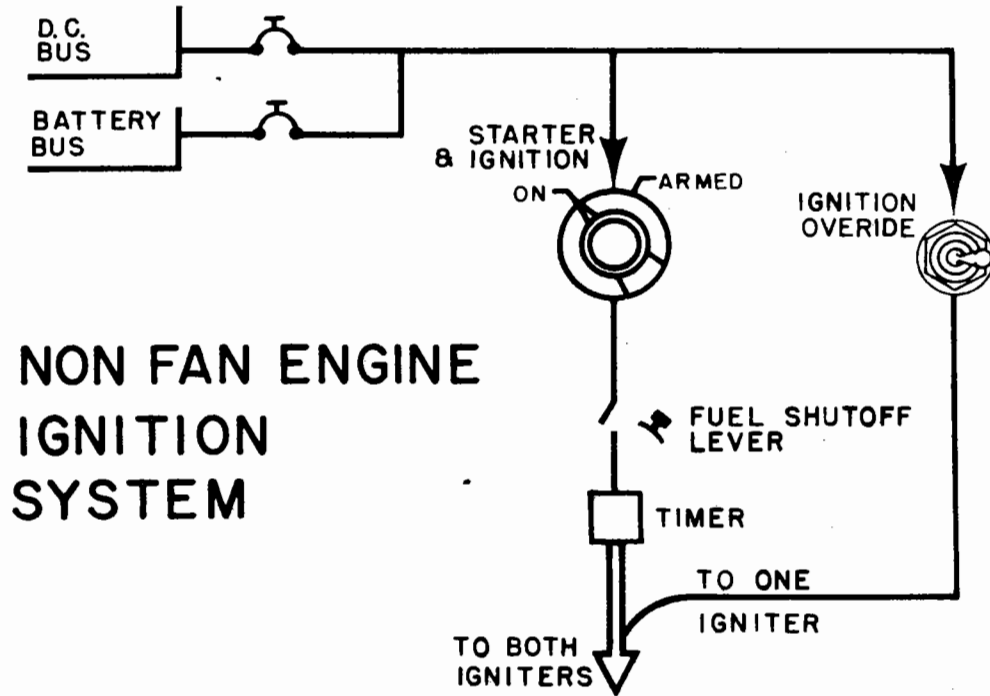
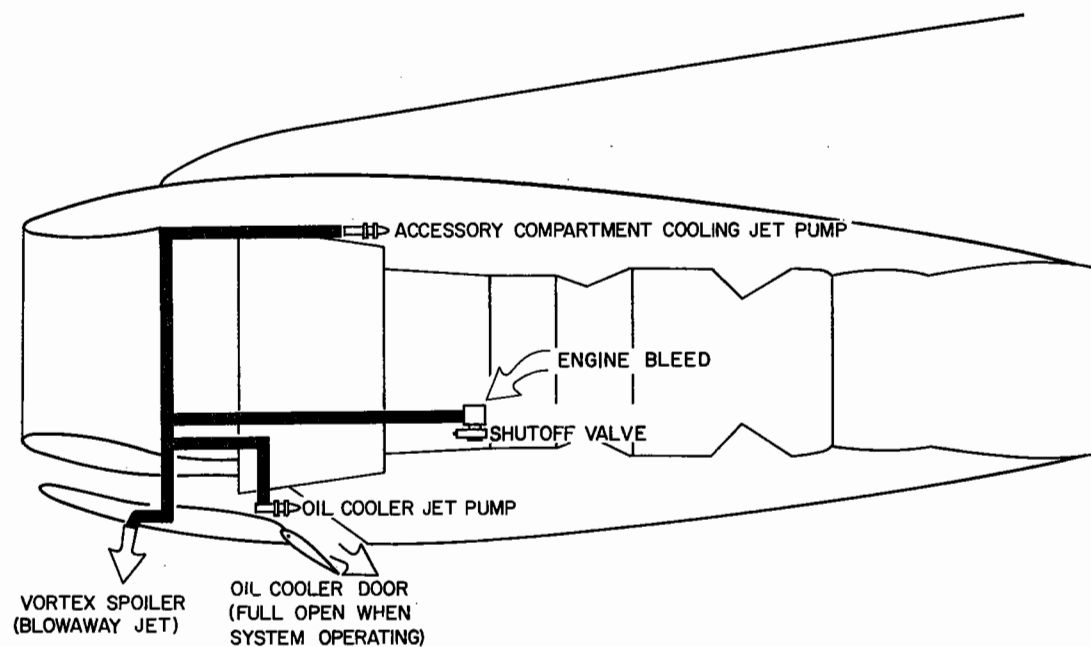
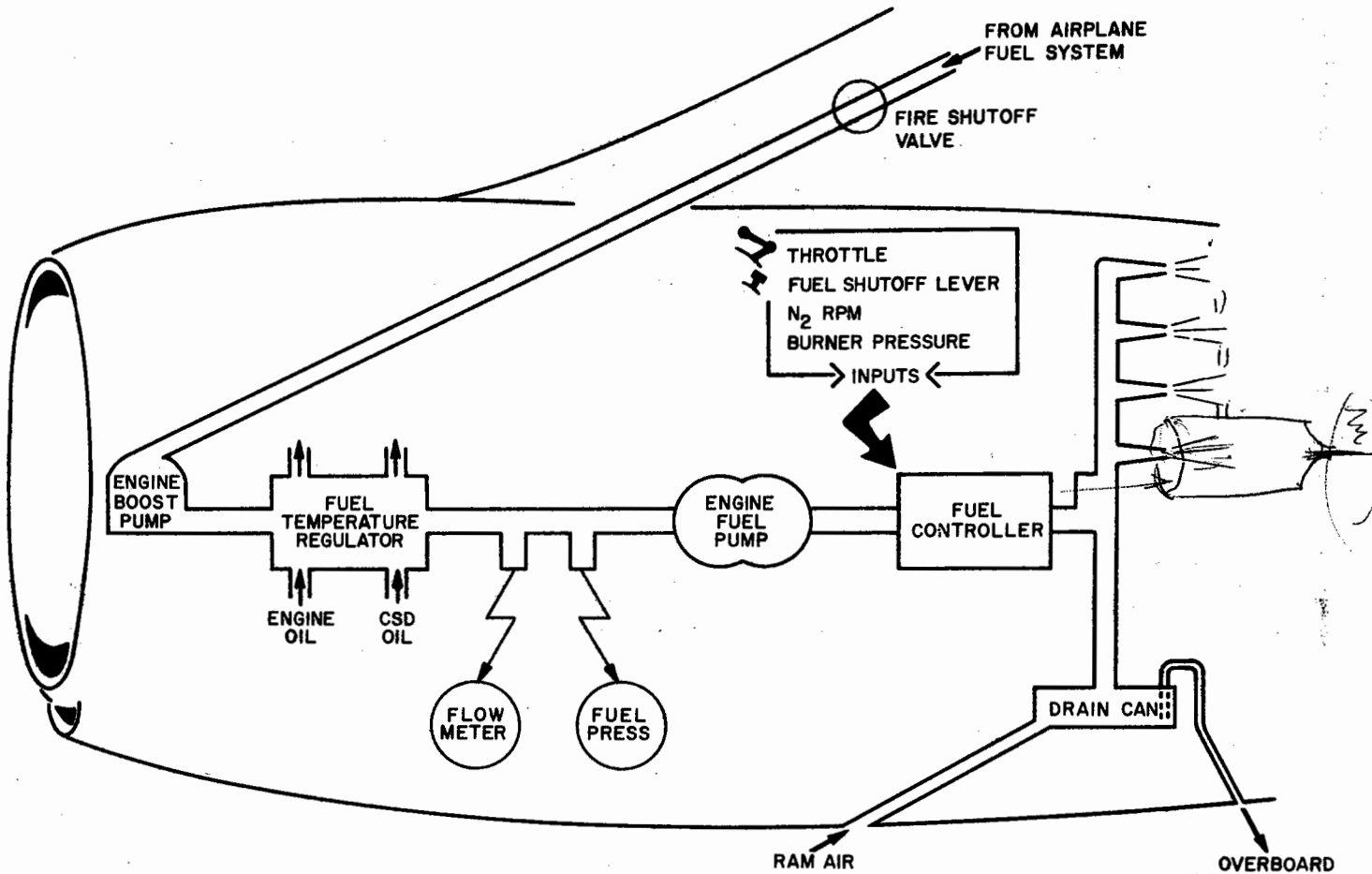


FIG. I



ENGINE GROUND COOLING & BLOWAWAY JET SYSTEM

FIG. 2

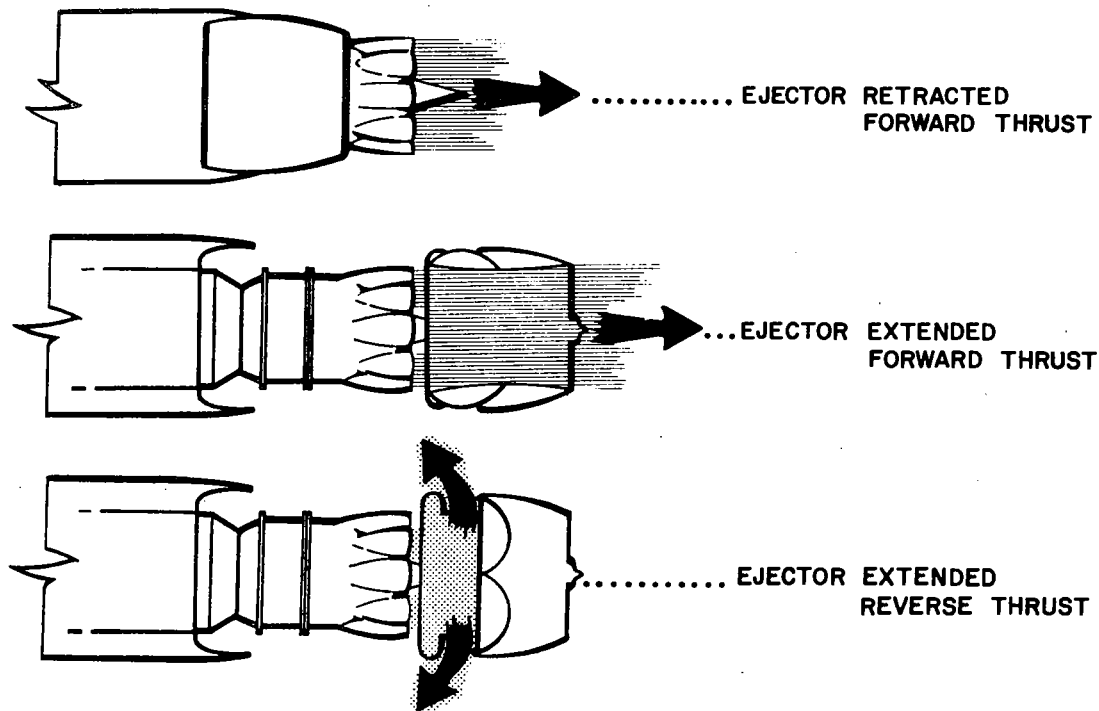


ENGINE FUEL SYSTEM

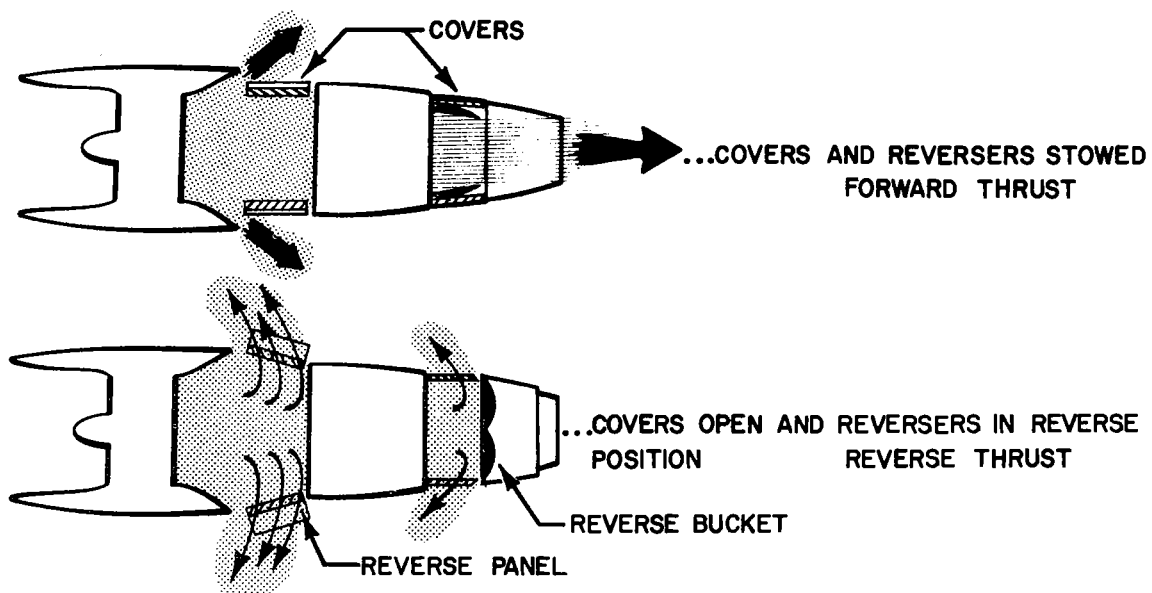
FIG. 3



NON-FAN (JT-4) EXHAUST SYSTEM

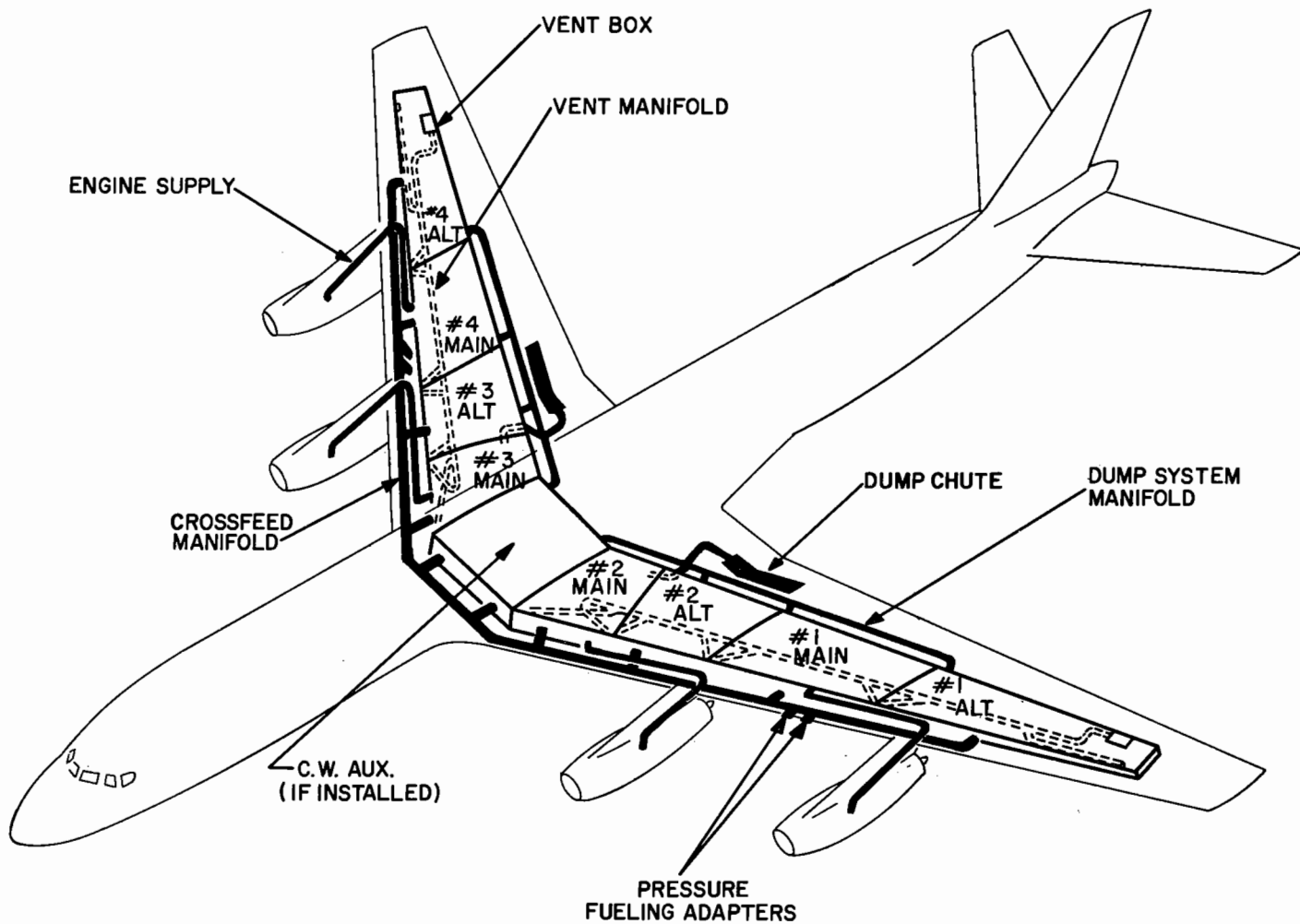


FAN TYPE (JT 3D-1,-3,-3B) EXHAUST SYSTEM



REVERSE SYSTEM

FIG. 4



AIRPLANE FUEL SYSTEM

FIG. 5



CHAPTER 11
DIFFERENCES

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DIFFERENCES

DC-8-61

The following is a brief listing of the most significant differences (from a crew viewpoint) of the DC-8-61 as compared to other DC-8 airplanes. Its purpose is to serve as a reminder of the differences.

AUXILIARY SYSTEMS

BLUE ROOMS

Five Blue Rooms are installed, three forward and two aft.

Sinks: Used water is drained overboard through three electrically heated drain masts. Drain mast heating is controlled by a switch on the Second Officer's panel.

GALLEYS

Three galleys are installed, two forward and one aft.

DRINKING WATER SYSTEM

Water is carried in a single pressurized tank located in the aft accessory compartment.

A Water Service Panel is located aft of the rear service door. A fill and overflow valve in the ceiling above the aft lavatories controls filling of the water tank. The valve is controlled electrically by a 3 position switch at the Service Panel, or manually by a ratchet override control handle on the valve.

Airplanes 8081 and subsequent have a 3 position switch and a Push-To-Test Light (Red) on the aft galley Service Panel. This light will illuminate when the valve is OPEN. Airplanes 8070 - 8080 will be retrofitted with this switch and warning light.

Tank Pressurization: The water tank is pressurized by the airplane pneumatic system with an electrically driven air pump as an alternate source of pressure. The air pump is controlled by a switch on the aft galley service panel.

Quantity Gauge: Located in the aft galley area, indicates water quantity in tank.

Pressure Gauge: Located in the aft galley area, indicates water system pressure.

AVIONICS

COMMUNICATIONS

VHF Communication: No Squelch Control Panel is installed.

Audio Control Panel: New type with voice filter and combination ON-OFF volume slide-type switches. Audio control and microphone panels are added to Second Officer's panel.

The Capt., F/O, and Navigator stations are connected to Service Interphone which can be used as a backup to the Flight Interphone System.



Cabin Interphone: Three additional interphone handsets are installed; one each at the two forward Jet Escape Exits in the aft cabin and one in the storage area opposite the forward galley. Passenger address announcements can be made only from handsets in the cockpit and the forward and aft cabin attendant stations.

Flight Recorder: On airplanes N 8095U - 99U the flight recorder receives inputs for airspeed and altitude from the Captain's Central Air Data Computer (CADC-1).

NAVIGATION

Static System: All static ports are heated. Alternate static system ports are located approximately five feet forward of normal source.

Air Data System: On airplanes N 8095U - 99U a new type air data system consisting of dual Central Air Data Computers (CADC) is installed. The dual air data system utilizes pitot/static inputs to provide computed data to the Captain's and First Officer's altimeters, the First Officer's and Navigator's TAS indicators, the ATC Transponder, and the flight recorder. CADC-1 is powered by the left Emergency AC bus. CADC-2 is powered by radio bus #3.

CADC-1 and CADC-2 receive pitot/static inputs from the Captain's and First Officer's pitot/static systems respectively. The center pitot tube supplies only the PTC.

A CADC FAIL WARN light on the S/O's instrument panel will illuminate when CADC-1 fails.

Altimeters: On airplanes N 8095U - 99U servo-pneumatic altimeters are installed on the Captain's and First Officer's panels. The altimeters have an ON-OFF switch installed in the lower right corner to control the mode of operation. The altimeters will operate as pressure instruments with the switch OFF. A Standby/Corrected flag installed on the upper left side of the dial indicates STBY if power fails to the correction circuits or if the correction is switched OFF. The CORR flag shows when the altimeter is in servo operation.

Temperature Indicators: On airplanes N 8095U - 99U Total Air Temperature (TAT) indicators are installed on the Second Officer's and Navigator's panels replacing the Static Air Temperature (SAT) indicators. The TAT probes are externally mounted on the lower left and right sides of the forward section of the fuselage. Each TAT indicator has an OFF flag to indicate loss of electrical power to the system. Digital readout of TAT is to nearest tenth of a degree centigrade.

TAS Indicators: On airplanes N 8095U - 99U the TAS indicators installed on the First Officer's and Navigator's panels operate independently of each other. Total Air Temperature and Mach number are used by CADC-1 and CADC-2 to compute TAS signals for the Navigator's and First Officer's TAS indicators respectively.

NAV Receiver: Improved type VHF NAV and glideslope receivers are installed which provide flag warnings if they sense course errors within themselves. Operation of the receivers is identical to previous receivers except for flag operation and self-test feature.

When changing frequencies the NAV and Glideslope flags will remain in view for 10-15 seconds. The NAV flag will also appear during enroute station crossing and remain in view until the RMI has settled on a reciprocal bearing.

No external VOR or ILS signal is required for self-test because the self-test signals are generated within the Nav receiver unit. During operation of the self-test function, flags out of view for 10-20 seconds will indicate satisfactory receiver operation. Except for flag action, the self-test provides the same readouts as on other DC-8's.

VOR Test is activated by selecting any VOR frequency and then depressing the VOR test button on the Course Indicator for 15 seconds.

ILS Test is activated by selecting any LOC frequency and then depressing the ILS test switch to either the U/L or D/R position for 15 seconds. Both the Up/Left and Down/Right tests should be made to complete the test function.

When VOR or ILS self-test is initiated, the respective warning flag(s) should appear for a few seconds, then disappear for 10-20 seconds. If the test switch is held for longer than 25 seconds the flags will reappear and remain in view.

Automatic Direction Finder (ADF): A new ADF with slide-rule tuning is installed.

VOR-RMI Indicator: A single RMI with VOR/ADF Selector switches. The single RMI compass card always receives its heading signal from the opposite Course Indicator.

Attitude Indicator: Has a built-in Slip Indicator.

AUTOPILOT

SP-30 AL Model: Differs from SP-30-14 & 15 as follows:

A pitch damp mode is provided for turbulence penetration. In this mode, pitch attitude is not maintained automatically and elevator control is damped. Pitch attitude is controlled manually thru the control column.

A series yaw damper is installed to provide a full time yaw damping capability and to permit engaging the yaw damper at any time. The yaw damper tie-in with the rudder system is such that yaw damper operation does not cause movement of the rudder pedals and manual operation of the pedals at any time will not affect yaw damper operation.

NOTE

This differs from SP-30-14 and -15 model autopilots where yaw damper action moves the rudder pedals and manual inputs to the rudder pedals are resisted by the yaw damper.

Attenuation is initiated by the Radio Altimeter at approximately 1,200 feet. There is no glide path extension as attenuation is a continuous function of airplane altitude, and gain programming is monitored and adjusted as long as the autopilot is coupled.



In flight, if the autopilot is disengaged the AUTOPILOT OFF light and Master Warning Light will come on if the PTC is in OVERRIDE and the landing gear is up. A warning horn will also sound if flaps are up. Pressing the Master Warning Light or re-engaging the autopilot will silence the horn and put out the lights. This warning system eliminates the speed restriction imposed by an inoperative PTC, provided the autopilot is engaged.

Automatic Cut-Off (ACO): An automatic cut-off feature is provided to disconnect this autopilot when preset mismatch limits of the roll and pitch monitor are exceeded.

ELECTRICAL AND LIGHTING

ELECTRICAL

Engine Driven Generators: A larger capacity (30 KVA) generator is connected to each engine through a constant speed drive unit.

Generator Drive Oil Temperature Gauges and Selector Button: The gauges have a dual scale to indicate temperature rise of the oil when passing through the CSD, or the oil outlet temperature. The CSD TEMP OUT button must be pressed and held to read the oil outlet temperature.

Generator Drive Disconnects: There is a guarded GENERATOR DRIVE DISCONNECT switch (DISENGAGE-ENGAGE) for each Generator Drive Unit. When in DISENGAGE a solenoid actuates the mechanical disconnect system.

LIGHTING

Emergency Lighting: There are five separate circuits; four for emergency cabin lighting, and one for the wing.

EMERGENCY EQUIPMENT

OXYGEN

Oxygen Supply: One crew bottle, one first aid bottle, and three emergency bottles are located in the forward cargo pit area.

Oxygen Service Panel: On the forward left side of fuselage with connections for exterior servicing of all bottles. Contains pressure gauges for crew, first aid, and emergency oxygen supplies.

Oxygen Control Center: Located in the coatroom aft of the forward lavatory. Contains the Automatic Supply Valve, the crew, first aid, emergency oxygen shutoff valves, and pressure gages for first aid and emergency oxygen.

CREW OXYGEN SYSTEM

Oxygen Regulator Control Panel: Each crew position has a panel with an OXYGEN QTY Indicator, a SUPPLY switch, and a FLOW Indicator.

Mask Mounted Regulator: A mask, with a pressure demand regulator attached, is provided at each crew position. A side oxygen selector on the mask rotates to give diluted or 100% oxygen. Its function is the same as the NORMAL - 100% Selector on early DC-8 oxygen panels. A front knob (NORMAL - EMERG.) is used to select normal or emergency oxygen. A warning device closes the air intake port causing restricted breathing when oxygen supply pressure is low. (Not installed on airplanes N8070U - 76U.)

Oxygen Mask Microphones: MASK NORM and PA on the microphone panel allows use of mask microphones for either radio calls or passenger announcements.

PASSENGER OXYGEN SYSTEM

Mask Containers: Mask container units are located in the overhead storage racks. In addition to an emergency/supplemental mask in the container, first aid oxygen is available by plugging a disposable mask in a first aid outlet located just forward of each container. HI or LO flow is controlled by a knob surrounding the outlet.

Mask container doors will automatically open if cabin altitude reaches approximately 14,500 to 15,000 feet.

Mask container doors may be opened manually by inserting a pointed object in a small slot on the door and pulling inboard.

PORTABLE OXYGEN BOTTLES

Crew Portable Oxygen Bottle: A special fitting is attached to the continuous flow outlet to permit connection of a crew mask to the bottle. KS masks cannot be used.

PORTABLE FIRE EXTINGUISHERS

CO₂ - One; in crew coatroom.

WATER - Three; one in each galley.

DRY CHEMICAL - Three; one in each galley.

SURVIVAL EQUIPMENT

Life Rafts: On overwater airplanes, nine 25 man rafts are installed in ceiling compartments adjacent to passenger doors and in hatrack compartments adjacent to overwing exits. The hatrack compartment door free-falls when the latch is pulled down. The raft is removed by pulling on the Roll Out Strap after operating the Strap Release.

Escape Slides and Jetescape Doors: Self inflating slides are mounted on each Jet-escape Door of which there are 6 in the cabin. These Type I emergency exits are not connected to the door warning system; however, there is a red tape on the side of the operating handle of each door to indicate that the handle is not fully closed.

In a ditching situation, be certain the door is opened sufficiently so that the slide will inflate to protect the raft. Should the slide fail to inflate, the manual inflation handle may be used, but care should be taken to insure that the slide inflates outside the airplane.

FIRE PROTECTION

FIRE EXTINGUISHING

Agent Discharge Switches: Three position switches (INBOARD AGENT - OUTBOARD AGENT - OFF), one for each engine, allows either or both bottles on the corresponding side of the airplane to be discharged to the selected engine.



Agent Low Pressure Lights (Amber): Two for each bottle - both illuminate (AGENT LOW PRESS) when agent pressure is low. Press-To-Test checks the bulb and electrical circuit.

ICE AND RAIN

ELECTRICAL ANTI-ICE

All static ports and waste water drain masts are heated.

Anti-Ice Heaters & Meter Select Switch:

Located on the overhead panel. All static port heaters will be energized when switch is positioned to any selection except OFF. Current drawn by the static port heaters cannot be checked. On DC-8-61's N 8095 - N 8099 the switch has additional positions: OAT-1 and OAT-2. When in flight these positions give ammeter indications with which to check the current drawn by each TAT Probe Heater.

Heater Inoperative Light (Amber): One overhead panel, indicates low current flow to any pitot or stall warning heater.

Scoops Anti-Ice Switch: Energizes the scoops anti-ice valves but does not open the pneumatic crossfeed valve on airplanes N8073U and subsequent.

Drain Masts Heater Switch: Located on the Second Officer's panel, it energizes the heaters in the waste water drain masts.

AIRFOIL DEICING

Tail Deice Button: (N 8073 & Subsequent)

When pressed, actuates a mechanical timer to shut-off wing deicing, open tail deicing valve, and deice all segments of the horizontal stabilizer simultaneously for two and one half (2½) minutes.

WINDSHIELD HEAT

DC-8-61 airplanes N8095U thru N8099U are equipped with a solid pane construction windshield. Windshield heat for anti-icing is available to the outer surface of the LH, Center and RH windshields. Heating for anti-fogging is available to the inner surface of the LH, Center and RH windshields as well as the clearview and eyebrow windows. All circuits, anti-icing and anti-fogging, are energized by placing the WINDSHIELD HEAT switch in the WARM UP or FULL POWER positions. The CENTER, RIGHT & LEFT ANTI-FOG circuit breaker may be pulled to allow a handfeel check of the windshields to ascertain that the outer anti-icing conductive coatings are operative. Unless windshield defogging is required, operate with all windows and windshield anti-fogging circuit breakers pulled.

NOTE

With anti-fogging on, the inner surface of the windshield and windows will be noticeably warmer than that experienced on earlier DC-8's.

RAIN REMOVAL

A liquid rain repellent system is installed in addition to the normal system.

Rain Repellent Switches: Depressing either RAIN REPELLENT pushbutton on the glareshield allows a momentary discharge of fluid to the respective windshield.

Liquid Repellent Container: A replaceable pressurized container on the First Officer's sidewall with a fluid level indicator and pressure gauge below the container.

HYDRAULICS AND FLIGHT CONTROLS

STABILIZER

Yaw Damper: Full time yaw damp capability is provided and the Yaw Damper position of the autopilot servos lever may be used at any time including takeoffs and landings. Yaw damper operation does not cause movement of the rudder pedals not resist pedal movement.

Stabilizer In Motion Warning Horn: Sounds once for every $\frac{1}{2}$ degree of stabilizer trim to provide a warning in case unwanted stabilizer trim is being applied.

Airplanes N 8097U - 99U have been modified such that the horn sounds for every $\frac{1}{2}$ degree of continuous stabilizer movement.

Trim Indicator: Indicates stabilizer position from 1 degree nose down to 10 degrees nose up.

PITCH TRIM COMPENSATOR

PTC Extend Fail Light: In addition to illuminating when PTC extended 80%, the light will blink when PTC malfunctions if actuator extension is less than 80%. If failure occurs above 80% extension, light will remain ON steady and will not revert to the blinking mode.

SPOILERS

If spoilers are armed and anti-skid is armed, automatic ground spoiler extension is accomplished by rear wheel spin-up on landing, or by nose strut compression.

Main Gear Spoilers Inoperative Light (Amber):

A dual-bulbed light on the Second Officer's panel. When either bulb is illuminated, ground spoiler extension as a result of rear wheel spin-up will not be available. When the rear wheel spin-up spoiler feature is inoperative, automatic extension of spoilers is still available through compression of the nose gear strut, or by placing the SPOILER lever in the EXTEND position.

The MAIN GEAR SPOILER TEST switch on the Second Officer's panel is provided to test this protective feature.

NOSE WHEEL STEERING

Towing: A steering bypass valve on the nose gear permits towing without disconnecting the nose strut scissors.

INDICATING LIGHTS

Landing Gear Unsafe Light (Red): Will not illuminate when MLG doors do not close following gear retraction.



Door Warning Light (Red): Illuminates when either or both main gear doors are not latched when the landing gear is fully retracted and when gear is in transit.

WHEEL BRAKES

The Mark II Brake system with individual wheel anti-skid protection is installed.

Brake Lockout Cylinders: One for each wheel brake.

Anti-Skid: Fully automatic modulating system which senses an impending skid and reduces pressure to a maximum brake, non-skid condition. Individual wheel control and locked wheel protection is provided. No foot thumpers are provided.

PNEUMATICS

AIR CONDITIONING AND PRESSURIZATION

PNEUMATICS (8073 & Subsequent)

Manifold Failure Lights (Red): The manifolds are not shrouded; therefore, the MANFLD FAIL lights indicate that a manifold leak has been detected by a heat sensing strip near the corresponding manifold. When one light is illuminated the other light is deactivated to prevent false indications.

Pneumatic Crossfeed Valve Switch: A three position switch:

NORM - open on the ground, closed in flight.

OPEN - opens crossfeed valve.

CLOSED - closes crossfeed valve.

The SCOOPS ANTI-ICE switch does not affect crossfeed valve position.

AIR CONDITIONING

Recirculating Fans: Three fans (left, center and right) supply air to both air conditioning systems through a common manifold. The temperature controls have no effect on the left or right fan operation.

Recirculating Fan Switches: The three fans are controlled individually by two-position switches: OFF-ON for the left and right fans, OFF-AUTO for the center fan. There is no interlock between the fans and the cabin compressors. Only the center fan is affected by mixing valve position. All three fans can operate simultaneously on the ground. In flight, only two fans can operate at the same time. The left fan will not operate if the center fan is operating; the right fan is unaffected by operation of the other two. The center fan is interlocked with both mixing valves to provide automatic protection against a stall condition. If either mixing valve becomes positioned to deliver hot air (approximately the vertical position of a control lever) and any FAN STALL light illuminates, the center fan automatically shuts-off. Center fan operation cannot be resumed until both mixing valves are positioned toward a cooler setting.

Fan Stall Lights (Amber): Individual lights indicate that the corresponding recirculating fan is operating in a stall condition. A momentary indication is normal as a fan begins to operate.



Fan Unloader Valve Switch: A three-position switch (OPEN-CLOSE-AUTO) controls operation of an unloader valve on the recirculating fan Manifold. In AUTO, the valve opens automatically in response to a fan stall, reclosing as the stall is relieved. If the automatic feature is inoperative, OPEN and CLOSE positions provide valve control accordingly.

Radio Rack Overheat Light and Radio Rack (Amber) Blower Switch: The RADIO RACK O'HEAT light is a single-bulb, press-to-test light that indicates a blower failure. The red-guarded, three-position (NORMAL, OFF, and ON) RADIO RACK BLOWER switch controls blower operation. On the ground, the switch is disarmed and has no function; blower operation is continuous and output is delivered to the forward cargo compartment. In flight, NORMAL permits automatic cycling of both the blower and the cooling valve in response to heating requirements in the forward cargo compartment. When ON, the switch deletes the automatic cycling feature and blower output is delivered constantly to heat the cargo compartment. In OFF, the blower stops and the cooling valve opens to provide Radio Rack cooling. The cooling valve does not open automatically with blower failure and the switch must be placed OFF to open the valve. The cooling valve can be closed, if desired, by placing the RADIO RACK BLOWER switch to ON.

PRESSURIZATION

The butterfly outflow valve only opens to 45° to prevent contact with the ground on rotation. The CABIN PRESS Control Lever does not go to end of slot - Do not force the lever.

POWER PLANT AND FUEL

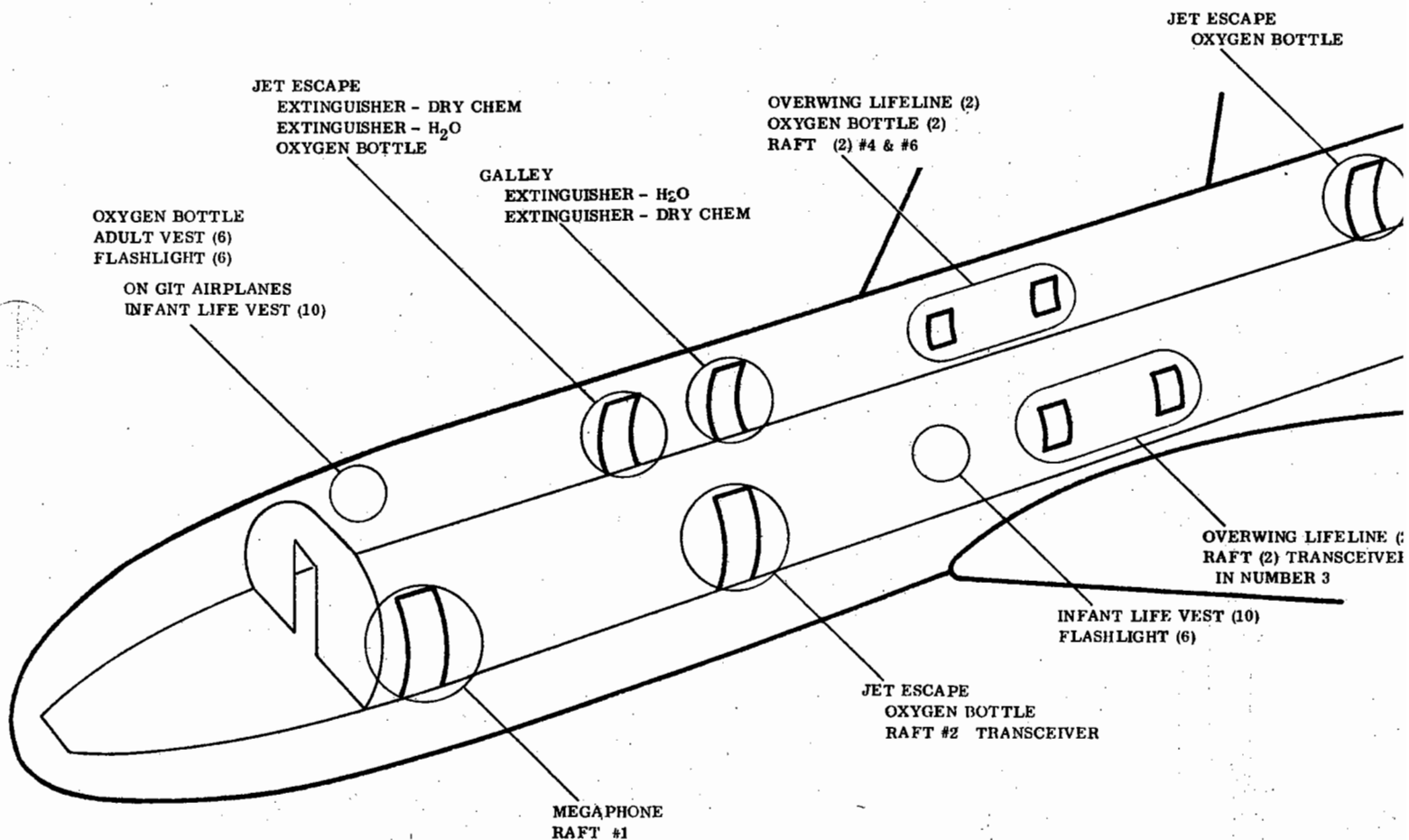
ENGINE FUEL SYSTEM

Fuel Temperature to Engine Gauge and Switch: The FUEL TEMP gauge indicates the fuel temperature entering the engine. The switch selects the engine to be monitored.



EMERGENCY EQUIPMENT LOCATIONS (DC-8-61 OVERWATER)

FIGURE 1



EXTINGUISHER - H₂O (3 ea)

One in Each Galley

EXTINGUISHER - DRY CHEM (3 ea)

One in Each Galley

OXYGEN BOTTLES (7 ea.)

- 1 - Aft of Fwd Lavatory
- 1 - Fwd of Fwd Galley
- 1 - Fwd of L Front Jet Escape (2L)
- 1 - Fwd of R Overwing Exit
- 1 - Aft of R Overwing Exit
- 1 - R Fwd Jet Escape (1R)
- 1 - R Side Fwd of Aft Galley

GALLEY

EXTINGUISHER - H₂O
EXTINGUISHER - DRY CHEM
RAFT #10

AFT CLOSET
FLASHLIGHT (3)

FIRST AID KIT
OXYGEN BOTTLE

T ESCAPE

INFANT VEST (10)
CREW VEST

RAFT #9
- TRANSCEIVER
MEGAPHONE

JET ESCAPE
RAFT #7

JET ESCAPE

NOTE

LIFE VEST UNDER EACH PASSENGER
SEAT INCLUDING LOUNGE SEATS. TWO
VESTS BEHIND FORWARD AND AFT CABIN
ATTENDANTS SEATS.

MEGAPHONE

1 - Forward Door (1L)
1 - Aft Door (5L)

FIRST AID KIT

R Side Aft Cabin

RAFTS (9 ea.)

1 Overhead Fwd Entry Door (1L) (ceiling)
1 - L Fwd Jet Escape Door (2L) (hatrack)
2 - L Overwing Exits (hatrack)
2 - R Overwing Exits (hatrack)
1 - L Aft Jet Escape Door (4L) (hatrack)
1 - Aft Galley Door (5R) (ceiling)
1 - Aft Entry Door (5L) (ceiling)

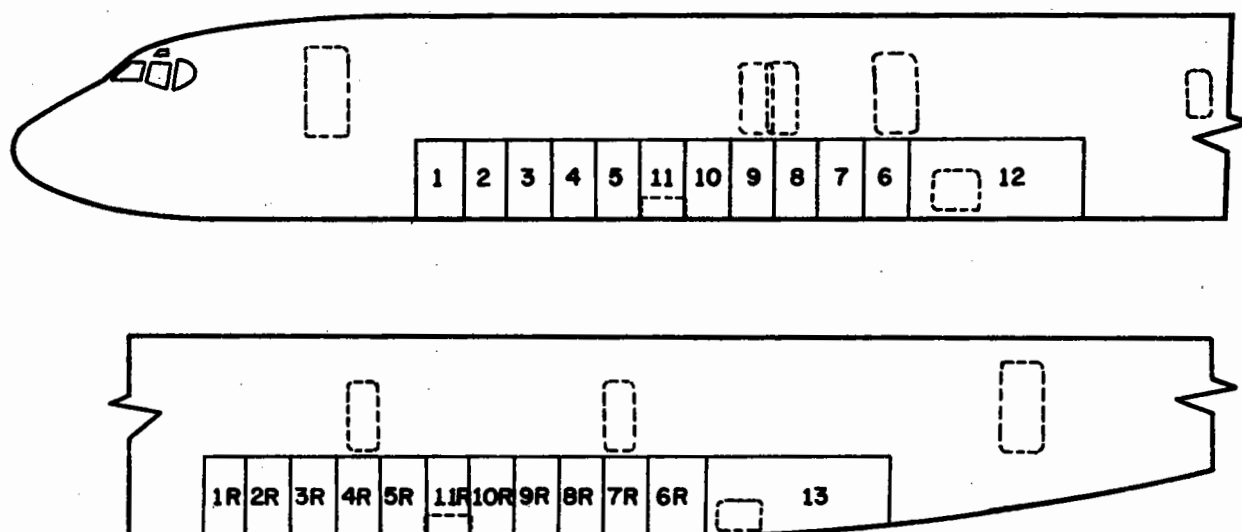


FIGURE 3
CARGO LOADING AREAS



DIFFERENCES

DC-8-62

The following is a listing of the most significant differences (from a crew viewpoint) of the DC-8-62 as compared to other DC-8 airplanes. Its purpose is to serve as a reminder of the differences.

The DC-8-62 airplanes have increased fuel capacity and refined aerodynamic characteristics which have significantly increased operating gross weights and range. The wing span has been increased six feet, and 40 inches have been added to the fuselage forward and aft of the wing making it 80 inches longer than the standard DC-8. (See Fig. 1)

AUXILIARY SYSTEMS

BLUE ROOMS

Four Blue Rooms; one forward and three aft.

Sinks: Used water is drained overboard through three electrically heated drain masts. Drain mast heating is controlled by a switch on the Second Officer's panel.

GALLEYS

Three Galleys; one forward and two aft.

DRINKING WATER SYSTEM

Water is carried in a single pressurized tank located in the aft accessory compartment.

A Water Service Panel is located aft of the rear service door. A fill and overflow valve in the ceiling above the aft lavatories controls filling of the water tank. The valve is controlled electrically by a 3 position switch at the Service Panel, or manually by a ratchet override control handle on the valve.

A Push-To-Test Light (Red) on the aft galley Service Panel will illuminate when the valve is OPEN.

Tank Pressurization: The water tank is pressurized by the airplane pneumatic system with an electrically driven air pump as an alternate source of pressure. The air pump is controlled by a switch on the aft galley service panel.

Quantity Gauge: Located in the aft galley area, indicates water quantity in tank.

Pressure Gauge: Located in the aft galley area, indicates water system pressure.

AVIONICS

COMMUNICATIONS

VHF Communication: VHF-1 is powered by the Battery Bus. No Squelch Control Panel is installed.



Audio Control Panel: New type with voice filter and combination ON-OFF volume slide-type switches. Audio control and microphone panels are added Second Officer's panel.

The Capt., F/O, and Navigator stations are connected to Service Interphone which can be used as a backup to the Flight Interphone System.

Selcal: The Captain's SELCAL light on the control pedestal monitors VHF-1 and HF-1.

The First Officer's SELCAL light monitors VHF-2 and HF-2.

Cabin Interphone: Five Cabin Interphone handsets; one in the cockpit, one each at forward and aft Cabin Attendants' stations, and one at each Jetescape door. The handsets at the Jetescape doors are not connected to the P.A. system.

Flight Recorder: Receives electrical outputs for airspeed and altitude from Central Air Data Computer-1.

Motion Picture Indicating Lights: Three indicating lights on the RH side of the S/O panel illuminate when the projectors are operating. No control switches are installed in the cockpit. A DC circuit breaker labeled "MOTION PICTURE PROJECTOR" can be pulled to deactivate all projectors.

NAVIGATION

Static System: All static ports are heated.

ADF Control Panel: A DC-8-61 type panel is on the overhead panel.

NAV Receiver: Improved type VHF NAV and glideslope receivers are installed which provide flag warnings if they sense course errors within themselves. Operation of the receivers is identical to previous receivers except for flag operation and a self test feature.

When changing frequencies the NAV and Glideslope flags will remain in view for 10-15 seconds. The NAV flag will also appear during enroute station crossing and remain in view until the RMI has settled on a reciprocal bearing.

No external VOR or ILS signal is required for self-test because the self-test signals are generated within the NAV receiver unit. During operation of the self-test function, flags out of view for 10-20 seconds will indicate satisfactory receiver operation. Except for flag action, the self-test provides the same readouts as on other DC-8's.

ILS Test is activated by selecting any LOC frequency and then depressing the ILS TEST switch located on the VHF Control Panel to either the U/L or D/R position for 15 seconds. Both the Up/Left and Down/Right tests should be made to complete the test function.

VOR Test is activated by selecting any VOR frequency and then depressing the VOR test button on the Course Indicator for 15 seconds.

When VOR or ILS self-test is initiated, the respective warning flag(s) should appear for a few seconds, then disappear for 10-20 seconds. If the test switch is held for longer than 25 seconds the flags will reappear and remain in view.

VOR/ADF Selector Switches: Have been relocated to the RMI indicator.

Compass System: A new, automatic synchronizing compass system without the manual synchronizing feature on the Course Indicator is installed. It does retain the visual annunciator.

DME: The indicator shows tenths of a mile and has a 390 NM search capability with DME Search switch in O'RIDE. Search range is 200 NM with SEARCH switch in NORM.

Auxiliary Vertical Gyro: An Auxiliary Vertical Gyro is installed for use in the event of a failure of the Captain's or First Officer's Vertical Gyro. It is controlled by the AUX VERT GYRO SEL switch: (CAPT'S INSTS - NORMAL - F/O'S INSTS) on the overhead panel. With the switch in NORMAL the auxiliary vertical gyro is in standby condition. When in CAPT'S INSTS the Captain's instruments and the autopilot receive information from the Auxiliary Vertical Gyro. With the switch in F/O'S INSTS the First Officer's instruments and the Weather Radar receive Auxiliary Vertical Gyro information. A press-to-test AUX VERT GYRO FAIL light (Amber) will illuminate until the Aux Vertical Gyro comes up to speed, or when the Auxiliary Vertical Gyro power fails.

Air Data System: A new type air data system consisting of dual Central Air Data Computers (CADC) is installed. The dual air data system utilizes pitot/static inputs to provide computed data to the Captain's and First Officer's altimeters, the First Officer's and Navigator's TAS indicators, the ATC Transponder, and the flight recorder. CADC-1 is powered by the left Emergency AC bus. CADC-2 is powered by radio bus #3.

CADC-1 and CADC-2 receive pitot/static inputs from the Captain's and First Officer's pitot/static systems respectively. The center pitot tube supplies only the PTC.

A CADC FAIL WARN light on the S/O's instrument panel will illuminate when CADC-1 fails.

Altimeters: Servo-pneumatic altimeters are installed on the Captain's and First Officer's panels. The altimeters have an ON-OFF switch installed in the lower right corner to control the mode of operation. The altimeters will operate as pressure instruments with the switch OFF. A Standby/Corrected flag installed on the upper left side of the dial indicates STBY if power fails to the correction circuits or if the correction is switched OFF. The CORR flag shows when the altimeter is in servo operation.



Temperature Indicators: Total Air Temperature (TAT) indicators are installed on the Second Officer's and Navigator's panels replacing the Static Air Temperature (SAT) indicators. The TAT probes are externally mounted on the lower left and right sides of the forward section of the fuselage. Each TAT indicator has an OFF flag to indicate loss of electrical power to the system. Digital readout of TAT is to nearest tenth of a degree centigrade.

TAS Indicators: The TAS indicators installed on the First Officer's and Navigator's panels operate independently of each other. Total air temperature and Mach number are used by CADC-1 and CADC-2 to compute TAS signals for the Navigator's and First Officer's TAS indicators respectively.

Attitude Indicator: Has a built-in Slip Indicator.

INERTIAL NAVIGATION SYSTEM

Dual, independent Inertial Navigation Systems (INS) are installed which provide steering signals to the autopilot, crosstrack deviation signals to INS course indicators, and signals for digital display on the INS Control Display Units. Each system has a Mode Selector Unit and a Control Display unit. Separate battery units for each INS provide auxiliary power to the INS for turn on and to maintain INS operation if primary power is interrupted.

AUTOPILOT

SP-30 AL model. Differs from SP-30-14 & 15 as follows:

1. A pitch damp mode is provided for turbulence penetration. In this mode, pitch attitude is not maintained automatically and elevator control is damped. Pitch attitude is controlled manually through the control column.
2. A series yaw damper is installed to provide a full time yaw damping capability and to permit engaging the yaw damper at any time. The yaw damper tie-in with the rudder system is such that yaw damper operation does not cause movement of the rudder pedals and manual operation of the pedals at any time will not affect yaw damper operation.

NOTE

This differs from SP-30-14 & 15 model autopilots where yaw damper action moves the rudder pedals and manual inputs to the rudder by the yaw damper.

Attenuation is initiated by the Radio Altimeter at approximately 1,200 feet. There is no glide path extension as attenuation is a continuous function of airplane altitude and gain programming is monitored and adjusted as long as the autopilot is coupled.

In flight, if the autopilot is disengaged the AUTOPILOT OFF light and Master Warning Light will illuminate if the PTC is in OVER-RIDE and the landing gear is up. A warning horn will also sound if flaps are up. Pressing the Master Warning Light or re-engaging the autopilot will silence the horn and extinguish the lights. This warning system eliminates the speed restriction imposed by an inoperative PTC, provided the autopilot is engaged.

Automatic Cut-Off (ACO): An automatic cut-off feature is provided to disconnect this autopilot when preset mismatch limits of the roll and pitch monitor are exceeded.

ELECTRICAL AND LIGHTING

ELECTRICAL

Engine Driven Generators: A larger capacity (30 KVA) generator is connected to each engine through a constant speed drive unit. The Frequency and Load Control switches are deleted.

Generator Drive Oil Temperature Gauges and Selector Button: The gauges have a dual scale to indicate temperature rise of the oil when passing through the CSD, or the oil outlet temperature. The CSD TEMP RISE button must be pressed and held to read the oil temperature rise.

Generator Cooling: Cooling air enters and discharges through ducts on the lower LH side of the engine cowl.

Generator Drive Disconnects: There is a guarded GENERATOR DRIVE DISCONNECT switch (DISENGAGE-ENGAGE) for each Generator Drive Unit. When in DISENGAGE a solenoid actuates the mechanical disconnect system.

Constant Speed Drive: The CSD oil reservoir is contained within the CSD casing. CSD oil is cooled by a jet pump on the ground and ram air in flight.

LIGHTING

Switch locations for the interior and exterior lights have changed. Refer to overhead panel illustration (Fig. 5) for switch locations.

The background fill lights under the glare-shield are controlled by the F/O INSTR and BACKGROUND dimming control switch.

A passenger reading lights switch (PASS READ LTS), installed at the top right corner of the Second Officer's panel, controls power to all passenger reading lights. It should normally be in the ON position.

EMERGENCY EQUIPMENT

CREW OXYGEN SYSTEM

The crew oxygen supply is the same as the standard DC-8 except that mask mounted regulators and a simplified crew oxygen panel are installed.

Oxygen Regulator Control Panel: Each crew position has a panel with an OXYGEN QTY Indicator, a SUPPLY switch, and a FLOW Indicator.



Mask Mounted Regulator: A mask, with a pressure demand regulator attached, is provided at each crew position. A side oxygen selector on the mask rotates to give diluted or 100% oxygen. Its function is the same as the NORMAL - 100% Selector on early DC-8 oxygen panels. A front knob (NORMAL - EMERG.) is used to select normal or emergency oxygen. A warning device closes the air intake port causing restricted breathing when oxygen supply pressure is low.

PASSENGER OXYGEN SYSTEM

The two Passenger Emergency Oxygen bottles and the one First Aid bottle are located in the drop ceiling at the aft end of the cabin. First Aid Oxygen controls are located above the aft service door. Emergency oxygen will begin flowing at approximately 15,000 feet cabin altitude.

Mask Containers: Mask container units are located in the overhead storage racks. In addition to an emergency/supplemental mask in the container, first aid oxygen is available by plugging a disposable mask in a first aid outlet located just forward of each container. HI or LO flow is controlled by a knob surrounding the outlet.

Mask container doors will automatically open if cabin altitude reaches approximately 14,500 to 15,000 feet.

Mask container doors may be opened manually by inserting a pointed object in a small slot on the door and pulling inboard.

PORTABLE FIRE EXTINGUISHERS

CO₂ - One; in crew coatroom.

WATER - Two; one in forward and one in aft galleys.

DRY CHEMICAL - Two; one in forward galley and one in the extreme aft galley.

SURVIVAL EQUIPMENT

Life Rafts: There are seven 25 man life rafts installed in ceiling compartments only.

Escape Lines: The Escape Line Attach Point is located on top of the wing between the two engines.

Escape Slides and Jetescape Doors: Self inflating slides are mounted on each Jet-escape Door of which there are 2 in the cabin. These Type I emergency exits are not connected to the door warning system; however, there is a red tape on the side of the operating handle of each door to indicate that the handle is not fully closed.

In a ditching situation, be certain the door is opened sufficiently so that the slide will inflate to protect the raft. Should the slide fail to inflate, the manual inflation handle may be used, but care should be taken to insure that the slide inflates outside the airplane.

FIRE PROTECTION

Agent Discharge Switches: Three position switches (INBOARD AGENT - OUTBOARD AGENT - OFF), one for each engine, allows either or both bottles on the corresponding side of the airplane to be discharged to the selected engine.

Agent Low Pressure Lights (Amber): Two for each bottle - both illuminate (AGENT LOW PRESS) when agent pressure is low. Press-to-test checks the bulb and electrical circuit.

ICE AND RAIN

ELECTRICAL ANTI-ICE

All static ports and waste water drain masts are heated.

Anti-Ice Heaters & Meter Select Switch:

Located on the overhead panel. All static port heaters will be energized when switch is positioned to any selection except OFF. Current drawn by the static port heaters cannot be checked. The switch has 2 additional positions: OAT-1 and OAT-2. When in flight these positions give ammeter indications with which to check the current drawn by each TAT Probe Heater.

Heater Inoperative Light (Amber): On overhead panel indicates low current flow to any pitot or stall warning heater.

Scoops Anti-Ice Switch: Energizes the scoops anti-ice valves but does not open the pneumatic crossfeed valve.

Drain Masts Heater Switch: Located on the Second Officer's panel, it energizes the heaters in the waste water drain masts.

Engine Anti-Ice Switch: On the overhead panel, one for each engine. When ON, the PT₂ Probes are pneumatically heated. There is no separate PT₂ Heater switch.

AIRFOIL DEICING

Tail Deice Button: When pressed, actuates a mechanical timer to shut-off wing deicing, open tail deicing valve, and deice all segments of the horizontal stabilizer simultaneously for two and one half (2½) minutes.

RAIN REMOVAL

A liquid rain repellent system is installed, in addition to the pneumatic rain removal system.

Rain Repellent Push Button: Depressing either RAIN REPELLENT button on the glareshield allows a momentary discharge of fluid to the respective windshield.

Liquid Repellent Container: A replaceable pressurized container on the First Officer's sidewall with a fluid level indicator and pressure gauge below the container.

WINDSHIELD HEAT

The DC-8-62 is equipped with solid pane windshields. Heating for anti-icing is available to the outer surface of the Left, Center, and Right Windshields. Heating for anti-fogging is available to the inner surface of the Left, Center and Right Windshields as well as the Clearview and Eyebrow windows. All circuits, anti-icing and anti-fogging, are energized by placing the WINDSHIELD HEAT switch in the WARM UP or FULL POWER positions. The CENTER, RIGHT and LEFT Anti-fog circuit breaker may be pulled to allow a hand-feed check of the windshields to ascertain that the outer anti-icing conductive coatings are operative. Unless windshield defogging is required, operate with all windows and windshield anti-fog circuit breakers pulled.

NOTE

Anti-fogging will add considerable warmth to the inner windshield surfaces.



HYDRAULICS AND FLIGHT CONTROLS

FLIGHT CONTROLS

Yaw Damper: Full time yaw damp capability is provided and the Yaw Damper position of the autopilot Servos Lever may be used at any time including takeoffs and landings. Yaw damper operation does not cause movement of the rudder pedals nor resist pedal movement.

Stabilizer: A heavy duty stabilizer hydraulic motor has been installed so that it will not stall at the high Mach numbers.

The stabilizer in-motion sensor is reset after each movement of the horizontal stabilizer, which will prevent activation of the in-motion horn during stabilizer movements of less than one half degree. Only a continuous stabilizer movement of one half degree or more will activate the in-motion warning horn.

Flap Setting Selections: Flap selections are 12, 18, 23, 35 degrees and Down. 18 and 23 degrees will be used as takeoff flap settings.

Stall Warning: The stall warning system has been modified to give a Stick-Shaker warning with flaps up, because prestall buffet occurs relatively close to the 1 "g" stall in the clean configuration.

PTC Extend Fail Light: In addition to illuminating when PTC extended 80%, the light will blink when PTC malfunctions if actuator extension is less than 80%. If failure occurs above 80% extension, light will remain ON steady and will not revert to blinking mode.

SPOILERS

If spoilers are armed and anti-skid is armed, automatic ground spoiler extension is accomplished by rear wheel spin-up on landing, or by nose strut compression.

Main Gear Spoilers Inoperative Light (Amber): A dual-bulbed light on the Second Officer's panel. When either bulb is illuminated, ground spoiler extension as a result of rear wheel spin-up will not be available. When the rear wheel spin-up spoiler feature is inoperative, automatic extension of spoilers is still available through compression of the nose gear strut, or by placing the SPOILER Lever in the EXTEND position.

The MAIN GEAR SPOILER TEST switch on the Second Officer's panel is provided to test this protective feature.

LANDING GEAR

Tires: Wider tires, larger brakes, and a heavy duty landing gear are installed to handle increased airplane gross weights.

Bogie: The bogie unlock feature has been replaced by a solid bogie beam.

Nosewheel Steering: Nosewheel steering has been reduced by 15 degrees each way.

INDICATING LIGHTS

Landing Gear Unsafe Light (Red): Will not illuminate when MLG doors do not close following gear retraction.

Door Warning Light (Red): Illuminates when either or both gear doors are not latched when the landing gear is fully retracted and when gear is in transit.

WHEEL BRAKES

The Mark II Brake system with individual wheel anti-skid protection is installed.

Fluid Quantity Limiters: Fluid quantity limiters are installed in the brake lines replacing the lockout cylinders. They have the same function, but the preflight check will be for leaks only.

Anti-Skid: Fully automatic modulating system which senses an impending skid and reduces pressure to a maximum brake, non-skid condition. Individual wheel control and locked wheel protection is provided. There are no foot thumpers.

PNEUMATICS

AIR CONDITIONING AND PRESSURIZATION

PNEUMATICS

Bleed Air: The high pressure compressor supplies all bleed air for the pneumatic system. Air from either a low or high stage of this compressor is routed into a pressure regulator valve which regulates pressure to approximately 38 PSI, provided engine power is adequate. The heat exchanger uses fan bleed air for cooling and the cooling air is exhausted through an outlet in the pylon.

The low stage air bleeds through a one-way check valve to the regulator, and the high stage air bleeds through a shutoff valve to the regulator.

Low Pressure Pneumatic Shutoff Switches:

The switches have three positions: OFF, HIGH, and AUTO. The OFF position deactivates the system by closing both the regulator and the high stage shutoff valve.

The HIGH position opens both the high stage shutoff valve and the pressure regulator. In this position low stage air is checked and system demands are met by the high stage bleed only.

The AUTO position (normal for ground and most in-flight operation) will cause the high stage shutoff valve to close when low stage air is sufficient, and open when low stage air is insufficient. (Approximately 20 PSI is considered insufficient.)

Manifold Air Overtemperature Lights:

Four red, push-to-test lights, one for each engine supply duct, are located on the Second Officer's panel. When illuminated they indicate excessive air temperature within the ducts.

AIR CONDITIONING

Radio Rack Overheat Light and Radio Rack (Amber) Blower Switch: The RADIO RACK O'HEAT light is a single-bulb, press-to-test light that indicates a blower failure when it should be operating. The red-guarded, three-position (NORMAL, OFF, and ON) RADIO RACK BLOWER switch controls blower operation.



Blower operation in NORMAL and ON switch position is the same. In either NORMAL or ON position the Radio Rack Blower will operate continuously, and the cooling valve will remain closed. The RADIO RACK O'HEAT light is armed in both switch positions to illuminate if blower output is inadequate.

OFF position will turn off the blower, if operating, and will open the cooling valve.

The cooling valve does not open automatically with blower failure and the switch must be placed OFF to open the valve. The cooling valve can be closed, if desired, by placing the RADIO RACK BLOWER switch to ON or NORMAL.

POWER PLANT AND FUEL

POWER PLANT

The DC-8-62 is powered by JT3D-7 fan engines mounted in a long duct pod. The engine pods are clean, with no oil or pneumatic air intakes or heat exchanger doors. The engines have improved turbine blades to withstand higher EGT and a new fan design which permits an increase in air flow. Fan air is ducted internally along the sides of the engine and is discharged around the primary exhaust nozzle.

The engine nacelle has been moved forward forty inches and lowered slightly. The exhaust nozzle extends only slightly aft of the wing leading edge. Air inlets are provided on the nacelles for generator, CSD, and engine accessory section cooling.

ENGINE IGNITION SYSTEM

A dual high energy AC system provides ignition for each engine. The starter and ignition arming switches, continuous ignition switches, and ignition timers are deleted. IGNITER switches (A-B-BOTH) on the overhead panel allow selection of either or both igniters for each engine. Ignition is energized when the STARTER button is depressed and the Fuel Shutoff lever is moved toward FUEL ON. It is de-energized when the STARTER button is released. The IGNITION OVERRIDE switch, when armed to ALL ENGINES permits current to flow through the IGNITER switches directly to the selected igniters.

Alternate Starting Ignition System: An alternate starting ignition system, supplying AC current from a battery bus powered inverter, is provided for battery starts. An IGN PWR switch (ARM-OFF-TEST) on the Second Officer's panel, directs inverter AC power to #2 and #3 engine igniters. Inverter voltage will be indicated on the AC voltmeter when the switch is in TEST position, regardless of the voltage and frequency selector switch position. Normal voltage is 90-130 volts.

ENGINE GROUND COOLING AND BLOW-AWAY JET SYSTEM

Fan duct bleed air is used for ground accessory compartment cooling and ventilation. The jet pump, using engine bleed air, is used for CSD cooling and the vortex spoiler.

ENGINE FUEL SYSTEM

Fuel Temperature Control: Fuel is routed through a Fuel/Oil Heat Exchanger to heat fuel and cool engine oil (see Fig. 10).

Fuel Flow Gauges: The gauges are powered from either of two independent electrical sources.

ENGINE OIL SYSTEM

Oil Tanks: Each engine oil tank holds a useable capacity of 5.2 gallons.

Fuel/Oil Heat Exchanger: Engine oil is cooled by the Fuel/Oil Heat Exchanger which automatically maintains proper oil temperature. No oil cooler doors or control switches are installed.

Oil Pressure Lights (Amber): Illuminate to indicate low engine oil pressure or, if oil pressure is normal, to indicate that the oil filter is clogged.

REVERSE SYSTEM

The reversing mechanism is similar to that installed on the JT-4 powered aircraft, in that the reverse buckets are mounted in an ejector type device called a Translating Ring. The Translating Ring is stowed forward during forward thrust and moves aft for reversing. Reverse thrust is obtained when the translating ring is fully aft. As it approaches full travel, the buckets are rotated from the open to reverse thrust position (See Fig. 18). The normal source of power is the main hydraulic system. A standby thrust reverser hydraulic system consisting of an independent hydraulic pump, two accumulators, and a separate reservoir is provided to extend and retract the thrust reversers in the event the main hydraulic system malfunctions.

Reverse System Controls: The Thrust Reverse levers operate similar to those installed on later model DC-8's. In-flight reverse idle thrust may be obtained on outboard engines when the Landing Gear lever is down. The inboard engines may be placed in reverse thrust any time, but in-flight, reverse thrust EPR is limited to approximately 1.4 - 1.6 with the landing gear up.

Reverse thrust on any engine using the main hydraulic system is usually possible only when either inboard Thrust Reverse lever is placed in the thrust reverse position, because only those switches on the inboard Thrust Reverse levers open the shutoff valve from the main hydraulic system.

NOTE

However with any residual hydraulic pressure in the reverser system it may be possible to actuate the outboard reversers without first actuating an inboard reverser.

A standby system will supply hydraulic pressure independent of the main system shutoff valve. The standby REVerser HYDraulic pump switch (OVERRIDE-OFF-ON) on the overhead panel should be turned ON during taxi to allow outboard engine reversing, without first selecting reverse range for an inboard engine.

OVERRIDE is provided to operate the pump in the event of a thermal shutoff.

The REV HYD PUMP light (Blue) near the switch illuminates when the standby pump is on and producing adequate pressure.



Reverser Pressure Gauge: A Reverser Hydraulic Pressure gauge on the overhead panel indicates hydraulic pressure supplied to the reverser system.

Pressure will normally be 2800-3000 PSI. It may be supplied by the main hydraulic system, the standby reverser hydraulic system, or both.

Thrust Brake Lights: The Thrust Brake lights (Amber) on the center instrument panel illuminate when the respective reverser buckets are fully closed. They are extinguished when the translator rings are latched in the stowed position, and blink during any intermediate condition.

Emergency Bucket Dump System: A guarded EMERG BUCKET switch (NORMAL-DUMP) on the overhead panel. When in DUMP provides positive retraction of reverser buckets in case of an inoperative reverser system. When the switch is placed in DUMP, a latch is released and a spring-loaded mechanism causes the buckets to rotate to the faired position.

AIRPLANE FUEL SYSTEM

Tanks: The fuel system consists of eight tanks; four main tanks, two alternate tanks, a center wing auxiliary tank, and a two-cell-interconnected-forward auxiliary tank. Number 2 and number 3 alternate tanks are deleted, with number 2 and 3 systems consisting of one large main tank each. Number 1 and number 4 alternate tanks are each divided into an inboard and outboard section. Total fuel system capacity is approximately 165,000 pounds. (See Fig. 19).

Fuel Supply: Fuel normally is supplied to each engine from its corresponding main tank. The main tanks are replenished from the center wing auxiliary tank through the Cross Feed Manifold by use of the center wing Aux Boost Pump and Selector lever. The center wing auxiliary tank in turn is replenished by gravity feed from the forward auxiliary tank by use of the FWD AUX Selector lever. The only means of using fuel from the forward auxiliary tank is by gravity feed to the center wing auxiliary tank. When auxiliary tanks are emptied and main tank quantities reduced so that number 1 and number 4 main tank quantities are approximately 3,000 pounds, fuel transfer from the respective alternate to main tank is established to maintain this 3,000 pound level. This is accomplished in similar manner to previous DC-8's except that number 1 and number 4 main tank FILL VALVE switches each have an additional position of INT LEVEL (intermediate level) which must be selected to maintain the 3,000 pound level. Fuel from #1 and #4 alternates will be transferred from the inboard sections, and when the inboard sections are nearly empty outboard section fuel will automatically gravity feed into the inboard sections.

Fuel loading and management to maintain structural weight limits is accomplished in accordance with the limitations section of the flight handbook.

CONTROLS AND INDICATORS

Control and indicators used to operate and monitor the fuel system are as follows:

Tank Selector Levers: The center wing and forward auxiliary tanks each have a selector lever placarded CTR WING AUX, OFF and FWD AUX, OFF respectively. With the center wing aux tank selector in CTR WING AUX the selector valve permits fuel to enter the crossfeed manifold for replenishing the main tanks. When the forward aux tank selector is in FWD AUX fuel gravity flows into the center wing aux tank.

Fuel Tank Boost Pump Switches: Function of the boost pump is the same as on previous DC-8's except the center wing boost pump switch also energizes the center wing sump heater.

Fill Valve Switches: There is a fill valve switch for each tank. The 1 and 4 main tank fill switches are different in that there are two cross stripes on the switch knobs. One strips is placarded INT LEVEL and one is blank. Moving the knobs so that the INT LEVEL stripe is aligned with the FILL position transfers fuel level control to the intermediate fuel level control float switch in the 1 and 4 main tanks, thereby maintaining the tanks at the intermediate fuel level of 3000 pounds.

Scavenge Pump Switches: These are two switches connected by a bar to operate as one switch and are placarded CTR WING, OFF, and X-FEED. The CTR WING position energizes the electrically driven scavenge pump, the center wing pump heater blankets, and allows fuel not removed by the boost pumps to be pumped from the center wing tank to the number 2 main tank through a direct line. The X-FEED position energizes the scavenge pump and allows fuel to be pumped from the crossfeed manifold into the number 2 main tank.

No. 1 and 4 Alternate Tank Refill Switches: With the alternate tank fill valve open and pressurized fuel available from the associated main tank or from the crossfeed manifold, the switches, when held in the ON position, open the corresponding alternate tank refill valve to allow the outboard section of the alternate tank to be filled. Whenever the ALT QTY LOW lights flash to indicate a discrepancy in the fuel management schedule, the corresponding Refill switch can be held in the ON position until the schedule has returned to normal.

Auto Shutoff System Indication and Test Switch: Located above fuel panel on the right hand side of the Second Officer's panel. Operation is the same as on earlier DC-8's.

Fuel Quantity Gauges: Give only a digital readout; the pointer has been deleted. A push button, placarded T (test), is on each indicator. Pressing the T button moves the digital counter to zero. When the push button is released, the digital counter returns to its original indication. A SET knob positions the fuel quantity selector bug for desired tank quantity during refueling.

NOTE

If electrical power is removed, the digital counter tends to remain in its last indicating position.

No. 1 and 4 Main Quantity Low Lights

(Amber): Press-to-test, dimmable lights located on the lower right corner of the fuel panel indicate fuel level in the corresponding main tank has dropped to approximately 2000 pounds. The purpose of the light is to alert the crew of an extremely low fuel level or that fuel transfer from alternate to main tank should have been started.

No. 1 and 4 Alternate Quantity Low Lights

(Amber): Press-to-test, dimmable lights located on the lower right corner of the fuel panel indicate.

- A. Either section of the alternate tank is less than full, and the fuel in the corresponding main tank is above 4000 pounds.
- B. The outboard section of the alternate tank is not full when the inboard section is above 1000 pounds.

The lights will flash on and off until the fuel management schedule is returned to normal.

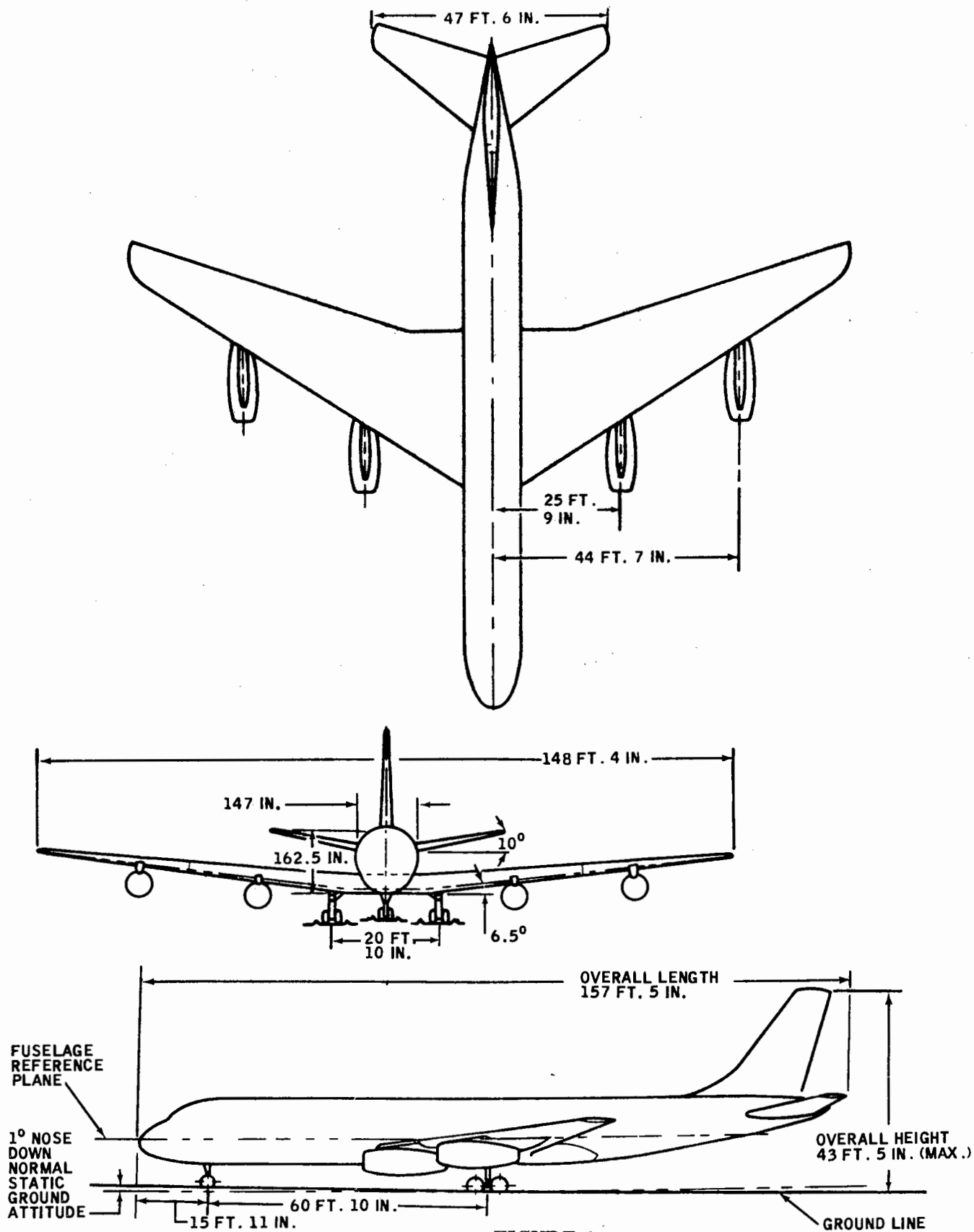


FIGURE 1



Non-shaded areas are differences

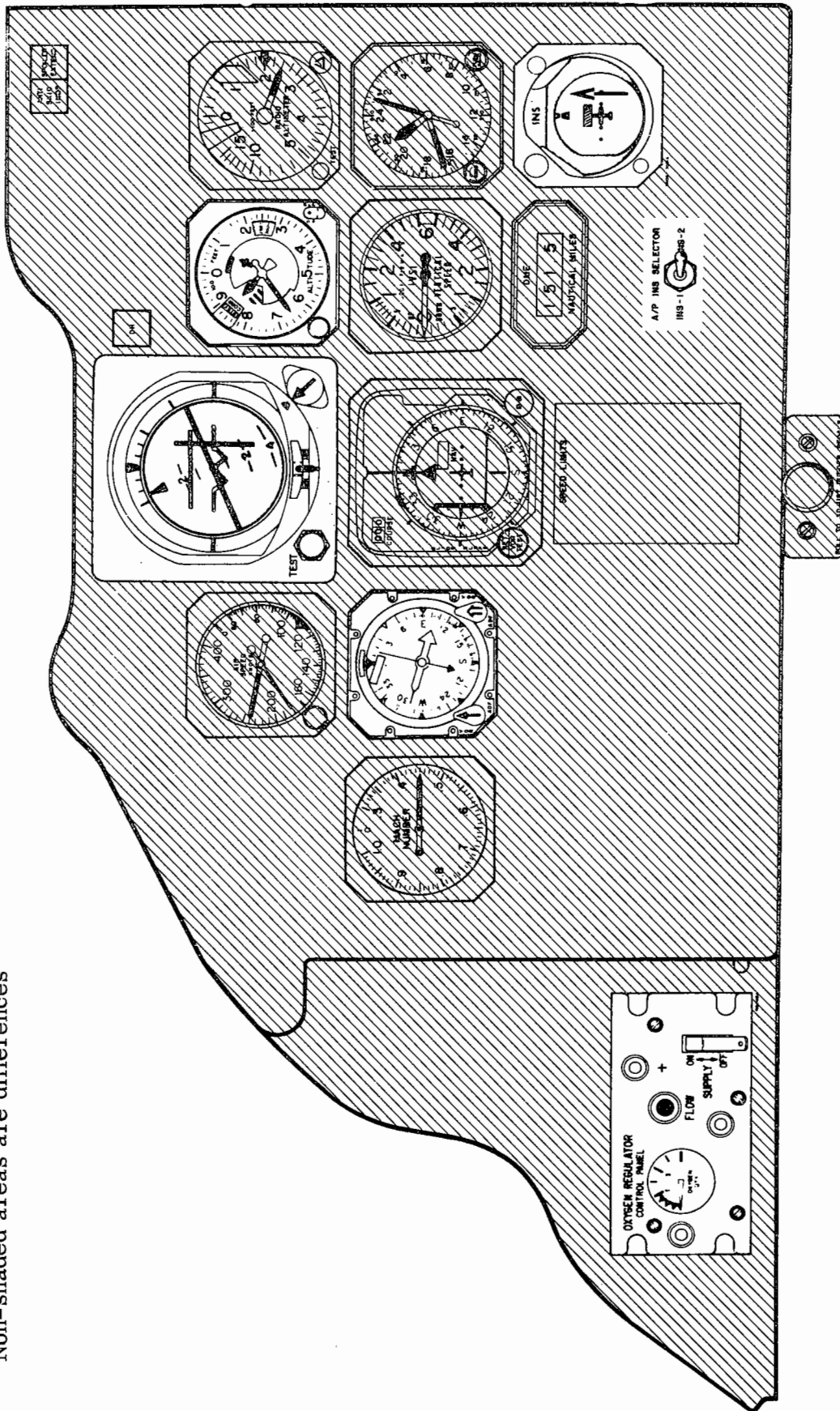


FIGURE 2



Non-shaded areas are differences

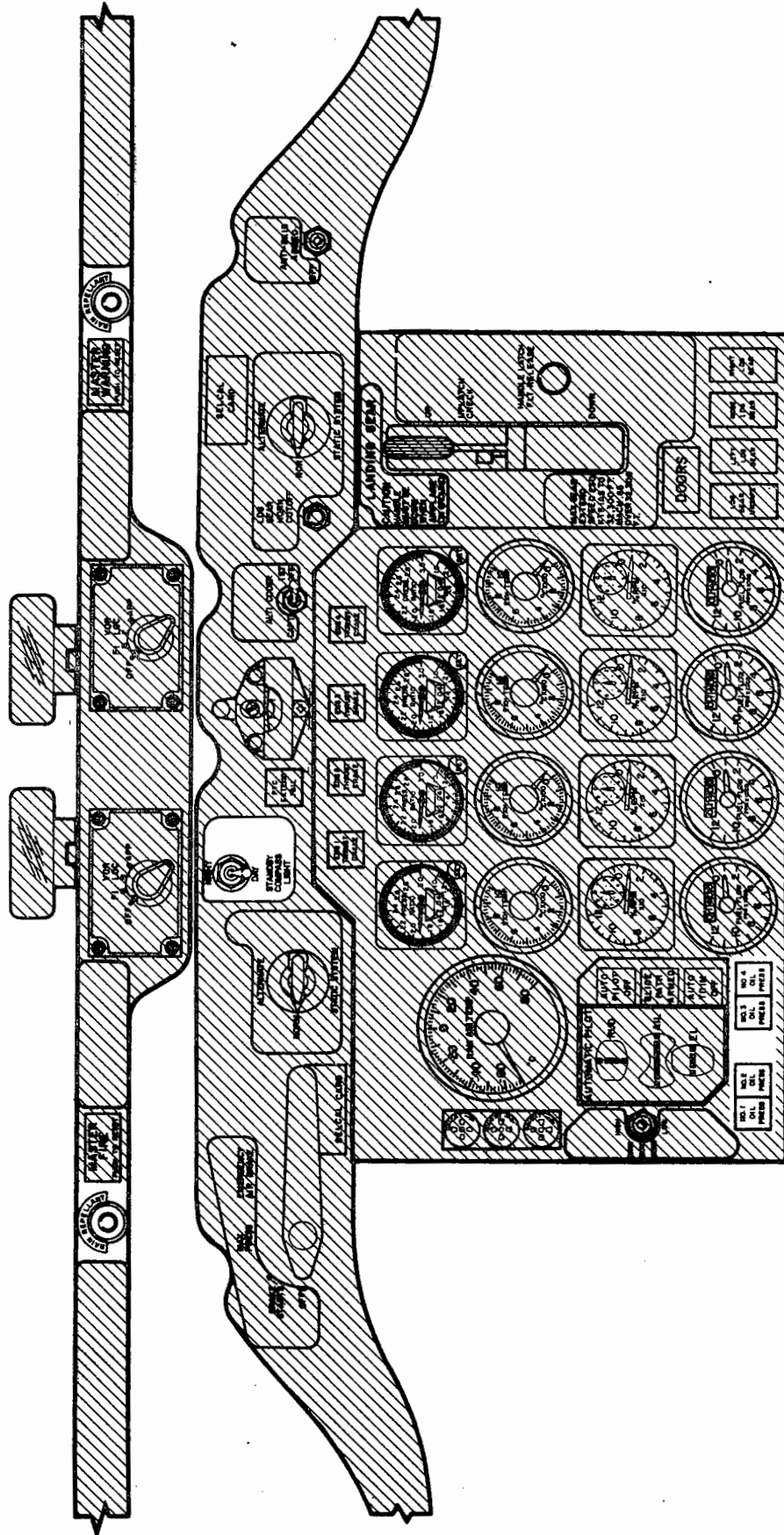
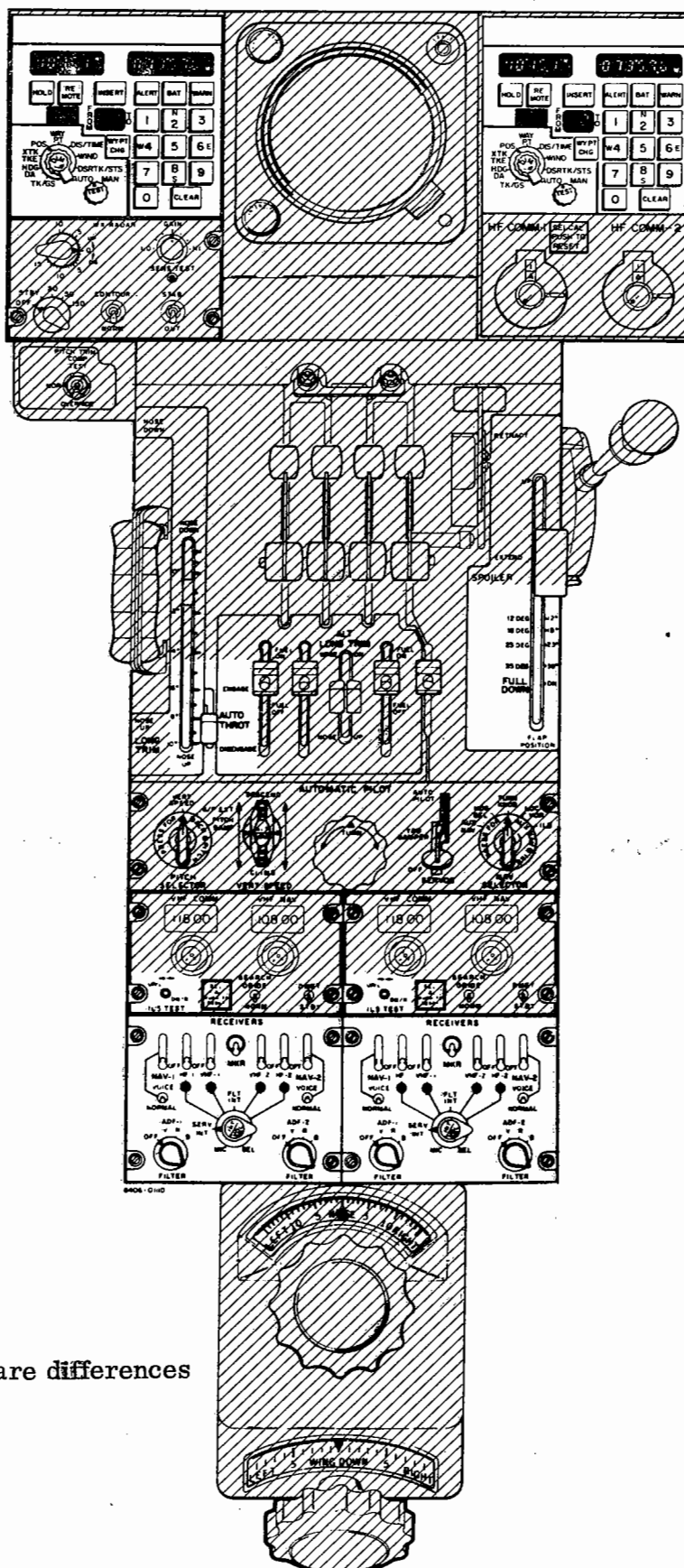
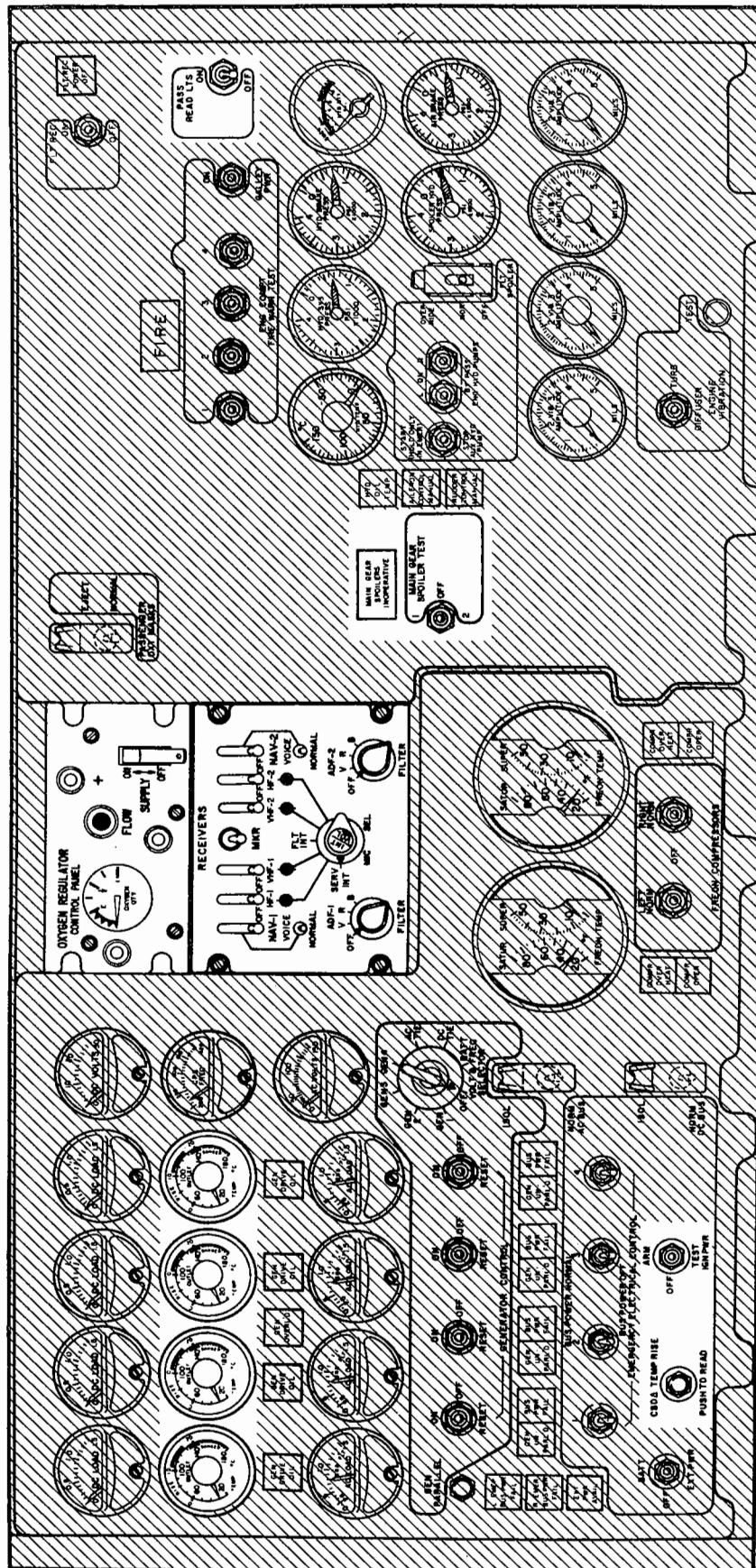


FIGURE 4



Non-shaded areas are differences



Non-shaded areas are differences

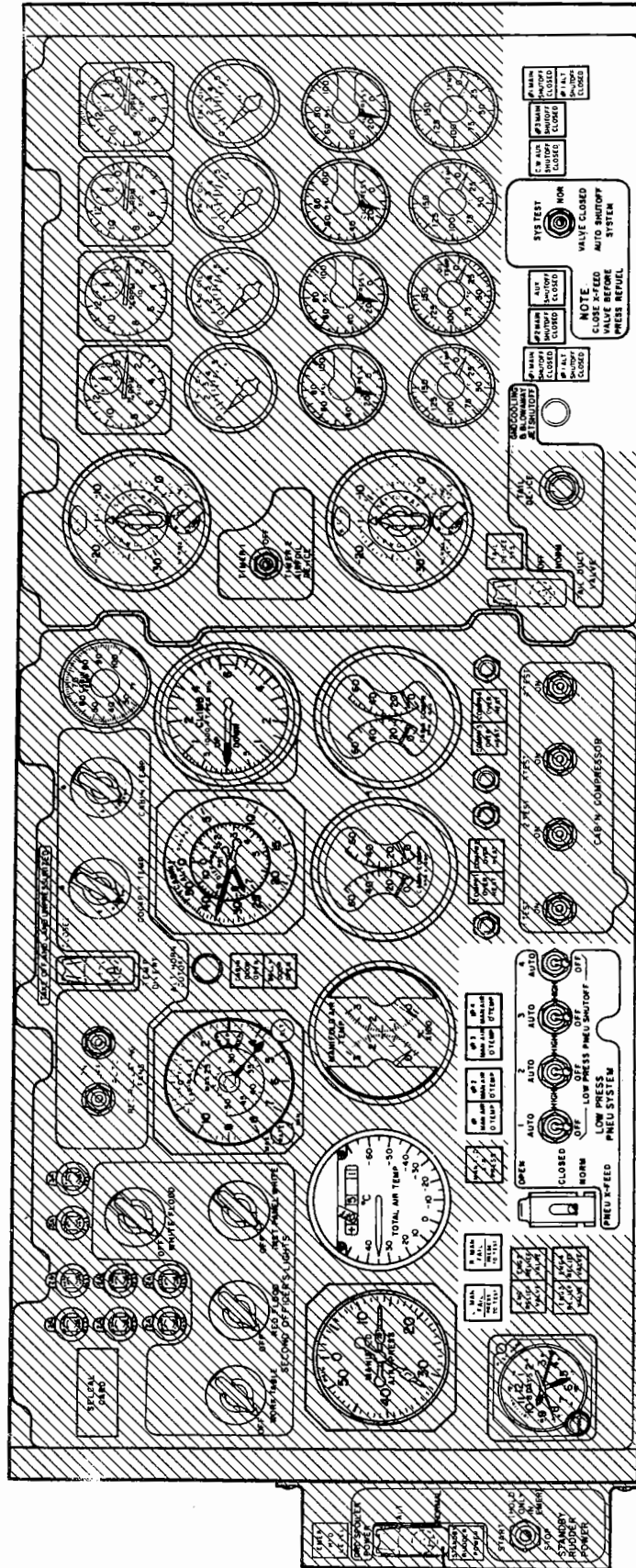
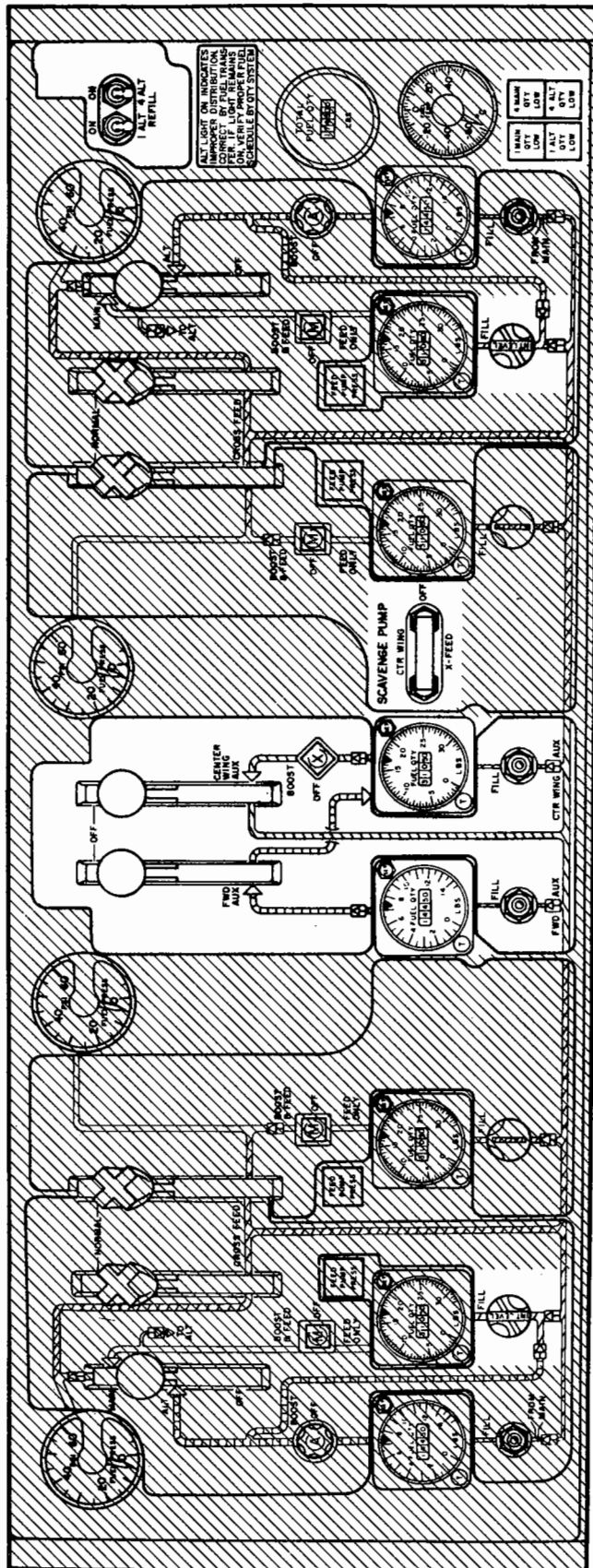


FIGURE 8



Non-shaded areas are differences

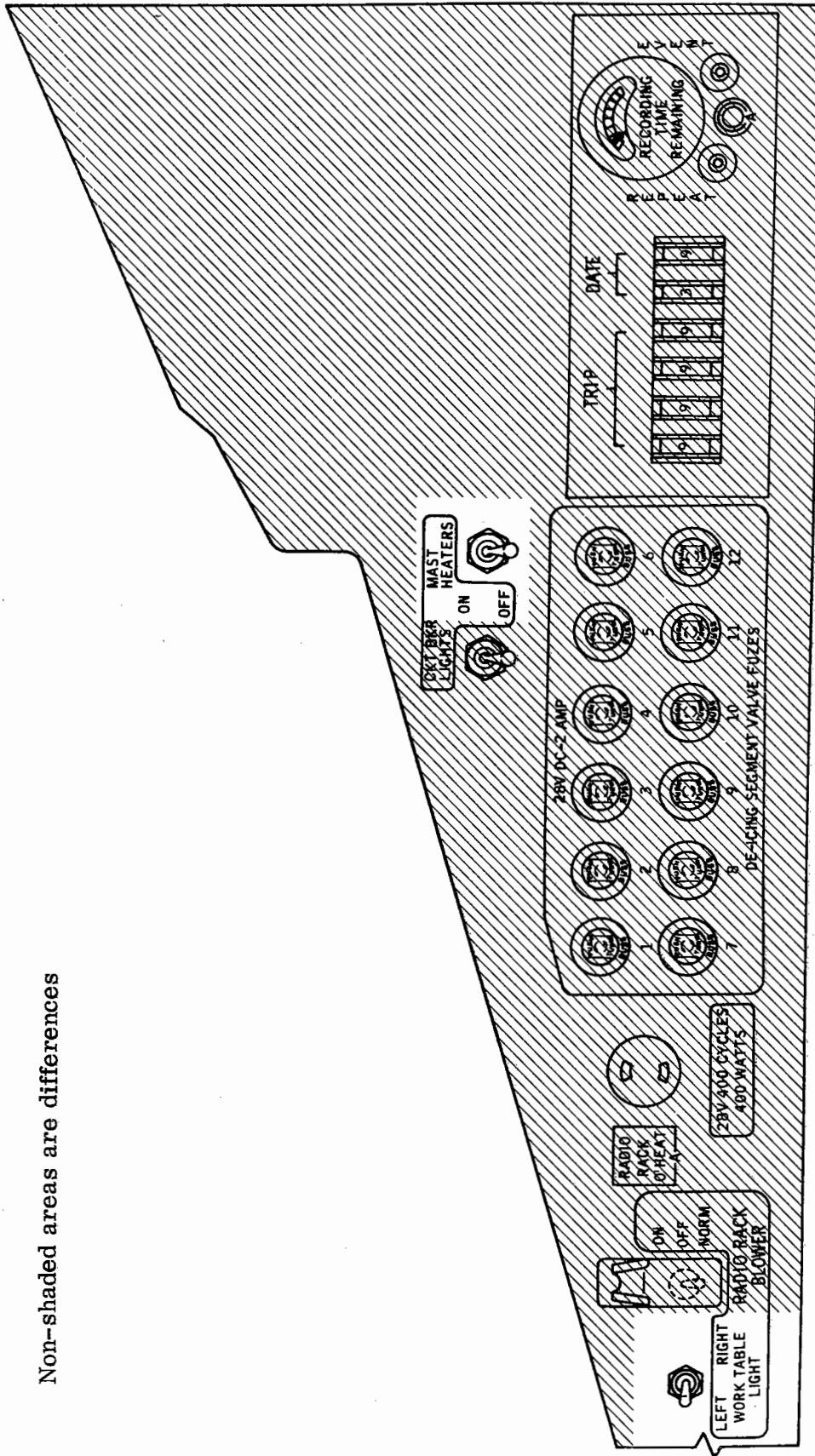
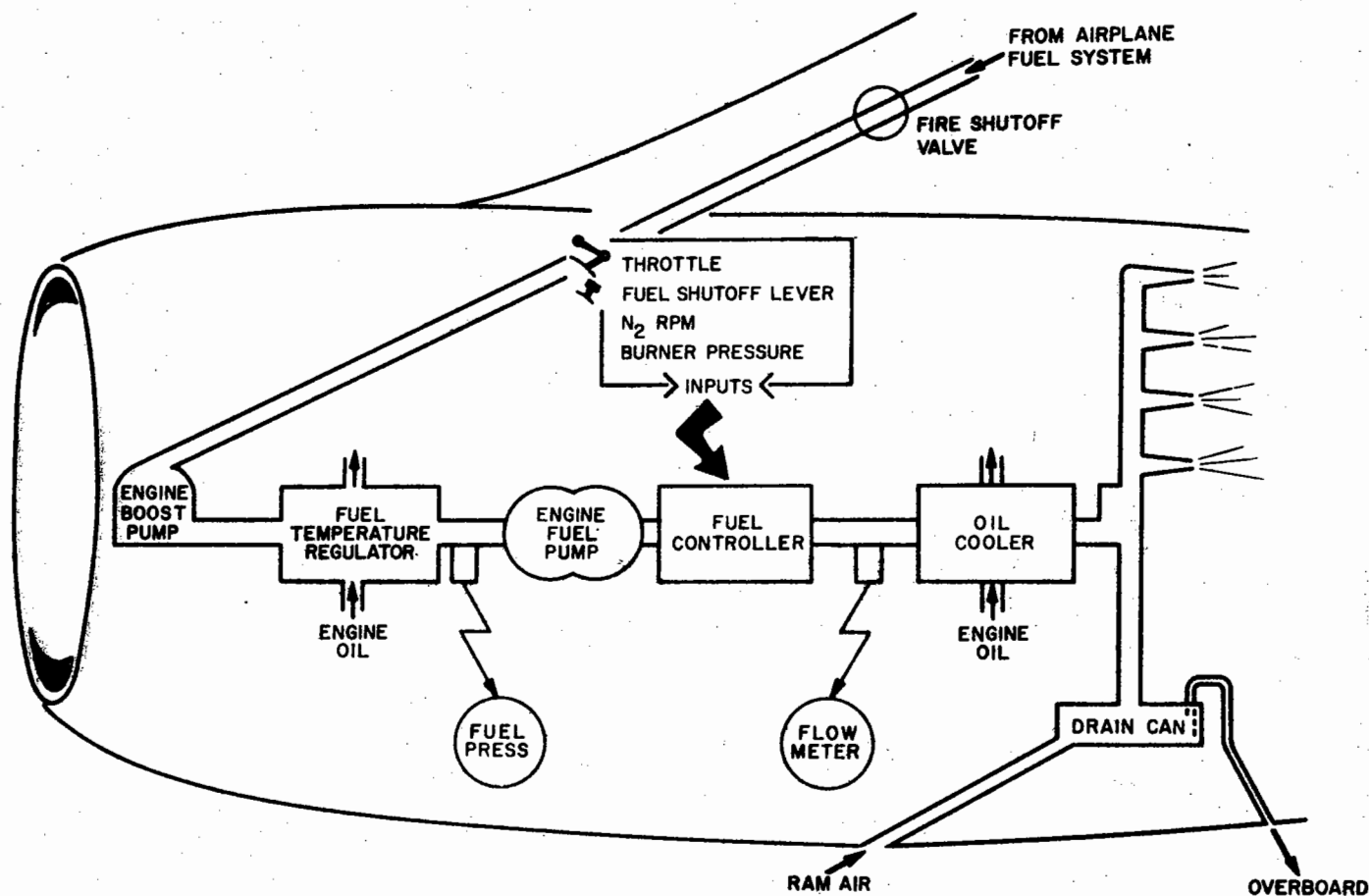


FIGURE 10

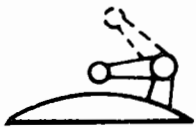


ENGINE FUEL SYSTEM DC-8-62

FIGURE 11



PILOTS' CONTROL
PEDESTAL



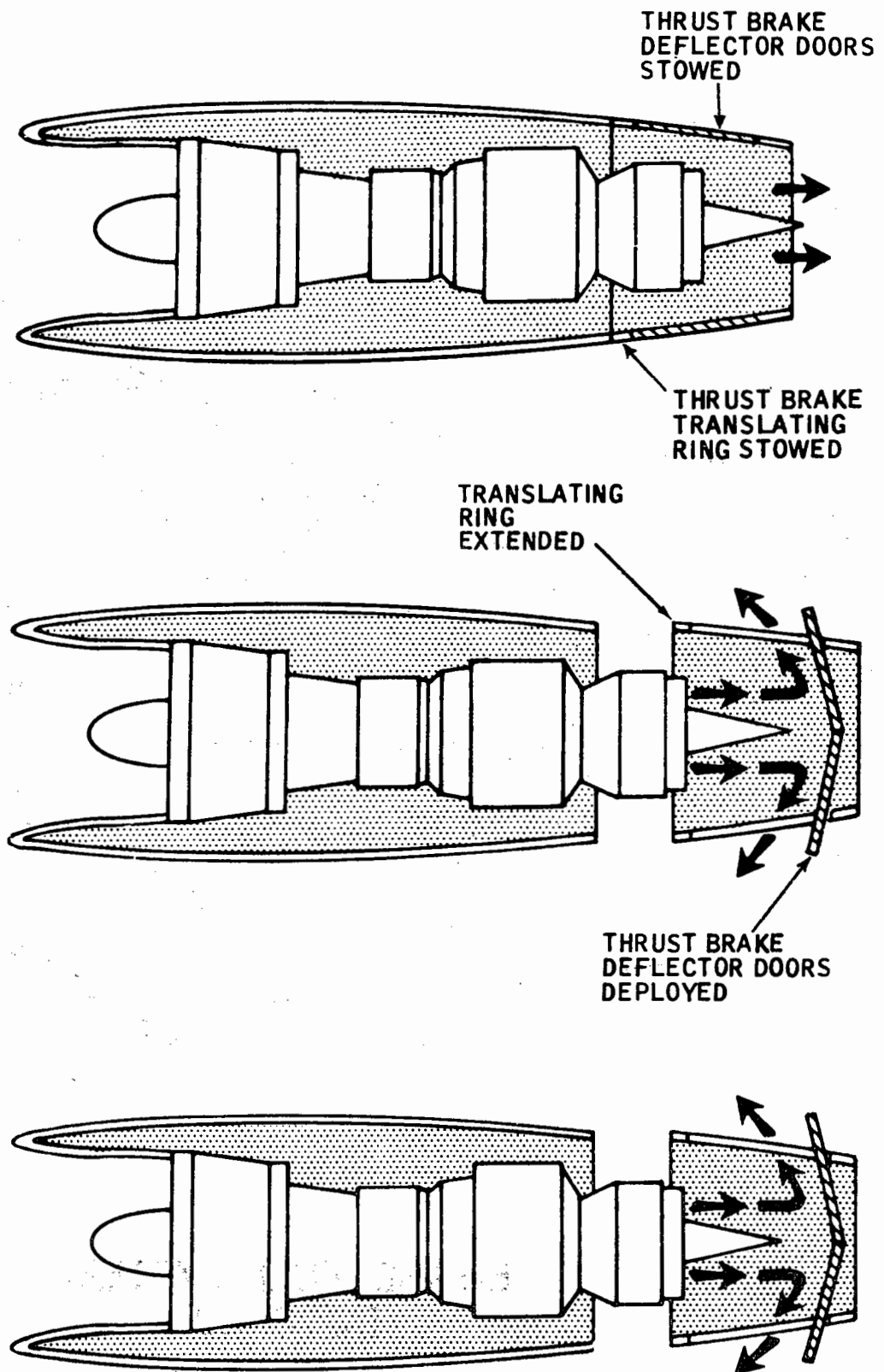
FORWARD
IDLE



REVERSE THRUST
DETENT

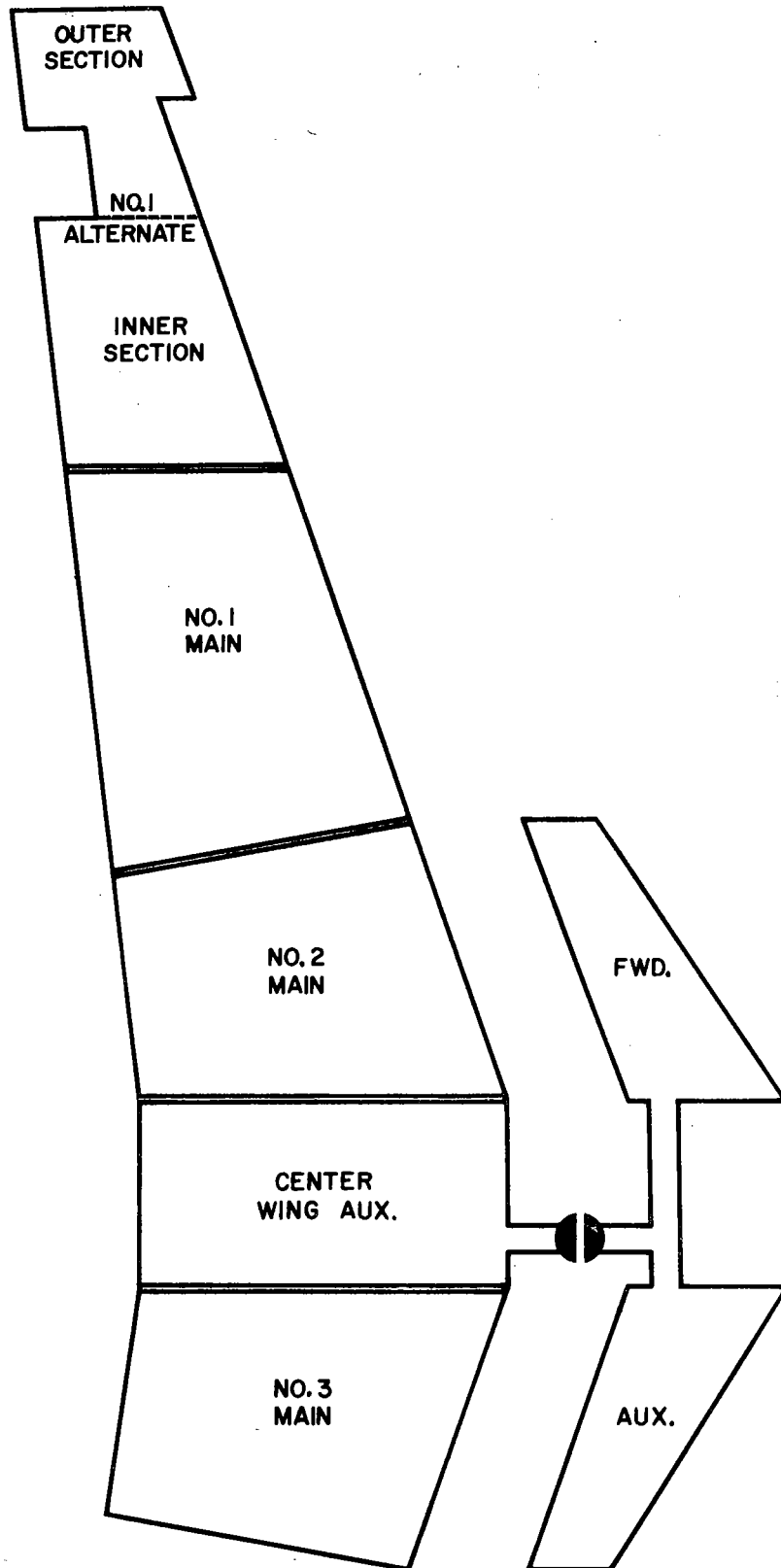


REVERSE THRUST
POWER RANGE



THRUST REVERSER

FIGURE 12



FUEL TANKS DC-8-62

FIGURE 13

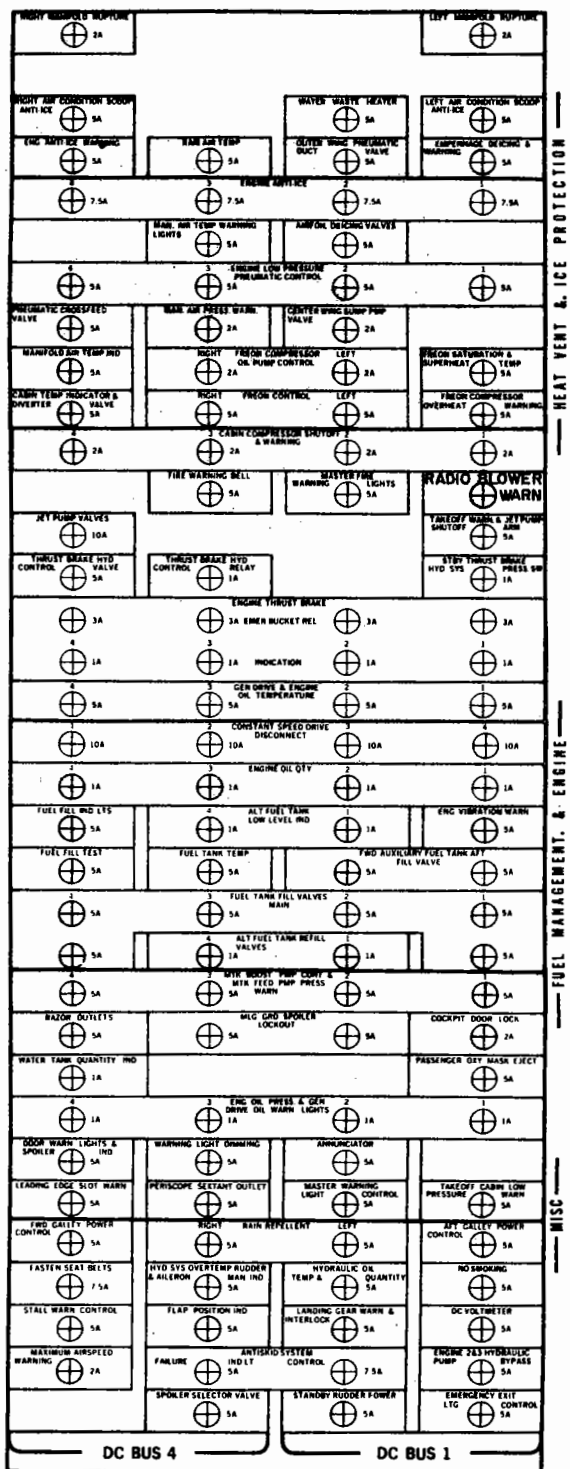


FIGURE 15

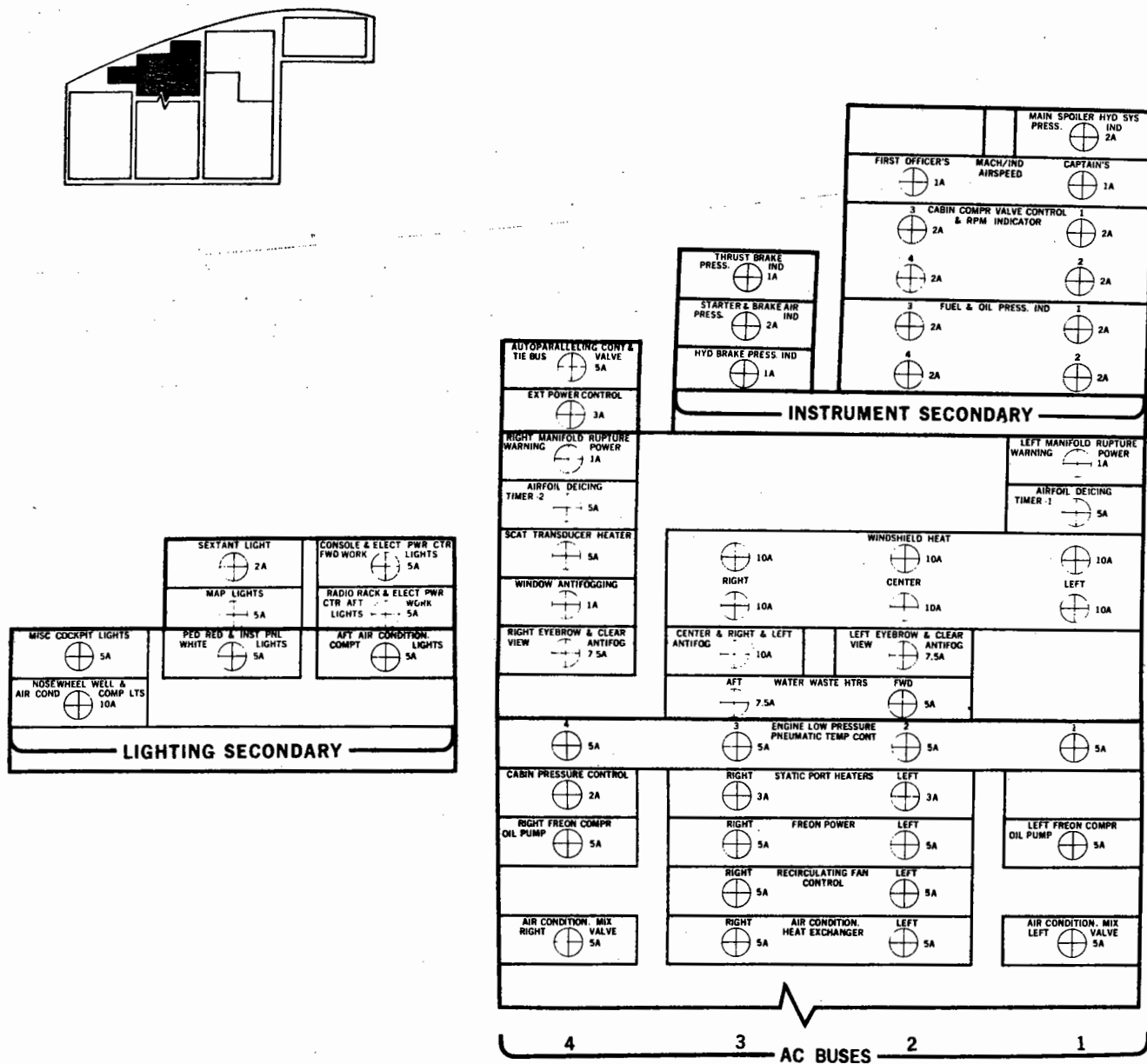
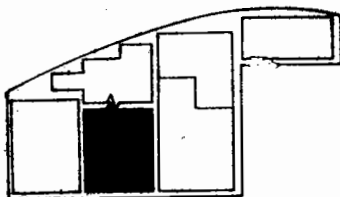


FIGURE 16



AUG 1/70
62-S

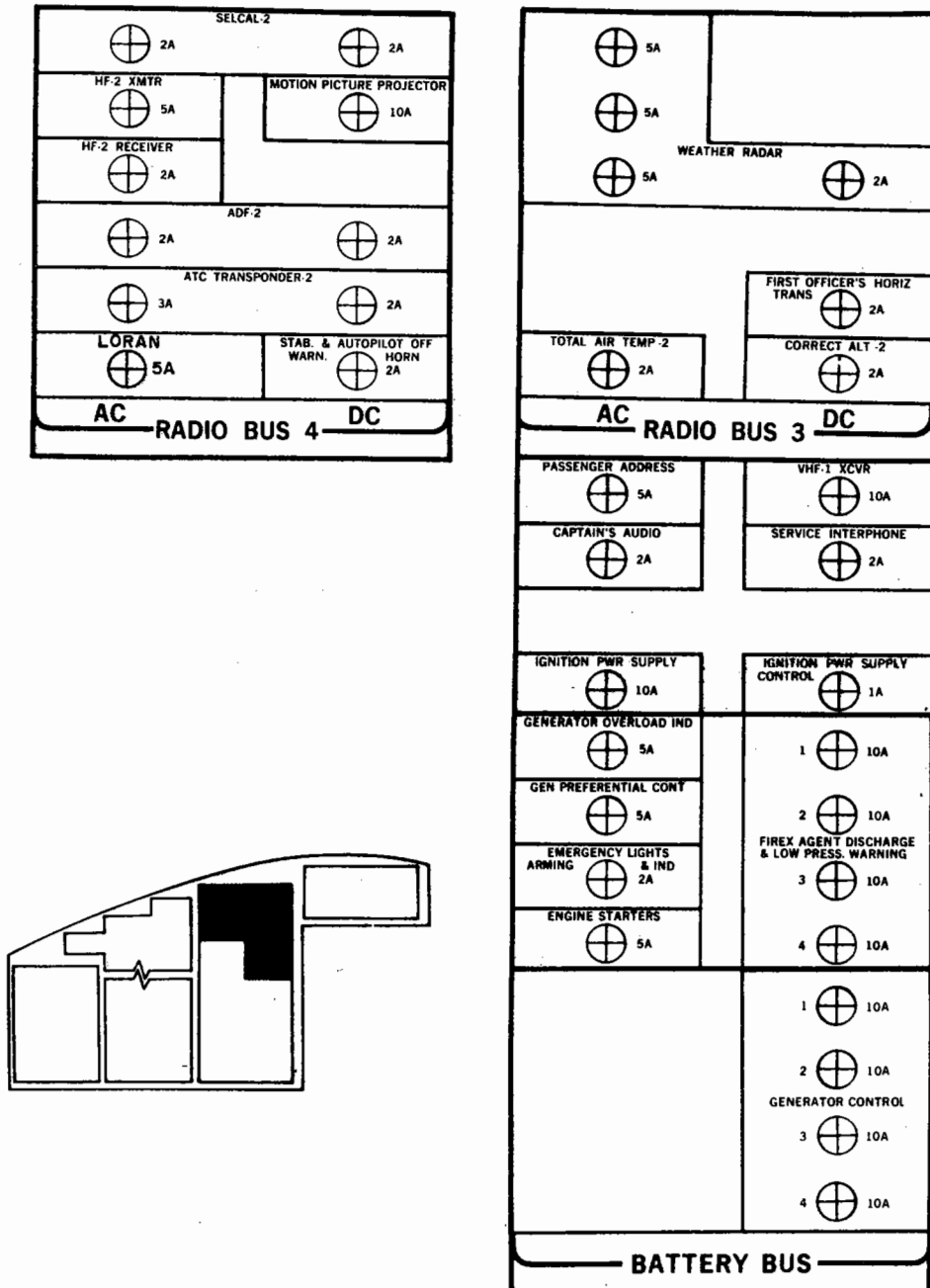


FIGURE 18

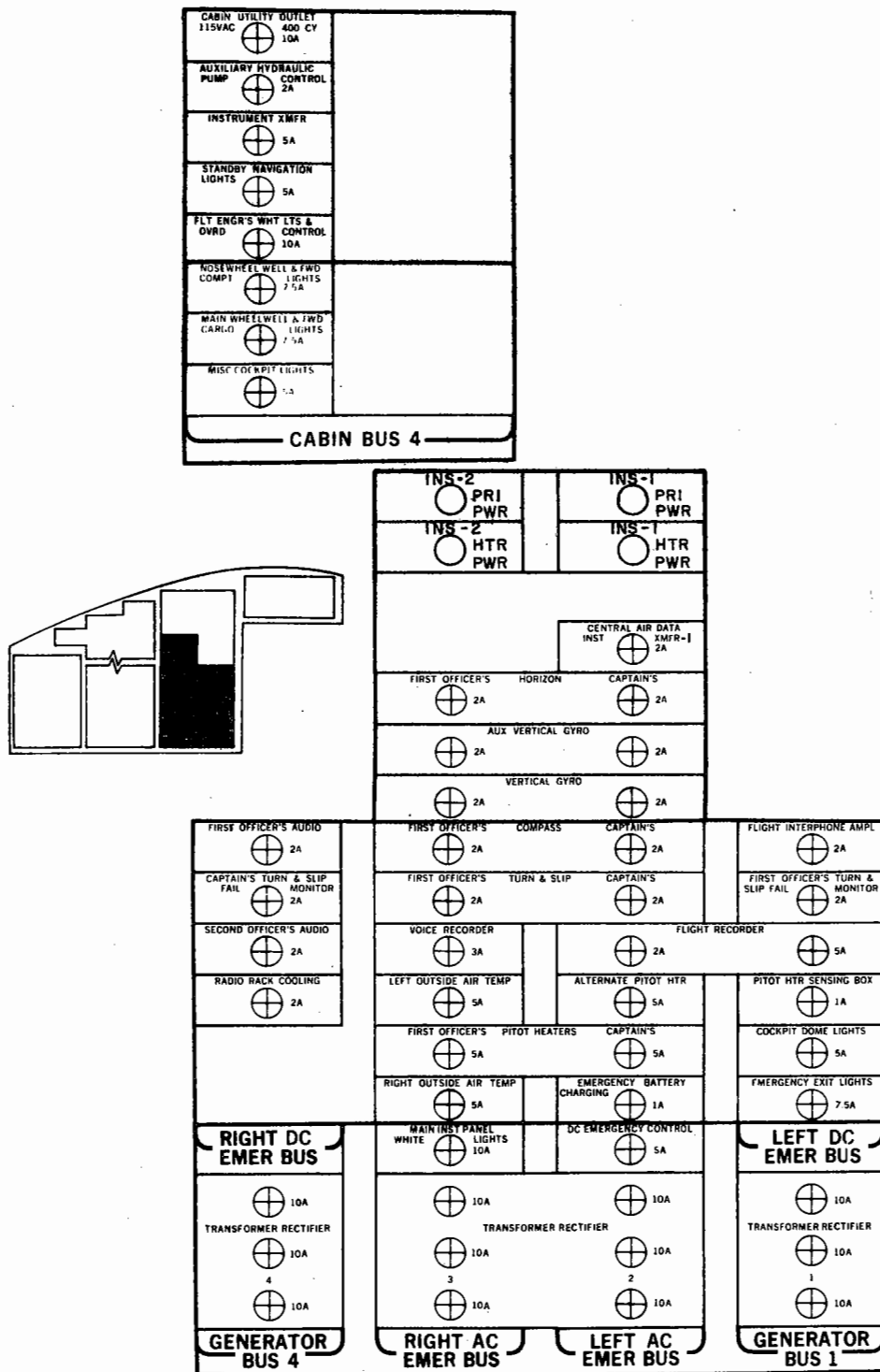


FIGURE 19

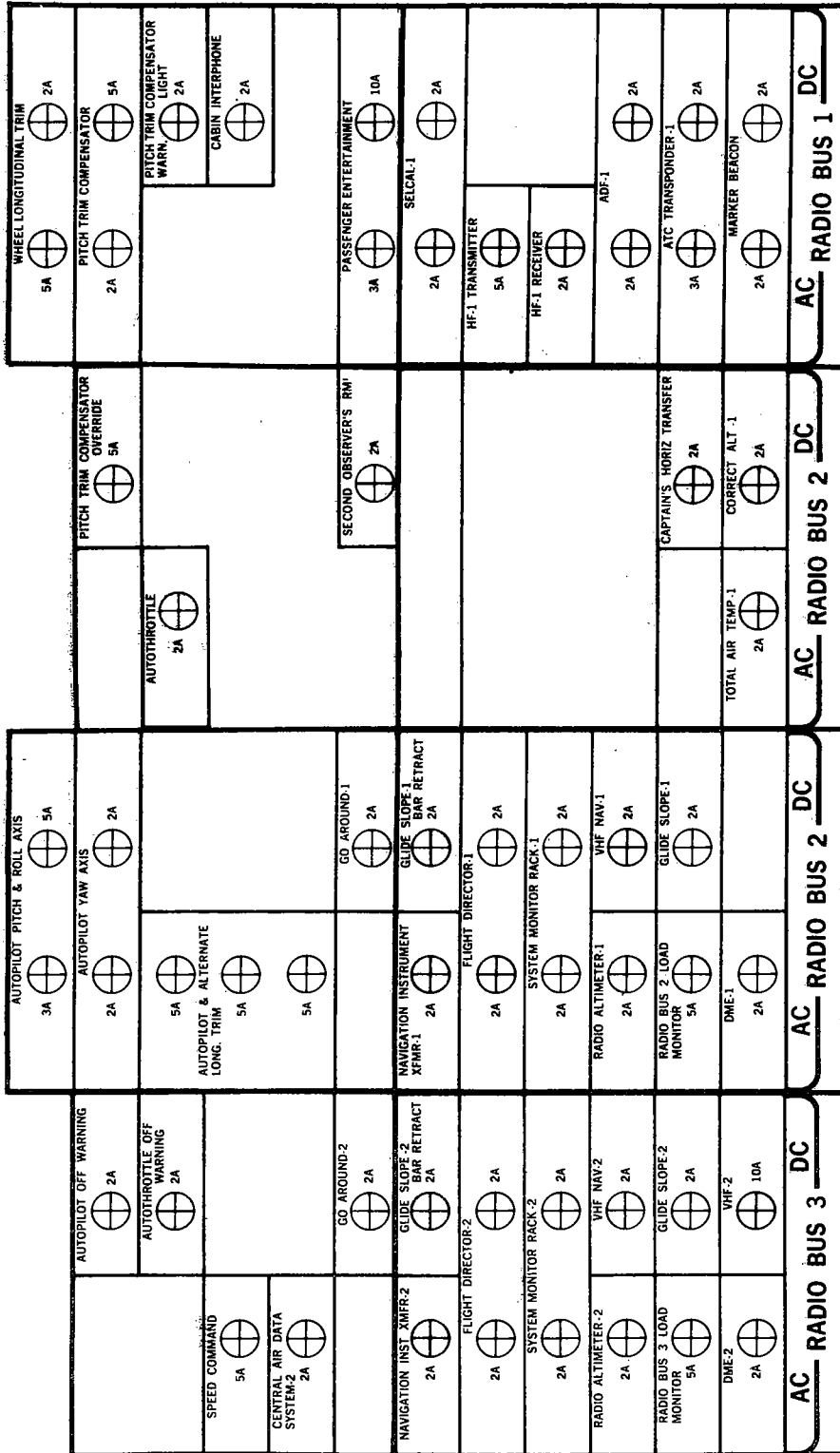
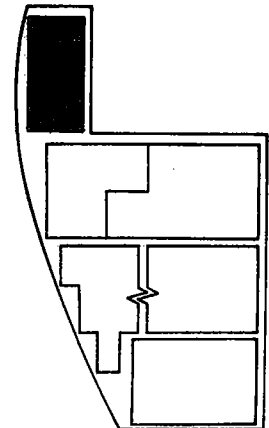


FIGURE 20



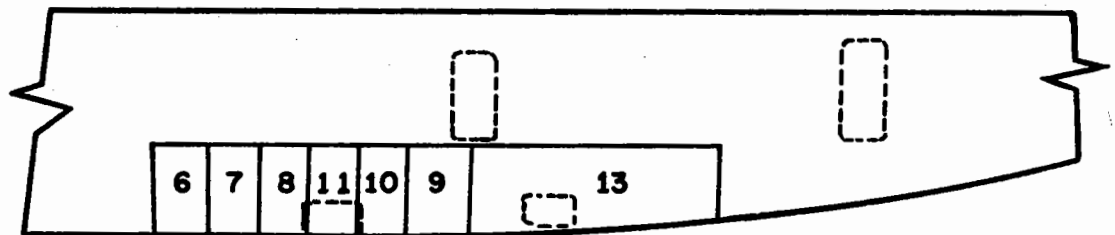
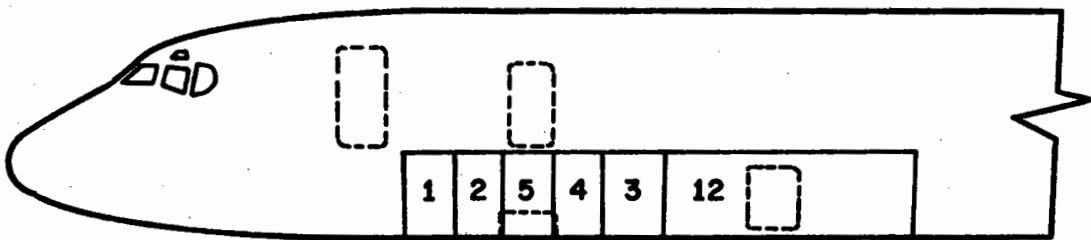


FIGURE 21
CARGO LOADING AREAS



DIFFERENCES

DC-8F

The following is a brief listing of the most significant differences (from a crew viewpoint) of the DC-8F as compared to other DC-8 airplanes. Its purpose is to serve as a reminder of the differences.

AUXILIARY SYSTEMS

MAIN CARGO COMPARTMENT DOOR

On the forward left side of the fuselage, non-plug-type. It is operated by a completely independent hydraulic system consisting of an electric pump, plumbing, & reservoir with attached sight gauge, located in the forward accessory compartment. (Figure 1).

A "T" handle located in the floor (near the forward entrance door) controls the electrically-driven pump which provides pressure to operate the door. Instructions are placarded next to the handle.

Mechanical latches and locking pins hold the door closed. Alignment stripes on each latch show the latching hooks are secure. The lockpin handle will be horizontal when locking pins are in place. A hand pump is provided for manual door operation.

BLUE ROOM

Located directly behind the circuit breaker panel. No crew coat room is provided.

GALLEY

Located in the cockpit entrance way, adjoining the crew blue room. It includes a hot oven for meals and plug-ins for a hot cup and coffee container. Circuit protection for the heating units is on the forward side of the galley.

DOOR WARNING LIGHTS

The main cargo door must be fully closed, latched and locked or the Cabin Door Open Light on the Second Officer's panel will illuminate.

AVIONICS

NAVIGATION

Overspeed Warning: A Maximum Speed Warning Selector Switch on the Captain's glareshield panel programs the overspeed warning system appropriate to weight limitation.

This two-position switch has Cargo and Passenger selections, and should always be safetied to the Cargo position.



Barber Pole: A set-screw on the airspeed indicator must be set in the "C" (Cargo) position at zero fuel wts. above 190,000 lbs. This programs the barber pole to give the proper V_{MO} indication from sea level to 42,000 ft.

AUTOPILOT

The DC-8F is equipped with the SP30-15 Autopilot.

EMERGENCY EQUIPMENT

CREW OXYGEN SYSTEM

Two portable oxygen cylinders, each with mask attached, are installed; one on the right side of the S/O panel and the other in the crew blue room.

The crew oxygen cylinder is located behind an access panel in the crew blue room.

PORTABLE FIRE EXTINGUISHERS

Two are provided for the cockpit, one water and one CO₂; both are located on the left rear cockpit wall. A dry chemical fire extinguisher, with an extension pipe is located just outside the cockpit entrance way.

SURVIVAL EQUIPMENT

Life Rafts: Normally two six man life rafts are installed; one behind the Captain; one next to the Second Officer. When a Courier is on board, a third raft is installed next to his seat.

Escape Lines: An Escape Line, in lieu of a slide, is installed at the forward entrance door.

MISCELLANEOUS

First Aid Kit: Located on the right rear cockpit wall near the Second Officer.

Crash Axe: Located below the main circuit breaker panel in the cockpit.

FIRE PROTECTION

FIRE DETECTION

Smoke Detectors: A smoke detector on the upper portion of the S/O panel provides fire detection for the main cargo compartment.

Cabin air samples are constantly drawn through the detector in flight and should sufficient smoke be present a luminescence in one or both windows would warn the crew.

HYDRAULICS AND FLIGHT CONTROLS

FLIGHT CONTROLS

SPOILERS

If spoilers are armed, automatic ground spoiler extension is accomplished by rear wheel spin-up on landing, or by nose strut compression.

Main Gear Spoilers Inoperative Light

(Amber): A dual-bulbed light on the Second Officer's panel. When either bulb is illuminated, ground spoiler extension as a result of rear wheel spin-up will not be available. When the rear wheel spin-up spoiler feature is inoperative, automatic extension of spoilers is still available through compression of the nose gear strut, or by placing the SPOILER Lever in the EXTEND position.

The MAIN GEAR SPOILER TEST switch on the Second Officer's panel is provided to test this protective feature.



WHEEL BRAKES

The Mark II Brake system with individual wheel anti-skid protection is installed.

Brake Lockout Cylinders: There is a separate lockout cylinder for each wheel brake.

Anti-Skid: Fully automatic modulating system which senses an impending skid and reduces pressure to a maximum brake, non-skid condition. Individual wheel control and locked wheel protection is provided. No foot thumpers are provided.

PNEUMATICS

AIR CONDITIONING AND PRESSURIZATION

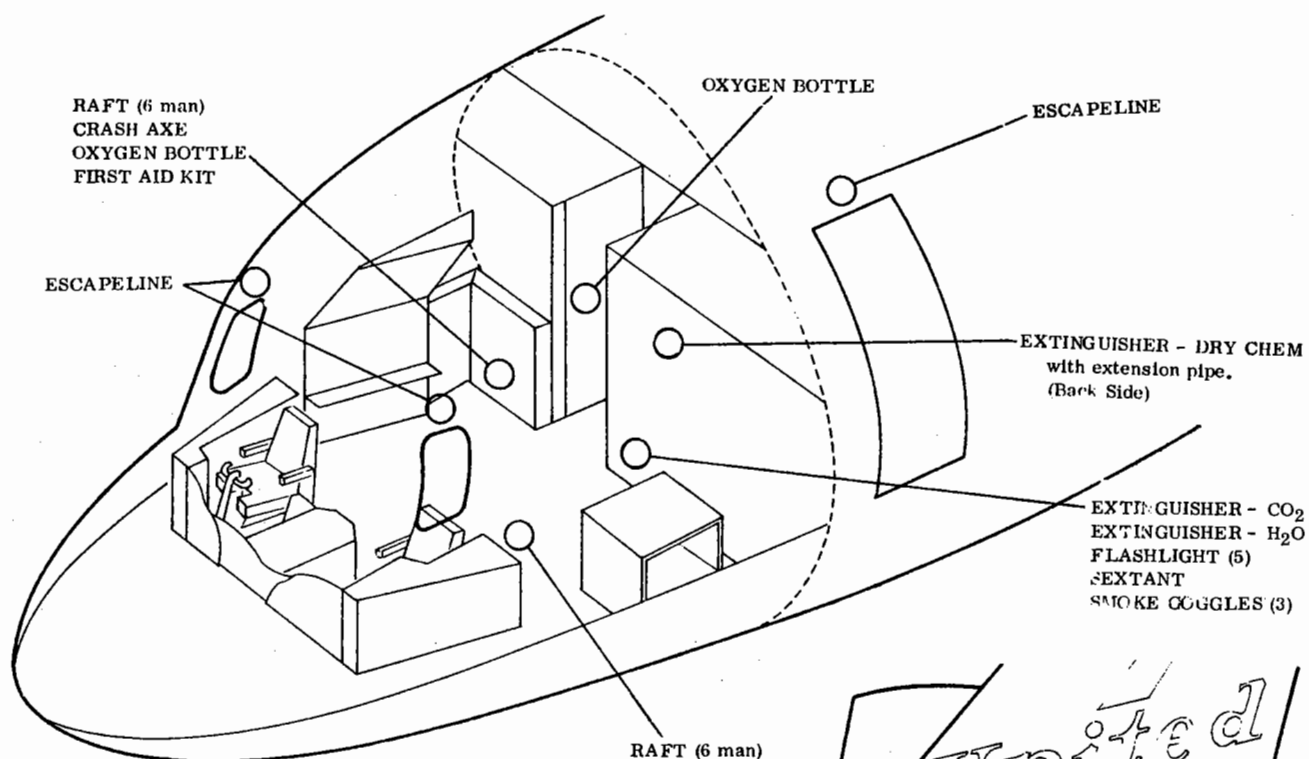
AIR CONDITIONING

Cabin Air Shutoff Valve: A Cabin Air Shutoff Valve Lever is located behind an access panel in the crew Blue Room.

Cargo Compartment Blowers Switch: A red guarded CARGO COMPT BLOWERS switch (ON-OFF) on the Second Officer's panel will deactivate both the radio rack blower and the aft cargo compartment blower.

Radio Rack Overheat Light (Amber): Light is not press-to-test. Light may be tested by placing CARGO COMPT BLOWERS switch to OFF.

EMERGENCY EQUIPMENT LOCATIONS (DC-8F)



NOTE:

1. Life Vest - One in each cockpit seat back except 1st observer's seat which has 3 and one under each courier seat.
2. Smoke Goggles - 5
3 pair above navigators table -
2 pair beside courier control panel.
3. Emer. VHF Transceiver on Capt's side wall behind observers seat.

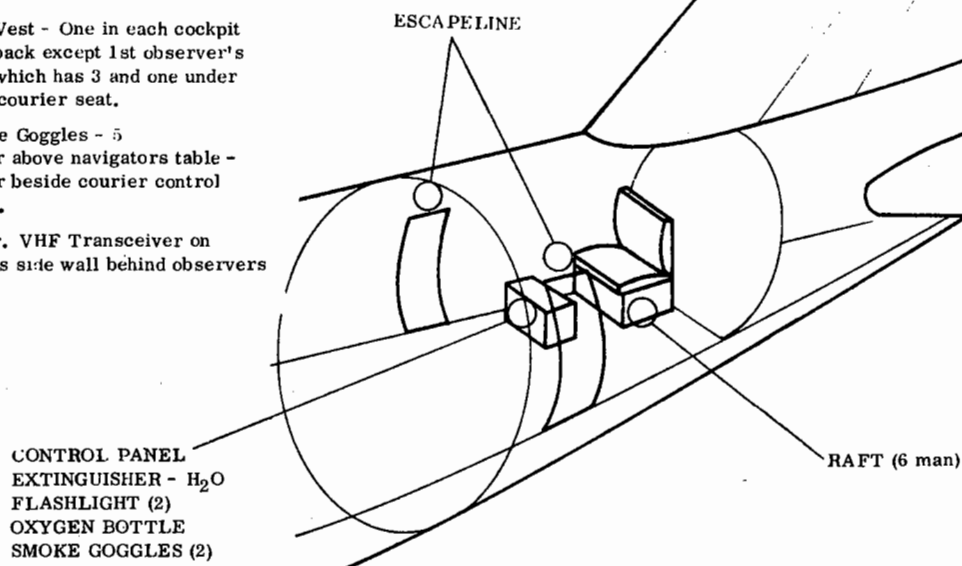


FIGURE 1

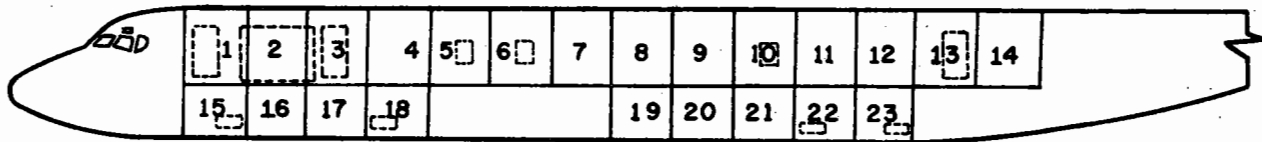


FIGURE 2
CARGO LOADING AREAS



INTRODUCTION

The DC-8 Flight Handbook provides information essential to proper operation of the airplane. Suggested changes or corrections are welcome. Flight Officers should route such comments to their local flight office or directly to EXOFT.

APPLICABILITY

The information contained in this handbook applies to all UAL DC-8 airplanes. The following chart outlines the basic characteristics of these airplanes.

TYPE	PASSENGER				FREIGHT	DC-8-61	DC-8-62
Airplane No.	N8207U-66U	N8001U-06U N8012U-33U N8037U-39U	N8007U-11U	N8035U N8060U-69U	N8041U-55U	N8070U-99U	N8966U-75U
UAL Designator	21XX	26XX 29XX	23XX	28XX 27XX	20XX	24XX 25XX	22XX
Configuration	DOM	DOM OW	DOM	DOM OW	OW	DOM OW	OW
Engine Type	EJECTORS		FANS				DUCTED FAN
Engine Model	JT4A-3		JT3D-3			JT3D-3B	JT3D-7
Wing Type	BASIC WING			4% LE WING			4% LE with 6 ft. span extension.
Fuel							
8- Tank	119,360#		121,740#				165,075#
9- Tank	150,050#						
Antiskid Sys.	MARK I				MARK II		
Max. ATOG	276.0				315.0	325.0	350.0
Max. Ldg. Wt.	199.5				240.0		

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MAXIMUM CONTINUOUS EPR T-27

CHALLENGE AND RESPONDBEFORE START CHALLENGE/RESPOND

F/O

C, F/O, S/O

Windshield Heat	WARM UP
Parking Brake	SET
Hydraulic Fluid	CHECKED
Hyd. and Air Brake Press.	_____ AND _____ LBS.
Eng. Hyd. Pumps	ON
Hyd. Sys. Selector	NORMAL
Oil Quantity	ALL ABOVE _____ GALLONS
Cabin Press.	SET AND AUTO
Fuel Tank Selectors and Crossfeed	MAINS AND NORMAL
Fuel Quantity	_____ LBS, CLEARED WITH _____ LBS.
INS	NAV
EPR	_____ SET
Standby Attitude Indicator	ON
PTC	RETRACTED AND OVERRIDE
Fuel Shutoff Levers	OFF
Oxygen	CHECKED
Clocks and Altimeters	SET

V ₁ , V _R , V ₂	_____, _____, _____ SET
Dump Time	_____ MINUTES
CG and Stab Trim	_____ % _____ °

When clearance to start received, the Second Officer will accomplish the following and announce to Captain as completed:

Galley Power	OFF
Freon Compressors	OFF
Recirculating Fans	OFF
Cabin Compressors	OFF
Pneumatic Pressure	_____ LBS.

CHALLENGE AND RESPOND (Continued)BEFORE TAKEOFF CHALLENGE/RESPOND

S/O

C, F/O, S/O

Flight and Nav. Instruments	CHECKED AND SET
Standby Reverser Hyd. Pump (DC-8-62)	ON
Anti-Ice	AS REQUIRED
Pitot Heat	ON
Ejectors (JT4)	EXTENDED
Spoilers	RETRACTED, LIGHT OUT, PRESSURE
Gust Lock	OFF
Wing Flaps	HANDLE IN DETENT
	° INDICATED
Controls	FREE, PWR ON, LTS OUT
Trim	3 SET
Yaw Damper	OFF (Optional DC-8-61, -62)
Fuel Shutoff Levers	ON-IN DETENT
Door Warning Lights	OUT
Fuel Tank Selectors	MAINS
Boost Pumps	AS REQUIRED

Ignition	ALL ENGINES
Anti-Skid	ARMED AND LIGHT OUT

Items below the dashed lines are completed after takeoff clearance received.

The entire Challenge-Respond must always be completed prior to the start of the takeoff run.

The Challenge-Respond must be repeated in its entirety prior to takeoff if:

1. There is an interruption other than for routine communications.
2. Any control is repositioned following the completion of the Challenge-Respond.
3. There is a lengthy delay prior to takeoff.

CHALLENGE AND RESPOND (Continued)AFTER TAKEOFF CHECK LIST - S/O

To be checked by Second Officer and announced to Captain as completed.

Landing Gear Uplatch	CHECK
Ejectors (JT-4)	RETRACTED
Ignition	OFF
Landing Lights	RETRACTED
Standby Reverser Hyd. Pump (DC-8-62)	OFF
Transponder	ON
PTC	NORMAL
Radio Altimeters	SET TO 1500 FEET
Main Tank Boost Pumps	BOOST & FEED



SPECIAL ENGINE-OUT PROCEDURES

These procedures are for airports where nonstandard engine-out procedures apply. They are shown here to provide quick reference.

AIRPORT	ENG TYPE	RUN-WAYS	TURN (15° BANK)		DIRECTION		END OR COURSE CHANGE	Non-Std Level Off Height Due to Far Out Obstruction(Ft)
			Start at Alt/Dist (Feet)	R or L	HDG (°MAG)	PROCEED TOWARD		
Albuquerque, N. Mex.	ALL	8	400	R	-	ABQ-VOR	-	-
Boise, Idaho	ALL	10R/L	400	R	129	-	-	-
Cheyenne, Wyo.	ALL	26	400	R	-	CYS-VOR	-	-
Colorado Springs, Colo.	ALL	30, 35	400	R	170	-	-	-
Hilo, Hawaii	JT3D-3	26	200	R	080	-	Shoreline	-
Honolulu, Hawaii	JT3D-7	4R/L, 8	200	R	180	-	Shoreline	-
	JT3D-3							
Las Vegas, Nev. (LAS)	JT3D-7	19L, 25	400	R	060	010° Radial From LAS-VOR	Fly Out-bound on 010° Radial	-
	ALL							
Portland, Oreg.	ALL	2	400	L	-	PDX-VOR	-	-
		20, 28R/L	400	R	-	PDX-VOR	-	-
Reno, Nevada	ALL	16	2.3 MIS DME	R	-	RNO-LMM	Fly 357° MAG From RNO-LMM	-
		25	400	R	135	-	Intersection ILS	-
		34	3.0 MIS DME	R	-	357° Bearing From RNO-LMM	Fly 357° MAG Track	-
San Francisco, Ca	ALL	19L/R	200	L	010	-	Shoreline	-
		28L/R	300	R	300 or 295° Radial SFO-VOR	-	-	-
Windsor Locks, Conn.	ALL	33	400	R	150	-	-	-

TAKEOFF EPR - JT4A-3

TEMP °F	MAXIMUM EPR			MINIMUM EPR NORMAL BLEED	TEMP. FOR DETERMINING "V" SPEED
	NORMAL BLEED	ICING BLEED			
120	2.21		PRESSURE ALTITUDE LIMIT ↓ SL	2.21	120°F
116	2.23			2.23	116
112	2.25			2.25	112
108	2.26			2.26	108
104	2.28			2.26	108
100	2.30			2.26	108
96	2.31			2.26	108
92	2.33			2.26	108
88	2.35			2.26	108
84	2.37			2.26	108
80	2.39			2.26	108
76	2.41			2.27	106
72	2.43			2.29	102
68	2.45			2.31	96
64	2.46			2.32	94
60	2.48			2.34	90
56	2.50		1T	2.36	86
52	2.52			2.38	82
48	2.54	2.49		2.40	78
44	2.56	2.50		2.42	74
40	2.58	2.52	2T	2.44	70
36	2.59	2.54		2.45	68
32	2.61	2.55		2.47	62
28	2.63	2.57		2.49	58
24	2.65	2.59	3T	2.51	54
20	2.67	2.60		2.53	50
16	2.69	2.62		2.55	46
12	2.71	2.63		2.57	42
8	2.72	2.65	4T	2.58	40
4	2.74	2.67		2.60	34
0	2.76	2.69		2.62	30
-1	2.76	2.69		2.76	-1
-10	2.81	2.72	5T	2.81	-10
-12	2.82	2.73		2.82	-12
-20	2.86	2.77		2.86	-20
-28	2.89			2.89	-28
-30	2.90		6T	2.90	-30
-40	2.95			2.95	-40

NOTES:

- (1) Set EPR statically.
- (2) Normal Bleed is two cabin compressors operating and blowaway jets ON.
- (3) Icing Bleed is Normal Bleed plus engine anti-ice and/or airplane deicing.
- (4) Add 0.01 when all cabin compressors OFF.
- (5) Subtract 0.01 if rain removal ON.
- (6) Above 92°F, turn OFF all cabin compressors.
- (7) Underlined EPR is maximum allowed for pressure altitude.

MAXIMUM Takeoff EPR - EPR based on an actual ambient temperature and pressure altitude.

NORMAL Takeoff EPR - EPR based on an assumed temperature and/or a minimum EPR, and pressure altitude.

NORMAL EPR LIMITATIONS

Do not use NORMAL EPR when;

1. Tailwind exists.
2. Runway is cluttered with standing water, ice, slush or snow.
3. Icing bleed is required.
4. Runway length is less than 7800 feet.
5. Ambient temperature below 0°F.

NORMAL EPR PROCEDURE

1. From the airport gross weight table, determine maximum temperature for which the actual gross weight is allowable considering the Runway and Performance Limits. The colder of these two temperatures is the "**ASSUMED TEMPERATURE**".
2. Enter MAXIMUM EPR Table with "ASSUMED TEMP" and read an EPR. Enter MINIMUM EPR table with actual temperature and read an EPR. The larger of these two is the NORMAL Takeoff EPR. Note table from which EPR was obtained.
3. Determine V speeds using actual temperature.
4. If NORMAL Takeoff EPR determined from MAXIMUM Table;
 - A. Determine V speeds using ASSUMED TEMPERATURE.
 - B. Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.

If NORMAL TAKEOFF EPR determined from MINIMUM EPR Table;

- A. Determine V speeds using temperature to right of MINIMUM EPR Table.
- B. Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.



TAKEOFF SPEEDS DC-8 JT4A-3

ALT. - 1000 FT.	AMBIENT TEMPERATURE - °F					
6 to 7	- - - -	-20 to - 5	- 5 to 15	15 to 35	35 to 75	75 to 120
5 to 6	-20 to -15	-15 to 5	5 to 25	25 to 45	45 to 75	75 to 120
4 to 5	-20 to 5	5 to 15	15 to 45	45 to 65	65 to 85	85 to 120
3 to 4	-20 to 15	15 to 35	35 to 55	55 to 75	75 to 105	105 to 120
2 to 3	-20 to 35	35 to 45	45 to 65	65 to 85	85 to 120	- - - -
1 to 2	-20 to 45	45 to 55	55 to 75	75 to 95	95 to 120	- - - -
0 to 1	-20 to 55	55 to 65	65 to 85	85 to 105	105 to 120	- - - -

FLAP POS	WEIGHT - 1000 LBS.		V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂
25°	280	V BASIC	130	142	153	131	142	153	132	143	153	134	143	153						
	270		126	139	150	128	139	150	129	140	150	130	140	150						
	260		123	135	147	124	136	147	125	137	147	127	137	147	128	138	147			
	250		119	132	145	121	133	145	122	134	145	123	134	145	125	135	145			
	240		116	129	142	117	130	142	118	131	142	120	131	142	121	132	142	124	133	142
	230		113	125	139	114	126	139	115	127	139	116	127	139	117	128	139	120	130	139
	220		109	122	136	110	123	136	111	124	136	112	124	136	114	125	136	117	127	136
	210		***	***	***	107	119	133	108	120	133	109	120	133	110	121	133	113	124	133
	200		***	***	***	***	***	***	105	117	131	105	117	131	106	118	131	109	120	131
	190		***	***	***	***	***	***	***	***	***	102	114	128	103	114	128	105	117	128
	180		***	***	***	***	***	***	***	***	***	***	***	***	99	110	125	101	113	125
	V		NORM	119	123	142	116	122	140	112	120	135	109	116	131	105	112	128	-	-
LIMIT	ANTI-ICE	115	120	135	112	119	133	109	117	128	105	113	124	101	109	121	-	-	-	
15°	280	V BASIC	133	147	158	134	147	158	135	147	158	136	148	157	137	149	157			
	270		130	144	156	131	145	156	132	145	155	133	146	155	135	146	155			
	260		126	141	153	127	142	153	129	142	153	130	142	152	132	143	152			
	250		123	137	150	124	138	150	125	138	150	126	139	149	128	140	149			
	240		119	134	148	120	135	148	121	135	147	123	136	147	124	137	146	127	139	146
	230		116	131	145	117	132	145	118	132	145	119	133	144	120	133	144	123	135	143
	220		112	127	142	113	128	142	114	128	142	116	129	141	117	130	141	119	132	140
	210		109	123	139	109	124	139	110	124	138	112	125	138	113	126	137	115	128	137
	200		105	120	136	106	121	136	107	121	136	108	122	135	109	123	135	111	125	134
	190		***	***	***	***	***	***	103	117	133	104	118	132	106	119	132	107	121	131
	180		***	***	***	***	***	***	***	***	***	101	114	129	103	115	129	104	117	128
	V		NORM	111	126	145	108	125	142	105	124	138	103	119	133	100	117	129	-	-
LIMIT	ANTI-ICE	107	119	135	104	118	132	101	118	128	100	112	124	97	109	120	-	-	-	

ADJUSTMENTS:

1. Increase V₁ Basic 1 knot per 15 knots headwind.
2. Decrease V₁ Basic 1 knot per 5 knots tailwind.
3. Increase V₁ Basic 3 knots for Anti-Ice operative.
4. Decrease V₁ Basic 3 knots at COS R/W 17, LAS R/W 1 & 7 and SEA R/W 16. Increase V₁ Basic 3 knots at COS R/W 35, LAS R/W 19 & 25, PIT R/W 28L and SEA R/W 34.
5. Decrease V_R and V₂ Basic 1 knot for Anti-Ice operative.
6. Compare V Basic Speeds with appropriate V Limited Speeds and use whichever is higher.

*** Use V Limited.

STABILIZER SETTING - DC-8 JT4A-3

FLAP POS	WEIGHT - 1000 LBS	CG - % MAC								
		16	18	20	22	24	26	28	30	32
25°	280	-	8.4	7.3	6.3	5.3	4.2	3.1	2.1	1.0
	270	9.1	8.2	7.0	6.1	5.0	4.0	2.9	1.8	0.8
	260	9.0	8.0	6.9	5.8	4.8	3.7	2.6	1.5	0.5
	250	8.6	7.6	6.6	5.5	4.5	3.5	2.4	1.3	0.3
	240	8.4	7.4	6.3	5.3	4.2	3.2	2.1	1.0	-0.1
	230	8.2	7.1	6.1	5.0	4.0	3.0	1.9	0.8	-0.2
	220	7.5**	6.5**	5.5**	4.5**	3.5**	2.5*	1.5*	0.5	-0.5
	210	6.9**	6.0**	5.0**	4.1**	3.0**	2.0*	1.1*	0.1	-0.5
	200	6.3**	5.4**	4.4**	3.6**	2.6*	1.6*	0.7	-0.2	-0.5
	190	5.7**	4.8**	3.9**	3.1**	2.2*	1.2*	0.4	-0.5	-0.5
	180	5.1**	4.2**	3.4**	2.6*	1.8*	0.9	0.0	-0.5	-0.5
	170	4.5**	3.7**	2.9*	2.1*	1.3*	0.5	-0.4	-0.5	-0.5
	160	3.9**	3.2**	2.4*	1.6*	0.8	0.1	-0.5	-0.5	-0.5
15°	280	-	8.6	7.5	6.5	5.4	4.3	3.2	2.1	1.0
	270	-	8.1	7.1	6.1	4.9	3.9	2.8	1.7	0.7
	260	8.9	7.9	6.8	5.7	4.7	3.6	2.5	1.4	0.4
	250	8.6	7.6	6.6	5.5	4.4	3.4	2.3	1.3	0.2
	240	8.2	7.2	6.1	5.1	4.0	3.0	2.0	0.9	-0.1
	230	8.0	7.0	6.0	4.9	3.9	2.8	1.8	0.7	-0.3
	220	7.7	6.6	5.6	4.6	3.5	2.4	1.4	0.3	-0.5
	210	7.3**	6.4**	5.3**	4.2**	3.2**	2.3*	1.2*	0.2	-0.5
	200	6.9**	5.9**	4.9**	3.8**	2.8**	1.8*	0.8	-0.2	-0.5
	190	6.0**	5.1**	4.3**	3.3**	2.3*	1.3*	0.3	-0.5	-0.5
	180	5.5**	4.5**	3.7**	2.7**	1.7*	0.8	0.0	-0.5	-0.5
	170	4.8**	3.8**	3.2**	2.2*	1.2*	0.5	-0.3	-0.5	-0.5
	160	4.2**	3.4**	2.5**	1.7*	0.9*	0.0	-0.5	-0.5	-0.5

ADJUSTMENTS:

- * Based on a V_2 speed of 140 kts. Add 0.5° for each 10 kts. below 140 kts. Subtract 0.5° for each 10 kts. above 140 kts.
- ** Based on a V_2 speed of 140 kts. Add 1.0° for each 10 kts. below 140 kts. Subtract 1.0° for each 10 kts. above 140 kts.

MAXIMUM CONTINUOUS EPR - JT4A-3

RAT °C	4 ENGINES				3 ENGINES		RAT °C
	SL - 30T		35T	40T	SL - 30T		
50	1.85	ICING BLEED ON ↓			1.84	ICING BLEED ON ↓	50
45	1.90				1.89		45
40	1.95				1.94		40
35	2.00				1.99		35
30	2.05				2.04		30
26	2.08				2.07		26
22	2.12				2.11		22
18	2.15				2.14		18
14	2.19				2.18		14
10	2.23				2.22		10
8	0 2.25 2.14			0 2.24 2.12	8		
6	1T 2.27 2.16			2.26 2.14	6		
4	2.29 2.18			1T 2.28 2.15	4		
2	2.31 2.19			2.30 2.17	2		
0	2T 2.33 2.21			2.31 2.18	0		
-2	3T 2.35 2.23		2.29	2.25	2.33 2.20	2.27	-2
-4	2.37 2.24		2.31	2.27	2.35 2.21	2.29	-4
-6	2.39 2.26		2.33	2.29	3T 2.37 2.23	2.31	-6
-8	4T 2.41 2.28		2.35	2.31	2.39 2.24	2.33	-8
-10	2.43 2.29		2.37	2.33	4T 2.41 2.26	2.35	-10
-12	5T 2.45 2.31		2.39	2.35	2.43 2.27	2.37	-12
-14	2.46 2.32		2.41	2.37	2.44 2.29	2.39	-14
-16	2.48 2.34		2.43	2.39	5T 2.46 2.30	2.41	-16
-18	6T 2.50 2.36		2.45	2.41	2.48 2.32	2.43	-18
-22	7T 2.54 2.39		2.49	2.45	6T 2.52 2.35	2.47	-22
-26	8T 3.58 2.42		2.54	2.49	7T 2.56 2.38	2.52	-26
-30	2.62 2.46		2.58	2.53	2.60 2.41	2.56	-30
-35	2.67		2.63	2.59	2.65	2.61	-35
-40	2.72		2.68	2.64	2.70	2.66	-40
-45	2.77		2.73	2.69	2.75	2.71	-45
-50	2.82		2.79	2.74	2.80	2.77	-50

- NOTES:
- (1) Subtract 0.01 if Rain Removal ON.
 - (2) Underlined EPR is maximum allowed for pressure altitude.



MAXIMUM CONTINUOUS EPR - JT4A-3 (Continued)

TWO ENGINES					
RAT °C	SL - 30T		35T	40T	RAT °C
50	1.83	ICING BLEED ON ↓			50
40	1.92				40
35	1.97				35
30	2.02				30
25	2.07				25
20	2.11				20
15	2.16				15
10	0 2.21	2.06			10
5	1T 2.25	2.10			5
0	2T 2.30	2.13	2.23	2.20	0
-5	3T 2.35	2.17	2.29	2.25	-5
-10	4T 2.39	2.20	2.33	2.30	-10
-15	5T 2.43	2.24	2.39	2.35	-15
-20	2.49	2.27	2.45	2.40	-20
-25	2.54	2.31	2.50	2.46	-25
-30	2.59	2.35	2.55	2.51	-30
-35	2.63		2.61	2.56	-35
-40	2.68		2.66	2.61	-40
-45	2.73		2.71	2.66	-45
-50	2.78		2.77	2.71	-50

- NOTES:**
- (1) Subtract 0.01 if Rain Removal ON.
 - (2) Underlined EPR is maximum allowed for pressure altitude.

TAKEOFF EPR - JT3D-3

TEMP °F	MAXIMUM EPR		MINIMUM EPR	TEMP. FOR DETERMINING "V" SPEEDS
120	1.64	PRESSURE ALTITUDE LIMIT ↓	1.64	120°F
116	1.66		1.66	116
112	1.68		1.68	112
108	1.71		1.71	108
104	1.73		1.71	108
100	1.75		1.71	108
96	1.76		1.71	108
92	1.77		1.71	108
88	1.78		1.71	108
84	1.79		1.71	108
80	1.80		1.71	108
76	1.81		1.71	108
72	1.82		1.71	108
68	1.83		1.72	106
64	1.84		1.73	104
60	1.85		1.74	102
56	1.87	SL	1.76	96
52	1.89	1T	1.78	88
48	1.90		1.79	84
44	1.92		1.81	76
40	1.93		1.82	72
36	1.95	2T	1.84	64
32	1.96		1.85	60
28	1.97		1.86	58
24	1.98		1.87	56
20	1.99	3T	1.88	54
16	2.00		1.89	52
12	2.01		1.90	48
8	2.02		1.91	46
4	2.03	4T	1.92	44
0	2.04		1.93	40
-1	2.04		2.04	-1
-10	2.05		2.05	-10
-12	2.06	5T	2.06	-12
-20	2.07		2.07	-20
-30	2.09		2.09	-30
-40	2.10		2.10	-40

NOTES:

- EPR settings for 40-80 knots with two cabins compressors operating and blowaway jets off, with or without engine anti-icing and airplane ice protection.
- Add 0.01 when all cabin compressors OFF.
- Subtract 0.01 if rain removal ON.
- Underlined EPR is maximum allowed for pressure altitude.

MAXIMUM Takeoff EPR-EPR based on an actual ambient temperature and pressure altitude.

NORMAL Takeoff EPR - EPR based on an assumed temperature and/or a minimum EPR, and pressure altitude.

NORMAL EPR LIMITATIONS

Do not use NORMAL EPR when;

- Tailwind exists.
- Runway is cluttered with standing water, ice, slush or snow.
- Icing bleed is required.
- Runway length is less than 8000 feet.
- Ambient temperature below 0°F.

NORMAL EPR PROCEDURE

- From the airport gross weight table, determine maximum temperature for which the actual gross weight is allowable considering the Runway and Performance Limits. The colder of these two temperatures is the **"ASSUMED TEMPERATURE"**.
- Enter MAXIMUM EPR Table with "ASSUMED TEMP" and read an EPR. Enter MINIMUM EPR Table with actual temperature and read an EPR. The larger of these two is the NORMAL Takeoff EPR. Note table from which EPR was obtained.
- Determine V speeds using actual temperature.
- If NORMAL Takeoff EPR determined from MAXIMUM EPR Table;
 - Determine V speeds using ASSUMED TEMPERATURE.
 - Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.

If NORMAL Takeoff EPR determined from MINIMUM EPR Table;

- Determine V speeds using temperature to right of MINIMUM EPR Table.
- Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.



TAKEOFF SPEEDS DC-8 JT3D-3

ALT. - 1000 FT.	AMBIENT TEMPERATURE - °F					
6 to 7	- - - -	-20 to -15	-15 to 15	15 to 45	45 to 75	75 to 120
5 to 6	- - - -	-20 to - 5	- 5 to 25	25 to 55	55 to 85	85 to 120
4 to 5	-20 to - 5	- 5 to 25	25 to 45	45 to 65	65 to 85	85 to 120
3 to 4	-20 to 15	15 to 35	35 to 55	55 to 85	85 to 100	100 to 120
2 to 3	-20 to 35	35 to 55	55 to 75	75 to 95	95 to 120	- - - -
1 to 2	-20 to 45	45 to 65	65 to 85	85 to 105	105 to 120	- - - -
0 to 1	-20 to 65	65 to 85	85 to 105	105 to 110	- - - -	- - - -

FLAP POS	WEIGHT - 1000 LBS.	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂
25°	315	137	151	162	139	152	161	141	152	161	142	152	161						
	300	132	146	158	134	147	157	136	147	157	137	148	157	139	149	157			
	280	126	141	153	127	142	153	129	142	153	130	142	152	132	143	152	134	144	151
	260	120	135	148	120	136	148	122	136	147	123	137	147	125	137	147	127	138	146
	240	112	128	144	113	129	143	115	129	142	116	130	142	118	131	142	120	132	141
	220	***	122	139	107	122	138	108	122	137	109	124	137	111	125	136	113	126	136
	200	***	120	138	***	118	135	***	115	132	101	117	132	104	118	131	105	119	130
	180	***	120	140	***	118	137	***	115	133	***	110	127	94	110	125	99	111	125
V ₁ LIMIT	NORMAL	120	-	-	118	-	-	114	-	-	110	-	-	107	-	-	103	-	-
	WET/DRY	108	-	-	105	-	-	102	-	-	99	-	-	94	-	-	89	-	-
15°	315	139	155	168	142	156	168	144	157	167	145	158	167	147	159	167			
	300	135	151	164	137	152	164	139	153	164	140	154	163	142	155	163	144	156	163
	280	128	145	159	130	146	159	132	147	159	133	148	158	135	149	158	137	150	158
	260	122	139	154	124	140	154	125	141	153	126	142	153	128	143	152	130	144	152
	240	***	132	149	117	133	149	118	134	148	119	135	147	121	136	147	123	137	146
	220	***	125	144	***	126	144	112	127	143	112	128	142	114	129	141	115	130	141
	200	***	120	139	***	120	138	***	120	136	***	121	136	107	122	136	107	123	135
	180	***	120	141	***	118	138	***	114	132	***	113	130	***	114	130	101	115	129
V ₁ LIMITED		120	-	-	118	-	-	114	-	-	110	-	-	107	-	-	103	-	-

V₁ ADJUSTMENTS:

1. Increase V₁ Basic 1 knot per 15 knots headwind.
2. Decrease V₁ Basic 1 knot per 5 knots tailwind.
3. Decrease V₁ Basic 3 knots at COS R/W 17, LAS R/W 1 & 7 and SEA R/W 16. Increase V₁ Basic 3 knots for COS R/W 35, LAS R/W 19 & 25 and SEA R/W 34.
4. Compare corrected V₁ Basic with appropriate V₁ Limited and use whichever is higher.

NOTE: Flaps 25 takeoff Gross Weights for certain designated runways are valid only if the runway is dry or, if wet, valid above 40°F only. When using these runways, compare V₁ Basic with V₁ Limit WET/DRY and use whichever is higher.

*** Use V₁ Limited.



STABILIZER SETTING - DC-8 JT3D-3 4% LE WING

FLAP POS	WEIGHT - 1000 LBS	CG - % MAC									
		16	18	20	22	24	26	28	30	32	34
25°	315	-	-	9.2	7.9	6.8	5.6	4.5	3.3	2.1	1.0
	300	-	-	8.8	7.7	6.6	5.4	4.2	3.0	1.9	0.7
	290	-	9.8	8.5	7.4	6.3	5.1	3.9	2.7	1.6	0.4
	280	-	9.5	8.3	7.1	6.0	4.7	3.6	2.4	1.2	0.1
	270	-	9.3	8.2	7.0	5.8	4.6	3.5	2.3	1.1	0.0
	260	10.0	9.1	7.9	6.7	5.5	4.3	3.2	2.0	0.8	-0.2
	250	9.9	8.8	7.6	6.5	5.3	4.2	3.0	1.8	0.6	-0.3
	240	9.7	8.5	7.4	6.2	5.0	3.9	2.7	1.5	0.4	-0.5
	230	9.1	8.1	6.9	5.8	4.7	3.6	2.4	1.3	0.1	-0.5
	220	8.9	7.9	6.7	5.6	4.4	3.3	2.2	1.1	-0.1	-0.5
	210	8.4	7.4	6.3	5.1	4.0	2.9	1.8	0.7	-0.4	-0.5
	200	8.1	7.0	5.9	4.8	3.7	2.6	1.5	0.3	-0.5	-0.5
	190	7.6	6.6	5.5	4.4	3.3	2.2	1.2	0.1	-0.5	-0.5
	180	7.2	6.2	5.1	4.1	3.0	1.9	0.8	-0.3	-0.5	-0.5
	170	6.6	5.6	4.6	3.6	2.6	1.5	0.5	-0.5	-0.5	-0.5
	160	6.0	5.1	4.1	3.1	2.1	1.1	0.1	-0.5	-0.5	-0.5
15°	315	-	-	7.8	6.8	5.8	4.8	3.8	2.8	1.8	0.8
	300	-	8.6	7.7	6.6	5.6	4.5	3.5	2.5	1.5	0.5
	290	9.4	8.4	7.4	6.4	5.4	4.4	3.4	2.4	1.3	0.3
	280	9.2	8.3	7.3	6.3	5.3	4.3	3.3	2.3	1.2	0.2
	270	9.0	8.1	7.1	6.1	5.1	4.1	3.1	2.1	1.1	0.1
	260	8.8	7.8	6.8	5.9	4.9	3.8	2.9	1.9	0.9	-0.1
	250	8.4	7.5	6.5	5.6	4.6	3.6	2.7	1.7	0.7	-0.2
	240	8.4	7.4	6.5	5.5	4.5	3.5	2.6	1.6	0.6	-0.3
	230	8.2	7.2	6.2	5.3	4.3	3.4	2.4	1.5	0.5	-0.4
	220	7.9	7.0	6.0	5.1	4.1	3.2	2.2	1.3	0.4	-0.5
	210	7.6	6.7	5.7	4.9	3.9	3.0	2.1	1.2	0.3	-0.5
	200	7.3	6.4	5.6	4.7	3.8	2.9	2.0	1.1	0.1	-0.5
	190	6.8	6.0	5.2	4.3	3.4	2.6	1.7	0.8	0.0	-0.5
	180	6.3	5.5	4.8	3.9	3.1	2.3	1.4	0.6	-0.2	-0.5
	170	5.8	5.1	4.3	3.5	2.8	1.9	1.2	0.4	-0.4	-0.5
	160	5.3	4.5	3.8	3.1	2.2	1.6	0.9	0.2	-0.5	-0.5


STABILIZER SETTING - DC-8 JT3D-3 BASIC WING (23XX AIRPLANES ONLY)

FLAP POS	WEIGHT - 1000 LBS	CG - % MAC								
		16	18	20	22	24	26	28	30	32
25°	280	-	8.4	7.3	6.3	5.3	4.2	3.1	2.1	1.0
	270	9.1	8.2	7.0	6.1	5.0	4.0	2.9	1.8	0.8
	260	9.0	8.0	6.9	5.8	4.8	3.7	2.6	1.5	0.5
	250	8.6	7.6	6.6	5.5	4.5	3.5	2.4	1.3	0.3
	240	8.4	7.4	6.3	5.3	4.2	3.2	2.1	1.0	-0.1
	230	8.2	7.1	6.1	5.0	4.0	3.0	1.9	0.8	-0.2
	220	8.0	7.0	6.0	4.9	3.8	2.7	1.7	0.5	-0.5
	210	7.5	6.6	5.5	4.5	3.4	2.4	1.4	0.1	-0.5
	200	6.9	6.1	5.0	4.0	2.9	2.0	1.0	0.	-0.5
	190	6.2	5.4	4.5	3.5	2.4	1.5	0.6	-0.3	-0.5
	180	5.6	4.8	4.0	3.0	1.9	1.1	0.2	-0.5	-0.5
	170	5.0	4.2	3.4	2.5	1.5	0.7	-0.1	-0.5	-0.5
	160	4.4	3.7	2.9	2.0	1.1	0.3	-0.5	-0.5	-0.5
15°	280	-	8.6	7.5	6.5	5.4	4.3	3.2	2.1	1.0
	270	-	8.1	7.1	6.1	4.9	3.9	2.8	1.7	0.7
	260	8.9	7.9	6.8	5.7	4.7	3.6	2.5	1.4	0.4
	250	8.6	7.6	6.6	5.5	4.4	3.4	2.3	1.3	0.2
	240	8.2	7.2	6.1	5.1	4.0	3.0	2.0	0.9	-0.1
	230	8.0	7.0	6.0	4.9	3.9	2.8	1.8	0.7	-0.3
	220	7.8	6.8	5.7	4.7	3.7	2.6	1.5	0.4	-0.5
	210	7.6	6.5	5.5	4.4	3.4	2.3	1.2	0.2	-0.5
	200	7.4	6.2	5.3	4.2	3.1	2.1	1.0	0.0	-0.5
	190	6.8	5.7	4.8	3.5	2.6	1.7	0.5	-0.5	-0.5
	180	6.2	5.2	4.2	3.2	2.1	1.2	0.1	-0.5	-0.5
	170	5.4	4.5	3.6	2.7	1.6	0.8	-0.2	-0.5	-0.5
	160	4.7	3.8	3.0	2.1	1.1	0.3	-0.5	-0.5	-0.5

MAXIMUM CONTINUOUS EPR - JT3D-3

RAT °C	4 ENGINES				3 ENGINES		RAT °C
	SL - 30T		35T	40T	SL - 30T	35T	
50	1.46	ICING BLEED ON ↓			1.45	ICING BLEED ON ↓	50
45	1.49				1.48		45
40	1.52				1.52		40
35	1.55				1.54		35
30	1.59				1.58		30
26	1.61				1.60		26
22	1.64				1.63		22
18	1.66				1.65		18
14	1.69				1.68		14
10	1.72				1.71		10
8	1.73 1.66		1.68	1.65	1.72 1.63	1.67	8
6	1.74 1.68		1.70	1.66	1.73 1.64	1.68	6
4	1.76 1.68		1.71	1.68	1.75 1.65	1.70	4
2	1.78 1.70		1.73	1.70	1.77 1.66	1.71	2
0	1.79 1.71		1.74	1.71	1.78 1.67	1.73	0
-2	1.80 1.72		1.76	1.73	1.79 1.68	1.75	-2
-4	0 1.82 1.73		1.77	1.75	0 1.81 1.69	1.76	-4
-6	1.83 1.74		1.79	1.76	1.82 1.70	1.77	-6
-8	1.84 1.75		1.80	1.77	1.83 1.71	1.79	-8
-10	1.86 1.76		1.82	1.79	1.85 1.72	1.81	-10
-12	1T 1.87 1.77		1.83	1.81	1T 1.86 1.73	1.82	-12
-16	2T 1.90 1.79		1.86	1.84	2T 1.89 1.75	1.85	-16
-20	1.92 1.81		1.89	1.86	1.91 1.76	1.88	-20
-24	1.94 1.83		1.91	1.89	2T 1.93 1.78	1.90	-24
-26	1.95 1.84		1.93	1.89	1.94 1.78	1.91	-26
-28	3T 1.96 1.85		1.94	1.90	3T 1.95 1.79	1.92	-28
-32	1.98 1.86		1.95	1.92	1.97 1.80	1.94	-32
-36	4T 1.99 1.88		1.97	1.94	4T 1.98 1.81	1.96	-36
-40	2.01 1.89		1.99	1.96	2.00 1.82	1.98	-40
-45	2.02		2.00	1.97	2.01	1.99	-45
-48	5T 2.03		2.02	1.99	5T 2.02	2.00	-48

- NOTES:
- (1) Subtract 0.01 if rain removal ON.
 - (2) Underlined EPR is maximum allowed for pressure altitude.


MAXIMUM CONTINUOUS EPR - JT3D-3 (Continued)

TWO ENGINES					
RAT °C	SL - 30T		35T	40T	RAT °C
50	1.44	ICING BLEED ON ↓			50
40	1.51				40
35	1.54				35
30	1.57				30
25	1.60				25
20	1.63				20
15	1.66				15
10	1.70	1.60	1.63	1.58	10
5	1.73	1.62	1.67	1.63	5
0	1.77	1.64	1.70	1.67	0
- 5	0	1.81	1.74	1.70	- 5
-10	1T	1.84	1.78	1.74	-10
-15	2T	1.87	1.81	1.77	-15
-20		1.90	1.84	1.81	-20
-25	3T	1.93	1.87	1.84	-25
-30		1.95	1.90	1.86	-30
-35	4T	1.96	1.92	1.88	-35
-40		1.98	1.94	1.91	-40
-45		1.99	1.96	1.92	-45
-50	5T	2.00	1.97	1.94	-50

NOTES:

- (1) Subtract 0.01 if rain removal ON.
- (2) Underlined EPR is maximum allowed for pressure altitude.

TAKEOFF EPR - DC-8-61 JT3D-3B

TEMP °F	MAXIMUM EPR		MINIMUM EPR	TEMP. FOR DETERMINING "V" SPEEDS
120	1.67	PRESSURE ALTITUDE LIMIT ↓	1.67	120°F
116	1.69		1.69	116
112	1.71		1.71	112
108	1.73		1.73	108
104	1.75		1.73	108
100	1.77		1.73	108
96	1.79		1.73	108
92	1.81		1.73	108
88	1.84		1.73	108
84	1.86		1.75	104
80	1.86		1.75	104
76	1.86		1.75	104
72	1.86		1.75	104
68	1.86		1.75	104
64	1.86		1.75	104
60	1.86		1.75	104
56	1.87	SL	1.76	102
52	1.89	1T	1.78	98
48	1.90		1.79	96
44	1.92	2T	1.81	92
40	1.93		1.82	90
36	1.94	3T	1.83	89
32	1.96		1.85	86
28	1.97	4T	1.86	84
24	1.98		1.87	84
20	1.99		1.88	56
16	2.01		1.90	54
12	2.02		1.91	52
8	2.03		1.92	48
4	2.03		1.92	46
0	2.04		1.93	44
-1	2.04		2.04	40
-10	2.05		2.05	-1
-12	2.06		2.06	-10
-20	2.08		2.07	-12
-30	2.09		2.09	-20
-40	2.10		2.10	-30

NOTES:

- (1) EPR settings for 40-80 knots with two cabin compressors operating and blowaway jets off, with or without engine anti-icing and airplane ice protection.
- (2) Add 0.01 when all cabin compressors OFF.
- (3) Subtract 0.01 if rain removal ON.
- (4) Underlined EPR is maximum allowed for pressure altitude.

MAXIMUM Takeoff EPR - EPR based on an actual ambient temperature and pressure altitude.

NORMAL Takeoff EPR - EPR based on an assumed temperature and/or a minimum EPR, and pressure altitude.

NORMAL EPR LIMITATIONS

Do not use NORMAL EPR when;

1. Tailwind exists.
2. Runway is cluttered with standing water, ice, slush or snow.
3. Icing bleed is required.
4. Runway length is less than 6000 feet.
5. Ambient temperature below 0°F.

NORMAL EPR PROCEDURE

1. From the airport gross weight table, determine maximum temperature for which the actual gross weight is allowable considering the Runway and Performance Limits. The colder of these two temperatures is the "ASSUMED TEMPERATURE".
2. Enter MAXIMUM EPR Table with "ASSUMED TEMPERATURE" and read an EPR. Enter MINIMUM EPR Table with actual temperature and read an EPR. The larger of these two is the NORMAL Takeoff EPR. Note table from which EPR was obtained.
3. Determine V speeds using actual temperature.
4. If NORMAL Takeoff EPR determined from MAXIMUM EPR Table;
 - A. Determine V speeds using ASSUMED TEMPERATURE.
 - B. Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.

If NORMAL Takeoff EPR determined from MINIMUM EPR Table;

- A. Determine V speeds using temperature to right of MINIMUM EPR Table.
- B. Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.



TAKEOFF SPEEDS DC-8-61 JT3D-3B

ALT. - 1000 FT.	AMBIENT TEMPERATURE - °F					
6 to 7	- - - -	- - - -	-20 to 5	5 to 25	25 to 85	85 to 120
5 to 6	- - - -	-20 to 5	5 to 25	25 to 45	45 to 95	95 to 120
4 to 5	-20 to - 5	- 5 to 25	25 to 45	45 to 85	85 to 105	105 to 120
3 to 4	-20 to 15	15 to 35	35 to 55	55 to 95	95 to 105	105 to 120
2 to 3	-20 to 35	35 to 55	55 to 85	85 to 105	105 to 120	- - - -
1 to 2	-20 to 55	55 to 85	85 to 95	95 to 120	- - - -	- - - -
0 to 1	-20 to 85	85 to 95	95 to 105	105 to 120	- - - -	- - - -

FLAP POS	WEIGHT - 1000 LBS.	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂
25°	325	140	154	162	141	154	161	142	154	161	144	155	161						
	320	138	153	160	139	153	160	141	153	160	143	154	160	145	154	160			
	300	132	147	156	133	147	155	134	147	155	136	148	155	138	149	154	140	150	154
	280	126	141	151	127	142	151	128	142	151	130	142	150	131	143	150	133	144	150
	260	119	135	147	120	136	146	121	136	146	123	137	145	124	138	145	126	138	144
	240	112	128	142	113	129	141	114	129	141	116	130	140	117	131	140	119	132	139
	220	106	122	135	107	123	136	108	124	136	109	124	135	110	125	134	112	126	134
	200	99	120	136	100	118	133	100	115	130	102	117	130	103	118	129	104	119	128
	180	***	120	138	***	118	134	***	114	130	98	110	126	95	111	124	96	112	123
	V ₁ LIMITED	108	-	-	104	-	-	102	-	-	99	-	-	-	-	-	-	-	-
15°	325	143	159	169	144	160	169	145	161	169	144	160	169						
	320	142	157	168	142	158	168	144	160	168	146	159	168	143	161	167			
	300	135	151	163	136	152	163	137	153	163	139	152	163	142	155	162	143	156	162
	280	129	145	158	129	146	158	131	147	158	132	146	157	135	149	157	136	150	157
	260	122	139	153	123	140	153	124	141	153	125	140	153	128	142	152	129	143	151
	240	115	132	148	116	133	148	117	134	148	118	134	147	121	136	146	122	137	146
	220	109	125	143	109	126	143	110	127	143	111	127	142	113	129	140	115	130	140
	200	***	120	140	102	119	137	103	120	137	104	119	136	106	122	135	107	123	134
	180	***	120	143	***	118	139	95	116	134	96	113	131	98	114	129	99	115	129
	V ₁ LIMITED	108	-	-	104	-	-	102	-	-	99	-	-	-	-	-	-	-	-

V₁ ADJUSTMENTS:

1. Increase V₁ Basic 1 knot per 15 knots headwind.
2. Decrease V₁ Basic 1 knot per 5 knots tailwind.
3. Decrease V₁ Basic 3 knots at COS R/W 17, LAS R/W 1 & 7 and SEA R/W 16.
4. Increase V₁ Basic 3 knots at COS R/W 35, LAS R/W 19 & 25 and SEA R/W 34.
5. Compare corrected V₁ Basic with appropriate V₁ Limited and use whichever is higher.

*** Use V₁ Limited



STABILIZER SETTING - DC-8-61 JT3D-3B

FLAP POS	WEIGHT - 1000 LBS	CG - % MAC									
		16	18	20	22	24	26	28	30	32	34
25°	325	-	-	-	8.1	7.2	6.2	5.3	4.3	3.3	2.4
	320	-	-	-	8.1	7.1	6.1	5.2	4.2	3.3	2.3
	310	-	-	8.6	7.6	6.7	5.8	4.9	3.9	3.0	2.0
	300	-	9.1	8.2	7.3	6.4	5.4	4.5	3.6	2.6	1.8
	290	9.5	8.6	7.7	6.9	6.0	5.1	4.2	3.3	2.4	1.5
	280	9.1	8.3	7.4	6.5	5.6	4.7	3.9	3.0	2.1	1.3
	270	8.8	8.0	7.1	6.3	5.4	4.6	3.7	2.9	2.0	1.1
	260	8.3	7.5	6.6	5.8	5.0	4.1	3.3	2.5	1.7	0.8
	250	7.9	7.1	6.3	5.5	4.7	3.9	3.1	2.2	1.4	0.7
	240	7.6	6.8	6.0	5.2	4.3	3.5	2.7	2.0	1.1	-
	230	7.5	6.7	5.9	5.1	4.2	3.4	2.6	1.8	1.0	-
	220	7.2	6.4	5.6	4.8	3.9	3.2	2.4	1.5	0.8	-
	210	6.8	6.0	5.3	4.5	3.6	2.9	2.1	1.3	0.6	-
	200	6.3	5.6	4.9	4.1	3.2	2.5	1.8	1.0	-	-
	190	6.0	5.3	4.6	3.8	3.0	2.3	1.5	0.7	-	-
	180	5.8	5.0	4.3	3.5	2.8	2.0	1.3	-	-	-
15°	325	-	8.7	7.8	6.9	6.0	5.1	4.2	3.4	2.5	1.6
	320	9.3	8.4	7.6	6.7	5.8	5.0	4.0	3.2	2.3	1.4
	310	9.2	8.3	7.4	6.5	5.6	4.8	3.9	3.0	2.2	1.2
	300	8.9	8.0	7.2	6.3	5.4	4.6	3.7	2.8	1.8	1.0
	290	8.7	7.9	7.0	6.1	5.2	4.3	3.5	2.6	1.7	0.9
	280	8.4	7.6	6.8	5.9	5.0	4.2	3.3	2.4	1.6	0.7
	270	8.2	7.4	6.6	5.7	4.9	4.0	3.2	2.2	1.4	0.5
	260	8.1	7.3	6.4	5.5	4.6	3.7	2.9	2.0	1.1	0.3
	250	7.9	7.0	6.1	5.3	4.4	3.6	2.7	1.9	1.0	-
	240	7.6	6.8	6.0	5.1	4.2	3.4	2.6	1.7	0.8	-
	230	7.4	6.5	5.7	4.9	4.0	3.2	2.4	1.5	0.6	-
	220	7.3	6.4	5.6	4.7	3.8	3.0	2.2	1.3	0.4	-
	210	7.0	6.2	5.3	4.5	3.6	2.8	2.0	1.1	-	-
	200	6.7	5.9	5.1	4.3	3.4	2.5	1.8	0.9	-	-
	190	6.4	5.6	4.7	4.0	3.1	2.3	1.5	0.7	-	-
	180	6.0	5.2	4.4	3.7	2.8	2.0	1.2	0.5	-	-

MAXIMUM CONTINUOUS EPR - JT3D-3B

RAT °C	4 ENGINES			3 ENGINES		RAT °C
	SL - 30T	35T	40T	SL - 30T	35T	
50	1.46			1.44		50
45	1.49			1.48		45
40	1.52			1.51		40
35	1.55			1.54		35
30	1.58			1.57		30
25	1.62			1.61		25
20	1.65			1.64		20
15	1.69			1.68		15
10	1.73	1.66	1.64	1.71	1.63	10
5	1.76	1.69	1.67	1.75	1.65	5
0	1.80	1.72	1.72	1.79	1.67	0
-1	1.81	1.73	1.73	1.79	1.68	-1
-3	1.82	1.73	1.74	1.81	1.69	-3
-5	1.83	1.75	1.76	1.82	1.70	-5
-10	1.86	1.77	1.79	1.86	1.72	-10
-15	1.89	1.79	1.83	1.89	1.74	-15
-16	1.90	1.80	1.84	1.89	1.75	-16
-20	1.92	1.82	1.86	1.92	1.76	-20
-25	1.95	1.84	1.89	1.94	1.78	-25
-26	1.96	1.85	1.90	1.95	1.78	-26
-30	1.97	1.86	1.92	1.96	1.80	-30
-35	1.99	1.88	1.94	1.98	1.81	-35
-40	2.01	1.89	1.96	2.00	1.82	-40
-45	2.02	2.01	1.98	2.01	1.99	-45
-48	2.03	2.02	1.99	2.02	2.00	-48
-50	2.04	2.02	2.00	2.02	2.01	-50

NOTES:

- (1) Subtract 0.01 if rain removal ON.
- (2) Above 25,000 Ft, add 0.01 for each 5°C above standard temperature.
- (3) Underlined EPR is maximum allowed for pressure altitude.



MAXIMUM CONTINUOUS EPR - JT3D-3B (Continued)

TWO ENGINES						
RAT °C	SL - 30T		35T	40T	RAT °C	
50	1.44	ICING BLEED ON ↓			50	
45	1.48				45	
40	1.50				40	
35	1.54				35	
30	1.57				30	
25	1.60				25	
20	1.63				20	
15	1.66				15	
10	0 <u>1.70</u>		1.60	1.63	1.59	10
5	1T <u>1.73</u>		1.62	1.66	1.62	5
0	1.77	1.64	1.70	1.66	0	
- 5	2T <u>1.81</u>	0 <u>1.66</u>	1.74	1.70	- 5	
-10	3T <u>1.84</u>	1T <u>1.68</u>	1.78	1.74	-10	
-15	1.87	2T <u>1.70</u>	1.81	1.77	-15	
-20	4T <u>1.90</u>	3T <u>1.72</u>	1.84	1.80	-20	
-25	1.92	1.73	1.87	1.83	-25	
-30	1.95	1.74	1.90	1.86	-30	
-35	1.97	4T <u>1.75</u>	1.92	1.88	-35	
-40	1.98	1.75	1.94	1.90	-40	
-45	2.00		1.96	1.92	-45	
-50	2.01		1.98	1.94	-50	

NOTES:

- (1) Subtract 0.01 EPR if rain removal ON.
- (2) Underlined EPR is maximum allowed for pressure altitude.
- (3) Above 25,000 feet, add 0.01 for each 5°C above standard temperature.

TAKEOFF EPR - DC-8-62 JT3D-7

TEMP. °F	MAXIMUM EPR		MINIMUM EPR	TEMP FOR DETERMINING "V" SPEEDS
120	1.66	PRESSURE ALTITUDE LIMIT ↓	1.66	120°F
116	1.68		1.68	116
112	1.71		1.71	112
108	1.73		1.73	108
104	1.75		1.73	108
100	1.77		1.73	108
96	1.80		1.73	108
92	1.82		1.73	108
88	1.85		1.75	104
84	1.87		1.77	100
80	1.87		1.77	100
76	1.87		1.77	100
72	1.87		1.77	100
68	1.87		1.77	100
64	1.87		1.77	100
60	1.87		1.77	100
56	1.88	SL	1.78	98
52	1.90	1T	1.80	96
48	1.91		1.81	94
44	1.93		1.83	90
40	1.94		1.84	89
36	1.96	2T	1.86	86
32	1.97		1.87	84
28	1.99		1.89	54
24	2.00		1.90	52
20	2.01	3T	1.91	48
16	2.02		1.92	46
12	2.03		1.93	44
8	2.04		1.94	40
4	2.05	4T	1.95	38
0	2.06		1.96	36
-1	2.06		2.06	-1
-10	2.08		2.08	-10
-20	2.10		2.10	-20
-30	2.12		2.12	-30
-40	2.14		2.14	-40

NOTES:

- EPR settings for 40-80 knots with two cabin compressors operating and blowaway jets off, with or without engine anti-icing and airplane ice protection.
- Add 0.01 when all cabin compressors OFF.
- Subtract 0.01 if rain removal ON.
- Underlined EPR is maximum allowed for pressure altitude.

MAXIMUM Takeoff EPR - EPR based on an actual ambient temperature and pressure altitude.

NORMAL Takeoff EPR - EPR based on an assumed temperature and/or a minimum EPR, and pressure altitude.

NORMAL EPR LIMITATIONS

Do not use NORMAL EPR when;

- Tailwind exists.
- Runway is cluttered with standing water, ice, slush or snow.
- Icing bleed is required.
- Runway length is less than 8500 feet.
- Ambient temperature below 0°F.

NORMAL EPR PROCEDURE

- From the airport gross weight table, determine maximum temperature for which the actual gross weight is allowable considering the Runway and Performance Limits. The colder of these two temperatures is the "ASSUMED TEMPERATURE".
- Enter MAXIMUM EPR Table with "ASSUMED TEMPERATURE" and read an EPR. Enter MINIMUM EPR Table with actual temperature and read an EPR. The larger of these two is the NORMAL Takeoff EPR. Note table from which EPR was obtained.
- Determine V speeds using actual temperature.
- If NORMAL Takeoff EPR determined from MAXIMUM EPR Table;
 - Determine V speeds using ASSUMED TEMPERATURE.
 - Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.

If NORMAL Takeoff EPR determined from MINIMUM EPR Table;

- Determine V speeds using temperature to right of MINIMUM EPR Table.
- Compare V speeds with those obtained in Step 3 and use higher of each V_1 , V_R and V_2 , respectively.



TAKEOFF SPEEDS DC-8-62 JT3D-7

ALT. - 1000 FT.	AMBIENT TEMPERATURE - °F					
6 to 7	- - - -	-20 to - 5	- 5 to 15	15 to 35	35 to 55	55 to 120
5 to 6	- - - -	-20 to 15	15 to 35	35 to 55	55 to 85	85 to 120
4 to 5	-20 to 15	15 to 35	35 to 50	50 to 85	85 to 95	95 to 120
3 to 4	-20 to 25	25 to 45	45 to 85	85 to 95	95 to 105	105 to 120
2 to 3	-20 to 35	35 to 55	55 to 95	95 to 105	105 to 120	- - - -
1 to 2	-20 to 55	55 to 85	85 to 95	95 to 105	105 to 120	- - - -
0 to 1	-20 to 85	85 to 95	95 to 105	105 to 120	- - - -	- - - -

FLAP POS	WEIGHT - 1000 LBS.	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂	V ₁	V _R	V ₂
23°	350	139	155	164	140	156	164	141	157	163	142	157	163	143	158	163
	340	137	152	162	138	153	162	139	154	161	140	154	161	141	155	161
	320	131	146	158	132	147	158	133	148	157	134	148	157	135	149	156
	300	126	141	153	127	142	153	128	143	152	129	143	152	130	144	151
	280	120	135	149	121	136	149	122	137	148	123	137	148	124	138	147
	260	113	129	144	114	130	144	115	131	143	116	131	143	117	132	142
	240	***	124	141	108	124	139	109	125	138	110	125	138	111	126	137
	220	***	124	142	***	122	136	***	119	133	103	118	133	104	119	132
	200	***	124	143	***	122	138	***	118	132	***	114	128	99	113	127
	V ₁ NORMAL	123	-	-	120	-	-	117	-	-	113	-	-	110	-	-
	Limit WET/DRY	113	-	-	110	-	-	107	-	-	102	-	-	99	-	-
18°	350	141	157	167	142	158	167	143	158	166	144	159	166	145	160	166
	340	138	154	165	139	155	165	140	155	164	141	156	164	142	157	164
	320	133	149	161	134	150	161	135	150	160	136	151	160	137	152	159
	300	127	143	156	128	144	156	129	144	155	130	145	155	131	146	154
	280	121	137	152	122	138	152	123	138	151	124	139	151	125	140	150
	260	***	131	147	115	132	147	116	132	146	117	133	146	118	134	145
	240	***	125	142	***	126	142	***	126	141	111	127	141	112	128	140
	220	***	123	142	***	121	138	***	119	135	***	120	135	105	121	134
	200	***	123	143	***	120	139	***	117	133	***	113	131	***	114	129
	V ₁ LIMITED	123	-	-	120	-	-	117	-	-	113	-	-	110	-	-

V₁ ADJUSTMENTS:

1. Increase V₁ Basic 1 knot per 12 knots headwind.
2. Decrease V₁ Basic 1 knot per 5 knots tailwind.
3. Decrease V₁ Basic 3 knots at COS R/W 17, LAS R/W 1 & 7 and SEA R/W 16.
4. Increase V₁ Basic 3 knots at COS R/W 35, LAS R/W 19 & 25 and SEA R/W 34.
5. Compare corrected V₁ Basic with appropriate V₁ Limited and use whichever is higher.

NOTE: Flaps 23° takeoff Gross Weights for certain designated runways are valid only if the runway is dry or, if wet, valid above 40° F only. When using these runways, compare V₁ Basic with V₁ Limit WET/DRY and use whichever is higher.

*** Use V₁ Limited.

STABILIZER SETTING - DC-8-62 JT3D-7

FLAP POS	WEIGHT - 1000 LBS	CG - % MAC								
		18	20	22	24	26	28	30	32	34
23°	350	9.4	8.2	7.0	5.8	4.5	3.3	2.1	0.9	-0.4
	340	9.1	7.9	6.7	5.5	4.2	3.1	2.0	0.7	-0.4
	320	8.4	7.2	6.2	5.1	4.0	2.9	1.8	0.6	-0.5
	300	7.9	6.8	5.8	4.7	3.6	2.5	1.5	0.5	-0.6
	290	7.5	6.5	5.5	4.4	3.4	2.4	1.4	0.3	-0.7
	280	7.2	6.2	5.2	4.2	3.2	2.2	1.3	0.2	-0.8
	270	7.0	6.0	5.0	4.0	3.0	2.0	1.0	0.1	-0.9
	260	6.6	5.6	4.7	3.7	2.8	1.8	0.9	0.0	-1.0
	250	6.2	5.2	4.3	3.4	2.5	1.5	0.6	-0.2	-1.0
	240	5.8	4.9	4.0	3.2	2.2	1.4	0.5	-0.4	-1.0
	230	5.4	4.6	3.7	2.9	2.0	1.1	0.2	-0.7	-1.0
	220	5.1	4.2	3.4	2.5	1.7	0.8	-0.1	-0.9	-1.0
	210	4.6	3.8	3.0	2.1	1.3	0.5	-0.4	-1.0	-1.0
	200	4.2	3.4	2.6	1.6	1.0	0.1	-0.7	-1.0	-1.0
	190	3.8	3.0	2.2	1.4	0.6	-0.2	-0.9	-1.0	-1.0
	180	3.5	2.6	1.8	1.1	0.3	-0.5	-1.0	-1.0	-1.0
18°	350	10.0	8.8	7.7	6.4	5.3	4.1	2.9	1.7	0.5
	340	9.6	8.5	7.4	6.2	5.0	3.9	2.7	1.5	0.3
	320	9.1	8.0	6.9	5.7	4.6	3.6	2.5	1.4	0.1
	300	8.5	7.5	6.4	5.3	4.3	3.3	2.2	1.2	0.0
	290	8.0	7.0	6.0	5.0	4.0	3.0	2.0	1.0	-0.1
	280	7.6	6.6	5.6	4.6	3.7	2.7	1.7	0.8	-0.2
	270	7.3	6.3	5.4	4.4	3.5	2.5	1.6	0.6	-0.3
	260	6.9	6.0	5.1	4.2	3.2	2.3	1.4	0.4	-0.5
	250	6.5	5.6	4.7	3.8	2.9	2.0	1.1	0.2	-0.7
	240	6.1	5.2	4.3	3.4	2.5	1.6	0.8	-0.1	-1.0
	230	5.7	4.8	3.9	3.1	2.2	1.3	0.4	-0.4	-1.0
	220	5.3	4.4	3.6	2.7	1.9	1.0	-0.1	-0.8	-1.0
	210	4.8	4.1	3.2	2.4	1.5	0.7	-0.3	-1.0	-1.0
	200	4.6	3.8	2.9	2.1	1.2	0.4	-0.6	-1.0	-1.0
	190	4.1	3.3	2.4	1.7	0.8	0.0	-0.8	-1.0	-1.0
	180	3.5	2.8	2.1	1.3	0.4	-0.4	-1.0	-1.0	-1.0

MAXIMUM CONTINUOUS EPR - JT3D-7

TAT °C	4 ENGINES				3 ENGINES				TAT °C
	SL - 30T		35T	40T	SL - 30T		35T		
50	1.45	ICING BLEED ON ↓			1.44	ICING BLEED ON ↓		50	
45	1.49				1.48			45	
40	1.52				1.51			40	
35	1.56				1.55			35	
30	1.59				1.58			30	
25	1.63				1.62			25	
20	1.66 1.61				1.65 1.59			20	
15	1.70 1.64				1.68 1.63			15	
10	1.73 1.67			1.70 1.67	1.72 1.66		1.68	10	
5	1.76 1.70			1.73 1.71	1.76 1.69		1.72	5	
0	1.80 1.73		1.77 1.74	1.79 1.72	1.76	0			
- 3	1.82 1.75	0	1.80 1.77	1.81 1.74	1.78	- 3			
- 5	1.84 1.77		1.81 1.78	1.83 1.75	1.79	- 5			
-10	1.87 1.80	1T	1.85 1.82	1.86 1.78	1.83	-10			
-15	1.90 1.82		1.88 1.85	1.90 1.80	1.86	-15			
-19	1.93 1.84	2T	1.91 1.87	1.92 1.82	1.89	-19			
-20	1.94 1.85		1.91 1.88	1.93 1.83	1.89	-20			
-25	1.97 1.88		1.95 1.91	1.96 1.85	1.93	-25			
-30	1.99 1.90	3T	1.98 1.94	1.98 1.87	1.95	-30			
-35	2.02 1.92		2.00 1.97	2.00 1.88	1.98	-35			
-40	2.04 1.93		2.02 1.99	2.02 1.90	2.00	-40			
-45	2.05	4T	2.04 2.01	2.03	2.02	-45			
-50	2.06		2.05 2.03	2.04	2.03	-50			

NOTES:

- (1) Subtract 0.01 if rain removal ON.
- (2) Between 25,000 and 30,000 feet add 0.01 for each 10°C above standard temperature.
- (3) Above 30,000 feet add 0.01 for each 5°C above standard temperature.
- (4) Underlined EPR is maximum allowed for pressure altitude.


MAXIMUM CONTINUOUS EPR - JT3D-7 (Continued)

			TWO ENGINES				
TAT °C	SL - 30T			35T	40T	TAT °C	
50	1.43	ICING BLEED ON ↓				50	
45	1.47					45	
40	1.50					40	
35	1.53					35	
30	1.57					30	
25	1.60					25	
20	1.64		1.58			20	
15	1.67		1.61			15	
10	1.71		1.64	1.65	1.61	10	
5	1.74		1.68	1.69	1.65	5	
0	1.78	1.70	1.73	1.68	0		
-3	1.80	1.72	1.75	1.70	-3		
-5	1.81	1.73	1.76	1.72	-5		
-10	1.84	1.76	1.80	1.75	-10		
-15	1.87	1.78	1.83	1.79	-15		
-20	1.90	1.80	1.87	1.82	-20		
-25	1.93	1.83	1.90	1.85	-25		
-30	1.95	1.84	1.93	1.88	-30		
-35	1.97	1.86	1.95	1.91	-35		
-40	1.98	1.87	1.97	1.93	-40		
-45	1.99		1.99	1.95	-45		
-50	2.01		2.01	1.97	-50		

NOTES:

- (1) Subtract 0.01 if rain removal ON.
- (2) Between 25,000 and 30,000 feet add 0.01 EPR for each 10°C above standard temperature.
- (3) Above 30,000 feet add 0.01 EPR for each 5°C above standard temperature.
- (4) Underlined EPR is maximum allowed for pressure altitude.

MAXIMUM CONTINUOUS EPR - JT3D-7

TAT °C	4 ENGINES				3 ENGINES				TAT °C	
	SL - 30T		35T	40T	SL - 30T		35T			
50	1.45	ICING BLEED ON ▼			1.44	ICING BLEED ON ▼		50		
45	1.49				1.48			45		
40	1.52				1.51			40		
35	1.56				1.55			35		
30	1.59				1.58			30		
25	1.63				1.62			25		
20	1.66		1.61				1.65	1.59	20	
15	1.70		1.64				1.68	1.63	15	
10	1.73		1.67	1.70	1.67		1.72	1.66	1.68	10
5	1.76		1.70	1.73	1.71		1.76	1.69	1.72	5
0	1.80	1.73	1.77	1.74	1.79	1.72	1.76	0		
- 3	1.82	1.75	1.80	1.77	1.81	1.74	1.78	- 3		
- 5	1.84	1.77	1.81	1.78	1.83	1.75	1.79	- 5		
-10	1.87	1.80	1.85	1.82	1.86	1.78	1.83	-10		
-15	1.90	1.82	1.88	1.85	1.90	1.80	1.86	-15		
-19	1.93	1.84	1.91	1.87	1.92	1.82	1.89	-19		
-20	1.94	1.85	1.91	1.88	1.93	1.83	1.89	-20		
-25	1.97	1.88	1.95	1.91	1.96	1.85	1.93	-25		
-30	1.99	1.90	1.98	1.94	1.98	1.87	1.95	-30		
-35	2.02	1.92	2.00	1.97	2.00	1.88	1.98	-35		
-40	2.04	1.93	2.02	1.99	2.02	1.90	2.00	-40		
-45	2.05		2.04	2.01	2.03		2.02	-45		
-50	2.06		2.05	2.03	2.04		2.03	-50		

NOTES:

- (1) Subtract 0.01 if rain removal ON.
- (2) Between 25,000 and 30,000 feet add 0.01 for each 10° C above standard temperature.
- (3) Above 30,000 feet add 0.01 for each 5° C above standard temperature.
- (4) Underlined EPR is maximum allowed for pressure altitude.


MAXIMUM CONTINUOUS EPR - JT3D-7 (Continued)

TWO ENGINES					
TAT °C	SL - 30T	35T	40T	TAT °C	
50	1.43	ICING BLEED ON ↓		50	
45	1.47			45	
40	1.50			40	
35	1.53			35	
30	1.57			30	
25	1.60			25	
20	1.64		1.58		20
15	1.67		1.61		15
10	1.71		1.64	1.65	10
5	1.74		1.68	1.69	5
0	1.78		1.70	1.73	0
- 3	0 1.80		1.72	1.75	- 3
- 5	1.81		1.73	1.76	- 5
-10	1T 1.84		1.76	1.80	-10
-15	2T 1.87		1.78	1.83	-15
-20	1.90		1.80	1.87	-20
-25	3T 1.93		1.83	1.90	-25
-30	1.95		1.84	1.93	-30
-35	4T 1.97		1.86	1.95	-35
-40	1.98		1.87	1.97	-40
-45	1.99			1.99	-45
-50	5T 2.01			2.01	-50

NOTES:

- (1) Subtract 0.01 if rain removal ON.
- (2) Between 25,000 and 30,000 feet add 0.01 EPR for each 10°C above standard temperature.
- (3) Above 30,000 feet add 0.01 EPR for each 5°C above standard temperature.
- (4) Underlined EPR is maximum allowed for pressure altitude.



CRUISE

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CLIMB DATA	C-8E
CRUISE DATA	C-10E

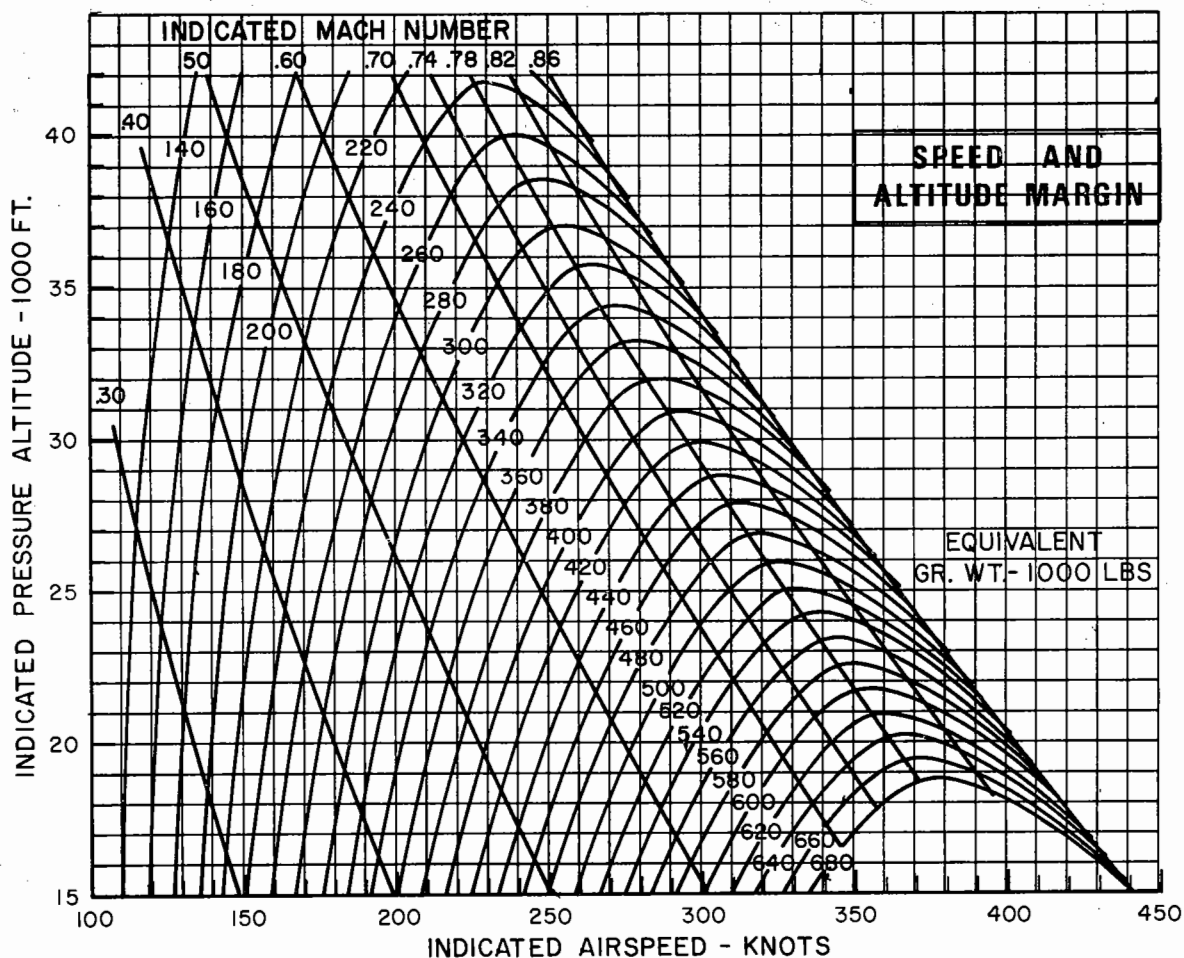
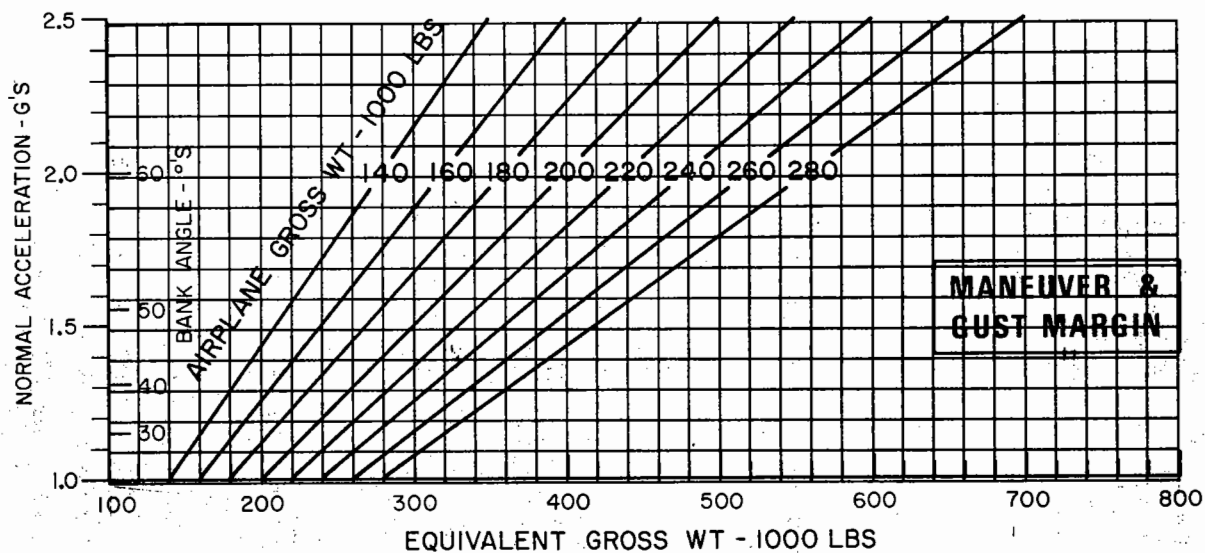


JT3D-7 (Continued)

FAR 10% RESERVE FUEL	C-6E
DESCENT DATA	C-7E
CLIMB DATA	C-8E
CRUISE DATA	C-10E

**INITIAL BUFFET SPEEDS - BASIC WING**

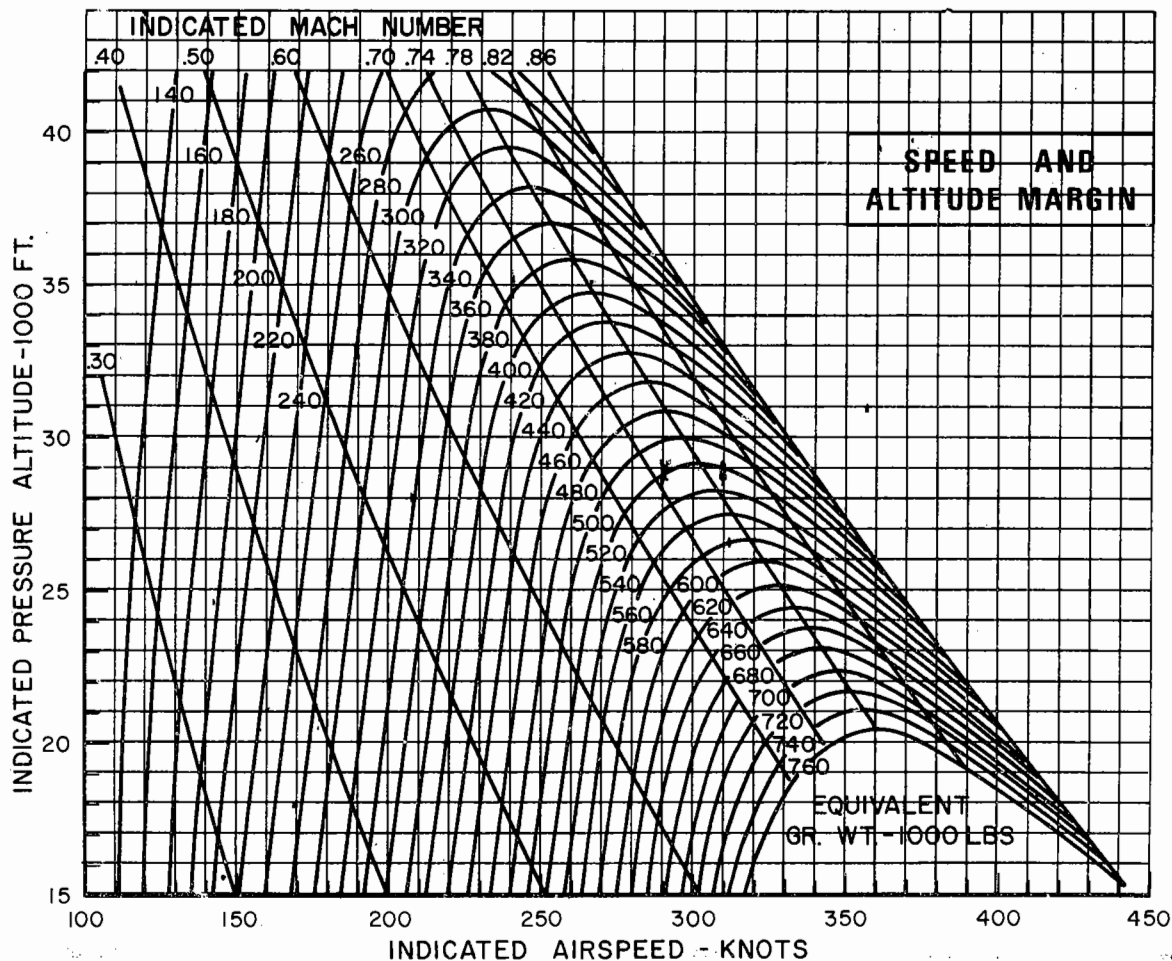
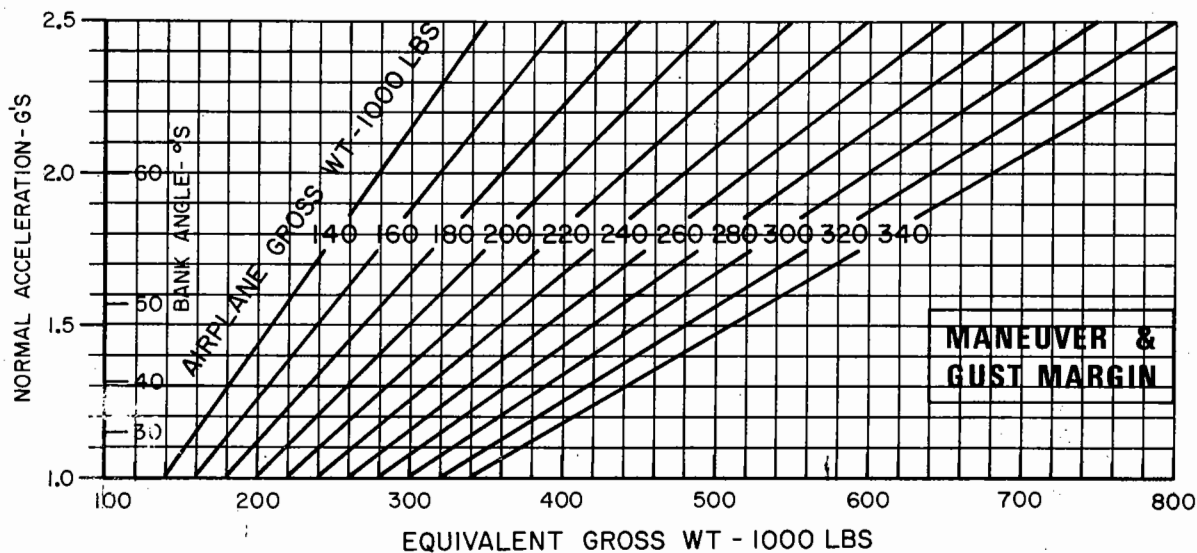
The below chart applies to airplanes N8001U thru 33U, N8037U thru 39U, and N8207U thru 66U.





INITIAL BUFFET SPEEDS - 4% LE WING

The below chart applies to the DC-8F, DC-8-61, DC-8-62, and DC-8's N8034U thru 36U, N8060U thru 69U.



BASIC WING
INITIAL BUFFET SPEED AT 1.5G

The following table is provided for convenience in setting airspeed indicator bugs to nominal low and high speed buffet boundaries. For G loadings other than 1.5G refer to the Initial Buffet Chart in this section. Observe Rough Air Speeds 280K/0.80M.

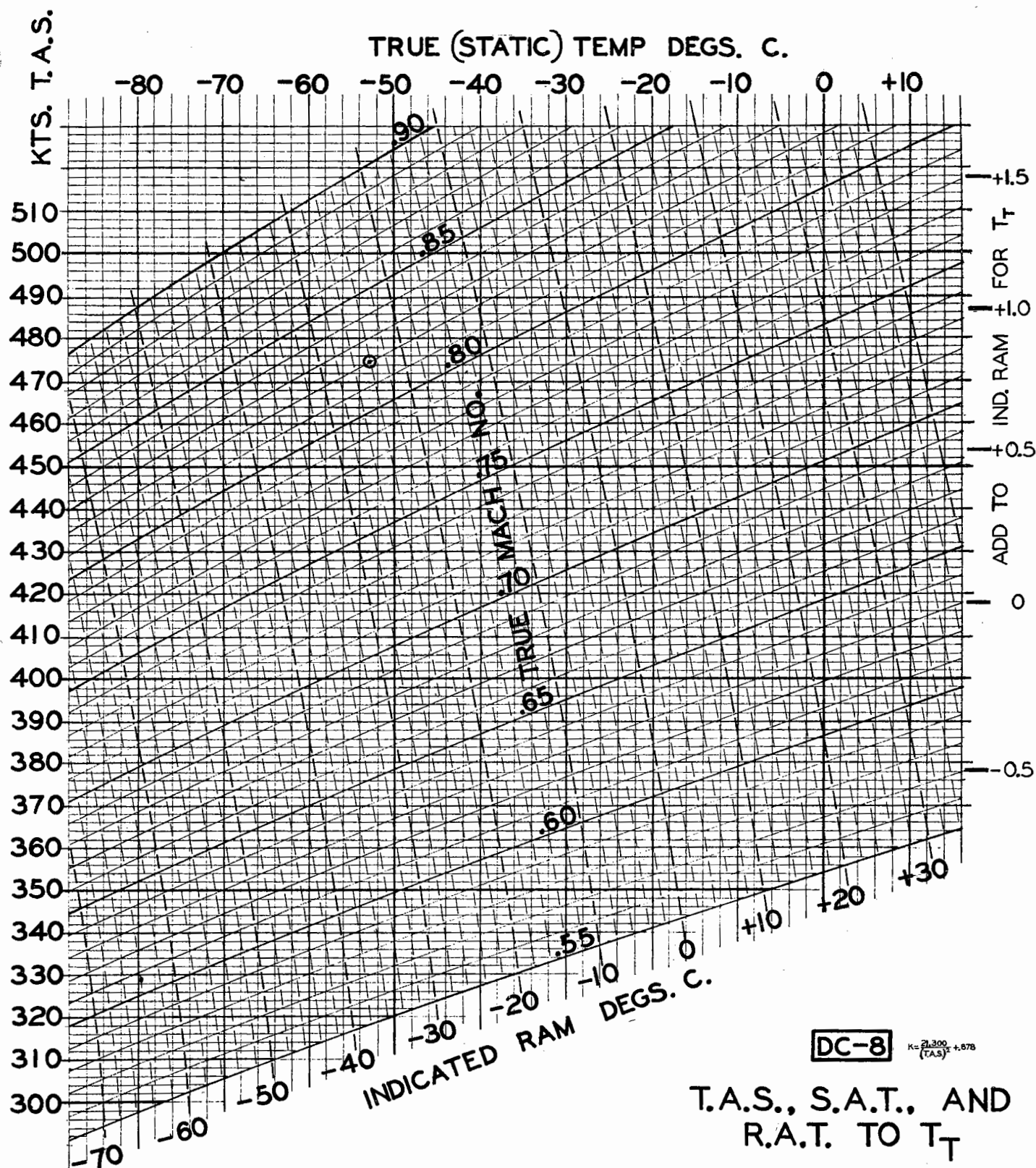
Flight Level	GROSS WEIGHT - 1000 LBS.														280
	150	160	170	180	190	200	210	220	230	240	250	260	270	280	
250	157 V _{MO}	165 V _{MO}	172 V _{MO}	180 V _{MO}	187 V _{MO}	196 V _{MO}	203 V _{MO}	211 V _{MO}	218 V _{MO}	226 372	234 371	243 370	251 368	259 367	
260	159	166	174	182	190	198	205	214	222	230 363	238 362	247 361	256 359	264 357	
270	161	168	176	184	193	201	208	217	226 358	234 354	243 353	252 352	261 349	270 346	
280	163	170	179	187	196	204	211	220 351	230 349	238 345	248 344	258 342	267 338	275 335	
290	165	172	181	190	199	207 344	215 343	224 342	234 339	243 336	253 335	264 331	275 326	284 321	
300	166	175	184	193	202 337	211 335	219 334	229 333	239 329	248 326	258 324	270 319	284 310		
310	168	177	186	196	206 328	215 326	224 325	234 324	245 319	254 316	265 311	280 303			
320	171	180	190	199 323	210 319	219 317	229 316	239 315	250 309	260 304	276 295				
330	173	183	193	204 314	214 310	223 308	234 307	245 303	257 296	271 285					
340	176	186	196 309	208 305	218 301	227 299	239 296	253 290	270 278						
350	179	189	200 300	212 296	223 292	233 288	246 284	264 268							
360	182	193 292	205 291	216 287	228 283	240 276	258 259								
370	186	197 283	209 282	221 278	235 270	250 250									
380	190 280	201 274	214 272	227 266	246 246										
390	194 270	206 266	220 262	238 242											
400	199 260	212 257	230 244												
410	204 251	219 245													
420	209 241														



4% LE WING
INITIAL BUFFET SPEED AT 1.5G

The following table is provided for convenience in setting airspeed indicator bugs to nominal low and high speed buffet boundaries. For G loadings other than 1.5G refer to the Initial Buffet Chart in this section. Observe Rough Air Speeds 280K/0.80M.

Flight Level	GROSS WEIGHT - 1000 LBS.															
	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340
250	183 V _{MO}	189 V _{MO}	195 V _{MO}	201 V _{MO}	206 V _{MO}	212 V _{MO}	218 V _{MO}	223 V _{MO}	228 V _{MO}	233 V _{MO}	238 373	243	248 370	253	258 367	262 366
260	184	190	196	202	207	213	219	224	229	235 365	239 364	245	250 361	255	260 358	265 355
270	185	191	197	203	209	214	220	225	231 357	236 356	241 355	246	252 351	257	263 347	269 344
280	186	192	198	205	210	216	221	226 350	232 348	237 347	242 346	248	254 340	260	268 335	275 331
290	187	193	200	206	212	217	223 343	228 341	234 339	239 338	244 336	251	257 329	265	274 323	283 317
300	188	194	201	207	213	218 336	224 334	229 332	235 330	241 328	247 326	255	263 316	273	281 290	303
310	190	196	202	208	214 328	220 327	225 325	231 323	237 320	244 318	251 315	260	269 273	302		
320	191	197	203	210 322	216 319	221 318	227 316	234 313	241 310	248 306	257 301	271	293			
330	192	198	205 314	211 313	217 310	223 309	230 306	238 303	245 298	255 292						
340	194	199 308	206 305	213 304	219 300	226 299	233 296	243 290	254 283							
350	195 301	201 299	207 296	215 294	222 290	229 288	239 283	253 274								
360	196 292	202 290	209 287	218 284	225 280	235 275	252 265									
370	198 283	204 281	212 277	221 273	233 268	253 253										
380	199 274	207 271	215 267	227 260												
390	202 264	210 260	222 253													
400	205 254	217 248														
410	211 242															
420																



⊙ EXAMPLE
 AT .82 MACH & -24° INDICATED RAM,
 TRUE TEMP. IS -53° C.
 T.A.S. IS 475 KTS.
 T_T IS -23° C. (APPROX.)



EN ROUTE CG, APPROXIMATION, % MAC

A quick approximation of the CG position en route can be made on the basis of the fuel load. This may be useful in the event of a jammed stabilizer or pitch trim compensator extended landing.

The tables below list approximate changes in % MAC as a function of fuel quantity. The following procedure will estimate the CG position during flight.

Assume a JT4A powered airplane for example:

	Quantity	% MAC
1. % MAC at takeoff from weight manifest		28.00
2. <u>Subtract</u> change value for takeoff fuel load	95,000 lbs.	-3.25
		24.75
3. <u>Add</u> change value for en route or landing fuel load	32,000 lbs.	+0.25
4. Total is approximate % MAC.		25.00

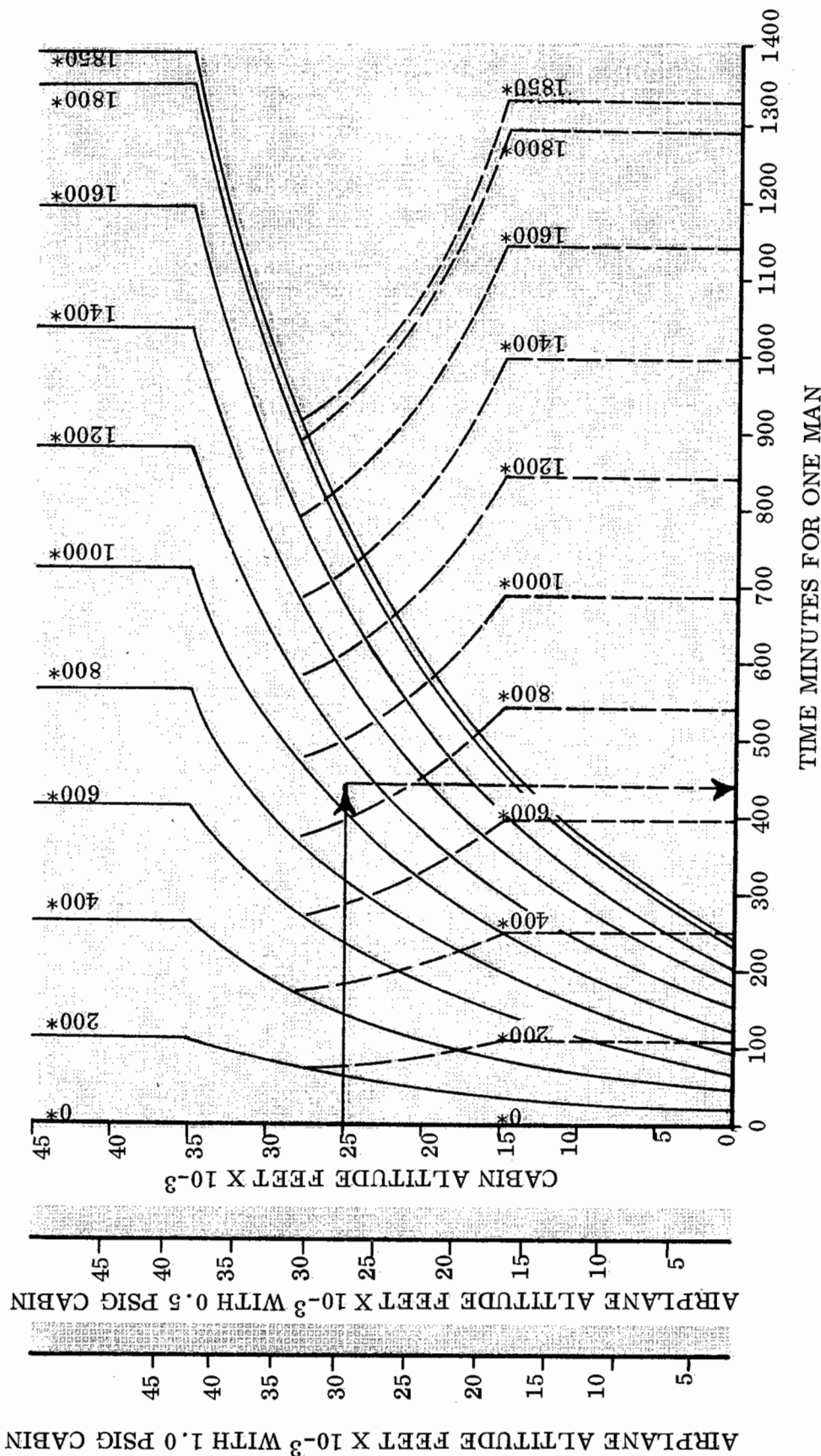
JT4A AIRPLANES	
Pounds Fuel	% MAC Change
3000 - 10000	0.75
10000 - 16500	0.50
16500 - 24000	0.25
24000 - 30200	0
30200 - 34300	0.25
34300 - 38100	0.50
38100 - 41800	0.75
41800 - 45400	1.00
45400 - 48600	1.25
48600 - 51800	1.50
51800 - 54800	1.75
54800 - 57900	2.00
57900 - 60600	2.25
60600 - 63200	2.50
63200 - 69500	2.75
69500 - 82400	3.00
82400 - 97000	3.25
97000 - 116950	3.50

JT3D AIRPLANES EXCEPT DC-8-62			
Pounds Fuel	% MAC Change	Pounds Fuel	% MAC Change
2000 - 7000	0.75	69000 - 81100	3.75
7000 - 14700	0.50	81100 - 96000	4.00
14700 - 23000	0.25	96000 - 112200	4.25
23000 - 29900	0	112200 - 120400	4.50
29900 - 33500	0.25	120400 - 122500	4.25
33500 - 37200	0.50	122500 - 124700	4.00
37200 - 40400	0.75	124700 - 126700	3.75
40400 - 44000	1.00	126700 - 128700	3.50
44000 - 47200	1.25	128700 - 130700	3.25
47200 - 50500	1.50	130700 - 132700	3.00
50500 - 53900	1.75	132700 - 134600	2.75
53900 - 56500	2.00	134600 - 136600	2.50
56500 - 59600	2.25	136600 - 138600	2.25
59600 - 62000	2.50	138600 - 140600	2.00
62000 - 64200	2.75	140600 - 142600	1.75
64200 - 66200	3.00	142600 - 144600	1.50
66200 - 68000	3.25	144600 - 146600	1.25
68000 - 69000	3.50	146600 - 148050	1.00

JT4-A AIRPLANES	
Ejectors Retract	-0.36

EN ROUTE CG, APPROXIMATION, % MAC (Continued)

DC-8-62 AIRPLANES			
Pounds Fuel	% MAC Change	Pounds Fuel	% MAC Change
1000 - 13500	0	111000 - 119500	4.00
13500 - 15000	0.25	119500 - 122100	3.75
15000 - 16700	0.50	122100 - 124100	3.50
16700 - 18400	0.75	124100 - 126300	3.25
18400 - 19600	1.00	126300 - 128000	3.00
19600 - 21000	1.25	128000 - 129900	2.75
21000 - 22400	1.50	129900 - 132200	2.50
22400 - 24500	1.75	132200 - 134500	2.25
24500 - 27900	2.00	134500 - 136600	2.00
27900 - 30800	2.25	136600 - 139000	1.75
30800 - 34100	2.50	139000 - 141200	1.50
34100 - 37300	2.75	141200 - 143100	1.25
37300 - 39900	3.00	143100 - 145600	1.00
39900 - 42400	3.25	145600 - 147600	.75
42400 - 45300	3.50	147600 - 149500	.50
45300 - 48300	3.75	149500 - 150600	.25
48300 - 51300	4.00	150600 - 151700	0
51300 - 54400	4.25	151700 - 153000	-.25
54400 - 60000	4.50	153000 - 154800	-.50
60000 - 65000	4.25	154800 - 156000	-.75
65000 - 88200	4.00	156000 - 157700	-1.00
88200 - 111000	3.75	157700 - 160500	-1.25



100 PERCENT OXYGEN

NORMAL OXYGEN

* OXYGEN CYLINDER PRESSURE

CHART BASED ON ONE 111 CUBIC FOOT OXYGEN CYLINDER.

EXAMPLE:

100 PERCENT OXYGEN

CABIN ALTITUDE = 25,000 FEET

OXYGEN CYLINDER PRESSURE = 1100 PSIG

READ TIME FROM CHART = 440 MINUTES FOR ONE MAN

NUMBER OF MEN BREATHING OXYGEN = 3

TIME OXYGEN WILL LAST = 440/3 = 146.7 MINUTES

CREW OXYGEN DURATION

RELATIONSHIP BETWEEN CAS (IAS) AND M (M_T)

The airspeed indicator measure the difference (Δp) between pitot pressure and static pressure. Although Mach number is conventionally defined as the ratio of true airspeed to the speed of sound, it is also uniquely determined by measuring the ratio of Δp to static pressure. The MACHMETER is, in reality, an altitude compensating airspeed indicator. Therefore, when any two of the quantities, airspeed, Mach number, and altitude, are known the third is automatically fixed. To be consistent the three must be either all indicated or all true, i. e.;

CAS - M - True Pressure Altitude
or
IAS - M_I - Indicated Pressure Altitude

This fixed relationship is tabulated in the accompanying table. It may also be set up on the Jeppesen computer:

1. Set Mach number arrow to known Mach number,
2. In the "outer window", read corresponding airspeed and pressure altitude opposite each other.

or

1. Set known airspeed and pressure altitude opposite each other,
2. Read corresponding Mach number at arrow.

M	Pressure Altitude - Thousand Feet										
	25	26	27	28	29	31	33	35	37	39	41
.52	214	209	205	201	196	188	179	171	163	156	148
.54	223	218	213	209	204	195	187	178	170	162	155
.56	231	226	221	217	212	203	194	185	177	168	161
.58	240	235	230	225	220	210	201	192	183	175	167
.60	248	243	238	233	228	218	208	199	190	181	173
.62	257	252	246	241	236	226	216	206	197	188	179
.64	266	260	255	249	244	234	223	213	204	194	185
.66	275	269	263	258	252	241	231	220	210	201	192
.68	284	278	272	266	260	249	238	228	217	207	198
.70	293	286	280	275	269	257	246	235	224	214	204
.72	301	295	289	283	277	265	254	242	231	221	211
.74	310	304	298	291	285	273	261	250	238	227	217
.76	319	313	306	300	294	281	269	257	245	234	224
.78	329	322	315	309	302	289	277	264	253	241	230
.80	338	331	324	317	311	297	285	272	260	248	237
.82	347	340	333	326	319	306	292	280	267	255	243
.84	356	349	342	335	328	314	300	287	274	262	250
.86	365	358	351	343	336	322	308	295	282	269	257
.88	375	367	360	352	345	331	316	303	289	276	264
.90	384	376	369	361	354	339	324	310	297	283	270

For odd Mach numbers and in between altitudes, interpolate diagonally,

EXAMPLE: At 32,000 feet, M. 73 265 263 261

**ALTITUDE CALIBRATION****DC-8**

Apply below corrections to airplanes N8001U-69U when air data system off. On airplanes N8207U-66U always apply correction since these airplanes are equipped with uncorrected altimeters.

CAPT'S & F/O'S ALTIMETER CALIBRATION - 10,000 - 42,000 FT.		
This table applicable for normal static source on all airplanes and for alternate source on all airplanes except N8004U-17U, N8019U and N8020U.		
Mach. No.	Altitude Correction - Ft.	
.70	+ 30	
.75	+ 40	Add to indicated altitude to obtain true pressure alt.
.80	+ 80	
.82	+100	
.85	+130	

This table applies for TAIL ALTERNATE static source on airplanes N8004U - 17U, N8019U and N8020U WITH FLAPS UP. NOT VALID WITH AIRFOIL DE-ICING SYSTEM ON. Fly at indicated altitude listed to achieve true pressure altitude.									
True Press.	Indicated Airspeed - Knots								
Altitude	160	180	200	220	240	260	280	300	320
42,000 ft.	42210	42270	42340	42430	42540	42720	42960	43300	43730
40,000 ft.	40190	40240	40310	40390	40500	40650	40870	41170	41550
35,000 ft.	35150	35200	35250	35310	35400	35520	35690	35920	36210
30,000 ft.	30120	30160	30200	30250	30320	30420	30560	30740	30980
25,000 ft.	25100	25130	25170	25200	25270	25350	25470	25610	25810
20,000 ft.	20080	20110	20140	20170	20220	20290	20390	20520	20680
15,000 ft.	15070	15090	15120	15150	15190	15240	15330	15440	15570
10,000 ft.	10060	10080	10100	10130	10160	10210	10280	10380	10490
5,000 ft.	5050	5070	5090	5110	5140	5180	5240	5310	5410
Sea Level	40	60	70	90	120	150	200	270	360

**ALTITUDE CALIBRATION (Continued)****DC-8-61**

DC-8-61 altimeters are not corrected for position error. The following position error correction must be applied to indicated altitudes to obtain true pressure altitude.

NOTE: The servo-pneumatic altimeters on airplanes N8095U -99U are corrected only for instrument mechanical error when operating in the CORR Mode. The following position error correction must always be applied to obtain true pressure altitude.

CAPT'S & F/O'S ALTIMETER CALIBRATION - 10,000 - 42,000 FT.		
Mach No.	Normal Static Source	Alternate Static Source
.70	+ 5'	-130'
.75	+10'	-140'
.80	+20'	-155'
.82	+25'	-160'
.85	+30'	-170'
Add above correction to indicated altitude to obtain true pressure altitude.		

DC-8-62

The altimeters installed in the DC-8-62 are corrected only for instrument mechanical error. The following position error corrections must be applied to indicated altitudes to obtain true pressure altitude.

CAPT'S & F/O'S ALTIMETER CALIBRATION - 10,000 - 42,000 FT.		
Mach No.	Normal Static Source	Alternate Static Source
.70	+ 7'	+240'
.75	+ 20'	+290'
.80	+ 50'	+375'
.82	+ 70'	+425'
.85	+120'	+500'
Add above corrections to indicated altitude to obtain true pressure altitude.		

MACH METER CALIBRATION

Indicated Mach	True Mach			
	Normal Static Source	Alternate Static Source		
		All Airplanes	DC-8	DC-8-61

.60	.601	.601 (.580)	.597	.608
.70	.702	.702 (.675)	.695	.712
.75	.752	.752 (.722)	.745	.764
.80	.803	.803 (.770)	.794	.817
.82	.824	.824 (.790)	.813	.840
.85	.855	.855 (.815)	.843	.873

*** The true Mach numbers in parentheses are applicable to those airplanes equipped with a tail alternate static source. (Not valid with airfoil deicing system ON.)

Airplanes equipped with tail alternate static source are N8004U-17U, N8019U and N8020U.

CRUISE WITH WING SLOTS OPEN

Open wing slots will increase drag and fuel flow. If any wing slot cannot be closed, the additional fuel required to complete the flight can be estimated by using the following correction factors.

Mach Number	.75	.76	.77	.78	.79	.80
% Fuel Increase	4.9	5.3	5.9	6.6	7.0	7.1

**MACH 0.65/ 230 KIAS PERFORMANCE DATA**

1. Determine cruise altitude considering revised max. cruise weights shown below.
2. Determine fuel burnout and flight time from Mach 0.80 Flight Planning Table using cruise altitude from Step #1.
3. Adjust fuel burnout and flight time determined in Step #2 by percentages in the following table.

FLIGHT LEVEL	MAX. CRUISE WT. - 1000 LBS (Provides 1.4 G Buffet Margin)		TAS	% INCREASE OR DECREASE (-) IN MACH 0.80 FUEL BURNOUT		% INCREASE IN MACH 0.80 FLIGHT TIME
	BASIC WING	4% L.E. WING		BASIC WING	4% L.E. WING	
390	165.0	200.0	372	**	4.0	25.0
370	181.0	220.0	372	**	3.0	25.0
350	200.0	240.0	374	6.0	1.0	24.0
330	220.0	267.0	378	2.0	-2.0	23.0
310	232.0	280.0	370	-2.0	-4.0	27.0
290	242.0	285.0	360	-6.0	-6.0	30.0
270	252.0	290.0	346	-8.0	-8.0	35.0
250	262.0	297.0	338	-10.0	-10.0	40.0

**** CRUISE AT THIS ALTITUDE NOT RECOMMENDED. PERCENT INCREASE IN
PLANNED FUEL BURNOUT IS EXCESSIVE.**

MAXIMUM CRUISE EPR - JT4A-3

4 ENGINES										
RAT °C	SL - 30T		35T	40T	RAT °C	SL - 30T		35T	40T	
50	1.75	ICING BLEED ON ↓			- 8	2.29	2.16	2.23	2.20	
45	1.80				-10	2.31	2.18	2.25	2.22	
40	1.85				-12	2.33	2.20	2.27	2.24	
35	1.90				-14	2.35	2.21	2.29	2.26	
30	1.94				-16	2.37	2.23	2.31	2.27	
28	1.96				-18	2.38	2.25	2.33	2.29	
26	1.98				-20	2.40	2.26	2.35	2.31	
24	2.00				-22	2.42	2.28	2.37	2.33	
22	2.01				-24	2.44	2.30	2.39	2.35	
20	2.03				-26	2.46	2.31	2.41	2.37	
18	2.05	↑ ICING BLEED ON			-28	2.48	2.33	2.43	2.39	
16	2.07				-30	2.50	2.34	2.45	2.41	
14	2.09				-32	2.52		2.47	2.43	
12	2.11				-34	2.53		2.50	2.45	
10	2.13				-36	2.55		2.52	2.46	
8	2.15		2.03			-38	2.57		2.54	2.48
6	2.16		2.05			-40	2.59		2.56	2.50
4	2.18		2.06			-42	2.61		2.58	2.52
2	2.20		2.08			-44	2.63		2.60	2.54
0	2.22		2.10			-46	2.64		2.62	2.56
-2	2.24	2.11	2.17	2.14	-48	2.66		2.64	2.58	
-4	2.26	2.13	2.19	2.16	-50	2.68		2.66	2.60	
-6	2.27	2.15	2.21	2.18						

NOTE: Subtract .01 if Rain Removal ON.



OPERATION WITH EJECTOR(S) IN THE EXTENDED POSITION
(JT4A AIRPLANES)

If one or more ejectors cannot be retracted, airplane performance will be affected as follows:

1. More thrust and fuel will be required to cruise at a desired speed when operating at less than limiting cruise thrust.
2. If operating at limiting cruise thrust, speed obtainable will be reduced.

CORRECTION FACTOR FOR EACH EXTENDED EJECTOR	
Climb to an altitude below 32,000 feet.	Increase climb fuel 13%
Climb to an altitude above 32,000 feet.	Increase climb fuel 33%
Cruise at constant Mach number (less than limit cruise thrust).	Increase fuel 6%
Cruise at limit cruise thrust.	Decrease speed .03M

CRUISE

FLIGHT PLANNING TABLE

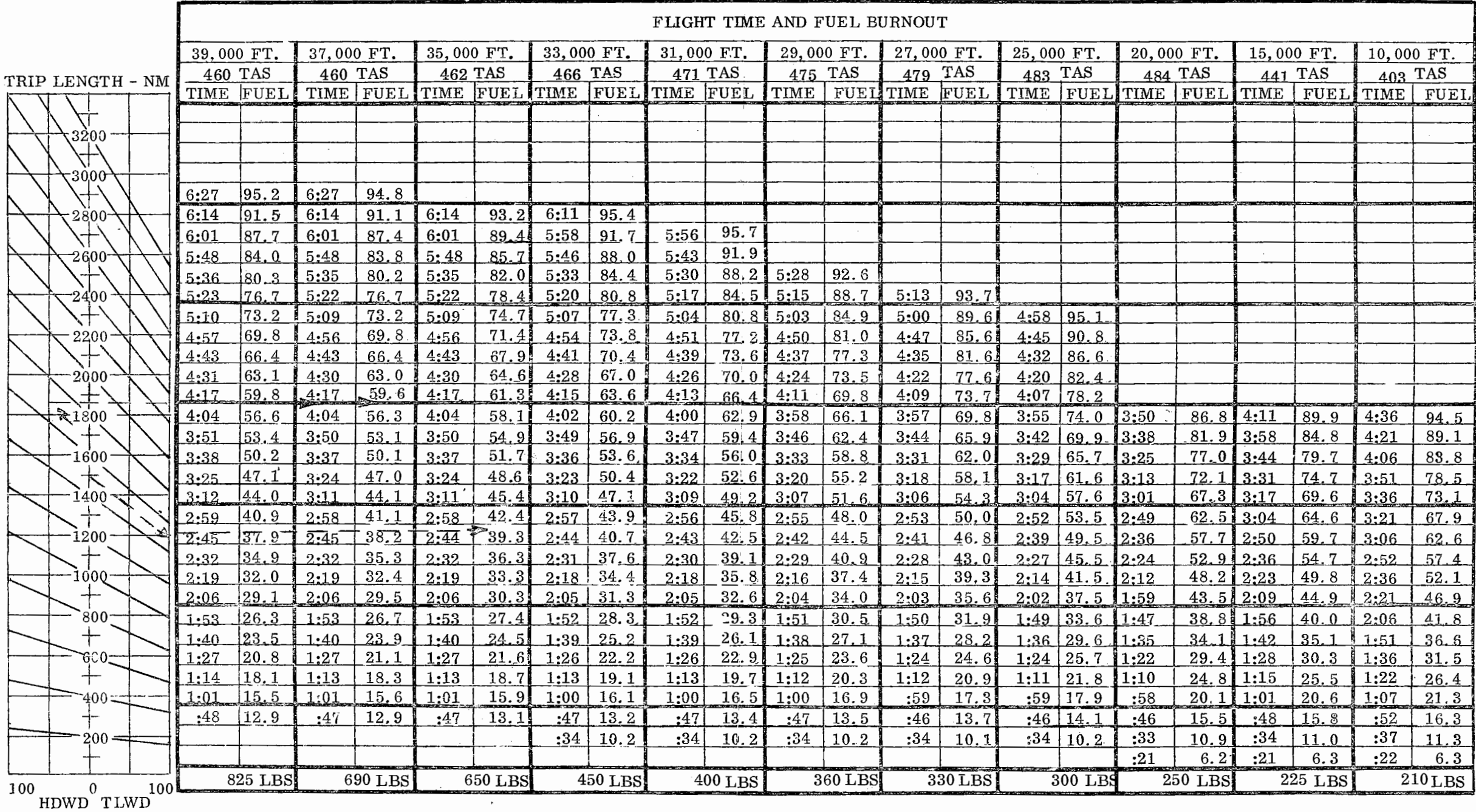
DC-8 JT4A-3



When the trip length line (corrected for wind) intersects between the horizontal time-fuel lines, use the time and fuel shown in the blocks for the flight altitude. Example: 1500 NM, 100 K Tailwind, Altitude 35,000. Time 2:44, Fuel 39.3

When the trip length line (corrected for wind) intersects on a horizontal time-fuel line; interpolate. Example: 1700 NM, 50 K Headwind, Altitude 37,000. Time 4:11, Fuel 58.0

BASED ON FOLLOWING SPEED SCHEDULE:
CLIMB: 250 IAS to 10,000 Ft. - 300 IAS to 29,000 Ft. - Mach 0.78 above 29,000 Ft.
CRUISE: S.L. to 10,000 Ft. - 250 IAS
10,000 Ft. to 20,500 Ft. - V_{MO}
20,500 Ft. and above - Mach 0.80
DESCENT: Mach 0.82 to 28,000 Ft. - 330 IAS
between 28,000 Ft. and 10,000 Ft. - 250 IAS below 10,000 Ft.



NOTE: Table valid only for landing weight of 180,000 lbs and less. For each 10,000 lbs deviation above 180,000 lbs, add fuel burnout correction shown at bottom of Table for each hour of Flight Time.



**DC-8, JT4-3 MAXIMUM RECOMMENDED
INITIAL CRUISE WEIGHT**

FLIGHT LEVEL STANDARD TEMP.		STATIC AIR TEMPERATURE			
		T _S -10° C	T _S	T _S +10° C	T _S +20° C
410 -57° C	WEIGHT MACH/IAS	193,000 0.80/237	181,000 0.80/237	162,000 0.79/233	150,000 0.78/230
390 -57° C	WEIGHT MACH/IAS	216,000 0.80/248	201,000 0.80/248	181,000 0.79/245	167,000 0.78/241
370 -57° C	WEIGHT MACH/IAS	240,000 0.80/260	221,000 0.80/260	202,000 0.79/255	186,000 0.78/252
350 -54° C	WEIGHT MACH/IAS	264,000 0.80/272	241,000 0.80/272	221,000 0.80/272	204,000 0.78/264
330 -50° C	WEIGHT MACH/IAS	285,000 0.80/285	261,000 0.80/285	240,000 0.79/280	222,000 0.78/277
310 -46° C	WEIGHT MACH/IAS	—	—	260,000 0.79/293	240,000 0.77/285

**DC-8 JT4A-3
FAR 10% FLIGHT TIME OVERWATER RESERVE FUEL**

NOTE: This fuel replaces the contingency fuel used in domestic operation. It is based on long range cruise at 20,000 feet.

EST. FLT. TIME (HRS)	FAR 10% FLT TIME RESERVE FUEL (LBS)
2.0	2600
2.5	3250
3.0	3850
3.5	4500
4.0	5150
4.5	5800
5.0	6450
5.5	7100
6.0	7750
6.5	8350
7.0	9000



SUMMARY FLIGHT PLANNING RULES

Minimum Reserve Fuel (FAR)	=	8,500 lbs.
Minimum Alternate Fuel	=	1,700 lbs.
Planned Holding Fuel	=	10,000 lbs./hr.
Contingency Fuel (See FOM For Exceptions)	=	4,000 lbs.
Minimum Planned Burnout at End Final Step Climb	=	6,000 lbs.

FLIGHT PLAN TIME AND FUEL ADJUSTMENT FOR STEP - CLIMB

<u>STEP - CLIMB</u>	<u>ADDITIONAL TIME AND FUEL</u>
2,000 ft.	0.5 min., 200 lbs.
3,000 ft., 4,000 ft., 5,000 ft.	1.0 min., 400 lbs.
6,000 ft., 7,000 ft., 8,000 ft.	2.0 min., 600 lbs.

TIME, DISTANCE AND FUEL FOR NORMAL DESCENT

FINAL CRUISE ALTITUDE	TIME (MIN.)	DISTANCE (N.M.)	FUEL (POUNDS)
41,000	26	160	3,900
39,000	24	144	3,600
37,000	22	127	3,300
35,000	20	110	3,050
33,000	19	99	2,900
31,000	18	94	2,750
29,000	18	90	2,600
28,000	17	88	2,550
27,000	17	86	2,500
26,000	17	85	2,450
25,000	16	81	2,400
24,000	16	78	2,350
23,000	16	75	2,300
22,000	15	72	2,250
21,000	15	70	2,200
20,000	14	67	2,150
19,000	14	65	2,100
18,000	14	62	2,050
17,000	14	60	2,000
16,000	13	58	1,950
15,000	13	56	1,900
10,000	12	45	1,650
5,000	7	21	1,350

TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT. FT. TOGW 1000 LBS.	25,000				27,000			
	T _S -10°C	T _S	T _S +10°C	T _S +20°C	T _S -10°C	T _S	T _S +10°C	T _S +20°C
280	14/8211/72	17/9096/90	21/10404/117	27/12506/161	16/9007/86	19/10069/108	25/11737/145	34/14638/210
260	13/7315/64	15/8049/79	18/9100/101	23/10712/135	14/7986/76	17/8850/94	21/10148/123	28/12249/170
240	11/6521/57	13/7138/69	16/7999/87	20/9275/115	13/7092/67	15/7806/82	18/8847/105	23/10450/142
220	10/5803/50	12/6323/61	14/7035/76	17/8061/99	11/6293/59	13/6889/72	16/7736/91	20/8996/120
200	9/5150/44	10/5593/54	12/6188/67	15/7030/85	10/5573/52	12/6076/63	14/6778/79	17/7794/103
180	8/4545/39	9/4921/47	11/5419/58	13/6110/73	9/4908/45	10/5333/55	12/5914/68	15/6737/88
160	7/3983/34	8/4300/41	9/4715/50	11/5289/63	8/4293/39	9/4649/47	10/5131/58	13/5808/75
150	6/3713/31	7/4003/38	9/4382/46	10/4901/58	7/4000/37	8/4325/44	10/4764/54	12/5374/69

NOTES: 1. Based on use of maximum continuous thrust and 300 knots IAS to .78M

2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute

Fuel - 150 lbs.

Distance - 1.5 N. M.

ALT. FT. TOGW 1000 LBS.	29,000				31,000			
	T _S -10°C	T _S	T _S +10°C	T _S +20°C	T _S -10°C	T _S	T _S +10°C	T _S +20°C
280	19/9913/104	23/11234/133	30/13485/184	—	21/10819/122	26/12480/160	36/15638/237	—
260	16/8729/90	20/9770/113	25/11431/152	34/14336/222	18/9447/105	22/10702/134	29/12839/186	—
240	14/7711/79	17/8554/98	21/9837/128	28/11909/178	16/8297/91	19/9284/114	24/10858/153	33/13561/222
220	13/6816/69	15/7508/85	18/8528/109	23/10095/147	14/7300/79	17/8095/98	21/9307/128	27/11237/177
200	11/6019/60	13/6597/74	16/7428/94	20/8663/124	12/6425/69	14/7080/84	18/8047/109	23/9520/147
180	10/5288/53	11/5771/64	14/6451/80	17/7434/105	11/5631/60	12/6173/73	15/6954/93	19/8104/123
160	8/4616/45	10/5019/55	12/5578/69	14/6375/89	9/4905/51	11/5354/62	13/5989/79	16/6908/103
150	8/4297/42	9/4664/51	11/5172/63	13/5888/81	9/4562/48	10/4970/58	12/5544/72	15/6366/94



TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT FT. TOGW 1000 LBS.	33,000				35,000			
	T _s -10°C	T _s	T _s +10°C	T _s +20°C	T _s -10°C	T _s	T _s +10°C	T _s +20°C
280	24/11765/143	31/13943/195	—	—	28/13188/176	—	—	—
260	20/10135/120	25/11649/157	35/14434/228	—	23/11015/140	30/13032/192	—	—
240	17/8831/102	21/9974/130	28/11871/179	—	19/9452/117	24/10827/152	33/13283/220	—
220	15/7730/88	18/8627/110	23/10031/147	31/12368/210	17/8203/99	20/9234/126	26/10901/172	37/13928/258
200	13/6776/76	16/7502/94	19/8593/123	25/10297/169	14/7151/85	17/7963/106	22/9205/141	29/11228/198
180	11/5922/66	14/6516/81	17/7384/104	21/8683/139	12/6224/73	15/6877/90	18/7841/117	24/9319/159
160	10/5148/57	12/5636/69	14/6334/88	18/7356/116	11/5395/62	13/5926/77	15/6691/98	20/7827/130
150	9/4784/52	11/5226/64	13/5854/81	16/6764/105	10/5008/58	12/5487/70	14/6172/90	18/7175/118

- NOTES:**
- Based on use of maximum continuous thrust and 300 knots IAS to .78M.
 - For each 1,000 feet takeoff airport above sea level reduce:
 Time - 0.5 Minute
 Fuel - 150 lbs.
 Distance - 1.5 N. M.

ALT. FT. TOGW 1000 LBS.	37,000				39,000			
	T _s -10°C	T _s	T _s +10°C	T _s +20°C	T _s -10°C	T _s	T _s +10°C	T _s +20°C
280	—	—	—	—	—	—	—	—
260	—	—	—	—	—	—	—	—
240	23/10346/140	—	—	—	—	—	—	—
220	19/8803/114	23/10067/150	—	—	22/9712/140	—	—	—
200	16/7595/96	19/8533/122	25/10024/166	—	18/8171/113	23/9340/148	—	—
180	14/6569/82	16/7300/102	21/8400/134	27/10145/187	15/6982/93	19/7829/119	24/9169/161	—
160	12/5669/69	14/6251/86	17/7100/111	22/8382/149	13/5981/78	15/6633/98	19/7606/128	26/9103/177
150	11/5253/64	13/5775/79	16/6528/101	20/7646/134	12/5528/72	14/6105/89	18/6952/115	23/8223/156



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	448 230	EPR NAM/1000#										2.62 33.9	2.53 36.6	2.45 39.5	2.38 41.8	2.31 44.0	2.25 46.1
390 -56	448 241								2.70 28.5	2.61 31.0	2.53 33.3	2.45 35.6	2.39 37.5	2.33 39.4	2.27 41.2	2.22 42.8	2.17 44.5
370 -56	448 253						2.66 26.7	2.59 28.7	2.51 30.6	2.45 32.5	2.39 34.1	2.33 35.7	2.28 37.1	2.23 38.5	2.18 39.8	2.14 41.1	2.11 42.5
350 -54	451 265			2.70 23.5	2.62 25.3	2.55 26.8	2.49 28.5	2.43 29.9	2.38 31.2	2.33 32.5	2.28 33.7	2.24 34.8	2.19 35.9	2.16 37.0	2.12 38.1	2.09 39.2	2.05 40.3
330 -50	455 277	2.63 22.6	2.58 23.9	2.51 25.2	2.46 26.5	2.41 27.6	2.36 28.7	2.32 29.7	2.27 30.7	2.23 31.7	2.20 32.6	2.16 33.5	2.13 34.4	2.10 35.3	2.07 36.2	2.04 37.0	2.02 37.8
310 -46	459 290	2.47 23.8	2.43 24.8	2.39 25.7	2.34 26.6	2.30 27.4	2.26 28.2	2.23 29.0	2.19 29.7	2.16 30.5	2.13 31.2	2.10 32.0	2.08 32.7	2.05 33.4	2.03 34.1	2.01 34.8	1.98 35.5
290 -42	463 302	2.36 24.0	2.32 24.6	2.28 25.3	2.25 26.0	2.22 26.6	2.19 27.2	2.16 27.8	2.13 28.5	2.10 29.1	2.08 29.7	2.06 30.3	2.04 30.9	2.02 31.4	1.99 32.1	1.98 32.6	1.96 33.1
280 -40	465 309	2.31 23.8	2.27 24.4	2.24 25.0	2.21 25.6	2.18 26.1	2.15 26.7	2.13 27.2	2.10 27.8	2.08 28.4	2.06 28.9	2.04 29.4	2.02 29.9	2.00 30.5	1.98 31.0	1.97 31.5	1.95 31.9
270 -38	467 316	2.26 23.5	2.23 24.0	2.20 24.6	2.18 25.1	2.15 25.6	2.13 26.1	2.10 26.6	2.08 27.1	2.06 27.6	2.04 28.1	2.02 28.6	2.00 29.1	1.98 29.5	1.97 30.0	1.95 30.4	1.94 30.8
260 -37	469 322	2.22 23.1	2.19 23.6	2.17 24.1	2.15 24.5	2.12 25.0	2.10 25.5	2.08 26.0	2.06 26.4	2.04 26.8	2.02 27.3	2.00 27.7	1.99 28.2	1.97 28.6	1.96 28.9	1.94 29.3	1.93 29.6
250 -35	471 329	2.19 22.7	2.16 23.1	2.14 23.6	2.12 24.0	2.10 24.5	2.08 24.9	2.06 25.3	2.04 25.7	2.02 26.1	2.01 26.5	1.99 26.9	1.97 27.2	1.96 27.6	1.95 27.9	1.94 28.2	1.93 28.5
240 -33	473 336	2.16 22.3	2.13 22.7	2.11 23.1	2.09 23.5	2.07 23.9	2.06 24.2	2.04 24.6	2.02 24.9	2.01 25.3	1.99 25.7	1.98 26.0	1.96 26.3	1.95 26.7	1.94 27.0	1.93 27.2	1.92 27.5
230 -31	474 343	2.13 21.8	2.11 22.2	2.09 22.5	2.07 22.9	2.05 23.2	2.04 23.6	2.02 23.9	2.01 24.2	1.99 24.6	1.98 24.9	1.96 25.2	1.95 25.5	1.94 25.7	1.93 26.0	1.92 26.2	1.91 26.4
220 -29	476 350	2.10 21.3	2.08 21.7	2.07 22.0	2.05 22.3	2.04 22.6	2.02 22.9	2.00 23.2	1.99 23.5	1.98 23.8	1.97 24.1	1.95 24.3	1.94 24.6	1.93 24.8	1.92 25.0	1.92 25.2	1.91 25.5
210 -27	478 357	2.08 20.8	2.06 21.1	2.05 21.4	2.03 21.7	2.02 21.9	2.00 22.3	1.99 22.5	1.98 22.8	1.97 23.0	1.96 23.3	1.94 23.5	1.94 23.7	1.93 23.9	1.92 24.1	1.91 24.3	1.90 24.5
200 -25	480 363	2.06 20.3	2.04 20.6	2.03 20.8	2.02 21.1	2.00 21.3	1.99 21.6	1.98 21.8	1.97 22.1	1.96 22.3	1.95 22.5	1.94 22.7	1.93 22.9	1.92 23.1	1.91 23.2	1.91 23.4	1.90 23.6

- NOTES:** (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	454 233										2.70 31.4	2.61 34.1	2.52 36.8	2.45 39.2	2.39 41.5	2.32 43.7	2.26 45.7
390 -56	454 245	EPR NAM/1000#							2.68 29.0	2.60 31.2	2.52 33.4	2.46 35.4	2.40 37.3	2.34 39.2	2.28 40.9	2.23 42.5	2.18 44.0
370 -56	454 256						2.65 27.1	2.58 28.9	2.51 30.7	2.45 32.3	2.40 33.8	2.34 35.4	2.29 36.8	2.24 38.2	2.20 39.5	2.16 40.8	2.12 42.0
350 -54	456 268			2.68 24.0	2.61 25.5	2.55 26.9	2.49 28.4	2.44 29.7	2.39 31.0	2.34 32.2	2.29 33.4	2.25 34.5	2.21 35.6	2.17 36.7	2.13 37.7	2.10 38.8	2.07 39.7
330 -50	461 281	2.63 22.8	2.57 24.0	2.51 25.3	2.47 26.4	2.42 27.4	2.37 28.5	2.33 29.5	2.29 30.5	2.25 31.4	2.21 32.3	2.18 33.2	2.14 34.0	2.11 34.9	2.08 35.8	2.06 36.5	2.04 37.2
310 -46	465 294	2.48 23.7	2.44 24.6	2.40 25.5	2.35 26.4	2.31 27.2	2.28 28.0	2.24 28.7	2.21 29.4	2.18 30.2	2.15 30.9	2.12 31.6	2.09 32.3	2.07 33.0	2.05 33.6	2.03 34.2	2.01 34.8
290 -42	469 307	2.37 23.8	2.33 24.5	2.29 25.1	2.26 25.8	2.23 26.4	2.20 27.0	2.17 27.6	2.14 28.2	2.12 28.8	2.10 29.4	2.07 29.9	2.05 30.4	2.04 30.9	2.02 31.4	2.00 31.9	1.98 32.4
280 -40	471 313	2.32 23.6	2.28 24.2	2.25 24.8	2.22 25.3	2.20 25.9	2.17 26.4	2.14 27.0	2.12 27.5	2.10 28.0	2.07 28.6	2.06 29.0	2.04 29.5	2.02 29.9	2.00 30.4	1.99 30.8	1.97 31.2
270 -38	473 320	2.27 23.3	2.24 23.8	2.22 24.3	2.19 24.8	2.16 25.3	2.14 25.8	2.12 26.3	2.09 26.8	2.08 27.3	2.06 27.7	2.04 28.1	2.02 28.5	2.01 28.9	1.99 29.3	1.98 29.7	1.97 30.1
260 -37	475 327	2.23 22.9	2.21 23.4	2.18 23.8	2.16 24.3	2.14 24.8	2.11 25.2	2.09 25.7	2.07 26.1	2.06 26.5	2.04 26.8	2.03 27.2	2.01 27.6	2.00 28.0	1.98 28.3	1.97 28.7	1.96 29.0
250 -35	477 333	2.20 22.5	2.18 22.9	2.15 23.3	2.13 23.8	2.11 24.2	2.09 24.6	2.07 24.9	2.06 25.3	2.04 25.7	2.03 26.0	2.01 26.3	2.00 26.7	1.99 27.0	1.97 27.3	1.96 27.6	1.95 27.9
240 -33	479 340	2.17 22.1	2.15 22.4	2.13 22.8	2.11 23.2	2.09 23.6	2.07 23.9	2.06 24.2	2.04 24.6	2.03 24.9	2.01 25.2	2.00 25.5	1.99 25.8	1.98 26.1	1.96 26.3	1.95 26.6	1.95 26.8
230 -31	481 347	2.14 21.6	2.12 21.9	2.10 22.3	2.09 22.6	2.07 22.9	2.05 23.2	2.04 23.5	2.03 23.8	2.01 24.1	2.00 24.4	1.99 24.7	1.98 24.9	1.97 25.2	1.96 25.4	1.95 25.6	1.94 25.8
220 -29	483 354	2.12 21.1	2.10 21.4	2.08 21.7	2.07 22.0	2.05 22.3	2.04 22.5	2.03 22.8	2.01 23.1	2.00 23.3	1.99 23.6	1.98 23.8	1.97 24.0	1.96 24.3	1.95 24.5	1.94 24.7	1.93 24.8
210 -27	485 361	2.09 20.6	2.08 20.9	2.06 21.1	2.05 21.4	2.04 21.6	2.03 21.9	2.01 22.1	2.00 22.3	1.99 22.6	1.98 22.8	1.97 23.0	1.96 23.2	1.95 23.4	1.94 23.6	1.94 23.7	1.93 23.8
200 -25	486 368	2.07 20.0	2.06 20.3	2.05 20.5	2.04 20.7	2.02 21.0	2.01 21.2	2.00 21.4	1.99 21.6	1.98 21.8	1.97 22.0	1.96 22.2	1.95 22.4	1.95 22.5	1.94 22.7	1.93 22.8	1.93 22.9

- NOTES:** (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE MACH .80 CRUISE

DC-8 JT4A-3

FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	460 236											2.60 34.4	2.52 36.8	2.45 39.2	2.39 41.4	2.33 43.5	2.27 45.5
390 -56	460 248	EPR NAM/1000#							2.67 29.2	2.60 31.4	2.52 33.4	2.46 35.4	2.40 37.2	2.34 39.1	2.29 40.6	2.24 42.2	2.19 43.7
370 -56	460 260						2.65 27.2	2.57 29.1	2.51 30.6	2.46 32.3	2.40 33.8	2.35 35.3	2.30 36.6	2.25 37.9	2.21 39.1	2.17 40.4	2.13 41.6
350 -54	462 272			2.67 24.1	2.61 25.6	2.55 27.0	2.49 28.3	2.44 29.7	2.39 30.9	2.34 32.2	2.30 33.2	2.26 34.3	2.22 35.3	2.18 36.3	2.15 37.4	2.12 38.3	2.09 39.2
330 -50	466 284	2.62 23.0	2.56 24.2	2.52 25.2	2.47 26.4	2.42 27.4	2.38 28.4	2.34 29.4	2.30 30.3	2.26 31.2	2.22 32.0	2.19 32.9	2.16 33.7	2.13 34.5	2.10 35.3	2.08 36.0	2.05 36.7
310 -46	471 298	2.48 23.7	2.44 24.6	2.40 25.4	2.36 26.3	2.32 27.0	2.29 27.8	2.25 28.5	2.22 29.2	2.19 29.9	2.16 30.6	2.13 31.3	2.11 31.9	2.09 32.5	2.07 33.1	2.05 33.7	2.03 34.2
290 -42	475 311	2.37 23.7	2.34 24.4	2.30 25.0	2.27 25.6	2.24 26.2	2.21 26.8	2.18 27.3	2.16 27.9	2.13 28.5	2.11 29.0	2.09 29.5	2.07 30.0	2.05 30.5	2.04 30.9	2.02 31.4	2.01 31.8
280 -40	477 318	2.33 23.5	2.29 24.0	2.26 24.6	2.23 25.1	2.21 25.7	2.18 26.2	2.16 26.7	2.13 27.2	2.11 27.7	2.09 28.2	2.07 28.6	2.06 29.0	2.04 29.5	2.02 29.9	2.01 30.3	2.00 30.6
270 -38	479 324	2.28 23.2	2.25 23.7	2.23 24.1	2.20 24.6	2.18 25.1	2.15 25.6	2.13 26.0	2.11 26.5	2.09 26.9	2.07 27.3	2.06 27.7	2.04 28.1	2.03 28.5	2.01 28.8	2.00 29.2	1.99 29.5
260 -37	481 331	2.25 22.8	2.22 23.2	2.20 23.6	2.17 24.1	2.15 24.5	2.13 24.9	2.11 25.3	2.09 25.7	2.08 26.1	2.06 26.4	2.04 26.8	2.03 27.1	2.02 27.5	2.00 27.8	1.99 28.1	1.98 28.4
250 -35	483 338	2.21 22.3	2.19 22.7	2.17 23.1	2.15 23.5	2.13 23.9	2.11 24.3	2.09 24.6	2.08 24.9	2.06 25.3	2.05 25.6	2.03 25.9	2.02 26.2	2.01 26.5	2.00 26.8	1.98 27.1	1.97 27.3
240 -33	485 345	2.18 21.9	2.16 22.2	2.14 22.6	2.12 22.9	2.11 23.3	2.09 23.6	2.07 23.9	2.06 24.2	2.05 24.5	2.03 24.8	2.02 25.1	2.01 25.3	2.00 25.6	1.99 25.8	1.98 26.1	1.97 26.3
230 -31	487 352	2.15 21.4	2.14 21.7	2.12 22.0	2.10 22.3	2.09 22.6	2.07 22.9	2.06 23.2	2.05 23.4	2.03 23.7	2.02 24.0	2.01 24.2	2.00 24.4	1.99 24.7	1.98 24.9	1.97 25.1	1.96 25.4
220 -29	489 359	2.13 20.9	2.11 21.2	2.10 21.4	2.09 21.7	2.07 21.9	2.06 22.2	2.05 22.4	2.03 22.7	2.02 22.9	2.01 23.1	2.00 23.4	1.99 23.6	1.98 23.8	1.97 24.0	1.96 24.2	1.96 24.3
210 -27	491 366	2.11 20.3	2.10 20.6	2.08 20.8	2.07 21.0	2.06 21.3	2.04 21.5	2.03 21.7	2.02 21.9	2.01 22.2	2.00 22.4	1.99 22.5	1.98 22.7	1.97 22.9	1.96 23.1	1.96 23.3	1.95 23.4
200 -25	493 373	2.09 19.8	2.08 20.0	2.07 20.2	2.05 20.4	2.04 20.6	2.03 20.8	2.02 21.0	2.01 21.2	2.00 21.4	1.99 21.6	1.98 21.8	1.98 21.9	1.97 22.1	1.96 22.3	1.95 22.4	1.95 22.4

- NOTES:** (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -86	466 240											2.61 34.1	2.54 36.4	2.46 38.9	2.39 41.2	2.33 43.3	2.28 45.1
390 -56	466 252	EPR NAM/1000#								2.60 31.2	2.54 33.0	2.47 35.2	2.41 37.1	2.35 38.9	2.30 40.4	2.25 41.8	2.21 43.3
370 -56	466 264						2.66 27.0	2.59 28.8	2.53 30.3	2.46 32.1	2.41 33.6	2.36 35.2	2.31 36.4	2.26 37.6	2.22 38.9	2.18 40.0	2.15 41.1
350 -54	468 276				2.62 25.5	2.56 26.7	2.50 28.1	2.45 29.5	2.40 30.8	2.35 32.0	2.31 33.0	2.27 34.0	2.23 35.0	2.19 36.0	2.16 36.9	2.13 37.9	2.11 38.7
330 -50	472 288	2.63 22.8	2.58 23.9	2.53 25.0	2.48 26.2	2.43 27.3	2.38 28.3	2.34 29.3	2.31 30.1	2.27 30.9	2.23 31.8	2.20 32.6	2.17 33.4	2.14 34.1	2.12 34.8	2.09 35.5	2.07 36.2
310 -46	477 302	2.49 23.5	2.45 24.5	2.40 25.3	2.36 26.2	2.33 26.9	2.29 27.6	2.26 28.5	2.23 29.0	2.20 29.6	2.17 30.3	2.15 30.9	2.12 31.5	2.10 32.1	2.08 32.7	2.06 33.2	2.04 33.7
290 -42	481 315	2.38 23.6	2.35 24.3	2.31 24.8	2.28 25.4	2.25 26.0	2.22 26.6	2.20 27.1	2.17 27.6	2.15 28.2	2.13 28.6	2.11 29.1	2.09 29.6	2.07 30.1	2.05 30.5	2.04 30.9	2.02 31.3
280 -40	483 322	2.33 23.4	2.30 23.9	2.27 24.4	2.25 24.9	2.22 25.5	2.19 25.9	2.17 26.4	2.15 26.9	2.13 27.4	2.11 27.8	2.09 28.2	2.07 28.7	2.06 29.1	2.04 29.4	2.03 29.8	2.02 30.1
270 -38	485 329	2.29 23.0	2.27 23.5	2.24 23.9	2.21 24.4	2.19 24.9	2.17 25.3	2.15 25.7	2.13 26.1	2.11 26.5	2.09 26.9	2.07 27.4	2.06 27.7	2.04 28.1	2.03 28.4	2.02 28.7	2.01 28.9
260 -37	487 336	2.26 22.6	2.23 23.0	2.21 23.4	2.19 23.8	2.16 24.2	2.14 24.7	2.13 25.0	2.11 25.4	2.09 25.7	2.07 26.1	2.06 26.5	2.05 26.8	2.03 27.1	2.02 27.3	2.01 27.6	2.00 27.8
250 -35	489 343	2.22 22.1	2.20 22.5	2.18 22.9	2.16 23.3	2.14 23.6	2.12 23.9	2.11 24.3	2.09 24.6	2.08 25.0	2.06 25.3	2.05 25.6	2.04 25.8	2.03 26.1	2.02 26.3	2.01 26.5	2.00 26.7
240 -33	491 350	2.20 21.6	2.18 22.0	2.16 22.3	2.14 22.7	2.12 23.0	2.11 23.3	2.09 23.6	2.07 23.9	2.06 24.2	2.05 24.4	2.04 24.7	2.03 24.9	2.02 25.1	2.01 25.3	2.00 25.5	1.99 25.7
230 -31	493 357	2.17 21.1	2.15 21.5	2.13 21.7	2.12 22.0	2.10 22.3	2.09 22.6	2.07 22.9	2.06 23.1	2.05 23.4	2.04 23.6	2.03 23.8	2.02 24.0	2.01 24.2	2.00 24.4	2.00 24.5	1.99 24.6
220 -29	495 364	2.15 20.6	2.13 20.9	2.12 21.1	2.10 21.4	2.09 21.7	2.07 21.9	2.06 22.1	2.05 22.4	2.04 22.6	2.03 22.8	2.02 23.0	2.01 23.1	2.00 23.3	2.00 23.4	1.99 23.5	1.99 23.6
210 -27	497 371	2.13 20.1	2.11 20.3	2.10 20.5	2.08 20.8	2.07 21.0	2.06 21.2	2.05 21.4	2.04 21.6	2.03 21.8	2.02 22.0	2.01 22.1	2.01 22.3	2.00 22.4	2.00 22.5	1.99 22.6	1.99 22.6
200 -25	499 378	2.11 19.5	2.10 19.7	2.08 19.9	2.07 20.2	2.06 20.3	2.05 20.5	2.04 20.7	2.03 20.9	2.02 21.0	2.01 21.2	2.01 21.3	2.00 21.4	1.99 21.5	1.99 21.6	1.99 21.7	1.99 21.7

- NOTES:** (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



CRUISE

4 ENGINE MACH .82 CRUISE

DC-8 JT4A-3

FLIGHT LEVEL	TAS	GROSS WEIGHT (1000 LBS)																
	IAS	310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160	
410 -56	472 243	EPR NAM/1000#											2.58 39.1	2.50 37.7	2.42 40.3	2.36 42.4	2.31 44.2	
390 -56	472 255										2.66 29.7	2.58 31.9	2.51 34.0	2.44 36.2	2.38 38.0	2.33 39.6	2.28 41.0	2.23 42.4
370 -56	472 267								2.64 27.5	2.57 29.3	2.50 31.0	2.44 32.9	2.38 34.3	2.33 35.7	2.29 36.9	2.25 38.0	2.21 39.2	2.17 40.3
350 -54	474 280					2.60 25.7	2.54 27.2	2.48 28.6	2.43 30.1	2.38 31.3	2.34 32.4	2.30 33.3	2.26 34.3	2.22 35.3	2.19 36.2	2.16 37.1	2.13 37.9	
330 -50	478 292		2.63 22.9	2.57 24.1	2.51 25.3	2.46 26.6	2.41 27.6	2.37 28.6	2.33 29.6	2.30 30.3	2.26 31.1	2.23 31.9	2.20 32.7	2.17 33.4	2.14 34.1	2.12 34.8	2.09 35.8	
310 -46	483 306	2.53 22.7	2.48 23.7	2.43 24.7	2.39 25.5	2.36 26.4	2.32 27.1	2.29 27.7	2.26 28.4	2.23 29.0	2.20 29.7	2.17 30.3	2.15 30.9	2.13 31.4	2.10 32.1	2.09 32.5	2.07 33.0	
290 -42	487 319	2.41 23.0	2.37 23.7	2.34 24.4	2.31 24.9	2.28 25.5	2.25 26.0	2.22 26.6	2.20 27.1	2.17 27.6	2.15 28.0	2.13 28.5	2.11 29.0	2.09 29.5	2.08 29.9	2.06 30.2	2.05 30.5	
280 -40	489 326	2.36 22.9	2.33 23.4	2.30 23.9	2.27 24.4	2.25 24.9	2.22 25.4	2.20 25.9	2.17 26.4	2.15 26.8	2.13 27.2	2.11 27.7	2.10 28.1	2.08 28.5	2.07 28.8	2.05 29.1	2.05 29.3	
270 -38	491 333	2.32 22.5	2.29 23.0	2.27 23.5	2.24 23.9	2.22 24.4	2.19 24.8	2.17 25.2	2.15 25.6	2.13 26.0	2.11 26.4	2.10 26.8	2.08 27.1	2.07 27.4	2.06 27.7	2.05 28.0	2.04 28.2	
260 -37	493 340	2.29 22.1	2.26 22.5	2.24 23.0	2.21 23.4	2.19 23.8	2.17 24.1	2.15 24.5	2.13 24.9	2.12 25.3	2.10 25.6	2.08 25.9	2.07 26.2	2.06 26.5	2.05 26.7	2.04 26.9	2.04 27.0	
250 -35	495 347	2.25 21.7	2.23 22.1	2.21 22.4	2.19 22.8	2.17 23.1	2.15 23.5	2.13 23.8	2.12 24.2	2.10 24.5	2.09 24.7	2.07 25.0	2.06 25.2	2.05 25.5	2.04 25.6	2.04 25.8	2.03 25.9	
240 -33	497 354	2.22 21.2	2.20 21.5	2.18 21.9	2.17 22.2	2.15 22.5	2.13 22.8	2.11 23.1	2.10 23.4	2.09 23.7	2.07 23.9	2.06 24.1	2.05 24.3	2.05 24.5	2.04 24.7	2.03 24.8	2.03 24.9	
230 -31	499 362	2.20 20.7	2.18 21.0	2.16 21.3	2.15 21.6	2.13 21.9	2.11 22.2	2.10 22.4	2.09 22.6	2.07 22.9	2.06 23.1	2.06 23.3	2.05 23.4	2.04 23.6	2.04 23.7	2.03 23.8	2.03 23.8	
220 -29	501 369	2.17 20.2	2.16 20.4	2.14 20.7	2.13 21.0	2.11 21.2	2.10 21.5	2.09 21.7	2.07 21.9	2.07 22.1	2.06 22.2	2.05 22.4	2.04 22.5	2.04 22.6	2.03 22.7	2.03 22.8	2.03 22.8	
210 -27	503 376	2.15 19.6	2.14 19.9	2.12 20.1	2.11 20.4	2.10 20.6	2.08 20.8	2.07 21.0	2.07 21.1	2.06 21.3	2.05 21.4	2.04 21.6	2.04 21.7	2.03 21.7	2.03 21.8	2.03 21.8	2.03 21.9	
200 -25	505 383	2.13 19.1	2.12 19.3	2.11 19.6	2.09 19.7	2.08 19.9	2.07 20.1	2.06 20.2	2.06 20.4	2.05 20.5	2.04 20.6	2.04 20.7	2.03 20.8	2.03 20.9	2.03 20.9	2.03 20.9	2.03 21.0	

- NOTES:** (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE LONG RANGE CRUISE

DC-8 JT4A-3

FLIGHT LEVEL	STD TEMP C	GROSS WEIGHT (1000 LBS)															
			300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	EPR M TAS NAM/1000											2.53 .803 462 36.6	2.46 .803 462 39.1	2.39 .803 462 41.3	2.32 .796 458 43.6	2.26 .788 454 45.8	
390 -56	EPR M TAS NAM/1000									2.53 .802 462 33.3	2.46 .802 462 35.3	2.40 .802 462 37.2	2.34 .798 459 39.1	2.28 .793 456 40.8	2.22 .781 450 42.8	2.16 .769 443 44.7	
370 -56	EPR M TAS NAM/1000					2.65 .802 462 27.1	2.58 .802 462 29.0	2.52 .802 462 30.5	2.46 .802 462 32.2	2.40 .802 462 33.8	2.35 .798 459 35.3	2.30 .794 457 36.7	2.23 .777 447 38.5	2.17 .759 437 40.2	2.12 .744 428 41.9	2.06 .728 419 43.6	
350 -54	EPR M TAS NAM/1000			2.61 .802 464 25.6	2.55 .802 464 26.9	2.50 .802 464 28.2	2.44 .802 464 29.7	2.39 .801 463 30.9	2.34 .797 461 32.2	2.29 .792 458 33.4	2.24 .783 453 34.7	2.19 .774 448 36.0	2.14 .759 439 37.4	2.09 .744 430 38.9	2.04 .727 420 40.4	1.98 .709 410 42.3	
330 -50	EPR M TAS NAM/1000	2.57 .802 468 24.1	2.52 .802 468 25.1	2.47 .802 468 26.3	2.42 .802 468 27.4	2.38 .802 468 28.4	2.33 .798 466 29.4	2.29 .794 463 30.4	2.24 .784 458 31.5	2.19 .774 452 32.7	2.15 .762 444 33.8	2.10 .750 437 35.0	2.05 .732 427 36.2	2.00 .714 417 37.8	1.95 .697 406 39.4	1.90 .679 396 41.0	
310 -46	EPR M TAS NAM/1000	2.45 .809 477 24.5	2.40 .807 475 25.3	2.36 .804 474 26.3	2.32 .796 469 27.1	2.27 .788 464 28.0	2.23 .781 460 28.9	2.19 .773 455 29.8	2.15 .761 448 30.8	2.10 .750 441 31.8	2.06 .732 431 32.8	2.01 .714 420 34.1	1.97 .702 413 35.3	1.93 .689 405 36.6	1.88 .674 396 38.0	1.84 .659 388 39.5	
290 -42	EPR M TAS NAM/1000	2.34 .803 477 24.3	2.30 .794 471 25.1	2.26 .784 466 25.9	2.21 .777 461 26.6	2.18 .769 457 27.4	2.14 .759 451 28.2	2.10 .750 445 29.0	2.06 .731 434 29.9	2.01 .713 423 31.0	1.97 .702 416 32.0	1.94 .690 410 33.1	1.90 .680 403 34.2	1.86 .669 397 35.3	1.82 .654 388 36.7	1.78 .639 379 38.0	
270 -38	EPR M TAS NAM/1000	2.23 .778 466 24.0	2.20 .773 463 24.6	2.17 .768 460 25.2	2.13 .754 451 26.0	2.09 .739 443 26.7	2.05 .726 435 27.4	2.01 .713 427 28.3	1.98 .704 421 29.1	1.94 .694 415 30.0	1.91 .682 408 31.0	1.87 .669 400 32.0	1.83 .656 393 33.0	1.80 .643 385 34.2	1.76 .631 377 35.3	1.73 .619 370 36.4	
250 -35	EPR M TAS NAM/1000	2.15 .762 460 23.4	2.11 .748 451 24.0	2.08 .733 443 24.6	2.04 .723 437 25.3	2.01 .713 430 26.0	1.97 .702 424 26.7	1.94 .691 417 27.5	1.91 .680 410 28.3	1.87 .668 403 29.1	1.84 .659 397 29.9	1.81 .649 392 30.9	1.78 .637 384 31.8	1.74 .625 376 32.8	1.70 .613 368 33.9	1.67 .604 364 35.1	
230 -31	EPR M TAS NAM/1000	2.06 .723 440 22.8	2.03 .715 435 23.4	2.00 .707 430 24.0	1.97 .698 425 24.6	1.94 .689 419 25.3	1.91 .682 415 25.9	1.88 .674 410 26.6	1.85 .664 404 27.3	1.82 .653 397 28.1	1.79 .641 390 28.9	1.75 .628 382 29.7	1.72 .613 372 30.6	1.69 .599 363 31.5	1.65 .581 353 32.5	1.62 .564 343 33.7	
210 -27	EPR M TAS NAM/1000	1.98 .702 431 22.3	1.95 .695 426 22.8	1.93 .689 422 23.3	1.90 .679 416 23.9	1.87 .669 410 24.5	1.84 .660 404 25.1	1.81 .650 398 25.8	1.79 .641 393 26.4	1.76 .633 388 27.1	1.73 .618 378 27.8	1.70 .602 369 28.6	1.67 .589 360 29.4	1.64 .575 352 30.3	1.61 .561 344 31.3	1.58 .548 335 32.3	
130 -11	EPR M TAS NAM/1000	1.75 .629 398 19.5	1.73 .619 391 19.9	1.71 .608 385 20.3	1.69 .596 377 20.7	1.66 .584 369 21.2	1.64 .573 362 21.7	1.61 .562 355 22.2	1.59 .553 349 22.7	1.57 .543 343 23.3	1.55 .534 337 23.8	1.53 .524 331 24.4	1.50 .514 325 25.1	1.48 .503 318 25.7	1.46 .494 312 26.4	1.44 .484 306 27.1	

- NOTES:** (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region to the left of the heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



3 ENGINE LONG RANGE CRUISE

DC-8 JT4A-3

FLIGHT LEVEL	STD TEMP C	GROSS WEIGHT (1000 LBS)														
		300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
370	EPR M TAS NAM/1000											2.73 .774 445 33.7	2.66 .764 440 35.8	2.59 .754 434 38.0	2.52 .741 426 40.3	2.45 .728 419 42.7
-56																
350	EPR M TAS NAM/1000									2.73 .774 448 30.6	2.66 .764 442 32.3	2.60 .753 435 34.2	2.53 .740 428 36.0	2.47 .727 420 38.0	2.41 .715 413 39.9	2.35 .703 406 41.9
-54																
330	EPR M TAS NAM/1000							2.72 .774 452 28.0	2.66 .764 446 29.4	2.60 .753 439 31.0	2.54 .741 432 32.5	2.48 .729 425 34.2	2.43 .719 419 35.7	2.37 .709 414 37.3	2.32 .697 406 38.8	2.26 .684 399 40.3
-50																
310	EPR M TAS NAM/1000					2.71 .779 459 25.7	2.65 .767 451 26.9	2.60 .754 444 28.3	2.54 .742 436 29.6	2.49 .729 429 31.0	2.44 .719 423 32.3	2.39 .708 417 33.6	2.33 .699 411 34.9	2.29 .689 405 36.1	2.23 .676 398 37.3	2.18 .663 390 38.6
-46																
290	EPR M TAS NAM/1000			2.69 .774 460 23.9	2.64 .761 452 24.9	2.58 .748 444 26.1	2.53 .739 438 27.2	2.49 .729 433 28.3	2.44 .719 427 29.4	2.39 .709 421 30.5	2.35 .701 416 31.6	2.30 .693 411 32.6	2.26 .684 406 33.5	2.21 .674 400 34.5	2.15 .664 385 35.8	2.08 .623 369 37.3
-42																
270	EPR M TAS NAM/1000	2.66 .763 457 22.3	2.61 .753 451 23.3	2.56 .742 444 24.2	2.52 .733 439 25.1	2.48 .724 434 26.1	2.43 .714 427 27.0	2.38 .703 421 28.0	2.34 .698 418 28.9	2.31 .692 414 29.6	2.26 .683 409 30.4	2.22 .674 403 31.3	2.17 .664 399 32.3	2.11 .654 391 33.4	2.06 .647 379 34.6	2.00 .599 358 35.9
-38																
250	EPR M TAS NAM/1000	2.54 .738 446 22.5	2.50 .731 441 23.3	2.46 .723 437 24.1	2.42 .713 430 24.9	2.38 .703 424 25.7	2.34 .699 422 26.4	2.31 .694 419 27.0	2.27 .684 413 27.7	2.23 .674 407 28.5	2.18 .665 396 29.3	2.13 .657 385 30.2	2.08 .649 375 31.2	2.02 .640 364 32.3	1.98 .592 357 33.4	1.93 .579 349 34.6
-35																
230	EPR M TAS NAM/1000	2.45 .723 440 22.4	2.41 .713 434 23.0	2.37 .703 428 23.7	2.33 .696 424 24.3	2.30 .689 419 24.9	2.26 .682 415 25.5	2.23 .674 410 26.1	2.18 .665 400 26.8	2.14 .658 391 27.5	2.09 .648 382 28.3	2.05 .641 373 29.2	2.00 .633 363 30.1	1.95 .625 354 31.2	1.90 .617 347 32.2	1.86 .559 340 33.3
-31																
200	EPR M TAS NAM/1000	2.31 .693 427 21.6	2.28 .686 422 22.1	2.25 .678 418 22.6	2.22 .670 413 23.0	2.18 .662 408 23.5	2.14 .655 397 24.1	2.10 .646 387 24.8	2.06 .639 379 25.4	2.01 .631 370 26.2	1.97 .623 363 26.9	1.93 .615 356 27.7	1.89 .607 350 28.6	1.86 .600 343 29.4	1.82 .592 336 30.4	1.78 .584 328 31.3
-25																
150	EPR M TAS NAM/1000	2.12 .634 398 19.8	2.08 .624 391 20.3	2.05 .613 385 20.7	2.01 .601 377 21.2	1.98 .589 370 21.7	1.95 .582 365 22.3	1.92 .574 360 22.8	1.88 .563 353 23.4	1.85 .555 346 24.0	1.82 .547 342 24.6	1.79 .538 337 25.2	1.76 .529 330 25.9	1.72 .521 322 26.6	1.69 .513 315 27.3	1.65 .504 307 28.2
-15																
100	EPR M TAS NAM/1000	1.93 .579 370 18.3	1.91 .571 365 18.7	1.88 .563 360 19.1	1.85 .556 355 19.5	1.83 .549 351 19.9	1.80 .542 346 20.3	1.78 .534 341 20.7	1.75 .524 335 21.2	1.72 .514 329 21.7	1.69 .504 322 22.2	1.67 .494 316 22.7	1.64 .484 309 23.3	1.61 .474 303 23.9	1.58 .464 296 24.6	1.55 .454 290 25.3
-5																
50	EPR M TAS NAM/1000	1.70 .413 269 15.8	1.68 .413 269 16.3	1.66 .413 269 16.8	1.64 .413 269 17.2	1.62 .413 269 17.7	1.60 .413 269 18.2	1.58 .413 269 18.7	1.56 .413 269 19.2	1.55 .413 269 19.7	1.53 .413 269 20.2	1.51 .413 269 20.7	1.50 .413 269 21.2	1.49 .413 269 21.7	1.47 .413 269 22.2	1.46 .413 269 22.7
5																

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Continuous Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 8 knots/10°C above standard. Subtract 8 knots/10°C below standard.
- (3) Fuel consumption(1000#/hr) = $\frac{\text{TAS for actual temperature.}}{\text{NAM/1000\#}}$



2 ENGINE LONG RANGE CRUISE

DC-8 JT4A-3

FLIGHT LEVEL	STD TEMP C	GROSS WEIGHT (1000 LBS)												
		280	270	260	250	240	230	220	210	200	190	180	170	160
270	EPR									2.80	2.74	2.67	2.59	2.51
	M									.642	.628	.614	.594	.574
-38	TAS									384	376	367	355	343
	NAM/1000									28.2	29.6	31.1	32.9	34.7
250	EPR							2.82	2.76	2.69	2.63	2.57	2.50	2.42
	M							.644	.632	.619	.607	.594	.577	.559
-35	TAS							389	381	373	366	358	348	337
	NAM/1000							25.5	26.7	28.0	29.3	30.7	32.3	34.0
230	EPR					2.81	2.76	2.71	2.65	2.59	2.53	2.46	2.40	2.34
	M					.643	.634	.625	.612	.599	.584	.569	.559	.549
-31	TAS					391	385	379	372	364	355	346	340	334
	NAM/1000					23.4	24.3	25.3	26.5	27.7	28.9	30.3	31.6	32.9
210	EPR			2.81	2.76	2.71	2.66	2.61	2.55	2.48	2.43	2.37	2.32	2.26
	M			.644	.634	.625	.614	.604	.588	.572	.563	.554	.544	.534
-27	TAS			395	389	383	376	370	360	351	345	339	333	327
	NAM/1000			21.5	22.3	23.2	24.1	25.1	26.2	27.4	28.5	29.5	30.6	31.6
200	EPR			2.75	2.71	2.66	2.61	2.56	2.50	2.44	2.39	2.33	2.28	2.22
	M			.632	.623	.614	.605	.595	.580	.565	.556	.547	.537	.527
-25	TAS			389	383	377	372	366	357	348	342	336	330	324
	NAM/1000			21.5	22.3	23.1	24.0	24.9	25.9	27.1	28.1	29.0	30.0	30.9
150	EPR	2.60	2.55	2.49	2.45	2.41	2.37	2.33	2.28	2.24	2.19	2.13	2.08	2.03
	M	.602	.586	.569	.565	.560	.555	.549	.539	.529	.519	.509	.498	.487
-15	TAS	378	367	357	354	351	348	344	338	332	326	319	312	305
	NAM/1000	19.6	20.3	21.0	21.7	22.3	23.0	23.6	24.2	24.9	25.5	26.3	27.1	27.9
110	EPR	2.39	2.37	2.34	2.29	2.25	2.21	2.17	2.11	2.07	2.03	1.98	1.94	1.89
	M	.551	.550	.549	.539	.529	.522	.514	.502	.489	.481	.473	.461	.449
-7	TAS	351	350	350	343	337	332	327	319	311	306	301	293	286
	NAM/1000	19.1	19.5	20.0	20.4	20.9	21.4	21.9	22.5	23.1	23.7	24.3	25.1	25.8
90	EPR	2.20	2.17	2.13	2.10	2.06	2.03	2.00	1.97	1.95	1.92	1.89	1.85	1.81
	M	.444	.444	.444	.444	.444	.444	.444	.444	.444	.444	.444	.444	.444
-3	TAS	285	285	285	285	285	285	285	285	285	285	285	285	285
	NAM/1000	17.9	18.4	19.0	19.5	20.1	20.6	21.2	21.8	22.4	22.9	23.5	24.2	24.9
70	EPR	2.12	2.09	2.05	2.02	1.99	1.96	1.93	1.91	1.88	1.86	1.83	1.81	1.78
	M	.429	.429	.429	.429	.429	.429	.429	.429	.429	.429	.429	.429	.429
-1	TAS	277	277	277	277	277	277	277	277	277	277	277	275	274
	NAM/1000	17.3	17.8	18.3	18.8	19.3	19.9	20.4	21.0	21.5	22.1	22.6	23.2	23.7
50	EPR	2.04	2.01	1.98	1.95	1.92	1.90	1.87	1.84	1.82	1.80	1.78	1.76	1.74
	M	.413	.413	.413	.413	.413	.413	.413	.413	.413	.413	.413	.413	.413
-5	TAS	269	269	269	269	269	269	269	269	269	269	269	269	269
	NAM/1000	16.6	17.1	17.6	18.1	18.6	19.1	19.6	20.2	20.7	21.2	21.7	22.2	22.7

- NOTES:** (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Continuous Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 6 knots/10°C above standard. Subtract 6 knots/10°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$

MAXIMUM CRUISE EPR - JT3D-1

					4 ENGINES				
RAT °C	SL - 30T		35T	40T	RAT °C	SL - 30T		35T	40T
50	1.22	ICING BLEED ON ↓			- 8	1.71	1.62	1.67	1.62
45	1.25				-10	1.72	1.63	1.69	1.63
40	1.29				-12	1.74	1.65	1.71	1.65
35	1.34				-14	1.76	1.66	1.73	1.67
30	1.37				-16	1.77	1.68	1.75	1.69
28	1.39				-18	1.79	1.69	1.77	1.71
26	1.41				-20	1.81	1.71	1.78	1.73
24	1.43				-22	1.82	1.72	1.80	1.74
22	1.44				-24	1.84	1.73	1.82	1.76
20	1.46				-26	1.85	1.75	1.83	1.78
18	1.48		1.42	1.37	-28	1.87	1.76	1.85	1.79
16	1.49		1.44	1.39	-30	1.88	1.77	1.87	1.81
14	1.51		1.46	1.41	-32	1.90	1.78	1.88	1.83
12	1.53		1.48	1.43	-34	1.91	1.80	1.90	1.84
10	1.55		1.50	1.45	-36	1.93	1.81	1.91	1.86
8	1.57	1.49	1.52	1.47	-38	1.94	1.82	1.92	1.87
6	1.59	1.51	1.54	1.49	-40	1.95	1.83	1.93	1.89
4	1.60	1.52	1.56	1.50	-42	1.96	↑ ICING BLEED ON	1.94	1.90
2	1.62	1.54	1.58	1.52	-44	1.97		1.95	1.91
0	1.64	1.56	1.60	1.54	-46	1.98		1.96	1.92
-2	1.65	1.57	1.62	1.56	-48	1.99		1.97	1.93
-4	1.67	1.59	1.64	1.58	-50	1.99		1.98	1.94
-6	1.69	1.60	1.65	1.60					

NOTE: Subtract 0.01 if Rain Removal ON.

CRUISE

FLIGHT PLANNING TABLE

DC-8 JT3D-1

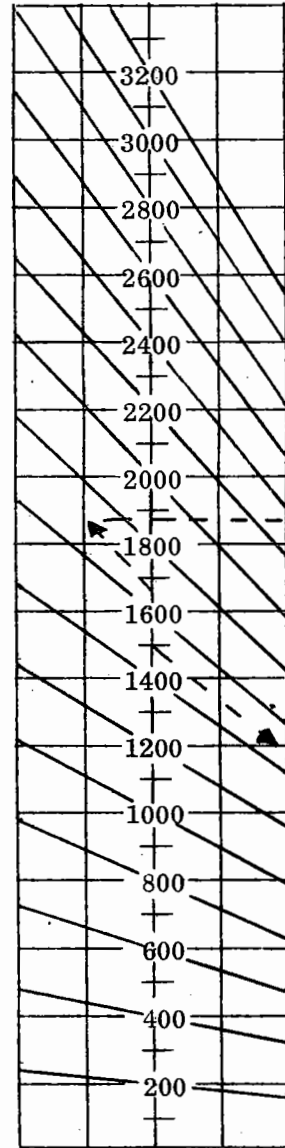


When the trip length line (corrected for wind) intersects between the horizontal time-fuel lines, use the time and fuel shown in the blocks for the flight altitude.
Example: 1500 NM, 100 K Tailwind, Altitude 35,000. Time 2:45, Fuel 32.7.

When the trip length line (corrected for wind) intersects on a horizontal time-fuel line; interpolate. Example: 1700 NM, 50 K Headwind, Altitude 37,000. Time 4:12, Fuel 48.1.

BASED ON FOLLOWING SPEED SCHEDULE:
CLIMB: 250 IAS to 10,000 Ft. - 300 IAS to 29,000 Ft. - Mach 0.78 above 29,000 Ft.
CRUISE: S. L. to 10,000 Ft. - 250 IAS
10,000 Ft. to 20,500 Ft. - V_{MO}
20,500 Ft. and above - Mach 0.80
DESCENT: Mach 0.82 to 28,000 Ft. - 330 IAS between 28,000 Ft. and 10,000 Ft. - 250 IAS below 10,000 Ft.

TRIP LENGTH - NM



100 0 100
HDWD TLWD

FLIGHT TIME AND FUEL BURNOUT

39,000 FT.		37,000 FT.		35,000 FT.		33,000 FT.		31,000 FT.		29,000 FT.		27,000 FT.		25,000 FT.		20,000 FT.		15,000 FT.		10,000 FT.	
460 TAS		460 TAS		462 TAS		466 TAS		471 TAS		475 TAS		479 TAS		483 TAS		484 TAS		441 TAS		403 TAS	
TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL
7:21	88.8	7:21	89.2	7:20	90.8	7:17	93.6														
7:08	85.7	7:08	86.1	7:07	87.8	7:04	90.5	7:01	94.7												
6:55	82.7	6:55	83.1	6:54	84.7	6:51	87.4	6:48	91.5												
6:42	79.7	6:42	80.1	6:41	81.7	6:38	84.4	6:35	88.4	6:32	93.3										
6:29	76.8	6:29	77.1	6:28	78.7	6:25	81.4	6:22	85.3	6:19	90.0	6:16	95.3								
6:15	73.9	6:16	74.2	6:15	75.8	6:12	78.4	6:09	82.2	6:07	86.8	6:04	91.9								
6:02	71.0	6:03	71.3	6:02	72.9	5:59	75.5	5:57	79.2	5:54	83.5	5:51	88.4	5:49	94.0						
5:49	68.2	5:50	68.5	5:49	70.1	5:46	72.6	5:44	76.2	5:41	80.3	5:38	85.1	5:36	90.4						
5:36	65.3	5:37	65.6	5:36	67.2	5:33	69.7	5:31	73.1	5:28	77.1	5:26	81.7	5:23	86.8						
5:23	62.6	5:24	62.8	5:22	64.4	5:20	66.8	5:18	70.1	5:15	74.0	5:13	78.3	5:11	83.3						
5:10	59.8	5:10	60.0	5:09	61.6	5:07	64.0	5:05	67.2	5:03	70.8	5:00	75.0	4:58	79.7	4:56	94.0				
4:57	57.1	4:57	57.3	4:56	58.9	4:54	61.2	4:52	64.2	4:50	67.7	4:48	71.7	4:46	76.2	4:43	89.8				
4:44	54.4	4:44	54.6	4:43	56.2	4:41	58.4	4:39	61.3	4:37	64.6	4:35	68.3	4:33	72.7	4:31	85.7				
4:31	51.7	4:31	52.0	4:30	53.5	4:28	55.6	4:26	58.3	4:24	61.5	4:22	65.1	4:20	69.2	4:18	81.5				
4:18	49.1	4:18	49.4	4:17	50.8	4:15	52.8	4:13	55.4	4:12	58.4	4:10	61.8	4:08	65.7	4:06	77.4				
4:05	46.4	4:05	46.8	4:04	48.2	4:02	50.1	4:01	52.5	3:59	55.3	3:57	58.5	3:55	62.3	3:53	73.2	4:11	72.4	4:36	82.4
3:51	43.8	3:52	44.2	3:51	45.5	3:49	47.4	3:48	49.7	3:46	52.3	3:44	55.3	3:43	58.8	3:41	69.2	3:58	68.3	4:21	77.7
3:38	41.3	3:38	41.7	3:38	43.0	3:36	44.7	3:35	46.8	3:33	49.3	3:32	52.1	3:30	55.4	3:28	65.1	3:45	64.2	4:06	73.0
3:25	38.7	3:25	39.2	3:25	40.4	3:23	42.0	3:22	44.0	3:21	46.3	3:19	48.9	3:18	52.0	3:16	61.0	3:32	60.2	3:51	68.4
3:12	36.3	3:12	36.7	3:12	37.8	3:11	39.3	3:09	41.2	3:08	43.3	3:06	45.7	3:05	48.6	3:03	57.0	3:18	56.2	3:36	63.7
2:59	33.8	2:59	34.2	2:59	35.3	2:58	36.7	2:56	38.4	2:55	40.3	2:54	42.5	2:53	45.2	2:51	52.9	3:05	52.2	3:21	59.1
2:46	31.4	2:46	31.8	2:45	32.7	2:45	34.0	2:43	35.6	2:42	37.3	2:41	39.4	2:40	41.8	2:38	48.9	2:51	48.2	3:06	54.6
2:33	29.0	2:33	29.4	2:32	30.2	2:32	31.4	2:31	32.8	2:30	34.4	2:28	36.2	2:27	38.4	2:26	44.9	2:37	44.2	2:51	50.0
2:19	26.6	2:20	27.0	2:19	27.7	2:19	28.8	2:18	30.0	2:17	31.4	2:16	33.1	2:15	35.0	2:14	40.8	2:24	40.2	2:36	45.5
2:06	24.2	2:06	24.6	2:06	25.3	2:06	26.2	2:05	27.3	2:04	28.5	2:03	29.9	2:02	31.7	2:01	36.8	2:10	36.3	2:21	41.0
1:53	21.9	1:53	22.2	1:53	22.8	1:53	23.6	1:52	24.5	1:51	25.6	1:51	26.8	1:50	28.4	1:49	32.8	1:57	32.3	2:06	36.5
1:40	19.7	1:40	19.9	1:40	20.4	1:40	21.0	1:39	21.8	1:39	22.7	1:38	23.7	1:37	25.0	1:36	28.9	1:43	28.4	1:51	32.0
1:27	17.4	1:27	17.6	1:27	17.9	1:27	18.5	1:26	19.1	1:26	19.8	1:25	20.7	1:25	21.7	1:24	24.9	1:29	24.4	1:36	27.5
1:14	15.1	1:14	15.3	1:14	15.5	1:14	15.9	1:13	16.4	1:13	16.9	1:13	17.6	1:12	18.4	1:11	20.9	1:16	20.5	1:21	23.1
1:01	12.9	1:01	13.0	1:01	13.1	1:01	13.4	1:01	13.7	1:00	14.1	1:00	14.5	1:00	15.1	:59	17.0	1:02	16.6	1:06	18.6
:47	10.7	:48	10.7	:48	10.8	:48	10.9	:48	11.1	:48	11.2	:47	11.5	:47	11.8	:46	13.0	:49	12.8	:52	14.2
						:35	8.4	:35	8.4	:35	8.4	:35	8.4	:34	8.6	:34	9.1	:35	9.0	:37	9.8
																		:21	5.2	:22	5.4
630 LBS		570 LBS		490 LBS		350 LBS		310 LBS		280 LBS		250 LBS		210 LBS		170 LBS		210 LBS		180 LBS	

NOTE: Table valid only for landing weight of 180,000 lbs and less. For each 10,000 lbs deviation above 180,000 lbs, add fuel burnout correction shown at bottom of Table for each hour of Flight Time.



DC-8 JT3D-1 MAXIMUM RECOMMENDED
INITIAL CRUISE WEIGHT

FLIGHT LEVEL STD. TEMP.		STATIC AIR TEMPERATURE			
		$T_S - 10^\circ\text{C}$	T_S	$T_S + 10^\circ\text{C}$	$T_S + 20^\circ\text{C}$
410 -57°C	WEIGHT MACH/IAS	206,000 0.79/233	192,000 0.79/233	175,000 0.79/233	159,000 0.76/224
390 -57°C	WEIGHT MACH/IAS	231,000 0.79/245	216,000 0.79/245	198,000 0.79/245	178,000 0.77/237
370 -57°C	WEIGHT MACH/IAS	256,000 0.79/255	242,000 0.79/255	221,000 0.79/255	200,000 0.78/252
350 -54°C	WEIGHT MACH/IAS	280,000 0.79/268	267,000 0.79/268	243,000 0.79/268	220,000 0.78/264
330 -50°C	WEIGHT MACH/IAS	305,000 0.79/280	286,000 0.79/280	262,000 0.79/280	238,000 0.77/273
310 -46°C	WEIGHT MACH/IAS	-	308,000 0.79/293	280,000 0.79/293	253,000 0.76/281

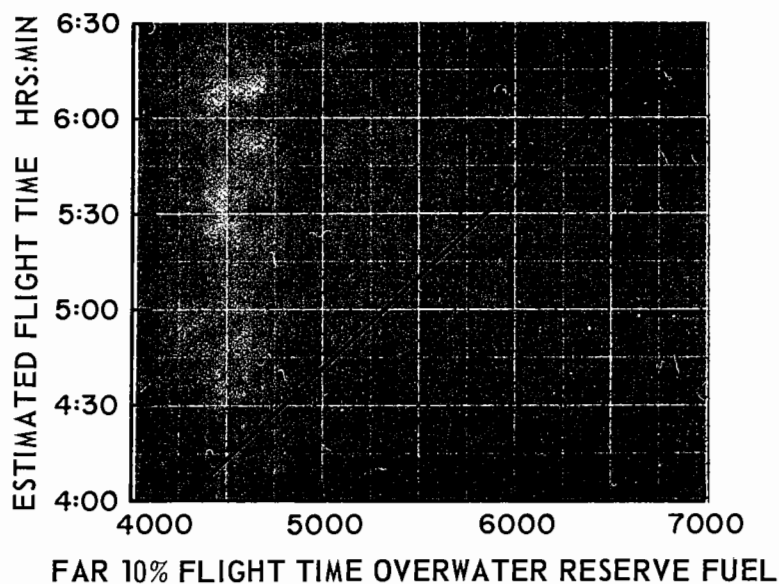
NOTE: For airplanes N8007U thru N8011U determine weight from above table and adjust as follows:

Temperature	$T_S - 10$	T_S	$T_S + 10$	$T_S + 20$
Adjustments (Lbs)	-10,000	-8,000	-7,000	-5,000

Adjustments are dependent on temperature and applies to all weights under each temperature column regardless of altitude.

DC-8 JT3D-1FAR 10% FLIGHT TIME OVERWATER RESERVE FUEL

NOTE: This fuel replaces the contingency fuel used in domestic operation.
It is based on long range cruise at 20,000 feet.

DC-8 JT3D-1

SUMMARY

FLIGHT PLANNING RULES

FAR DOMESTIC RESERVE	=	8,000 LBS.
FAR OVERWATER RESERVE	=	6,000 LBS.
MINIMUM ALTERNATE FUEL	=	3,000 LBS.
PLANNED HOLDING FUEL	=	10,000 LBS/HR
CONTINGENCY FUEL (See FOM for exceptions)	=	4,000 LBS.
MIN PLANNED BURNOUT AT END FINAL STEP-CLIMB	=	6,000 LBS.

FLIGHT PLAN TIME AND FUEL ADJUSTMENT FOR STEP-CLIMB:

<u>Step-Climb</u>	<u>Additional Time and Fuel</u>
2,000 ft.	1/2 Min., 200 lbs.
3,000 ft., 4,000 ft., 5,000 ft.	1 Min., 400 lbs.
6,000 ft., 7,000 ft., 8,000 ft.	2 Min., 600 lbs.

DC-8 JT3D-1TIME, DISTANCE AND FUEL FOR NORMAL DESCENT

FINAL CRUISE ALTITUDE	TIME (MIN.)	DISTANCE (N. ML.)	FUEL (POUNDS)
41,000	26	160	2950
39,000	24	144	2720
37,000	22	127	2460
35,000	20	110	2150
33,000	19	99	2000
31,000	18	94	1970
29,000	18	90	1940
28,000	17	88	1930
27,000	17	86	1910
26,000	17	85	1900
25,000	16	81	1880
24,000	16	78	1860
23,000	16	75	1840
22,000	15	72	1820
21,000	15	70	1800
20,000	14	67	1790
19,000	14	65	1770
18,000	14	62	1750
17,000	14	60	1730
16,000	13	58	1710
15,000	13	56	1700
10,000	12	45	1520
5,000	7	21	1290



TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT FT. TOGW 1,000 LBS.	25,000				27,000			
	T _s -10°C	T _s	T _s +10°C	T _s +20°C	T _s -10°C	T _s	T _s +10°C	T _s +20°C
300	17/8237/89	21/9485/115	28/11160/160	39/14300/236	20/9047/106	24/10563/138	33/12712/199	
280	15/7310/78	19/8329/100	24/9622/136	32/11966/193	17/7995/93	21/9213/120	28/10822/166	39/13859/245
260	14/6512/70	16/7362/88	21/8393/118	28/10219/162	15/7102/82	19/8109/104	24/9367/142	33/11646/202
240	12/5785/62	14/6494/77	18/7318/102	23/8756/138	14/6294/72	16/7126/91	21/8117/122	27/9863/168
220	11/5122/54	13/5712/68	16/6372/88	20/7512/116	12/5561/64	14/6249/80	18/7034/104	23/8393/141
200	10/4516/48	11/5006/59	14/5537/76	17/6450/99	11/4893/56	12/5462/69	15/6086/89	20/7157/118
180	8/3967/42	10/4378/51	12/5035/71	15/5550/84	9/4292/48	11/4766/60	13/5271/77	17/6131/100
160	7/3454/36	8/3795/44	10/4144/56	12/4743/71	8/3731/42	9/4124/51	11/4529/65	14/5219/84

NOTES: 1. Based on use of maximum continuous thrust and 300 knots IAS to .78M.

2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute

Fuel - 200 lbs.

Distance - 2.0 N. M.

ALT FT. TOGW 1,000 LBS.	29,000				31,000			
	T _s -10°C	T _s	T _s +10°C	T _s +20°C	T _s -10°C	T _s	T _s +10°C	T _s +20°C
300	23/10012/127	29/11896/171	41/14908/257		26/10882/149	33/13186/205		
280	20/8786/110	25/10257/157	33/12371/207	49/16341/318	22/9463/127	28/11182/169	39/13914/251	
260	18/7769/97	22/8962/125	28/10563/174	39/13375/253	19/8314/110	24/9674/144	32/11635/204	46/15104/308
240	15/6859/85	19/7831/108	24/9060/147	32/11137/206	17/7312/96	21/8404/124	27/9867/170	37/12296/242
220	14/6044/74	16/6842/94	21/7802/125	27/9386/170	15/6424/84	18/7312/106	23/8436/142	30/10240/197
200	12/5305/65	14/5959/81	18/6714/106	23/7941/141	13/5626/73	16/6349/91	19/7224/120	25/8596/162
180	10/4644/56	12/5188/70	15/5793/90	19/6768/119	11/4916/63	13/5513/79	17/6208/102	21/7284/135
160	9/4029/48	10/4477/60	13/4960/77	16/5734/99	10/4259/54	12/4748/67	14/5299/86	18/6145/112



CLIMB PERFORMANCE

DC-8 JT3D-1

TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT FT. TOGW 1,000 LBS.	33,000				35,000			
	T _s -10°C	T _s	T _s +10°C	T _s +20°C	T _s -10°C	T _s	T _s +10°C	T _s +20°C
300								
280	25/10246/148	32/12285/200						
260	21/8910/126	27/10458/166	37/12832/241		24/9605/146	31/11400/194		
240	19/7785/109	23/9001/140	30/10706/195	42/13612/287	20/8303/123	26/9661/160	34/11648/225	
220	16/6814/94	20/7790/120	25/9075/162	34/11146/228	18/7221/106	22/8290/135	28/9739/183	39/12167/264
200	14/5951/81	17/6740/102	21/7727/136	28/9270/184	15/6283/91	18/7138/114	24/8235/152	31/9984/210
180	12/5188/70	14/5835/88	18/6612/115	23/7803/153	13/5462/78	16/6158/97	20/7012/128	26/8337/172
160	10/4486/60	12/5014/74	15/5626/96	19/6553/126	11/4712/66	14/5278/82	17/5946/106	21/6964/141

- NOTES:**
1. Based on use of maximum continuous thrust and 300 knots IAS to .78M.
 2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute
 Fuel - 200 lbs.
 Distance - 2.0 N. M.

ALT FT. TOGW 1,000 LBS.	37,000				39,000			
	T _s -10°C	T _s	T _s +10°C	T _s +20°C	T _s -10°C	T _s	T _s +10°C	T _s +20°C
300								
280								
260								
240	23/8978/144	29/10571/189						
220	20/7707/120	24/8903/154	32/10587/213		23/8367/142	28/9800/186		
200	17/6658/102	20/7594/129	26/8823/172	36/10874/244	19/7116/117	23/8170/149	30/9607/202	43/12234/299
180	14/5763/87	17/6515/109	22/7456/143	29/8955/195	16/6109/98	19/6934/123	24/7988/163	33/9740/227
160	12/4957/74	15/5564/92	18/6292/119	24/7422/158	14/5230/83	16/5887/103	20/6687/133	26/7960/180



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	448 230									2.04 35.6	1.97 38.5	1.90 41.2	1.83 44.2	1.78 46.9	1.72 49.8	1.67 52.5	1.63 55.1
390 -56	448 241			EPR NAM/1000#			2.08 30.9	2.02 33.1	1.95 35.5	1.89 37.7	1.83 40.1	1.78 42.4	1.73 44.8	1.69 47.1	1.65 49.2	1.61 51.3	1.58 52.9
370 -56	448 253					2.05 29.1	1.99 31.1	1.93 33.0	1.88 34.8	1.82 36.9	1.78 38.7	1.73 40.7	1.69 42.7	1.65 44.4	1.62 46.1	1.59 47.5	1.57 48.9
350 -54	451 265	2.06 26.2	2.00 27.8	1.95 29.4	1.90 30.9	1.85 32.5	1.81 34.1	1.76 35.7	1.72 37.4	1.68 38.9	1.65 40.4	1.62 41.8	1.60 43.0	1.57 44.1	1.55 45.2	1.53 46.2	1.52 47.3
330 -50	455 277	1.91 27.8	1.87 29.1	1.82 30.5	1.78 31.8	1.75 33.1	1.71 34.5	1.68 35.7	1.65 36.9	1.62 38.1	1.60 39.1	1.58 40.0	1.56 40.9	1.54 41.8	1.52 42.6	1.51 43.5	1.49 44.2
310 -46	459 290	1.79 28.7	1.76 29.7	1.72 30.9	1.69 32.0	1.67 33.0	1.64 34.0	1.61 35.0	1.59 35.7	1.58 36.5	1.56 37.2	1.54 38.0	1.53 38.7	1.51 39.4	1.50 40.0	1.49 40.5	1.48 41.0
290 -42	463 302	1.70 29.0	1.68 29.7	1.65 30.6	1.63 31.4	1.61 32.2	1.59 32.8	1.57 33.4	1.56 34.1	1.54 34.7	1.53 35.3	1.51 35.8	1.50 36.4	1.49 36.8	1.48 37.3	1.47 37.7	1.46 38.1
280 -40	465 309	1.67 28.7	1.64 29.5	1.62 30.2	1.60 30.9	1.59 31.5	1.57 32.0	1.55 32.6	1.54 33.2	1.53 33.7	1.51 34.3	1.50 34.8	1.49 35.2	1.48 35.6	1.47 36.0	1.46 36.4	1.46 36.8
270 -38	467 316	1.64 28.5	1.61 29.1	1.60 29.7	1.58 30.2	1.57 30.7	1.55 31.3	1.54 31.8	1.53 32.3	1.51 32.8	1.50 33.2	1.49 33.6	1.48 34.0	1.48 34.3	1.47 34.7	1.46 35.1	1.45 35.4
260 -37	469 322	1.61 28.1	1.59 28.5	1.58 29.0	1.56 29.5	1.55 30.0	1.54 30.5	1.53 30.9	1.51 31.4	1.50 31.8	1.49 32.1	1.49 32.5	1.48 32.8	1.47 33.1	1.46 33.5	1.45 33.8	1.44 34.1
250 -35	471 329	1.59 27.5	1.57 27.9	1.56 28.4	1.55 28.8	1.54 29.2	1.52 29.6	1.51 30.0	1.50 30.5	1.49 30.8	1.49 31.0	1.48 31.3	1.47 31.7	1.46 32.0	1.45 32.3	1.45 32.6	1.44 32.9
240 -33	473 336	1.57 26.9	1.56 27.3	1.54 27.7	1.53 28.0	1.52 28.4	1.51 28.8	1.50 29.2	1.49 29.4	1.49 29.7	1.48 30.0	1.47 30.3	1.46 30.6	1.46 30.8	1.45 31.1	1.44 31.4	1.43 31.7
230 -31	474 343	1.55 26.2	1.54 26.6	1.53 26.9	1.52 27.3	1.51 27.6	1.50 28.0	1.49 28.2	1.49 28.5	1.48 28.7	1.47 29.0	1.46 29.2	1.46 29.5	1.45 29.8	1.44 30.0	1.43 30.3	1.43 30.6
220 -29	476 350	1.54 25.6	1.53 25.9	1.52 26.2	1.51 26.5	1.50 26.8	1.49 27.1	1.49 27.3	1.48 27.5	1.47 27.8	1.46 28.0	1.46 28.2	1.45 28.5	1.44 28.7	1.44 29.0	1.43 29.2	1.42 29.5
210 -27	478 357	1.53 24.9	1.52 25.2	1.51 25.5	1.50 25.7	1.49 26.0	1.49 26.2	1.48 26.4	1.47 26.6	1.46 26.8	1.46 27.0	1.45 27.3	1.44 27.5	1.44 27.7	1.43 27.9	1.42 28.2	1.42 28.4
200 -25	480 363	1.51 24.2	1.50 24.5	1.50 24.7	1.49 24.9	1.48 25.1	1.48 25.3	1.47 25.5	1.46 25.7	1.46 25.9	1.45 26.1	1.45 26.3	1.44 26.5	1.43 26.7	1.43 26.9	1.42 27.2	1.41 27.4

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
 - (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.40 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	0	+ 0.02	+ 0.04
% Change in NAM/1000#	0	-2%	-4%



4 ENGINE MACH .79 CRUISE

DC-8 JT3D-1

FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	454 233									2.08 34.0	2.00 37.1	1.92 40.4	1.85 43.5	1.79 46.3	1.73 49.4	1.69 51.9	1.64 54.6
390 -56	454 245							2.06 31.8	1.98 34.3	1.91 37.0	1.85 39.6	1.79 41.9	1.74 44.5	1.70 46.5	1.66 48.7	1.62 50.6	1.60 52.1
370 -56	454 256				2.09 27.8	2.02 29.9	1.96 32.2	1.89 34.4	1.84 36.3	1.79 38.3	1.74 40.4	1.70 42.1	1.66 43.9	1.63 45.6	1.60 46.8	1.58 48.2	1.56 49.5
350 -54	456 268	0.00 5.0	2.04 26.7	1.98 28.5	1.92 30.3	1.86 32.2	1.82 33.6	1.77 35.3	1.73 37.0	1.70 38.4	1.66 39.9	1.63 41.3	1.61 42.4	1.59 43.4	1.56 44.6	1.55 45.6	1.53 46.6
330 -50	461 281	1.93 27.2	1.88 28.8	1.84 30.1	1.80 31.4	1.75 32.8	1.72 34.1	1.69 35.3	1.66 36.5	1.63 37.7	1.61 38.5	1.59 39.4	1.57 40.4	1.55 41.2	1.53 42.0	1.52 42.8	1.51 43.5
310 -46	465 294	1.81 28.3	1.77 29.5	1.73 30.7	1.70 31.6	1.68 32.6	1.65 33.6	1.63 34.5	1.61 35.2	1.59 36.0	1.57 36.7	1.55 37.4	1.54 38.1	1.52 38.8	1.51 39.4	1.50 39.9	1.49 40.4
290 -42	469 307	1.71 28.6	1.69 29.4	1.66 30.2	1.64 31.1	1.62 31.7	1.60 32.3	1.59 32.9	1.57 33.6	1.55 34.2	1.54 34.8	1.53 35.3	1.52 35.8	1.50 36.3	1.49 36.7	1.48 37.2	1.47 37.6
280 -40	471 313	1.68 28.4	1.65 29.2	1.63 29.9	1.62 30.4	1.60 31.0	1.58 31.6	1.57 32.2	1.55 32.7	1.54 33.2	1.53 33.8	1.52 34.2	1.51 34.6	1.50 35.0	1.49 35.4	1.48 35.8	1.47 36.2
270 -38	473 320	1.65 28.2	1.63 28.8	1.61 29.3	1.60 29.8	1.58 30.3	1.56 30.8	1.55 31.3	1.54 31.8	1.53 32.3	1.52 32.7	1.51 33.1	1.50 33.5	1.49 33.8	1.48 34.2	1.47 34.5	1.46 34.9
260 -37	475 327	1.62 27.7	1.61 28.1	1.59 28.6	1.58 29.1	1.56 29.6	1.55 30.0	1.54 30.5	1.53 30.9	1.52 31.3	1.51 31.6	1.50 32.0	1.49 32.3	1.48 32.6	1.47 33.0	1.46 33.3	1.46 33.6
250 -35	477 333	1.60 27.1	1.59 27.5	1.57 28.0	1.56 28.4	1.55 28.8	1.54 29.2	1.53 29.6	1.52 29.9	1.51 30.3	1.50 30.6	1.49 30.9	1.48 31.2	1.47 31.5	1.47 31.8	1.46 32.1	1.45 32.3
240 -33	479 340	1.58 26.5	1.57 26.9	1.56 27.3	1.55 27.7	1.53 28.0	1.52 28.4	1.52 28.7	1.51 29.0	1.50 29.3	1.49 29.6	1.48 29.8	1.47 30.1	1.47 30.4	1.46 30.6	1.45 30.9	1.45 31.2
230 -31	481 347	1.57 25.9	1.55 26.2	1.54 26.6	1.53 26.9	1.52 27.2	1.51 27.5	1.51 27.8	1.50 28.0	1.49 28.3	1.48 28.6	1.48 28.8	1.47 29.1	1.46 29.3	1.46 29.5	1.45 29.8	1.44 30.0
220 -29	483 354	1.55 25.2	1.54 25.5	1.53 25.8	1.52 26.1	1.51 26.4	1.51 26.6	1.50 26.9	1.49 27.1	1.48 27.3	1.48 27.6	1.47 27.8	1.46 28.0	1.46 28.2	1.45 28.5	1.44 28.7	1.44 28.9
210 -27	485 361	1.54 24.6	1.53 24.8	1.52 25.1	1.51 25.3	1.51 25.6	1.50 25.8	1.49 26.0	1.48 26.2	1.48 26.4	1.47 26.6	1.46 26.8	1.46 27.0	1.45 27.2	1.45 27.4	1.44 27.6	1.43 27.9
200 -25	486 368	1.53 23.9	1.52 24.1	1.51 24.3	1.50 24.5	1.50 24.7	1.49 24.9	1.48 25.1	1.48 25.3	1.47 25.5	1.46 25.7	1.46 25.9	1.45 26.1	1.45 26.3	1.44 26.5	1.44 26.6	1.43 26.8

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.40 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	0	+ 0.02	+ 0.04
% Change in NAM/1000#	0	- 2%	- 4%



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	460 236										2.02 36.5	1.92 40.3	1.86 43.1	1.80 46.0	1.74 48.8	1.70 51.3	1.65 53.9
390 -56	460 248			EPR NAM/1000#				2.09 30.9	2.00 33.8	1.91 37.0	1.86 39.2	1.80 41.6	1.75 44.0	1.71 46.0	1.67 48.2	1.64 49.9	1.61 51.5
370 -56	460 260					2.04 29.3	1.97 31.8	1.90 34.1	1.85 36.0	1.80 38.0	1.75 40.0	1.71 41.6	1.67 43.5	1.64 44.9	1.62 46.2	1.59 47.6	1.57 48.8
350 -54	462 272		2.06 26.0	1.99 28.1	1.92 30.3	1.87 31.8	1.83 33.4	1.78 35.2	1.74 36.6	1.71 38.0	1.67 39.5	1.65 40.7	1.62 41.8	1.60 42.9	1.58 43.9	1.56 44.9	1.54 45.9
330 -50	466 284	1.94 27.1	1.89 28.5	1.85 29.8	1.80 31.2	1.76 32.6	1.73 33.7	1.70 34.9	1.67 36.2	1.64 37.1	1.62 38.0	1.60 38.9	1.58 39.8	1.56 40.6	1.55 41.4	1.53 42.1	1.52 42.8
310 -46	471 298	1.81 28.1	1.77 29.3	1.74 30.3	1.71 31.2	1.69 32.3	1.66 33.3	1.64 34.0	1.62 34.7	1.60 35.5	1.58 36.2	1.57 36.9	1.55 37.6	1.54 38.2	1.53 38.8	1.51 39.3	1.50 39.9
290 -42	475 311	1.72 28.2	1.70 29.1	1.67 30.0	1.65 30.7	1.63 31.3	1.61 31.9	1.60 32.5	1.58 33.1	1.57 33.7	1.55 34.3	1.54 34.8	1.53 35.3	1.52 35.7	1.51 36.2	1.50 36.6	1.49 37.1
280 -40	477 318	1.69 28.1	1.66 28.9	1.64 29.5	1.63 30.0	1.61 30.6	1.59 31.2	1.58 31.7	1.57 32.2	1.55 32.8	1.54 33.3	1.53 33.7	1.52 34.1	1.51 34.5	1.50 34.9	1.49 35.3	1.48 35.7
270 -38	479 324	1.66 27.9	1.64 28.4	1.62 28.9	1.61 29.4	1.59 29.9	1.58 30.4	1.56 30.9	1.55 31.3	1.54 31.8	1.53 32.2	1.52 32.6	1.51 33.0	1.50 33.4	1.49 33.7	1.48 34.0	1.48 34.3
260 -37	481 331	1.63 27.3	1.62 27.8	1.60 28.2	1.59 28.7	1.58 29.2	1.56 29.6	1.55 30.0	1.54 30.5	1.53 30.8	1.52 31.1	1.51 31.5	1.50 31.9	1.49 32.2	1.49 32.5	1.48 32.8	1.47 33.0
250 -35	483 338	1.61 26.7	1.60 27.2	1.58 27.6	1.57 28.0	1.56 28.4	1.55 28.8	1.54 29.2	1.53 29.5	1.52 29.8	1.51 30.1	1.50 30.5	1.49 30.8	1.49 31.0	1.48 31.3	1.47 31.5	1.47 31.8
240 -33	485 345	1.59 26.1	1.58 26.5	1.57 26.9	1.56 27.2	1.55 27.6	1.54 28.0	1.53 28.2	1.52 28.5	1.51 28.8	1.50 29.1	1.49 29.4	1.49 29.7	1.48 29.9	1.47 30.1	1.47 30.4	1.46 30.6
230 -31	487 352	1.58 25.5	1.57 25.8	1.56 26.2	1.54 26.5	1.54 26.8	1.53 27.1	1.52 27.3	1.51 27.6	1.50 27.9	1.50 28.2	1.49 28.4	1.48 28.6	1.48 28.8	1.47 29.0	1.46 29.3	1.46 29.5
220 -29	489 359	1.56 24.8	1.55 25.2	1.54 25.5	1.53 25.7	1.53 26.0	1.52 26.2	1.51 26.5	1.50 26.7	1.50 27.0	1.49 27.2	1.48 27.4	1.48 27.6	1.47 27.8	1.46 28.0	1.46 28.2	1.45 28.4
210 -27	491 366	1.55 24.2	1.54 24.5	1.53 24.7	1.53 24.9	1.52 25.2	1.51 25.4	1.50 25.6	1.50 25.9	1.49 26.1	1.48 26.2	1.48 26.4	1.47 26.6	1.47 26.8	1.46 27.0	1.45 27.2	1.45 27.3
200 -25	493 373	1.54 23.5	1.53 23.7	1.52 23.9	1.52 24.2	1.51 24.4	1.50 24.6	1.50 24.8	1.49 25.0	1.48 25.1	1.48 25.3	1.47 25.5	1.47 25.6	1.46 25.8	1.46 26.0	1.45 26.2	1.44 26.3

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.50 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	+ 0.01	+ 0.02	+ 0.04
% Change in NAM/1000#	-1%	-2%	-4%



4 ENGINE MACH .81 CRUISE

DC-8 JT3D-1

FLIGHT LEVEL	TAS STD TEMP °C	IAS	GROSS WEIGHT (1000 LBS)															
			310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	466 240											2.04 35.8	1.95 39.3	1.88 42.1	1.81 45.5	1.76 47.8	1.71 50.4	1.67 52.7
390 -56	466 252		EPR NAM/1000#							2.02 33.2	1.94 36.0	1.88 38.3	1.81 41.1	1.77 43.0	1.72 45.2	1.68 47.2	1.65 48.9	1.62 50.5
370 -56	466 264						2.07 28.7	1.98 31.3	1.93 33.2	1.87 35.3	1.81 37.5	1.77 39.1	1.73 40.9	1.69 42.7	1.66 44.0	1.63 45.4	1.61 46.7	1.59 47.8
350 -54	468 276		2.09 25.5	2.01 27.6	1.95 29.5	1.90 31.0	1.84 32.8	1.80 34.5	1.76 35.8	1.72 37.3	1.69 38.8	1.66 39.9	1.64 41.1	1.61 42.2	1.59 43.1	1.58 44.0	1.56 44.9	1.54 44.9
330 -50	472 288	1.96 26.5	1.91 27.8	1.87 29.2	1.82 30.8	1.78 31.9	1.75 33.0	1.71 34.3	1.69 35.4	1.66 36.4	1.64 37.3	1.62 38.3	1.60 39.0	1.58 39.8	1.56 40.6	1.55 41.3	1.54 42.0	1.52 42.0
310 -46	477 302	1.83 27.7	1.79 28.7	1.76 29.6	1.73 30.7	1.70 31.7	1.68 32.5	1.66 33.4	1.64 34.1	1.62 34.9	1.60 35.5	1.58 36.2	1.57 36.8	1.56 37.4	1.54 38.0	1.53 38.5	1.52 39.1	1.50 39.1
290 -42	481 315	1.74 27.7	1.71 28.6	1.69 29.4	1.67 30.0	1.65 30.7	1.63 31.4	1.61 32.0	1.60 32.5	1.58 33.0	1.57 33.6	1.56 34.1	1.55 34.5	1.53 35.0	1.52 35.5	1.51 36.0	1.50 36.4	1.48 36.4
280 -40	483 322	1.70 27.6	1.68 28.3	1.66 28.9	1.65 29.5	1.63 30.1	1.61 30.6	1.60 31.1	1.58 31.6	1.57 32.1	1.56 32.5	1.55 33.0	1.54 33.4	1.53 33.9	1.51 34.3	1.50 34.7	1.48 35.0	1.46 35.0
270 -38	485 329	1.68 27.2	1.66 27.8	1.64 28.4	1.62 28.9	1.61 29.4	1.59 29.8	1.58 30.3	1.57 30.7	1.56 31.1	1.55 31.5	1.54 31.9	1.53 32.3	1.52 32.7	1.51 33.1	1.50 33.4	1.49 33.7	1.47 33.7
260 -37	487 335	1.65 26.8	1.64 27.3	1.62 27.8	1.61 28.2	1.59 28.6	1.58 29.0	1.57 29.4	1.56 29.8	1.55 30.2	1.54 30.5	1.53 30.9	1.52 31.3	1.51 31.6	1.50 31.9	1.49 32.2	1.48 32.4	1.46 32.4
250 -35	489 343	1.63 26.3	1.61 26.7	1.60 27.1	1.59 27.5	1.58 27.8	1.57 28.2	1.56 28.5	1.55 28.9	1.54 29.2	1.53 29.6	1.52 29.9	1.51 30.2	1.50 30.5	1.50 30.7	1.49 31.0	1.48 31.2	1.46 31.2
240 -33	491 350	1.61 25.7	1.60 26.0	1.59 26.4	1.58 26.7	1.57 27.1	1.56 27.4	1.55 27.7	1.54 28.0	1.53 28.3	1.52 28.6	1.51 28.9	1.50 29.1	1.50 29.4	1.49 29.6	1.48 29.8	1.47 30.0	1.45 30.0
230 -31	493 357	1.60 25.0	1.58 25.3	1.57 25.7	1.56 26.0	1.55 26.2	1.55 26.5	1.54 26.8	1.53 27.1	1.52 27.4	1.51 27.7	1.50 27.9	1.50 28.1	1.49 28.3	1.49 28.5	1.48 28.7	1.47 28.9	1.45 28.9
220 -29	495 364	1.58 24.4	1.57 24.7	1.56 24.9	1.55 25.2	1.54 25.4	1.54 25.7	1.53 26.0	1.52 26.2	1.51 26.5	1.51 26.7	1.50 26.9	1.49 27.1	1.49 27.3	1.48 27.5	1.48 27.7	1.47 27.9	1.45 27.9
210 -27	497 371	1.57 23.7	1.56 24.0	1.55 24.2	1.54 24.4	1.53 24.7	1.53 24.9	1.52 25.1	1.51 25.4	1.51 25.6	1.50 25.8	1.49 25.9	1.49 26.1	1.48 26.3	1.48 26.5	1.47 26.6	1.46 26.8	1.44 26.8
200 -25	499 378	1.56 23.0	1.55 23.2	1.54 23.5	1.53 23.7	1.53 23.9	1.52 24.1	1.51 24.3	1.51 24.5	1.50 24.7	1.49 24.9	1.49 25.0	1.48 25.2	1.48 25.3	1.47 25.5	1.47 25.7	1.46 25.8	1.44 25.8

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.40 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	+ 0.01	+ 0.02	+ 0.04
% Change in NAM/1000#	-1%	-2%	-4%



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	472 243										2.05 35.3	1.97 38.4	1.89 41.6	1.83 44.5	1.78 47.0	1.73 49.7	1.69 51.7
390 -56	472 255		EPR NAM/1000#						2.03 32.6	1.96 35.2	1.89 37.8	1.83 40.3	1.79 42.3	1.74 44.5	1.70 46.3	1.67 48.0	1.64 49.8
370 -56	472 267					2.08 28.3	2.01 30.5	1.94 32.7	1.88 34.9	1.83 36.8	1.79 38.4	1.74 40.3	1.71 41.8	1.68 43.2	1.65 44.7	1.63 45.9	1.61 46.9
350 -54	474 280			2.03 27.0	1.97 28.8	1.91 30.6	1.85 32.5	1.82 33.8	1.78 35.2	1.74 36.8	1.71 38.0	1.68 39.2	1.65 40.4	1.63 41.4	1.61 42.3	1.59 43.2	1.58 44.0
330 -50	478 292	1.98 25.8	1.93 27.3	1.88 28.9	1.83 30.2	1.80 31.3	1.76 32.5	1.73 33.8	1.70 34.7	1.68 35.7	1.65 36.7	1.63 37.6	1.62 38.3	1.60 39.0	1.58 39.7	1.57 40.4	1.56 41.1
310 -46	483 306	1.84 27.3	1.81 28.2	1.78 29.1	1.75 30.2	1.72 31.1	1.70 31.9	1.67 32.7	1.65 33.6	1.63 34.3	1.62 34.9	1.60 35.5	1.59 36.1	1.57 36.6	1.56 37.2	1.55 37.8	1.53 38.4
290 -42	487 319	1.76 27.3	1.73 28.1	1.71 28.8	1.69 29.4	1.67 30.2	1.65 30.9	1.63 31.4	1.62 31.9	1.60 32.4	1.59 32.9	1.58 33.3	1.56 33.8	1.55 34.3	1.54 34.8	1.53 35.3	1.52 35.6
280 -40	489 326	1.72 27.1	1.70 27.7	1.68 28.3	1.66 29.0	1.64 29.6	1.63 30.1	1.61 30.5	1.60 31.0	1.59 31.4	1.58 31.9	1.57 32.3	1.55 32.7	1.54 33.2	1.53 33.6	1.52 34.0	1.52 34.3
270 -38	491 333	1.69 26.7	1.67 27.3	1.66 27.9	1.64 28.4	1.63 28.8	1.61 29.3	1.60 29.7	1.59 30.1	1.58 30.5	1.57 30.9	1.55 31.3	1.54 31.7	1.53 32.1	1.52 32.4	1.52 32.7	1.51 33.0
260 -37	493 340	1.67 26.3	1.65 26.9	1.64 27.3	1.62 27.7	1.61 28.1	1.60 28.4	1.59 28.8	1.58 29.2	1.57 29.5	1.56 29.9	1.54 30.3	1.53 30.7	1.53 31.0	1.52 31.2	1.51 31.5	1.50 31.8
250 -35	495 347	1.64 25.9	1.63 26.2	1.62 26.6	1.61 26.9	1.60 27.3	1.59 27.6	1.58 27.9	1.57 28.3	1.56 28.6	1.55 28.9	1.54 29.3	1.53 29.6	1.52 29.9	1.51 30.1	1.51 30.4	1.50 30.6
240 -33	497 354	1.63 25.2	1.62 25.5	1.61 25.9	1.59 26.2	1.58 26.5	1.57 26.8	1.56 27.1	1.56 27.4	1.55 27.7	1.54 28.0	1.53 28.3	1.52 28.5	1.51 28.8	1.51 29.0	1.50 29.3	1.49 29.5
230 -31	499 362	1.61 24.5	1.60 24.8	1.59 25.1	1.58 25.4	1.57 25.7	1.56 26.0	1.55 26.2	1.55 26.5	1.54 26.8	1.53 27.1	1.52 27.3	1.52 27.5	1.51 27.7	1.50 28.0	1.50 28.2	1.49 28.4
220 -29	501 369	1.60 23.9	1.59 24.2	1.58 24.4	1.57 24.7	1.56 24.9	1.55 25.2	1.55 25.4	1.54 25.7	1.53 26.0	1.52 26.2	1.52 26.3	1.51 26.5	1.50 26.7	1.50 26.9	1.49 27.1	1.49 27.3
210 -27	503 376	1.59 23.2	1.58 23.4	1.57 23.7	1.56 23.9	1.55 24.2	1.54 24.4	1.54 24.7	1.53 24.9	1.52 25.1	1.52 25.2	1.51 25.4	1.51 25.6	1.50 25.8	1.49 26.0	1.49 26.1	1.48 26.3
200 -25	505 383	1.58 22.5	1.57 22.8	1.56 23.0	1.55 23.2	1.54 23.4	1.54 23.7	1.53 23.9	1.52 24.0	1.52 24.2	1.51 24.4	1.51 24.5	1.50 24.7	1.50 24.9	1.49 25.0	1.48 25.2	1.48 25.3

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) - $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.50 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	+ 0.01	+ 0.02	+ 0.04
% Change in NAM/1000#	-1%	-2%	-4%



4 ENGINE LONG RANGE CRUISE

DC-8 JT3D-1

FLIGHT LEVEL	STD TEMP °C	GROSS WEIGHT (1000 LBS)														
		300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410	EPR M TAS -56 NAM/1000									1.98 .783 451 37.9	1.92 .786 452 40.6	1.85 .789 454 43.5	1.79 .791 455 46.3	1.73 .793 456 49.1	1.67 .795 448 52.5	1.63 .797 439 55.4
390	EPR M TAS -56 NAM/1000							1.97 .782 450 35.1	1.91 .786 452 37.2	1.85 .789 454 39.6	1.80 .791 455 41.8	1.74 .792 456 44.3	1.69 .793 457 46.9	1.65 .795 445 49.3	1.60 .797 435 51.7	1.56 .799 425 54.2
370	EPR M TAS -56 NAM/1000			2.07 .783 451 28.5	2.00 .783 451 30.6	1.94 .783 451 32.6	1.89 .786 452 34.5	1.84 .786 454 36.3	1.79 .792 456 38.2	1.74 .794 457 40.2	1.70 .794 457 42.3	1.65 .794 458 44.4	1.61 .797 458 46.4	1.57 .797 458 48.5	1.54 .797 458 50.4	1.51 .797 458 52.4
350	EPR M TAS -54 NAM/1000	2.01 .782 452 27.4	1.96 .783 453 29.0	1.91 .784 454 30.5	1.86 .787 455 32.3	1.82 .789 456 33.6	1.78 .792 458 35.3	1.73 .794 459 36.8	1.69 .792 457 38.2	1.65 .796 445 40.5	1.61 .796 445 42.1	1.58 .792 443 43.8	1.55 .792 443 45.3	1.52 .792 443 47.0	1.48 .792 443 48.7	1.45 .792 443 50.4
330	EPR M TAS -50 NAM/1000	1.88 .789 461 28.8	1.84 .789 461 30.1	1.80 .789 461 31.4	1.75 .789 461 32.8	1.72 .789 461 34.1	1.68 .789 461 35.6	1.65 .789 461 37.0	1.61 .789 461 38.3	1.58 .789 461 39.8	1.55 .789 461 41.1	1.52 .789 461 42.5	1.49 .789 461 43.9	1.47 .789 461 45.2	1.44 .789 461 46.6	1.41 .789 461 48.0
310	EPR M TAS -46 NAM/1000	1.77 .789 465 29.5	1.73 .789 465 30.7	1.70 .789 465 31.6	1.67 .789 465 33.0	1.64 .789 465 34.1	1.61 .789 465 35.2	1.57 .789 465 36.4	1.55 .789 465 37.5	1.52 .789 465 38.6	1.50 .789 465 39.8	1.47 .789 465 40.9	1.45 .789 465 42.2	1.42 .789 465 43.5	1.39 .789 465 44.9	1.37 .789 465 46.4
290	EPR M TAS -42 NAM/1000	1.68 .784 466 29.0	1.65 .784 466 30.6	1.62 .784 466 31.5	1.60 .784 466 32.5	1.57 .784 466 33.4	1.54 .784 466 34.4	1.52 .784 466 35.4	1.50 .784 466 36.3	1.48 .784 466 37.3	1.45 .784 466 38.3	1.43 .784 466 39.4	1.40 .784 466 40.6	1.38 .784 466 41.8	1.35 .784 466 43.1	1.33 .784 466 44.4
270	EPR M TAS -38 NAM/1000	1.61 .752 450 29.4	1.58 .746 446 30.2	1.56 .739 443 30.9	1.54 .731 437 31.7	1.52 .722 432 32.5	1.49 .716 428 33.3	1.47 .709 424 34.1	1.45 .699 418 35.0	1.43 .689 412 35.8	1.41 .674 403 36.8	1.38 .658 394 37.9	1.36 .646 386 38.9	1.34 .633 379 40.0	1.32 .614 367 41.1	1.29 .594 355 42.4
250	EPR M TAS -35 NAM/1000	1.55 .729 440 28.7	1.53 .726 438 29.4	1.51 .723 437 30.0	1.49 .716 432 30.7	1.47 .708 427 31.4	1.45 .698 421 32.1	1.43 .688 415 32.8	1.41 .675 407 33.7	1.39 .662 399 34.5	1.37 .651 392 35.4	1.35 .639 385 36.3	1.33 .619 373 37.3	1.30 .599 361 38.3	1.28 .587 354 39.3	1.26 .574 346 40.5
230	EPR M TAS -31 NAM/1000	1.50 .718 437 27.9	1.48 .710 432 28.4	1.46 .702 427 29.0	1.44 .693 421 29.6	1.43 .683 416 30.3	1.41 .674 410 30.9	1.39 .664 404 31.6	1.37 .654 398 32.4	1.35 .643 391 33.1	1.33 .622 378 34.0	1.31 .600 365 34.8	1.29 .579 358 35.7	1.27 .579 352 36.6	1.26 .569 346 37.6	1.24 .559 340 38.6
210	EPR M TAS -27 NAM/1000	1.45 .699 429 26.9	1.44 .690 423 27.4	1.42 .680 417 28.0	1.40 .671 411 28.5	1.39 .661 405 29.1	1.37 .650 399 29.8	1.35 .640 392 30.4	1.33 .624 382 31.1	1.31 .609 373 31.8	1.30 .596 365 32.5	1.28 .583 357 33.3	1.26 .575 347 34.1	1.25 .566 340 34.9	1.23 .555 333 35.8	1.22 .543 333 36.8
190	EPR M TAS -11 NAM/1000	1.31 .601 380 23.1	1.29 .591 374 23.5	1.28 .581 367 23.9	1.27 .575 363 24.3	1.26 .568 359 24.7	1.25 .559 356 25.2	1.24 .551 353 25.6	1.22 .542 348 26.1	1.21 .532 343 26.6	1.20 .528 334 27.1	1.19 .514 325 27.8	1.17 .499 315 28.4	1.16 .484 306 29.1	1.15 .467 295 30.0	

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of the heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{TAS \text{ for Actual temperature}}{NAM/1000\#}$
- (4) For airplanes N8007U thru N8011U determine EPR from above table and adjust as follows:

EPR From Table	1.20 - 1.40	1.40 - 1.50	1.50 - 1.60	1.60 - 1.90
EPR Adjustment	- 0.02	0	+ 0.03	+ 0.07

Adjust NAM/1000# as follows: 0 - 25,000' - No adjustment required. 25,000' - 35,000' - Decrease NAM/1000# in Table by 2%.
35,000' - 41,000' - Decrease NAM/1000# in Table by 6%.



3 ENGINE LONG RANGE CRUISE

DC-8 JT3D-1

FLIGHT LEVEL	STD TEMP C	GROSS WEIGHT (1000 LBS)														
		300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
370	EPR									2.08	2.03	1.98	1.94	1.89	1.84	1.79
	M									.789	.782	.774	.757	.739	.724	.709
	TAS									454	450	445	435	425	417	408
-56	NAM/1000									37.5	39.6	41.5	43.6	45.6	47.8	50.3
350	EPR							2.07	2.03	1.98	1.94	1.89	1.85	1.81	1.76	1.71
	M							.789	.781	.773	.756	.738	.724	.709	.692	.674
	TAS							456	452	447	437	427	418	410	400	389
-54	NAM/1000							34.4	36.1	37.7	39.5	41.2	43.0	44.1	46.1	49.4
330	EPR					2.06	2.01	1.98	1.94	1.90	1.86	1.81	1.77	1.73	1.69	1.65
	M					.789	.778	.767	.753	.739	.724	.709	.694	.679	.669	.659
	TAS					461	454	448	439	431	422	414	405	396	390	384
-50	NAM/1000					31.7	33.3	34.6	36.1	37.4	38.9	40.7	42.4	44.1	46.1	48.1
310	EPR			2.04	2.00	1.96	1.93	1.89	1.86	1.82	1.78	1.74	1.70	1.66	1.62	1.58
	M			.784	.774	.764	.752	.739	.727	.714	.697	.679	.669	.659	.647	.634
	TAS			462	456	450	442	435	428	420	410	399	394	388	380	373
-46	NAM/1000			29.6	30.8	32.0	33.1	34.2	35.5	36.9	38.4	39.8	41.5	43.2	44.9	46.4
290	EPR	2.02	1.98	1.95	1.91	1.88	1.85	1.81	1.78	1.74	1.70	1.67	1.63	1.60	1.56	1.52
	M	.782	.771	.759	.746	.733	.721	.708	.695	.682	.671	.659	.652	.644	.622	.599
	TAS	464	458	451	443	435	428	420	412	405	398	391	386	382	369	355
-42	NAM/1000	27.6	28.6	29.6	30.6	31.6	32.7	33.9	35.1	36.2	37.6	39.0	40.4	41.7	43.2	44.9
270	EPR	1.93	1.90	1.87	1.84	1.81	1.77	1.74	1.70	1.67	1.64	1.61	1.58	1.54	1.50	1.47
	M	.751	.740	.729	.719	.709	.694	.679	.669	.659	.654	.649	.634	.629	.609	.579
	TAS	450	443	437	430	424	415	406	400	394	391	388	376	364	355	346
-38	NAM/1000	27.6	28.4	29.2	30.2	31.2	32.2	33.2	34.4	35.6	36.7	37.7	39.0	40.3	41.7	43.2
250	EPR	1.85	1.82	1.80	1.76	1.73	1.70	1.67	1.64	1.62	1.59	1.55	1.52	1.48	1.45	1.43
	M	.719	.714	.709	.694	.679	.669	.659	.654	.649	.634	.619	.601	.582	.571	.559
	TAS	434	431	428	419	410	404	398	395	392	382	373	362	351	344	337
-35	NAM/1000	27.3	28.0	28.8	29.7	30.6	31.6	32.6	33.6	34.4	35.4	36.5	37.6	39.0	40.2	41.6
230	EPR	1.78	1.75	1.72	1.69	1.67	1.64	1.62	1.59	1.56	1.53	1.50	1.47	1.44	1.42	1.39
	M	.701	.687	.673	.666	.659	.657	.652	.637	.619	.604	.589	.579	.569	.557	.544
	TAS	427	418	410	405	401	399	398	387	376	367	358	352	346	338	331
-31	NAM/1000	26.8	27.5	28.4	29.2	30.0	30.8	31.5	32.4	33.3	34.3	35.3	36.3	37.4	38.6	39.9
200	EPR	1.68	1.65	1.63	1.61	1.59	1.56	1.53	1.50	1.48	1.46	1.43	1.41	1.38	1.36	1.34
	M	.659	.655	.651	.645	.639	.619	.599	.591	.583	.573	.563	.553	.539	.532	.524
	TAS	406	403	401	397	393	381	369	364	359	353	346	339	332	327	322
-25	NAM/1000	26.1	26.8	27.4	28.0	28.5	29.3	30.1	30.9	31.6	32.5	33.3	34.3	35.3	36.3	37.3
150	EPR	1.54	1.52	1.50	1.48	1.46	1.44	1.42	1.40	1.38	1.36	1.34	1.33	1.31	1.29	1.27
	M	.599	.589	.582	.574	.567	.559	.549	.539	.538	.532	.524	.514	.504	.497	.489
	TAS	382	376	370	365	360	355	351	344	338	333	329	322	316	311	307
-15	NAM/1000	24.2	24.7	25.3	25.8	26.3	26.9	27.5	28.1	28.8	29.5	30.2	30.9	31.7	32.4	33.2
100	EPR	1.43	1.42	1.40	1.39	1.37	1.36	1.34	1.32	1.31	1.29	1.28	1.27	1.25	1.23	1.21
	M	.562	.556	.549	.544	.539	.532	.524	.513	.501	.498	.494	.484	.474	.459	.444
	TAS	359	355	351	348	345	340	335	328	320	318	316	309	303	293	284
-5	NAM/1000	22.3	22.7	23.1	23.5	24.0	24.4	24.9	25.4	26.0	26.5	27.0	27.6	28.2	28.9	29.6
50	EPR	1.35	1.34	1.32	1.31	1.30	1.29	1.28	1.26	1.25	1.24	1.22	1.21	1.20	1.18	1.16
	M	.529	.521	.513	.508	.502	.496	.489	.481	.473	.464	.454	.442	.429	.414	.399
	TAS	344	339	334	330	327	322	318	313	308	302	295	287	279	269	259
5	NAM/1000	20.3	20.6	21.0	21.3	21.6	22.0	22.4	22.8	23.2	23.7	24.1	24.7	25.2	26.0	26.7

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of the heavy line, determine and set Max. Continuous Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 8 knots/10°C above standard. Subtract 8 knots/10°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



FLIGHT LEVEL	STD TEMP °C	GROSS WEIGHT (1000 LBS)												
		280	270	260	250	240	230	220	210	200	190	180	170	160
270	EPR M TAS -38 NAM/1000									2.05 .625 373 34.6	2.00 .608 364 36.1	1.95 .592 354 37.7	1.90 .576 344 39.4	1.84 .559 334 41.5
250	EPR M TAS -35 NAM/1000							2.06 .625 376 31.5	2.01 .612 369 32.7	1.97 .599 361 34.0	1.92 .584 352 35.4	1.87 .569 343 37.0	1.82 .559 337 38.7	1.78 .549 331 40.4
230	EPR M TAS -31 NAM/1000					2.06 .625 379 28.9	2.01 .612 372 29.9	1.97 .599 364 31.0	1.93 .584 355 32.2	1.88 .569 346 33.5	1.84 .564 343 34.8	1.81 .559 340 36.2	1.75 .539 328 37.8	1.69 .519 315 39.6
210	EPR M TAS -27 NAM/1000			2.05 .625 383 26.6	2.01 .612 375 27.5	1.97 .599 367 28.4	1.94 .587 359 29.4	1.89 .574 352 30.4	1.85 .567 347 31.6	1.82 .559 343 32.8	1.77 .547 335 34.1	1.73 .534 327 35.4	1.68 .519 318 36.9	1.63 .504 309 38.4
200	EPR M TAS -25 NAM/1000			2.01 .614 377 26.4	1.98 .602 370 27.2	1.94 .590 363 28.1	1.90 .578 355 29.1	1.86 .565 348 30.2	1.82 .557 343 31.3	1.78 .549 338 32.5	1.74 .544 330 33.6	1.69 .525 323 34.9	1.65 .511 314 36.4	1.60 .497 305 37.7
150	EPR M TAS -15 NAM/1000	1.88 .569 357 23.9	1.85 .564 354 24.6	1.83 .559 351 25.3	1.79 .550 345 26.1	1.76 .541 339 26.9	1.72 .530 332 27.7	1.68 .519 326 28.6	1.65 .509 319 29.5	1.61 .500 313 30.4	1.58 .489 307 31.4	1.54 .479 300 32.4	1.51 .469 294 33.5	1.48 .459 288 34.6
110	EPR M TAS -7 NAM/1000	1.76 .544 346 23.0	1.72 .532 338 23.6	1.69 .519 330 24.3	1.66 .512 326 24.9	1.63 .504 321 25.6	1.60 .497 316 26.2	1.57 .489 311 26.9	1.55 .483 307 27.7	1.52 .476 303 28.4	1.49 .463 294 29.3	1.45 .449 286 30.3	1.43 .444 283 31.1	1.41 .439 279 32.0
90	EPR M TAS -3 NAM/1000	1.69 .519 333 22.5	1.66 .511 328 23.1	1.63 .503 323 23.6	1.60 .496 318 24.2	1.58 .489 314 24.8	1.55 .482 309 25.5	1.52 .474 304 26.1	1.50 .464 298 26.8	1.47 .454 291 27.6	1.44 .447 286 28.3	1.42 .439 281 29.1	1.40 .437 280 29.9	1.38 .434 278 30.7
70	EPR M TAS 1 NAM/1000	1.63 .502 324 21.9	1.60 .496 320 22.4	1.58 .489 316 22.9	1.56 .484 313 23.5	1.53 .479 309 24.0	1.51 .469 303 24.6	1.48 .459 296 25.3	1.45 .449 290 25.9	1.43 .439 284 26.6	1.41 .439 284 27.3	1.40 .439 284 27.9	1.38 .434 280 28.5	1.36 .429 277 29.2
50	EPR M TAS 5 NAM/1000	1.58 .489 318 21.3	1.56 .484 315 21.7	1.54 .479 312 22.2	1.51 .471 306 22.7	1.49 .463 301 23.3	1.46 .454 295 23.8	1.44 .444 289 24.4	1.42 .439 286 25.0	1.40 .434 282 25.6	1.38 .432 281 26.2	1.37 .429 279 26.7	1.34 .414 269 27.4	1.32 .399 259 28.1
30	EPR M TAS 9 NAM/1000	1.54 .479 314 20.6	1.51 .471 308 21.1	1.49 .462 303 21.5	1.46 .452 296 22.0	1.44 .442 290 22.6	1.43 .441 289 23.0	1.41 .439 288 23.5	1.40 .437 286 24.0	1.38 .434 284 24.5	1.37 .429 281 25.0	1.35 .424 278 25.5	1.33 .412 269 26.1	1.31 .399 261 26.7

NOTES:

- (1) EPR and NAM/1000# are for indicated listed Mach number. When operating in region left of the heavy line, determine and set Max. Continuous Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 6 knots/10°C above standard. Subtract 6 knots/10°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$

MAXIMUM CRUISE EPR - JT3D-3

					4 ENGINES					
RAT °C	SL - 30T		35T	40T	RAT °C	SL - 30T		35T	40T	
50	1.36	ICING BLEED ON ↓			-5	1.76	1.67	-1.73	1.70	
45	1.40				-10	1.79	1.70	1.76	1.74	
40	1.43				-15	1.83	1.73	1.80	1.78	
35	1.47				-20	1.86	1.75	1.83	1.81	
30	1.50				-25	1.89	1.78	1.86	1.85	
25	1.54	↑ ICING BLEED ON			-30	1.92	1.80	1.90	1.87	
20	1.57				-35	1.95	1.82	1.93	1.91	
15	1.61				-40	1.97	1.85	1.95	1.93	
10	1.65		1.59	1.62	1.59	-45	1.99		1.97	1.95
5	1.69		1.62	1.65	1.62	-50	2.01		1.99	1.97
0	1.72	1.65	1.69	1.66						

- NOTES:
- (1) Subtract 0.01 if Rain Removal ON.
 - (2) Add 0.01 for each 3°C above standard temperature up to a maximum increase of 0.05 for $T_s + 15^\circ\text{C}$ and above.

CRUISE

FLIGHT PLANNING TABLE

DC-8 JT3D-3



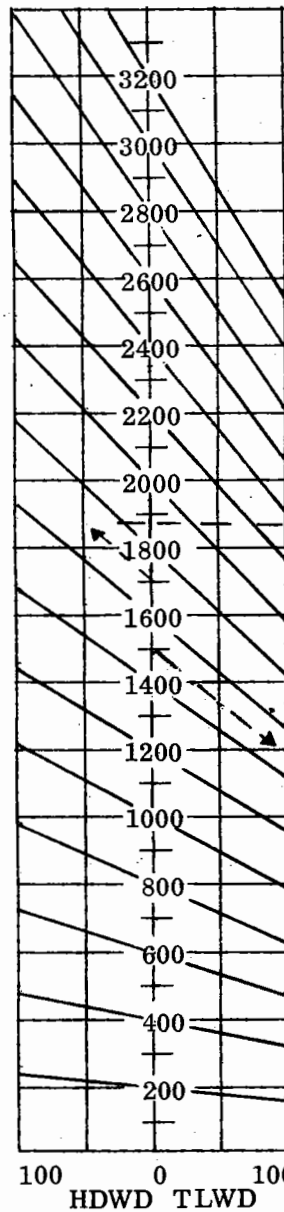
When the trip length line (corrected for wind) intersects between the horizontal time-fuel lines, use the time and fuel shown in the blocks for the flight altitude. Example: 1500 NM, 100 K Tailwind, Altitude 35,000. Time 2:46, Fuel 32.0.

When the trip length line (corrected for wind) intersects on a horizontal time-fuel line; interpolate. Example: 1700 NM, 50 K headwind, Altitude 37,000. Time 4:12, Fuel 47.0.

BASED ON FOLLOWING SPEED SCHEDULE:

- CLIMB: 250 IAS to 10,000 Ft. - 300 IAS to 29,000 Ft. - Mach 0.78 above 29,000 Ft.
- CRUISE: S. L. to 10,000 Ft. - 250 IAS
10,000 Ft. to 20,500 Ft. - V_{MO}
20,500 Ft. and above - Mach 0.80
- DESCENT: Mach 0.82 to 28,000 Ft. - 330 IAS between 28,000 Ft. and 10,000 Ft. - 250 IAS below 10,000 Ft.

TRIP LENGTH - NM



FLIGHT TIME AND FUEL BURNOUT																					
39,000 FT.		37,000 FT.		35,000 FT.		33,000 FT.		31,000 FT.		29,000 FT.		27,000 FT.		25,000 FT.		20,000 FT.		15,000 FT.		10,000 FT.	
460 TAS		460 TAS		462 TAS		465 TAS		471 TAS		475 TAS		479 TAS		483 TAS		466 TAS		435 TAS		403 TAS	
TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL
7:21	86.8	7:22	87.4	7:20	88.7	7:17	91.1	7:13	95.3	7:10	100.6	7:6	106.5								
7:07	83.8	7:09	84.4	7:07	85.7	7:04	88.1	7:00	92.2	6:57	97.3	6:54	103.0								
6:54	80.8	6:56	81.3	6:54	82.7	6:51	85.2	6:47	89.1	6:44	94.1	6:41	99.6								
6:41	77.9	6:42	78.4	6:40	79.7	6:37	82.2	6:35	86.1	6:31	90.9	6:28	96.2								
6:28	75.1	6:29	75.5	6:27	76.9	6:25	79.3	6:22	83.1	6:19	87.7	6:16	92.9								
6:15	72.2	6:16	72.6	6:14	74.0	6:12	76.4	6:09	80.1	6:06	84.6	6:03	89.5	6:00	95.1						
6:02	69.4	6:03	69.7	6:01	71.2	5:59	73.5	5:56	77.1	5:53	81.4	5:51	86.2	5:48	91.6						
5:49	66.7	5:50	66.9	5:48	68.4	5:46	70.7	5:43	74.2	5:40	78.3	5:38	82.9	5:35	88.1						
5:36	63.9	5:37	64.1	5:35	65.6	5:33	67.9	5:30	71.2	5:28	75.2	5:25	79.6	5:23	84.7						
5:23	61.2	5:24	61.4	5:23	62.9	5:20	65.1	5:17	68.3	5:15	72.1	5:13	76.4	5:10	81.2						
5:10	58.5	5:10	58.7	5:10	60.2	5:07	62.3	5:05	65.4	5:02	69.1	5:00	73.2	4:58	77.8	5:07	91.8				
4:57	55.8	4:57	56.1	4:56	57.5	4:54	59.6	4:52	62.5	4:49	66.1	4:47	69.9	4:45	74.4	4:54	87.7				
4:44	53.1	4:44	53.4	4:43	54.9	4:41	56.9	4:39	59.6	4:37	63.0	4:35	66.7	4:33	71.0	4:41	83.7				
4:31	50.5	4:31	50.8	4:30	52.2	4:28	54.2	4:26	56.9	4:24	60.0	4:22	63.5	4:20	67.6	4:27	79.6				
4:18	47.9	4:18	48.2	4:17	49.6	4:15	51.5	4:13	54.1	4:11	57.0	4:09	60.3	4:07	64.2	4:15	75.6				
4:04	45.4	4:05	45.7	4:04	47.0	4:02	48.8	4:00	51.2	3:59	54.0	3:57	57.2	3:55	60.8	4:02	71.6	4:18	72.5	4:36	81.7
3:51	42.8	3:51	43.2	3:51	44.5	3:49	46.2	3:48	48.5	3:46	51.1	3:44	54.1	3:42	57.5	3:49	67.6	4:04	68.5	4:21	77.1
3:38	40.3	3:38	40.7	3:38	41.9	3:36	43.6	3:35	45.7	3:33	48.1	3:31	50.9	3:30	54.2	3:36	63.7	3:50	64.5	4:06	72.6
3:25	37.9	3:25	38.3	3:25	39.4	3:23	41.0	3:22	42.9	3:20	45.2	3:19	47.8	3:17	50.8	3:23	59.7	3:36	60.4	3:51	68.1
3:12	35.5	3:12	35.9	3:12	36.9	3:10	38.3	3:09	40.2	3:08	42.3	3:06	44.7	3:05	47.5	3:10	55.7	3:22	56.4	3:36	63.5
2:59	33.1	2:59	33.5	2:59	34.5	2:57	35.8	2:56	37.5	2:55	39.4	2:54	41.6	2:52	44.2	2:57	51.8	3:08	52.4	3:21	59.0
2:46	30.7	2:46	31.1	2:46	32.0	2:44	33.2	2:43	34.8	2:42	36.5	2:41	38.5	2:40	40.9	2:44	47.9	2:54	48.5	3:06	54.5
2:33	28.4	2:33	28.7	2:32	29.5	2:31	30.7	2:30	32.1	2:29	33.6	2:28	35.5	2:27	37.6	2:31	43.9	2:40	44.5	2:51	50.0
2:20	26.1	2:20	26.4	2:19	27.1	2:18	28.1	2:18	29.4	2:17	30.8	2:16	32.4	2:15	34.4	2:18	40.1	2:26	40.5	2:36	45.6
2:06	23.8	2:06	24.1	2:06	24.7	2:05	25.6	2:05	26.7	2:04	27.9	2:03	29.4	2:02	31.1	2:05	36.2	2:12	36.6	2:21	41.1
1:53	21.5	1:53	21.8	1:53	22.4	1:52	23.1	1:52	24.1	1:51	25.1	1:50	26.7	1:50	27.9	1:52	32.3	1:59	32.6	2:06	36.6
1:40	19.3	1:40	19.5	1:40	20.0	1:39	20.6	1:39	21.4	1:38	22.3	1:38	23.4	1:37	24.7	1:39	28.4	1:45	28.7	1:51	32.2
1:27	17.1	1:27	17.3	1:27	17.6	1:26	18.1	1:26	18.8	1:26	19.5	1:25	20.4	1:25	21.4	1:26	24.6	1:31	24.8	1:37	27.7
1:14	14.9	1:14	15.0	1:14	15.3	1:13	15.7	1:13	16.1	1:13	16.7	1:13	17.4	1:12	18.2	1:14	20.7	1:17	20.9	1:22	23.3
1:01	12.7	1:01	12.8	1:01	13.0	1:01	13.2	1:00	13.5	1:00	13.9	1:00	14.4	1:00	15.0	1:01	16.9	1:03	17.0	1:07	18.9
:48	10.6	:48	10.6	:48	10.6	:48	10.8	:47	10.9	:47	11.1	:47	11.4	:47	11.8	:48	13.0	:50	13.1	:52	14.5
				:35	8.3	:35	8.3	:35	8.3	:35	8.4	:35	8.4	:35	8.6	:35	9.2	:36	9.3	:37	10.1
																:22	5.4	:22	5.4	:22	5.7
630 LBS		570 LBS		490 LBS		350 LBS		310 LBS		280 LBS		250 LBS		210 LBS		160 LBS		150 LBS		110 LBS	

NOTE: Table valid only for landing weight of 180,000 lbs and less. For each 10,000 lbs deviation above 180,000 lbs, add fuel burnout correction shown at bottom of Table for each hour of Flight Time.



DC-8 JT3D-3 MAXIMUM RECOMMENDED
INITIAL CRUISE WEIGHT

FLIGHT LEVEL STD. TEMP.		STATIC AIR TEMPERATURE			
		$T_S - 10^\circ\text{C}$	T_S	$T_S + 10^\circ\text{C}$	$T_S + 20^\circ\text{C}$
410 -57°C	WEIGHT MACH/IAS	216,000 0.79/233	207,000 0.79/233	195,000 0.79/233	181,000 0.79/233
390 -57°C	WEIGHT MACH/IAS	241,000 0.79/245	230,000 0.79/245	217,000 0.79/245	201,000 0.79/245
370 -57°C	WEIGHT MACH/IAS	265,000 0.79/255	254,000 0.79/255	239,000 0.79/255	222,000 0.79/255
350 -54°C	WEIGHT MACH/IAS	290,000 0.79/268	277,000 0.79/268	261,000 0.79/268	242,000 0.79/268
330 -50°C	WEIGHT MACH/IAS	---	300,000 0.79/280	283,000 0.79/280	262,000 0.79/280
310 -46°C	WEIGHT MACH/IAS	---	---	305,000 0.79/293	282,000 0.79/293

NOTE: For airplanes N8007U thru N8011U determine weight from above table and adjust as follows:

Temperature	$T_S - 10$	T_S	$T_S + 10$	$T_S + 20$
Adjustments (Lbs)	-10,000	-8,000	-7,000	-5,000

Adjustments are dependent on temperature and applies to all weights under each temperature column regardless of altitude.

DC-8 JT3D-3FAR 10% FLIGHT TIME OVERWATER RESERVE FUEL

NOTE: This fuel replaces the contingency fuel used in domestic operation.
It is based on Long Range Cruise at 20,000 Feet.

EST. FLT. TIME (HRS)	FAR 10% FLT TIME RESERVE FUEL (LBS)
2.0	2200
2.5	2750
3.0	3250
3.5	3750
4.0	4250
4.5	4800
5.0	5300
5.5	5800
6.0	6350
6.5	6850
7.0	7400

DC-8 JT3D-3

SUMMARY FLIGHT PLANNING RULES		
FAR DOMESTIC RESERVE	=	8,000 LBS.
FAR OVERWATER RESERVE	=	6,000 LBS.
MINIMUM ALTERNATE FUEL	=	1,700 LBS.
PLANNED HOLDING FUEL	=	10,000 LBS/HR
CONTINGENCY FUEL (See FOM for exception)	=	4,000 LBS.
MIN. PLANNED BURNOUT AT END FINAL STEP-CLIMB	=	6,000 LBS.
FLIGHT PLAN TIME AND FUEL ADJUSTMENT FOR STEP-CLIMB:		
<u>Step-Climb</u>		<u>Additional Time and Fuel</u>
2,000 ft.		1/2 Min., 200 lbs.
3,000 ft., 4,000 ft., 5,000 ft.		1 Min., 400 lbs.
6,000 ft., 7,000 ft., 8,000 ft.		2 Min., 600 lbs.



DC-8 JT3D-3
TIME, DISTANCE AND FUEL FOR NORMAL DESCENT

FINAL CRUISE ALTITUDE	TIME (MIN.)	DISTANCE (N. MI.)	FUEL (POUNDS)
41,000	26	160	2950
39,000	24	144	2720
37,000	22	127	2460
35,000	20	110	2150
33,000	19	99	2000
31,000	18	94	1970
29,000	18	90	1940
28,000	17	88	1930
27,000	17	86	1910
26,000	17	85	1900
25,000	16	81	1880
24,000	16	78	1860
23,000	16	75	1840
22,000	15	72	1820
21,000	15	70	1800
20,000	14	67	1790
19,000	14	65	1770
18,000	14	62	1750
17,000	14	60	1730
16,000	13	58	1710
15,000	13	56	1700
10,000	12	45	1520
5,000	7	21	1290



TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT. FT. TOGW 1000 LBS.	25,000				27,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320	17/8443/82	20/9242/101	24/10406/128	30/12170/172	19/9250/98	22/10204/121	27/11631/156	36/14032/218
300	15/7583/73	17/8242/89	21/9179/112	27/10543/146	17/8271/87	20/9049/106	24/10175/135	30/11948/181
280	13/6814/65	15/7362/79	18/8126/98	22/9202/125	15/7403/77	17/8043/93	21/8945/116	26/10301/153
260	12/6130/58	14/6590/70	16/7221/86	19/8088/109	13/6644/68	15/7178/82	18/7916/102	22/8990/131
240	11/5508/52	12/5896/62	14/6419/75	17/7125/94	12/5955/61	14/6403/72	16/7010/89	19/7871/113
220	10/4946/46	11/5276/55	13/5714/66	15/6297/82	11/5338/54	12/5717/64	14/6223/78	17/6927/98
200	9/4422/41	10/4702/48	11/5069/58	13/5549/72	10/4763/47	11/5084/56	13/5505/68	15/6081/85
180	8/3936/36	9/4173/42	10/4481/51	11/4879/62	8/4232/42	10/4503/49	11/4855/59	13/5329/73
160	7/3480/31	8/3677/36	9/3933/44	10/4262/53	7/3733/36	8/3958/42	10/4250/51	11/4638/63

NOTES: 1. Based on use of maximum continuous thrust and 300 knots IAS to .78M.

2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute
 Fuel - 200 lbs.
 Distance - 2.0 N.M.

ALT. FT. TOGW 1000 LBS.	29,000				31,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320	22/10194/119	26/11369/148	32/13208/195	46/16831/294	24/11055/139	29/12508/176	38/14954/242	
300	19/9051/104	22/9988/127	28/11388/165	37/13836/233	21/9701/119	25/10797/147	31/12490/194	44/15780/289
280	17/8058/91	20/8815/111	24/9905/140	31/11670/190	19/8588/103	22/9456/126	27/10730/162	35/12933/227
260	15/7206/81	17/7832/97	21/8712/121	26/10073/161	16/7647/91	19/8354/110	23/9360/139	29/10990/187
240	13/6440/71	15/6960/85	18/7675/105	23/8742/137	15/6815/80	17/7397/96	20/8205/119	25/9453/157
220	12/5759/63	14/6197/75	16/6789/92	20/7649/118	13/6080/70	15/6566/84	18/7229/104	22/8219/134
200	11/5128/55	12/5496/66	14/5985/80	17/6681/101	11/5403/62	13/5811/73	15/6355/90	19/7148/115
180	9/4546/48	11/4856/57	12/5263/69	15/5830/87	10/4782/54	11/5124/64	13/5573/78	16/6214/98
160	8/4002/42	9/4258/49	11/4593/60	13/5053/74	9/4202/46	10/4485/55	12/4854/66	14/5371/83



CRUISE

CLIMB PERFORMANCE

DC-8 JT3D-3

TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT. FT. TOGW 1000 LBS.	33,000				35,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320	29/12509/175	38/14923/241						
300	24/10583/141	29/11993/179	39/14417/249		31/12409/192	42/15323/277		
280	21/9217/119	25/10244/147	31/11808/193	43/14801/285	24/10129/144	29/11465/183	39/13877/258	
260	18/8142/103	21/8953/126	26/10126/161	34/12135/223	20/8752/120	24/9701/148	30/11152/193	42/13998/287
240	16/7219/90	19/7875/109	22/8792/136	28/10259/183	18/7681/103	21/8421/124	25/9487/158	33/11298/218
220	14/6418/79	16/6960/94	19/7700/117	24/8837/154	16/6788/89	18/7387/107	21/8222/133	27/9548/178
200	12/5689/69	14/6139/82	17/6741/101	21/7637/130	14/5993/77	16/6486/92	18/7155/114	23/8173/148
180	11/5024/60	12/5400/71	15/5894/87	18/6610/110	12/5277/67	14/5685/79	16/6228/97	19/7029/125
160	10/4407/52	11/4716/61	13/5119/74	15/5693/93	10/4618/57	12/4952/68	14/5392/82	16/6027/105

NOTES: 1. Based on use of maximum continuous thrust and 300 knots IAS to .78M.

2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute
 Fuel - 200 lbs.
 Distance - 2.0 N.M.

ALT. FT. TOGW 1000 LBS.	37,000				39,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320								
300								
280	36/12939/230							
260	25/9767/151	30/11056/191	41/13706/280					
240	20/8299/121	24/9166/148	30/10526/193	42/13155/287	26/9484/162	32/10951/211		
220	17/7233/103	20/7905/123	24/8881/156	32/10501/213	20/7863/124	24/8689/151	30/10006/198	44/12779/307
200	15/6342/88	17/6882/105	21/7637/130	26/8811/172	17/6773/102	20/7390/123	24/8285/154	31/9760/211
180	13/5559/75	15/6001/89	18/6603/110	22/7502/142	15/5887/86	17/6378/103	20/7059/127	25/8106/167
160	11/4848/64	13/5209/76	15/5692/93	18/6393/118	12/5108/73	14/5502/86	17/6037/106	21/6828/136



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	448 230									2.09 33.9	1.95 39.4	1.88 42.0	1.82 45.0	1.76 48.0	1.70 51.2	1.65 54.0	1.61 56.3
390 -56	448 241	EPR NAM/1000#						2.04 32.2	1.93 36.2	1.87 38.4	1.82 41.0	1.76 43.4	1.71 46.0	1.66 48.4	1.63 50.4	1.59 52.4	1.56 54.1
370 -56	448 253					1.98 31.3	1.91 33.6	1.86 35.5	1.80 37.7	1.75 39.6	1.71 41.8	1.66 43.8	1.63 45.5	1.60 47.1	1.57 48.6	1.55 50.0	1.53 51.4
350 -54	451 265		2.01 27.5	1.93 30.0	1.88 31.5	1.83 33.2	1.79 34.9	1.74 36.5	1.70 38.4	1.66 40.0	1.63 41.3	1.60 42.7	1.58 43.9	1.55 45.1	1.53 46.2	1.52 47.3	1.50 48.2
330 -50	455 277	1.89 28.4	1.85 29.7	1.80 31.2	1.76 32.5	1.72 33.9	1.68 35.5	1.65 36.7	1.63 37.8	1.60 38.9	1.58 39.9	1.56 40.9	1.54 41.9	1.52 42.8	1.51 43.5	1.49 44.3	1.48 45.1
310 -46	459 290	1.77 29.3	1.74 30.5	1.70 31.7	1.67 32.9	1.64 33.8	1.62 34.7	1.59 35.7	1.57 36.5	1.56 37.3	1.54 38.1	1.52 38.9	1.51 39.5	1.50 40.2	1.48 40.8	1.47 41.4	1.46 41.9
290 -42	463 302	1.68 29.8	1.65 30.6	1.63 31.3	1.61 32.1	1.59 32.9	1.57 33.5	1.55 34.2	1.54 34.9	1.52 35.5	1.51 36.0	1.50 36.6	1.49 37.1	1.47 37.6	1.46 38.1	1.45 38.5	1.44 39.0
280 -40	465 309	1.64 29.5	1.62 30.2	1.60 30.9	1.58 31.6	1.57 32.2	1.55 32.8	1.54 33.4	1.52 33.9	1.51 34.4	1.50 34.9	1.49 35.4	1.48 35.9	1.47 36.3	1.46 36.7	1.45 37.2	1.44 37.6
270 -38	467 316	1.62 29.1	1.60 29.8	1.58 30.3	1.56 30.9	1.55 31.5	1.53 32.0	1.52 32.5	1.51 33.0	1.50 33.4	1.49 33.9	1.48 34.3	1.47 34.7	1.46 35.1	1.45 35.5	1.44 35.9	1.43 36.3
260 -37	469 322	1.59 28.7	1.57 29.2	1.56 29.7	1.54 30.2	1.53 30.7	1.52 31.2	1.51 31.6	1.50 32.0	1.49 32.4	1.48 32.8	1.47 33.1	1.46 33.5	1.45 33.9	1.44 34.2	1.43 34.6	1.42 35.0
250 -35	471 329	1.57 28.1	1.56 28.6	1.54 29.0	1.53 29.5	1.52 29.9	1.51 30.3	1.50 30.6	1.49 31.0	1.48 31.4	1.47 31.7	1.46 32.0	1.45 32.4	1.44 32.7	1.43 33.0	1.43 33.4	1.42 33.7
240 -33	473 336	1.55 27.5	1.54 27.9	1.53 28.3	1.52 28.7	1.51 29.0	1.50 29.4	1.49 29.7	1.48 30.0	1.47 30.3	1.46 30.6	1.45 31.0	1.44 31.3	1.44 31.6	1.43 31.9	1.42 32.2	1.41 32.5
230 -31	474 343	1.53 26.9	1.52 27.2	1.51 27.5	1.50 27.9	1.49 28.2	1.49 28.5	1.48 28.8	1.47 29.1	1.46 29.3	1.45 29.6	1.44 29.9	1.44 30.2	1.43 30.5	1.42 30.7	1.42 31.0	1.41 31.3
220 -29	476 350	1.52 26.2	1.51 26.5	1.50 26.8	1.49 27.1	1.48 27.3	1.48 27.6	1.47 27.9	1.46 28.1	1.45 28.4	1.45 28.6	1.44 28.9	1.43 29.1	1.42 29.4	1.42 29.7	1.41 29.9	1.40 30.2
210 -27	478 357	1.51 25.4	1.50 25.7	1.49 26.0	1.48 26.2	1.47 26.5	1.47 26.7	1.46 27.0	1.45 27.2	1.45 27.4	1.44 27.7	1.43 27.9	1.43 28.1	1.42 28.4	1.41 28.6	1.41 28.9	1.40 29.1
200 -25	480 363	1.50 24.7	1.49 25.0	1.48 25.2	1.47 25.4	1.47 25.6	1.46 25.9	1.45 26.1	1.45 26.3	1.44 26.5	1.43 26.7	1.43 26.9	1.42 27.2	1.41 27.4	1.41 27.6	1.40 27.9	1.39 28.1

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N801IU determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.40 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	0	+ 0.02	+ 0.04
% Change in NAM/1000#	0	-2%	-4%



4 ENGINE MACH .79 CRUISE

DC-8 JT3D-3

FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	454 233									2.07 34.5	1.97 38.3	1.90 41.4	1.83 44.4	1.77 47.3	1.71 50.5	1.67 53.0	1.62 55.6
390 -56	454 245	EPR NAM/1000 #						2.03 32.8	1.96 35.4	1.89 37.9	1.83 40.4	1.77 42.8	1.72 45.5	1.68 47.5	1.64 49.7	1.60 51.6	1.58 53.3
370 -56	454 256				2.09 28.1	1.99 30.9	1.93 33.0	1.87 35.1	1.82 37.1	1.77 39.1	1.72 41.3	1.68 43.0	1.65 44.8	1.61 46.5	1.59 47.9	1.56 49.3	1.54 50.7
350 -54	456 268		2.01 27.6	1.95 29.4	1.90 31.0	1.84 32.8	1.80 34.3	1.75 36.1	1.71 37.9	1.68 39.3	1.64 40.7	1.61 42.1	1.59 43.3	1.57 44.5	1.54 45.7	1.53 46.6	1.51 47.6
330 -50	461 281	1.91 27.9	1.86 29.4	1.82 30.7	1.78 32.0	1.73 33.5	1.70 34.9	1.67 36.0	1.64 37.3	1.61 38.4	1.59 39.4	1.57 40.3	1.55 41.4	1.53 42.2	1.52 43.0	1.50 43.8	1.49 44.5
310 -46	465 294	1.79 28.9	1.75 30.1	1.71 31.3	1.68 32.3	1.66 33.3	1.63 34.3	1.61 35.2	1.59 36.0	1.57 36.8	1.55 37.7	1.53 38.3	1.51 39.0	1.51 39.7	1.49 40.3	1.48 40.8	1.47 41.4
290 -42	469 307	1.69 29.2	1.67 30.0	1.64 30.9	1.62 31.7	1.60 32.4	1.58 33.0	1.56 33.7	1.55 34.4	1.53 35.0	1.52 35.5	1.51 36.1	1.50 36.7	1.49 37.1	1.48 37.5	1.47 38.0	1.46 38.5
280 -40	471 313	1.66 29.0	1.64 29.8	1.61 30.5	1.60 31.1	1.58 31.7	1.56 32.3	1.55 33.0	1.53 33.5	1.52 34.0	1.51 34.5	1.50 35.0	1.49 35.4	1.48 35.8	1.47 36.2	1.46 36.7	1.45 37.1
270 -38	473 320	1.63 28.7	1.61 29.3	1.59 29.9	1.58 30.4	1.56 31.0	1.54 31.6	1.53 32.1	1.52 32.5	1.51 33.0	1.50 33.5	1.49 33.8	1.48 34.2	1.47 34.6	1.46 35.0	1.45 35.3	1.44 35.7
260 -37	475 327	1.60 28.2	1.59 28.7	1.57 29.3	1.56 29.8	1.54 30.3	1.53 30.7	1.52 31.1	1.51 31.6	1.50 32.0	1.49 32.4	1.48 32.7	1.47 33.0	1.46 33.4	1.45 33.7	1.45 34.1	1.44 34.4
250 -35	477 333	1.58 27.7	1.57 28.2	1.55 28.7	1.54 29.1	1.53 29.5	1.52 29.9	1.51 30.3	1.50 30.7	1.49 31.0	1.48 31.3	1.47 31.6	1.46 31.9	1.45 32.2	1.45 32.5	1.44 32.8	1.43 33.1
240 -33	479 340	1.56 27.1	1.55 27.6	1.54 27.9	1.53 28.3	1.52 28.6	1.51 29.0	1.50 29.4	1.49 29.7	1.48 29.9	1.47 30.2	1.46 30.5	1.46 30.8	1.45 31.1	1.44 31.4	1.43 31.6	1.43 31.9
230 -31	481 347	1.54 26.5	1.53 26.8	1.52 27.2	1.52 27.5	1.51 27.8	1.50 28.2	1.49 28.4	1.48 28.7	1.47 28.9	1.46 29.2	1.46 29.5	1.45 29.7	1.44 30.0	1.44 30.2	1.43 30.5	1.42 30.7
220 -29	483 354	1.53 25.8	1.52 26.1	1.51 26.4	1.50 26.7	1.49 27.0	1.49 27.2	1.48 27.5	1.47 27.7	1.46 28.0	1.46 28.2	1.45 28.5	1.44 28.7	1.44 28.9	1.43 29.1	1.42 29.4	1.42 29.6
210 -27	485 361	1.52 25.1	1.51 25.4	1.50 25.7	1.49 25.9	1.49 26.1	1.48 26.4	1.47 26.6	1.46 26.8	1.46 27.0	1.45 27.3	1.44 27.5	1.44 27.7	1.43 27.9	1.43 28.1	1.42 28.3	1.41 28.6
200 -25	486 368	1.51 24.4	1.50 24.7	1.49 24.9	1.49 25.1	1.48 25.3	1.47 25.5	1.46 25.7	1.46 25.9	1.45 26.1	1.45 26.3	1.44 26.5	1.43 26.7	1.43 26.9	1.42 27.1	1.42 27.3	1.41 27.5

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
 - (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.40 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	0	+ 0.02	+ 0.04
% Change in NAM/1000#	0	-2%	-4%



4 ENGINE MACH .80 CRUISE

DC-8 JT3D-3

FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	460 236									2.07 34.6	1.99 37.7	1.90 41.1	1.84 43.8	1.78 46.8	1.73 49.6	1.68 52.3	1.64 54.9
390 -56	460 248	EPR NAM/1000#						2.05 32.2	1.97 34.9	1.90 37.7	1.84 39.9	1.79 42.3	1.73 44.7	1.69 46.8	1.65 49.2	1.62 50.9	1.59 52.6
370 -56	460 260				2.08 28.3	2.01 30.4	1.94 32.7	1.88 34.8	1.83 36.6	1.78 38.7	1.73 40.6	1.69 42.4	1.66 44.3	1.62 45.8	1.60 47.3	1.57 48.8	1.55 50.0
350 -54	462 272		2.03 27.1	1.97 29.0	1.90 30.8	1.86 32.4	1.81 33.9	1.76 35.7	1.73 37.2	1.69 38.7	1.65 40.3	1.63 41.5	1.60 42.7	1.58 43.9	1.56 45.0	1.54 46.0	1.52 47.0
330 -50	466 284	1.92 27.7	1.87 29.0	1.83 30.3	1.79 31.7	1.75 33.1	1.71 34.3	1.68 35.6	1.65 36.9	1.63 37.9	1.60 38.8	1.58 39.8	1.56 40.8	1.54 41.6	1.53 42.4	1.51 43.3	1.50 43.9
310 -46	471 298	1.80 28.5	1.76 29.8	1.73 30.8	1.70 31.8	1.67 32.9	1.64 33.9	1.62 34.7	1.60 35.5	1.58 36.3	1.56 37.1	1.55 37.8	1.53 38.5	1.52 39.2	1.50 39.8	1.49 40.3	1.48 40.8
290 -42	475 311	1.71 28.7	1.68 29.6	1.65 30.5	1.63 31.3	1.61 31.9	1.59 32.6	1.58 33.3	1.56 34.0	1.55 34.5	1.53 35.1	1.52 35.7	1.51 36.2	1.50 36.6	1.49 37.1	1.48 37.5	1.47 37.9
280 -40	477 318	1.67 28.6	1.65 29.5	1.63 30.1	1.61 30.7	1.59 31.3	1.57 31.9	1.56 32.5	1.54 33.0	1.53 33.6	1.52 34.1	1.51 34.6	1.50 35.0	1.49 35.4	1.48 35.8	1.47 36.2	1.46 36.5
270 -38	479 324	1.64 28.4	1.62 28.9	1.60 29.5	1.59 30.1	1.57 30.7	1.56 31.2	1.54 31.6	1.53 32.1	1.52 32.6	1.51 33.0	1.50 33.4	1.49 33.8	1.48 34.1	1.47 34.5	1.46 34.8	1.46 35.1
260 -37	481 331	1.62 27.9	1.60 28.4	1.58 28.9	1.57 29.5	1.55 29.9	1.54 30.3	1.53 30.8	1.52 31.2	1.51 31.6	1.50 32.0	1.49 32.3	1.48 32.6	1.47 33.0	1.47 33.2	1.46 33.5	1.45 33.8
250 -35	483 338	1.59 27.3	1.58 27.8	1.56 28.3	1.55 28.7	1.54 29.1	1.53 29.5	1.52 29.9	1.51 30.3	1.50 30.6	1.49 30.9	1.48 31.2	1.47 31.5	1.47 31.8	1.46 32.0	1.45 32.3	1.45 32.6
240 -33	485 345	1.57 26.8	1.56 27.2	1.55 27.6	1.54 27.9	1.53 28.3	1.52 28.7	1.51 29.0	1.50 29.3	1.49 29.6	1.48 29.8	1.48 30.1	1.47 30.4	1.46 30.6	1.45 30.9	1.45 31.1	1.44 31.4
230 -31	487 352	1.56 26.1	1.55 26.5	1.54 26.8	1.53 27.2	1.52 27.5	1.51 27.8	1.50 28.1	1.49 28.3	1.48 28.6	1.48 28.8	1.47 29.1	1.46 29.3	1.46 29.5	1.45 29.7	1.44 30.0	1.44 30.2
220 -29	489 359	1.54 25.5	1.53 25.8	1.52 26.1	1.51 26.4	1.51 26.7	1.50 26.9	1.49 27.1	1.48 27.4	1.48 27.6	1.47 27.8	1.46 28.0	1.46 28.2	1.45 28.4	1.44 28.7	1.44 28.9	1.43 29.1
210 -27	491 366	1.53 24.8	1.52 25.1	1.51 25.4	1.50 25.6	1.50 25.8	1.49 26.0	1.48 26.2	1.48 26.5	1.47 26.7	1.46 26.9	1.46 27.0	1.45 27.2	1.45 27.4	1.44 27.6	1.43 27.8	1.43 28.0
200 -25	493 373	1.52 24.1	1.51 24.4	1.50 24.6	1.50 24.8	1.49 25.0	1.48 25.2	1.48 25.4	1.47 25.6	1.46 25.7	1.46 25.9	1.45 26.1	1.45 26.3	1.44 26.4	1.44 26.6	1.43 26.8	1.42 27.0

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000}}$
- (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.50 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	+0.01	+0.02	+0.04
% Change in NAM/1000	-1%	-2%	-4%



CRUISE

4 ENGINE MACH .81 CRUISE

DC-8 JT3D-3

FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	466 240									2.10 33.7	2.01 36.9	1.93 40.1	1.86 42.9	1.80 46.1	1.75 48.6	1.69 51.5	1.65 54.0
390 -56	466 252	EPR NAM/1000#						2.07 31.4	1.99 34.1	1.92 36.7	1.86 39.0	1.80 41.7	1.75 43.8	1.71 46.1	1.66 48.3	1.63 50.1	1.60 51.8
370 -56	466 264					2.03 29.6	1.96 32.1	1.91 33.9	1.85 35.9	1.80 38.1	1.75 39.8	1.71 41.7	1.67 43.6	1.64 45.1	1.61 46.5	1.59 47.9	1.57 49.0
350 -54	468 276		2.05 26.4	1.99 28.3	1.93 30.1	1.88 31.6	1.83 33.3	1.78 35.0	1.74 36.5	1.71 38.1	1.67 39.7	1.64 40.9	1.62 42.0	1.59 43.2	1.57 44.2	1.55 45.1	1.54 46.1
330 -50	472 288	1.94 27.1	1.90 28.3	1.85 29.7	1.80 31.2	1.77 32.4	1.73 33.7	1.70 35.0	1.67 36.3	1.64 37.2	1.62 38.2	1.59 39.2	1.58 40.0	1.56 40.8	1.54 41.6	1.53 42.4	1.52 43.0
310 -46	477 302	1.81 28.1	1.78 29.2	1.75 30.2	1.71 31.3	1.68 32.4	1.66 33.3	1.64 34.1	1.61 34.9	1.59 35.8	1.58 36.4	1.56 37.1	1.55 37.8	1.53 38.4	1.52 39.0	1.51 39.5	1.50 40.1
290 -42	481 315	1.72 28.2	1.69 29.2	1.67 30.0	1.65 30.7	1.63 31.4	1.61 32.1	1.59 32.8	1.58 33.3	1.56 33.9	1.55 34.4	1.53 35.0	1.52 35.4	1.51 35.9	1.50 36.4	1.49 36.8	1.49 37.2
280 -40	483 322	1.68 28.2	1.66 28.9	1.64 29.6	1.62 30.2	1.61 30.8	1.59 31.4	1.58 31.9	1.56 32.4	1.55 32.9	1.54 33.4	1.53 33.9	1.52 34.3	1.51 34.7	1.50 35.1	1.49 35.4	1.48 35.8
270 -38	485 329	1.66 27.9	1.64 28.5	1.62 29.0	1.60 29.6	1.59 30.1	1.57 30.6	1.56 31.0	1.55 31.5	1.54 32.0	1.53 32.4	1.52 32.7	1.51 33.1	1.50 33.5	1.49 33.8	1.48 34.1	1.47 34.4
260 -37	487 336	1.63 27.4	1.61 27.9	1.60 28.5	1.58 28.9	1.57 29.3	1.56 29.7	1.55 30.2	1.53 30.6	1.53 31.0	1.52 31.3	1.51 31.6	1.50 32.0	1.49 32.3	1.48 32.6	1.48 32.9	1.47 33.1
250 -35	489 343	1.61 26.9	1.59 27.4	1.58 27.8	1.57 28.1	1.56 28.5	1.55 28.9	1.53 29.3	1.53 29.6	1.52 30.0	1.51 30.3	1.50 30.6	1.49 30.9	1.48 31.1	1.48 31.4	1.47 31.7	1.46 31.9
240 -33	491 350	1.59 26.3	1.58 26.7	1.57 27.0	1.55 27.4	1.54 27.8	1.53 28.1	1.52 28.4	1.52 28.7	1.51 29.0	1.50 29.3	1.49 29.5	1.49 29.8	1.48 30.0	1.47 30.2	1.47 30.5	1.46 30.7
230 -31	493 357	1.57 25.6	1.56 26.0	1.55 26.3	1.54 26.6	1.53 27.0	1.52 27.2	1.52 27.5	1.51 27.8	1.50 28.0	1.49 28.3	1.49 28.5	1.48 28.7	1.47 28.9	1.47 29.1	1.46 29.4	1.45 29.6
220 -29	495 364	1.56 25.0	1.55 25.3	1.54 25.6	1.53 25.9	1.52 26.1	1.52 26.4	1.51 26.6	1.50 26.9	1.49 27.1	1.49 27.3	1.48 27.5	1.47 27.7	1.47 27.9	1.46 28.1	1.46 28.3	1.45 28.5
210 -27	497 371	1.55 24.3	1.54 24.6	1.53 24.8	1.52 25.1	1.51 25.3	1.51 25.5	1.50 25.7	1.49 26.0	1.49 26.1	1.48 26.3	1.48 26.5	1.47 26.7	1.46 26.9	1.46 27.1	1.45 27.3	1.45 27.4
200 -25	499 378	1.53 23.7	1.53 23.9	1.52 24.1	1.51 24.3	1.51 24.5	1.50 24.7	1.49 24.9	1.49 25.1	1.48 25.2	1.48 25.4	1.47 25.6	1.46 25.7	1.46 25.9	1.45 26.1	1.45 26.3	1.44 26.4

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach Number. When operating in region left of line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.40 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	+0.01	+0.02	+0.04
% Change in NAM/1000#	-1%	-2%	-4%



FLIGHT LEVEL	TAS IAS	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410 -56	472 243										2.02 36.3	1.95 39.3	1.88 42.2	1.82 45.2	1.76 47.9	1.70 50.9	1.67 53.0
390 -56	472 255	EPR NAM/1000#						2.09 30.8	2.01 33.5	1.95 35.9	1.88 38.4	1.82 40.9	1.77 43.1	1.72 45.6	1.68 47.5	1.65 49.3	1.62 51.0
370 -56	472 267					2.05 29.1	1.99 31.2	1.93 33.3	1.86 35.4	1.81 37.3	1.77 39.2	1.72 41.2	1.69 42.8	1.66 44.3	1.63 45.8	1.60 47.0	1.58 48.1
350 -54	474 280		2.07 25.9	2.01 27.7	1.95 29.4	1.90 31.1	1.84 32.9	1.80 34.4	1.76 35.9	1.72 37.6	1.69 38.9	1.66 40.2	1.63 41.4	1.61 42.4	1.59 43.3	1.57 44.2	1.56 45.1
330 -50	478 292	1.96 26.4	1.91 27.8	1.86 29.3	1.82 30.7	1.78 31.9	1.74 33.2	1.71 34.6	1.68 35.6	1.66 36.6	1.63 37.6	1.61 38.5	1.59 39.2	1.58 40.0	1.56 40.8	1.55 41.4	1.53 42.1
310 -46	483 306	1.83 27.7	1.80 28.7	1.76 29.7	1.73 30.9	1.70 31.9	1.67 32.7	1.65 33.6	1.63 34.4	1.61 35.1	1.60 35.7	1.58 36.4	1.57 37.0	1.55 37.6	1.54 38.1	1.53 38.7	1.52 39.2
290 -42	487 319	1.74 27.9	1.71 28.8	1.69 29.5	1.66 30.2	1.64 30.9	1.62 31.6	1.61 32.2	1.59 32.7	1.58 33.2	1.57 33.7	1.55 34.2	1.54 34.7	1.53 35.1	1.52 35.6	1.51 36.0	1.50 36.4
280 -40	489 326	1.70 27.8	1.68 28.4	1.66 29.1	1.64 29.7	1.62 30.4	1.61 30.8	1.59 31.3	1.58 31.8	1.57 32.3	1.55 32.7	1.54 33.1	1.53 33.5	1.52 33.9	1.51 34.3	1.51 34.7	1.50 35.1
270 -38	491 333	1.67 27.4	1.65 28.0	1.63 28.6	1.62 29.1	1.60 29.5	1.59 30.0	1.58 30.4	1.57 30.9	1.55 31.3	1.54 31.6	1.53 32.0	1.53 32.4	1.52 32.8	1.51 33.1	1.50 33.4	1.49 33.7
260 -37	493 340	1.65 27.0	1.63 27.5	1.61 28.0	1.60 28.4	1.59 28.7	1.58 29.1	1.56 29.6	1.55 29.9	1.54 30.3	1.54 30.6	1.53 31.0	1.52 31.3	1.51 31.6	1.50 31.9	1.49 32.2	1.49 32.5
250 -35	495 347	1.62 26.5	1.61 26.9	1.60 27.2	1.59 27.6	1.57 28.0	1.56 28.3	1.55 28.7	1.54 29.0	1.54 29.3	1.53 29.6	1.52 29.9	1.51 30.2	1.50 30.5	1.50 30.8	1.49 31.0	1.48 31.3
240 -33	497 354	1.61 25.8	1.60 26.2	1.58 26.5	1.57 26.8	1.56 27.2	1.55 27.5	1.54 27.8	1.54 28.1	1.53 28.4	1.52 28.6	1.51 28.9	1.50 29.2	1.50 29.4	1.49 29.6	1.48 29.9	1.48 30.1
230 -31	499 362	1.59 25.2	1.58 25.5	1.57 25.8	1.56 26.1	1.55 26.4	1.54 26.6	1.53 26.9	1.53 27.2	1.52 27.4	1.51 27.7	1.50 27.9	1.50 28.1	1.49 28.3	1.48 28.6	1.48 28.8	1.47 29.0
220 -29	501 369	1.58 24.5	1.57 24.8	1.56 25.1	1.55 25.3	1.54 25.5	1.53 25.8	1.53 26.0	1.52 26.3	1.51 26.5	1.51 26.7	1.50 26.9	1.49 27.1	1.49 27.3	1.48 27.5	1.47 27.7	1.47 27.9
210 -27	503 376	1.56 23.8	1.56 24.1	1.55 24.3	1.54 24.5	1.53 24.7	1.53 25.0	1.52 25.2	1.51 25.4	1.51 25.6	1.50 25.8	1.49 26.0	1.49 26.2	1.48 26.3	1.48 26.5	1.47 26.7	1.46 26.9
200 -25	505 383	1.55 23.1	1.55 23.3	1.54 23.5	1.53 23.8	1.52 24.0	1.52 24.2	1.51 24.4	1.51 24.5	1.50 24.7	1.49 24.9	1.49 25.0	1.48 25.2	1.48 25.4	1.47 25.6	1.46 25.7	1.46 25.9

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N8011U determine EPR and NAM/1000# from above table and adjust as follows:

EPR From Table	1.50 - 1.60	1.60 - 1.80	1.80 - 2.00
EPR Adjustment	+0.01	+0.02	+0.04
% Change in NAM/1000#	-1%	-2%	-4%



4 ENGINE LONG RANGE CRUISE

DC-8 JT3D-3

FLIGHT LEVEL	STD TEMP C	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
410	EPR										1.96	1.89	1.83	1.77	1.71	1.66	1.61
-56	M										.784	.787	.789	.789	.789	.782	.774
	TAS										451	453	454	454	454	450	445
	NAM/1000										38.8	41.5	44.4	47.3	50.5	53.7	56.4
390	EPR								1.95	1.89	1.83	1.77	1.72	1.67	1.63	1.58	1.54
-56	M								.784	.787	.789	.789	.789	.784	.779	.760	.741
	TAS								451	453	454	454	454	451	448	437	426
	NAM/1000								35.8	38.0	40.4	42.8	45.5	47.9	50.4	52.8	55.3
370	EPR						1.92	1.87	1.82	1.77	1.72	1.68	1.64	1.60	1.56	1.52	1.49
-56	M						.784	.787	.789	.789	.789	.787	.784	.768	.751	.738	.724
	TAS						451	453	454	454	454	453	451	442	432	424	417
	NAM/1000						33.3	35.2	37.1	39.1	41.3	43.2	45.1	47.3	49.4	51.4	53.5
350	EPR			1.96	1.90	1.84	1.80	1.75	1.71	1.67	1.64	1.60	1.56	1.53	1.50	1.47	1.44
-54	M			.792	.789	.789	.789	.789	.789	.787	.784	.769	.753	.744	.734	.719	.703
	TAS			458	456	456	456	456	456	455	454	444	435	430	424	415	406
	NAM/1000			29.2	31.0	32.8	34.3	36.1	37.9	39.4	41.0	42.9	44.6	46.2	47.8	49.5	51.4
330	EPR	1.91	1.86	1.82	1.78	1.73	1.70	1.66	1.63	1.59	1.56	1.53	1.51	1.48	1.45	1.42	1.40
-50	M	.787	.789	.789	.789	.789	.789	.789	.789	.779	.766	.753	.742	.731	.720	.709	.694
	TAS	459	461	461	461	461	461	458	455	447	439	433	426	420	414	405	396
	NAM/1000	28.0	29.4	30.7	32.0	33.5	34.9	36.4	37.8	39.1	40.6	41.9	43.3	44.7	46.1	47.7	49.3
310	EPR	1.79	1.75	1.71	1.68	1.64	1.62	1.59	1.56	1.53	1.51	1.48	1.46	1.43	1.41	1.38	1.36
-46	M	.789	.787	.787	.784	.779	.774	.764	.754	.744	.734	.724	.713	.698	.683	.671	.659
	TAS	465	465	463	462	459	456	450	444	438	432	426	420	411	402	395	388
	NAM/1000	28.9	30.1	31.5	32.6	33.8	34.8	35.9	37.1	38.2	39.4	40.5	41.7	43.0	44.4	45.8	47.2
290	EPR	1.69	1.66	1.63	1.60	1.58	1.55	1.53	1.51	1.48	1.46	1.44	1.41	1.39	1.37	1.34	1.32
-42	M	.787	.784	.777	.769	.759	.750	.742	.734	.724	.713	.701	.689	.677	.664	.647	.629
	TAS	467	466	461	457	451	445	440	436	430	423	416	409	401	394	384	373
	NAM/1000	29.3	30.3	31.3	32.2	33.2	34.2	35.1	36.0	37.0	38.0	39.1	40.1	41.3	42.5	43.9	45.1
270	EPR	1.61	1.59	1.56	1.54	1.52	1.50	1.48	1.46	1.44	1.42	1.40	1.38	1.35	1.33	1.31	1.28
-38	M	.773	.763	.752	.741	.738	.734	.723	.712	.702	.692	.681	.669	.654	.639	.617	.594
	TAS	463	457	450	444	442	440	433	426	420	414	407	400	391	382	369	355
	NAM/1000	29.2	30.0	30.8	31.6	32.4	33.1	33.9	34.8	35.7	36.6	37.5	38.5	39.7	40.7	41.9	43.2
250	EPR	1.55	1.53	1.51	1.49	1.47	1.45	1.43	1.42	1.40	1.38	1.36	1.34	1.32	1.29	1.27	1.25
-35	M	.749	.739	.734	.729	.719	.709	.699	.689	.679	.669	.659	.649	.627	.604	.592	.579
	TAS	452	446	443	440	434	428	422	416	410	404	398	392	378	364	357	349
	NAM/1000	28.6	29.3	30.0	30.6	31.3	32.0	32.8	33.5	34.3	35.2	36.0	36.9	37.9	38.9	40.0	41.2
230	EPR	1.50	1.48	1.47	1.45	1.43	1.41	1.40	1.38	1.36	1.34	1.32	1.30	1.28	1.26	1.25	1.23
-31	M	.729	.724	.717	.709	.699	.689	.679	.669	.659	.649	.632	.614	.599	.584	.574	.564
	TAS	444	441	436	432	425	419	413	407	401	395	384	373	364	355	349	343
	NAM/1000	27.9	28.4	28.9	29.5	30.2	30.8	31.5	32.2	33.0	33.7	34.5	35.4	36.2	37.2	38.2	39.2
210	EPR	1.46	1.44	1.42	1.41	1.39	1.38	1.36	1.34	1.32	1.31	1.29	1.27	1.25	1.24	1.22	1.21
-27	M	.711	.704	.695	.686	.678	.669	.658	.646	.631	.616	.604	.591	.581	.571	.557	.544
	TAS	436	432	426	421	416	410	403	396	387	377	370	362	356	350	341	333
	NAM/1000	26.9	27.4	27.9	28.5	29.1	29.7	30.3	31.0	31.6	32.3	33.0	33.8	34.6	35.5	36.5	37.4
130	EPR	1.31	1.30	1.29	1.27	1.26	1.25	1.24	1.23	1.22	1.20	1.19	1.18	1.17	1.16	1.14	
-11	M	.622	.609	.599	.589	.581	.572	.568	.564	.554	.544	.532	.519	.504	.489	.474	
	TAS	393	385	379	372	367	362	359	357	350	344	336	328	319	309	299	
	NAM/1000	23.1	23.5	23.9	24.3	24.7	25.2	25.6	26.0	26.5	27.0	27.6	28.2	28.9	29.6	30.5	

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of the heavy line, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for Actual temperature}}{\text{NAM/1000\#}}$
- (4) For airplanes N8007U thru N8011U determine EPR from above table and adjust as follows:

EPR From Table	1.20 - 1.40	1.40 - 1.50	1.50 - 1.60	1.60 - 1.90
EPR Adjustment	-0.02	0	+0.03	+0.07

Adjust NAM/1000# as follows: 0 - 25,000' - No adjustment required. 25,000' - 35,000' - Decrease NAM/1000# in Table by 2%.
35,000 - 41,000' - Decrease NAM/1000# in Table by 6%.



3 ENGINE LONG RANGE CRUISE

DC-8 JT3D-3

FLIGHT LEVEL	STD TEMP C	GROSS WEIGHT (1000 LBS)															
		310	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
370	EPR										2.06	2.01	1.96	1.91	1.87	1.82	1.77
	M										.789	.784	.779	.759	.739	.724	.709
	TAS										454	451	448	437	425	417	408
-56	NAM/1000										38.4	40.4	42.6	44.6	46.7	49.1	51.5
350	EPR								2.05	2.01	1.96	1.92	1.87	1.83	1.78	1.74	1.69
	M								.789	.784	.779	.761	.742	.727	.712	.693	.674
	TAS								456	454	451	440	429	420	412	401	389
-54	NAM/1000								35.2	36.9	38.7	40.4	42.1	44.0	46.1	48.2	50.6
330	EPR						2.04	2.00	1.96	1.92	1.87	1.84	1.80	1.75	1.71	1.67	1.63
	M						.789	.784	.779	.761	.742	.731	.719	.699	.679	.672	.664
	TAS						461	458	455	444	433	426	419	408	396	392	387
-50	NAM/1000						32.4	33.9	35.4	36.8	38.3	39.8	41.5	43.3	45.2	47.2	49.1
310	EPR		2.10	2.05	2.01	1.97	1.94	1.91	1.87	1.84	1.80	1.76	1.72	1.68	1.65	1.61	1.57
	M		.789	.786	.782	.777	.772	.758	.744	.732	.719	.701	.682	.676	.669	.654	.639
	TAS		465	463	460	458	455	446	438	431	423	412	401	397	394	385	376
-46	NAM/1000		27.9	29.3	30.5	31.6	32.7	33.8	35.0	36.3	37.8	39.2	40.8	42.4	44.0	45.7	47.4
290	EPR	2.03	1.99	1.96	1.93	1.89	1.86	1.83	1.80	1.76	1.72	1.68	1.65	1.62	1.59	1.55	1.51
	M	.786	.783	.773	.762	.751	.739	.729	.719	.700	.681	.675	.669	.659	.649	.627	.604
	TAS	467	465	459	453	446	439	433	427	415	404	401	397	391	385	372	358
-42	NAM/1000	27.3	28.3	29.4	30.3	31.3	32.3	33.4	34.6	35.8	37.2	38.5	39.9	41.2	42.5	44.1	45.7
270	EPR	1.94	1.91	1.88	1.85	1.82	1.79	1.75	1.72	1.69	1.66	1.63	1.60	1.56	1.52	1.49	1.46
	M	.768	.757	.743	.729	.722	.714	.698	.682	.676	.669	.662	.654	.633	.611	.597	.582
	TAS	460	453	445	437	432	427	418	408	404	396	396	391	378	365	357	348
-38	NAM/1000	27.4	28.2	29.1	30.0	30.9	31.9	32.9	34.0	35.1	36.3	37.4	38.5	39.8	41.2	42.5	44.0
250	EPR	1.86	1.83	1.80	1.78	1.75	1.71	1.68	1.66	1.63	1.61	1.57	1.54	1.50	1.47	1.44	1.41
	M	.736	.723	.718	.713	.698	.683	.676	.669	.664	.659	.639	.619	.604	.589	.576	.563
	TAS	444	437	434	430	421	412	408	404	401	398	385	373	364	355	347	339
-35	NAM/1000	27.1	27.9	28.7	29.5	30.3	31.3	32.3	33.3	34.2	35.0	36.1	37.3	38.4	39.6	40.9	42.3
230	EPR	1.79	1.76	1.73	1.70	1.68	1.65	1.63	1.61	1.57	1.54	1.51	1.48	1.46	1.43	1.40	1.38
	M	.713	.707	.693	.679	.674	.665	.664	.659	.642	.625	.609	.594	.582	.569	.559	.549
	TAS	434	430	422	413	410	407	404	401	390	379	370	361	353	346	340	334
-31	NAM/1000	26.7	27.4	28.1	29.0	29.8	30.7	31.4	32.1	33.0	34.0	34.9	35.9	37.0	38.2	39.4	40.6
200	EPR	1.68	1.66	1.64	1.62	1.60	1.57	1.54	1.52	1.49	1.47	1.44	1.42	1.40	1.38	1.35	1.33
	M	.674	.669	.666	.663	.651	.638	.624	.609	.599	.589	.576	.563	.556	.549	.539	.529
	TAS	415	412	410	408	401	393	384	375	369	362	354	346	342	338	332	325
-25	NAM/1000	26.0	26.7	27.3	27.8	28.5	29.2	29.9	30.7	31.4	32.2	33.1	34.0	34.9	35.9	36.9	38.0
150	EPR	1.55	1.53	1.51	1.49	1.47	1.45	1.43	1.41	1.39	1.37	1.35	1.34	1.32	1.30	1.28	1.26
	M	.627	.612	.603	.594	.587	.579	.569	.559	.554	.549	.539	.529	.519	.509	.499	.489
	TAS	394	384	378	373	368	363	357	351	348	344	338	332	326	319	313	307
-15	NAM/1000	24.2	24.7	25.2	25.7	26.2	26.8	27.4	28.1	28.7	29.3	30.0	30.7	31.4	32.2	33.0	33.9
100	EPR	1.44	1.42	1.41	1.39	1.38	1.36	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.24	1.22	1.21
	M	.573	.568	.560	.552	.548	.544	.537	.529	.519	.509	.502	.494	.484	.474	.459	.444
	TAS	366	363	358	353	350	348	343	338	332	325	321	316	309	303	293	284
-5	NAM/1000	22.3	22.7	23.1	23.5	24.0	24.4	24.9	25.3	25.9	26.4	26.9	27.5	28.1	28.7	29.4	30.2
50	EPR	1.36	1.34	1.33	1.32	1.31	1.29	1.28	1.27	1.26	1.24	1.23	1.21	1.20	1.19	1.17	1.16
	M	.539	.534	.527	.519	.514	.508	.501	.493	.484	.474	.463	.452	.441	.429	.414	.399
	TAS	351	348	343	338	334	331	326	321	315	308	301	294	287	279	269	259
5	NAM/1000	20.3	20.6	21.0	21.3	21.7	22.0	22.4	22.8	23.2	23.6	24.1	24.6	25.1	25.7	26.5	27.3

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region left of heavy line, determine and set Max. Continuous Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 8 knots/10°C above standard. Subtract 8 knots/10°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



2 ENGINE LONG RANGE CRUISE

DC-8 JT3D-3

FLIGHT LEVEL	STD TEMP C	GROSS WEIGHT (1000 LBS)												
		280	270	260	250	240	230	220	210	200	190	180	170	160
270	EPR M TAS NAM/1000									2.03 .629 376 35.5	1.98 .612 366 37.0	1.93 .594 355 38.5	1.88 .582 348 40.3	1.83 .569 340 42.4
-38														
250	EPR M TAS NAM/1000							2.04 .634 382 32.2	2.00 .622 375 33.5	1.95 .609 367 34.8	1.90 .589 355 36.2	1.85 .569 343 38.0	1.80 .559 337 39.8	1.75 .549 331 41.4
-35														
230	EPR M TAS NAM/1000					2.04 .634 386 29.5	2.00 .622 378 30.6	1.96 .609 370 31.7	1.91 .590 359 32.8	1.86 .571 347 34.4	1.82 .564 343 35.8	1.76 .556 338 37.2	1.73 .543 330 38.7	1.68 .529 321 40.3
-31														
210	EPR M TAS NAM/1000			2.03 .629 386 27.3	2.00 .619 379 28.2	1.96 .609 373 29.1	1.92 .592 363 30.0	1.87 .574 352 31.3	1.83 .568 348 32.4	1.80 .562 344 33.6	1.76 .551 337 34.8	1.71 .539 330 36.2	1.67 .524 321 37.7	1.62 .509 312 39.2
-27														
200	EPR M TAS NAM/1000			1.99 .618 380 27.1	1.96 .609 375 27.9	1.93 .599 369 28.7	1.88 .583 359 29.8	1.83 .567 349 31.0	1.80 .560 344 32.2	1.76 .553 340 33.2	1.72 .541 333 34.4	1.68 .530 326 35.7	1.64 .516 317 37.1	1.59 .502 308 38.5
-25														
150	EPR M TAS NAM/1000	1.86 .572 359 24.5	1.83 .568 356 25.2	1.81 .563 353 26.0	1.78 .556 349 26.7	1.75 .549 344 27.4	1.71 .539 338 28.3	1.68 .529 332 29.1	1.64 .517 324 30.1	1.60 .504 316 31.0	1.57 .494 309 32.0	1.53 .483 303 33.1	1.50 .474 297 34.2	1.47 .464 291 35.3
-15														
110	EPR M TAS NAM/1000	1.74 .544 346 23.5	1.71 .537 342 24.1	1.68 .529 337 24.7	1.65 .519 330 25.5	1.62 .509 324 26.1	1.59 .499 318 26.8	1.56 .489 311 27.6	1.53 .484 308 28.3	1.51 .479 305 29.0	1.48 .467 297 29.9	1.44 .454 289 30.8	1.42 .449 286 31.7	1.40 .444 283 32.6
-7														
90	EPR M TAS NAM/1000	1.68 .529 339 22.9	1.65 .519 333 23.6	1.62 .509 327 24.1	1.59 .502 322 24.7	1.57 .494 317 25.3	1.54 .487 312 26.0	1.51 .479 307 26.6	1.49 .469 301 27.3	1.46 .459 294 28.1	1.43 .452 290 28.9	1.41 .444 285 29.7	1.39 .442 283 30.5	1.38 .439 281 31.2
-3														
70	EPR M TAS NAM/1000	1.62 .508 328 22.4	1.59 .501 323 22.9	1.57 .493 319 23.4	1.54 .488 315 23.9	1.52 .483 312 24.5	1.50 .473 305 25.1	1.47 .462 298 25.8	1.44 .452 292 26.4	1.42 .442 285 27.2	1.40 .442 285 27.8	1.39 .441 285 28.4	1.37 .435 281 29.1	1.35 .429 277 29.8
1														
50	EPR M TAS NAM/1000	1.57 .494 321 21.7	1.55 .489 318 22.2	1.53 .484 315 22.6	1.50 .473 308 23.2	1.47 .462 301 23.8	1.45 .456 296 24.3	1.43 .449 292 24.9	1.41 .447 290 25.4	1.40 .444 289 26.0	1.38 .439 286 26.6	1.36 .434 282 27.1	1.34 .422 274 27.8	1.32 .409 266 28.5
-5														
30	EPR M TAS NAM/1000	1.53 .484 317 21.0	1.50 .477 312 21.5	1.48 .469 307 21.9	1.46 .459 301 22.4	1.43 .449 294 23.0	1.42 .447 293 23.4	1.40 .444 291 23.9	1.39 .442 289 24.4	1.38 .439 288 24.9	1.36 .432 283 25.4	1.34 .424 278 25.9	1.32 .412 269 26.6	1.30 .399 261 27.2
9														

- NOTES:**
- (1) EPR and NAM/1000# are for indicated listed Mach number. When operating in region left of heavy line, determine and set Max. Continuous Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 6 knots/10°C above standard.
Subtract 6 knots/10°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$

MAXIMUM CRUISE EPR - JT3D-3B

					4 ENGINES					
RAT °C	SL - 30T		35T	40T	RAT °C	SL - 30T		35T	40T	
50	1.36	ICING BLEED ON			- 5	1.76	1.67	1.73	1.70	
45	1.40				-10	1.79	1.70	1.76	1.74	
40	1.43				-15	1.83	1.73	1.80	1.78	
35	1.47				-20	1.86	1.75	1.83	1.81	
30	1.50				-25	1.89	1.78	1.86	1.85	
25	1.54	ICING BLEED ON			-30	1.92	1.80	1.90	1.87	
20	1.57				-35	1.95	1.82	1.93	1.91	
15	1.61				-40	1.97	1.85	1.95	1.93	
10	1.65		1.59	1.62	1.59	-45	1.99	ICING BLEED ON	1.97	1.95
5	1.69		1.62	1.65	1.62	-50	2.01		1.99	1.97
0	1.72	1.65	1.69	1.66						

- NOTES: (1) Subtract 0.01 if Rain Removal ON.
 (2) Add 0.01 for each 3°C above standard temperature up to a maximum increase of 0.05 for $T_g + 15^\circ\text{C}$ and above.

CRUISE

FLIGHT PLANNING TABLE

DC-8-61 JT3D-3B



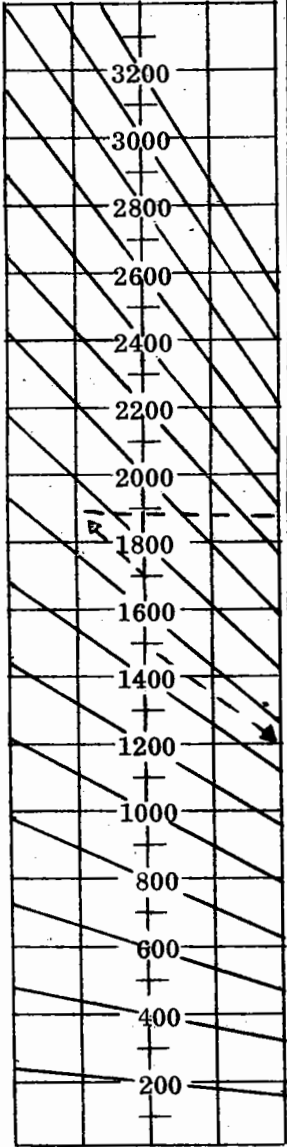
When the trip length line (corrected for wind) intersects between the horizontal time-fuel lines, use the time and fuel shown in the blocks for the flight altitude. Example: 1500 NM, 100 K Tailwind, Altitude 35,000. Time 2:44, Fuel 32.8.

When the trip length line (corrected for wind) intersects on a horizontal time-fuel line; interpolate. Example: 1700 NM, 50 K Headwind, Altitude 37,000. Time 4:09, Fuel 50.1.

BASED ON FOLLOWING SPEED SCHEDULE:

CLIMB: 250 IAS to 10,000 Ft. - 300 IAS to 29,000 Ft. - Mach 0.78 above 29,000 Ft.
CRUISE: S. L. to 10,000 Ft. - 250 IAS
10,000 Ft. to 20,500 Ft. - V_{MO}
20,500 Ft. and above - Mach 0.80
DESCENT: Mach 0.82 to 28,000 Ft. - 330 IAS between 28,000 Ft. and 10,000 Ft. - 250 IAS below 10,000 Ft.

TRIP LENGTH - NM



100 0 100
HDWD TLWD

FLIGHT TIME AND FUEL BURNOUT

39,000 FT.		37,000 FT.		35,000 FT.		33,000 FT.		31,000 FT.		29,000 FT.		27,000 FT.		25,000 FT.		20,000 FT.		15,000 FT.		10,000 FT.	
460 TAS		460 TAS		462 TAS		466 TAS		471 TAS		475 TAS		479 TAS		483 TAS		484 TAS		441 TAS		403 TAS	
TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL
7:10	93.5	7:17	93.6	7:17	93.8	7:15	95.7	7:11	98.7	7:08	103.3										
7:05	90.3	7:04	90.5	7:04	90.6	7:02	92.4	6:59	95.4	6:55	100.0										
6:52	87.1	6:51	87.3	6:51	87.4	6:49	89.2	6:46	92.2	6:43	96.6	6:39	102.2								
6:39	84.0	6:39	84.1	6:39	84.2	6:36	86.0	6:33	89.0	6:30	93.3	6:27	98.7								
6:26	81.0	6:26	81.1	6:26	81.1	6:23	82.8	6:20	85.8	6:17	90.0	6:14	95.2								
6:13	77.8	6:13	77.9	6:13	78.0	6:10	79.7	6:07	82.7	6:04	86.8	6:01	91.8	5:59	97.4						
6:00	74.7	6:00	74.7	6:00	74.9	5:57	76.6	5:54	79.5	5:51	83.6	5:49	88.4	5:46	93.8						
5:47	71.7	5:47	71.8	5:47	71.9	5:44	73.6	5:41	76.4	5:39	80.3	5:36	85.0	5:33	90.2						
5:34	68.8	5:34	68.8	5:33	68.9	5:31	70.5	5:28	73.4	5:26	77.1	5:23	81.6	5:21	86.6						
5:21	65.7	5:21	65.8	5:20	65.9	5:18	67.6	5:15	70.3	5:13	74.0	5:11	78.2	5:08	83.1						
5:08	62.7	5:08	62.9	5:07	63.0	5:05	64.6	5:03	67.3	5:00	70.8	4:58	74.9	4:56	79.5	4:55	90.7				
4:55	59.9	4:55	60.0	4:54	60.1	4:52	61.7	4:50	64.3	4:48	67.7	4:46	71.5	4:43	76.0	4:42	86.6				
4:42	57.1	4:42	57.1	4:41	57.2	4:40	58.8	4:37	61.3	4:35	64.5	4:33	68.2	4:31	72.4	4:30	82.5				
4:29	54.2	4:29	54.3	4:28	54.4	4:27	55.9	4:24	58.4	4:22	61.4	4:20	64.9	4:19	68.9	4:17	78.4				
4:16	51.2	4:15	51.5	4:15	51.6	4:14	53.1	4:11	55.4	4:10	58.3	4:08	61.6	4:06	65.4	4:05	74.5				
4:03	48.6	4:02	48.7	4:02	48.8	4:01	50.3	3:58	52.5	3:57	55.2	3:55	58.4	3:54	61.9	3:52	70.5	4:11	74.1	4:34	79.8
3:50	45.9	3:49	46.0	3:49	46.1	3:48	47.5	3:46	49.6	3:44	52.2	3:43	55.1	3:41	58.5	3:40	66.5	3:58	69.9	4:19	75.3
3:37	43.0	3:36	43.2	3:36	43.4	3:35	44.7	3:33	46.7	3:31	49.1	3:30	51.9	3:29	55.0	3:27	62.5	3:44	65.7	4:04	70.7
3:24	40.3	3:23	40.5	3:23	40.7	3:22	42.0	3:20	43.8	3:19	46.1	3:17	48.6	3:16	51.6	3:15	58.6	3:31	61.5	3:49	66.2
3:11	37.9	3:10	37.9	3:10	38.0	3:09	39.2	3:07	41.0	3:06	43.1	3:05	45.4	3:03	48.1	3:02	54.6	3:17	57.4	3:34	61.7
2:57	34.9	2:57	35.0	2:57	35.4	2:56	36.5	2:54	38.1	2:53	40.1	2:52	42.2	2:51	44.7	2:50	50.7	3:03	53.2	3:19	57.3
2:44	32.4	2:44	32.7	2:44	32.8	2:43	33.8	2:42	35.3	2:40	37.1	2:39	39.0	2:38	41.3	2:37	46.8	2:50	49.1	3:04	52.8
2:31	29.8	2:31	30.0	2:30	30.2	2:30	31.2	2:29	32.5	2:28	34.1	2:27	35.9	2:26	37.9	2:25	42.9	2:36	44.9	2:49	48.4
2:18	27.3	2:18	27.4	2:17	27.6	2:17	28.5	2:16	29.7	2:15	31.1	2:14	32.7	2:13	34.5	2:13	39.0	2:22	40.8	2:34	43.9
2:05	24.7	2:05	24.9	2:04	25.1	2:04	25.9	2:03	26.9	2:02	28.2	2:02	29.5	2:01	31.2	2:00	35.1	2:09	36.7	2:19	39.5
1:52	22.3	1:52	22.4	1:51	22.6	1:51	23.3	1:50	24.2	1:50	25.2	1:49	26.4	1:48	27.8	1:48	31.2	1:55	32.7	2:04	35.1
1:39	19.8	1:39	19.8	1:38	20.1	1:39	20.7	1:37	21.4	1:37	22.2	1:36	23.3	1:36	24.5	1:35	27.3	1:42	28.6	1:50	30.7
1:25	17.3	1:25	17.4	1:25	17.6	1:26	18.1	1:25	18.7	1:24	19.4	1:24	20.2	1:23	21.1	1:23	23.5	1:28	24.6	1:35	26.4
1:12	15.0	1:12	15.0	1:12	15.1	1:13	15.5	1:12	15.9	1:11	16.5	1:11	17.1	1:11	17.8	1:10	19.7	1:14	20.5	1:20	22.0
:59	12.6	:59	12.6	:59	12.7	1:00	12.9	:59	13.2	:59	13.6	:59	14.0	:58	14.5	:58	15.9	1:01	16.5	1:05	17.7
:46	10.2	:46	10.2	:46	10.3	:47	10.4	:46	10.5	:46	10.7	:46	10.9	:46	11.2	:45	12.1	:47	12.5	:50	13.3
						:34	7.8	:33	7.8	:33	7.8	:33	7.8	:33	8.0	:33	8.3	:34	8.5	:35	9.0
																:21	4.8	:20	4.6	:20	4.7
560 LBS		570 LBS		500 LBS		400 LBS		350 LBS		250 LBS		200 LBS		200 LBS		180 LBS		170 LBS		150 LBS	

NOTE: Table valid only for landing weight of 200,000 lbs and less. For each 10,000 lbs deviation above 200,000 lbs, add fuel burnout correction shown at bottom of Table for each hour of Flight Time.



DC-8-61 JT3D-3B MAXIMUM
RECOMMENDED INITIAL CRUISE WEIGHT

FLIGHT LEVEL STD. TEMP.		STATIC AIR TEMPERATURE			
		$T_s - 10^\circ\text{C}$	T_s	$T_s + 10^\circ\text{C}$	$T_s + 20^\circ\text{C}$
410 -57°C	WEIGHT MACH/IAS	210,000 .80/237	202,000 .80/237	195,000 .80/237	183,000 .79/233
390 -57°C	WEIGHT MACH/IAS	234,000 .80/248	225,000 .80/248	218,000 .80/248	205,000 .79/245
370 -57°C	WEIGHT MACH/IAS	259,000 .80/260	249,000 .80/260	241,000 .80/260	229,000 .79/256
350 -54°C	WEIGHT MACH/IAS	285,000 .80/272	273,000 .80/272	265,000 .80/272	252,000 .79/268
330 -50°C	WEIGHT MACH/IAS	309,000 .81/293	297,000 .80/285	288,000 .80/285	275,000 .79/280
310 -46°C	WEIGHT MACH/IAS		320,000 .80/298	311,000 .80/298	298,000 .79/293



DC-8-61 JT3D-3B
FAR 10% FLIGHT TIME OVERWATER RESERVE FUEL

NOTE: This fuel replaces the contingency fuel used in domestic operation. It is based on Long Range Cruise at 20,000 feet.

EST. FLT. TIME (HRS)	FAR 10% FLT TIME RESERVE FUEL (LBS)
2.0	2600
2.5	3200
3.0	3900
3.5	4550
4.0	5200
4.5	5850
5.0	6500
5.5	7200
6.0	7800
6.5	8500
7.0	9200

DC-8-61 JT3D-3B

SUMMARY FLIGHT PLANNING RULES		
FAR DOMESTIC RESERVE	=	8,000 LBS.
FAR OVERWATER RESERVE	=	6,000 LBS.
MINIMUM ALTERNATE FUEL	=	1,700 LBS.
PLANNED HOLDING FUEL	=	10,000 LBS/HR
CONTINGENCY FUEL (See FOM for exceptions)	=	4,000 LBS.
MIN PLANNED BURNOUT AT END FINAL STEP-CLIMB	=	6,000 LBS.
FLIGHT PLAN TIME AND FUEL ADJUSTMENT FOR STEP-CLIMB:		
<u>Step-Climb</u>		<u>Additional Time and Fuel</u>
2,000 ft.		1/2 Min., 200 lbs.
3,000 ft., 4,000 ft., 5,000 ft.		1 Min., 400 lbs.
6,000 ft., 7,000 ft., 8,000 ft.		2 Min., 600 lbs.



DC-8-61 JT3D-3B
TIME, DISTANCE AND FUEL FOR NORMAL DESCENT

FINAL CRUISE ALTITUDE	TIME (MIN.)	DISTANCE (N. MI.)	FUEL (POUNDS)
41,000	26	160	2950
39,000	24	144	2720
37,000	22	127	2460
35,000	20	110	2150
33,000	19	99	2000
31,000	18	94	1970
29,000	18	90	1940
28,000	17	88	1930
27,000	17	86	1910
26,000	17	85	1900
25,000	16	81	1880
24,000	16	78	1860
23,000	16	75	1840
22,000	15	72	1820
21,000	15	70	1800
20,000	14	67	1790
19,000	14	65	1770
18,000	14	62	1750
17,000	14	60	1730
16,000	13	58	1710
15,000	13	56	1700
10,000	12	45	1520
5,000	7	21	1290



TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT FT. TOGW 1000 LBS	25,000				27,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320	15/8350/72	18/9300/93	23/10650/124	29/12650/174	17/9300/93	21/10400/115	27/12250/166	35/14850/221
300	13/7550/66	16/8400/84	20/9450/111	26/11050/156	15/8350/83	18/9300/102	23/10650/145	29/12700/191
280	12/6950/61	14/7600/77	17/8550/100	22/9950/136	13/7750/75	16/8350/92	20/9500/124	26/10700/172
260	11/6250/55	13/6850/69	16/7600/90	21/8800/119	12/6800/67	14/7450/82	17/8400/110	22/9800/148
240	9/5650/50	11/6150/62	14/6850/80	17/7850/105	11/6100/60	13/6700/74	16/7500/97	21/8650/129
220	8/5100/46	10/5550/56	12/6150/72	16/7000/93	9/5500/55	11/5950/66	14/6650/86	17/7650/113
200	8/4600/42	9/4950/51	11/5500/65	14/6250/83	8/5050/50	10/5300/60	12/5950/77	16/6850/99
180	7/4050/38	8/4350/46	10/4800/58	12/5450/73	8/4350/44	9/4650/53	11/5200/67	14/6000/85

NOTES: 1. Based on use of maximum continuous thrust and 300 knots IAS to .78M.

2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute

Fuel - 200 lbs.

Distance - 2.0 N.M.

ALT FT. TOGW 1000 LBS	29,000				31,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320	20/10300/114	25/11700/146	32/13800/209	44/17150/286	24/11700/145	30/13000/182	39/15750/252	
300	18/9150/100	22/10300/126	28/11900/189	37/14350/236	20/10050/122	25/11250/151	32/13250/204	44/15850/286
280	16/8200/89	19/9150/111	24/10450/148	31/12400/208	17/8900/109	21/9850/130	27/11400/179	35/13800/255
260	13/7400/79	16/8150/98	20/9250/130	26/10850/176	15/7950/93	18/8750/113	23/10100/159	29/12000/217
240	12/6600/70	14/7300/88	17/8150/114	22/9500/153	13/7050/81	16/7750/100	20/8800/133	26/10400/183
220	11/5900/64	13/6400/78	16/7200/100	21/8350/133	12/6300/72	14/6900/89	17/7700/115	22/9000/154
200	9/5300/58	11/5750/70	14/6400/89	17/7450/116	10/5600/64	12/6100/79	15/6800/101	19/7900/133
180	8/4650/51	10/5050/62	12/5650/78	16/6400/100	9/4900/57	11/5350/69	14/6000/87	17/6850/113



CRUISE

CLIMB PERFORMANCE

DC-8-61 JT3D-3B

TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT FT. TOGW 1000 LBS	33,000				35,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320	30/13150/178	40/15800/254						
300	24/11000/142	30/12650/190	39/15050/263					
280	19/9550/130	24/10750/155	31/12500/232	42/15100/303	24/10700/150	30/12250/197	39/14500/274	
260	17/8450/108	21/9350/131	27/10950/178	35/13100/258	19/9000/122	24/10200/156	31/11850/208	42/14250/298
240	15/7550/92	18/8300/114	23/9500/152	29/11250/213	16/8000/104	20/8900/131	25/10200/172	33/12150/244
220	13/6650/82	16/7300/100	20/8200/121	26/9650/176	14/7050/91	17/7750/113	21/8750/146	28/10300/200
200	12/5900/72	14/6450/88	17/7200/112	22/8400/150	12/6200/81	15/6800/99	19/7650/126	24/8900/168
180	10/5150/63	12/5650/77	15/6300/98	19/7260/127	11/5350/70	13/5900/86	16/6650/109	21/7700/143

- NOTES:**
- Based on use of maximum continuous thrust and 300 knots IAS to .78M.
 - For each 1,000 feet takeoff airport above sea level reduce:
Time - 0.5 Minute
Fuel - 200 lbs.
Distance - 2.0 N.M.

ALT FT. TOGW 1000 LBS	37,000				39,000			
	T _S -10° C	T _S	T _S +10° C	T _S +20° C	T _S -10° C	T _S	T _S +10° C	T _S +20° C
320								
300								
280								
260	25/10250/158	31/11750/207	41/13550/289					
240	19/8700/124	24/9700/158	31/11200/211	42/13450/298				
220	16/7650/109	20/8300/131	25/9700/170	33/11250/238	19/8250/127	24/9200/162	31/10650/215	42/12250/306
200	14/6600/91	17/7200/112	21/8200/148	28/9600/203	16/7000/106	19/7750/132	24/8800/171	31/10350/238
180	12/5700/69	14/6150/97	17/7100/124	22/8200/164	13/6100/90	16/6650/111	20/7500/142	26/8750/192



FLIGHT LEVEL Std. Temp.	MACH TAS		GROSS WEIGHT (1000 LBS.)															
			320	310	300	290	280	270	260	250	240	230	220	210	200	190	180	170
410 -57°C	0.78 449	EPR NAM/1000#												1.91 41.3	1.84 44.9	1.79 47.9	1.74 50.8	1.69 53.4
390 -57°C	0.78 449	EPR NAM/1000#										1.90 38.2	1.84 40.8	1.79 43.3	1.74 45.7	1.70 47.9	1.67 50.0	1.63 52.1
370 -57°C	0.78 449	EPR NAM/1000#								1.88 35.4	1.83 37.5	1.79 39.6	1.74 41.5	1.71 43.4	1.67 45.1	1.64 46.7	1.61 48.2	1.58 49.6
350 -54°C	0.78 451	EPR NAM/1000#					1.91 31.0	1.86 33.1	1.81 34.9	1.77 36.5	1.74 38.1	1.70 39.6	1.67 41.0	1.64 42.8	1.61 43.8	1.58 44.9	1.57 45.9	1.55 46.8
330 -50°C	0.78 455	EPR NAM/1000#		1.92 28.1	1.87 29.5	1.83 31.1	1.79 32.5	1.76 33.8	1.72 35.1	1.69 36.3	1.67 37.5	1.64 38.7	1.61 39.8	1.59 40.7	1.57 41.6	1.55 42.3	1.54 43.0	1.53 43.8
310 -46°C	0.78 459	EPR NAM/1000#	1.84 28.5	1.80 29.3	1.77 30.4	1.74 31.5	1.71 32.5	1.68 33.6	1.66 34.5	1.64 35.5	1.61 36.4	1.59 37.1	1.57 37.8	1.56 38.5	1.54 39.1	1.53 39.7	1.52 40.3	1.50 41.0
290 -42°C	0.78 463	EPR NAM/1000#	1.74 28.5	1.72 29.4	1.69 30.3	1.67 31.1	1.65 31.9	1.63 32.7	1.60 33.4	1.58 34.0	1.57 34.6	1.56 35.1	1.54 35.6	1.54 36.1	1.53 36.6	1.51 37.2	1.49 37.8	1.48 38.3
280 -40°C	0.78 465	EPR NAM/1000#	1.71 28.5	1.68 29.2	1.66 30.0	1.64 30.7	1.62 31.4	1.60 32.0	1.58 32.6	1.57 33.1	1.56 33.6	1.54 34.1	1.54 34.5	1.53 35.0	1.51 35.5	1.49 36.0	1.48 36.5	1.47 37.0
270 -38°C	0.78 467	EPR NAM/1000#	1.68 28.2	1.66 28.9	1.64 29.6	1.61 30.2	1.59 30.8	1.58 31.3	1.57 31.8	1.55 32.2	1.54 32.6	1.54 33.0	1.53 33.5	1.51 33.9	1.50 34.4	1.48 34.8	1.47 35.3	1.46 35.8
260 -37°C	0.78 469	EPR NAM/1000#	1.65 27.9	1.63 28.5	1.61 29.1	1.60 29.5	1.58 30.0	1.56 30.4	1.55 30.8	1.54 31.2	1.54 31.6	1.53 32.0	1.51 32.4	1.50 32.9	1.49 33.3	1.47 33.7	1.46 34.1	1.46 34.6
250 -35°C	0.78 471	EPR NAM/1000#	1.62 27.5	1.60 28.0	1.59 28.4	1.57 28.8	1.56 29.3	1.55 29.6	1.54 29.9	1.53 30.3	1.53 30.7	1.51 31.0	1.50 31.4	1.49 31.9	1.48 32.2	1.46 32.6	1.46 33.0	1.45 33.4
240 -33°C	0.78 473	EPR NAM/1000#	1.60 26.9	1.58 27.3	1.57 27.7	1.56 28.1	1.55 28.4	1.54 28.7	1.53 29.1	1.53 29.4	1.51 29.7	1.50 30.1	1.49 30.5	1.48 30.8	1.47 31.1	1.46 31.6	1.45 31.9	1.45 32.2
230 -31°C	0.78 475	EPR NAM/1000#	1.58 26.3	1.57 26.7	1.56 27.0	1.55 27.3	1.54 27.6	1.53 27.9	1.53 28.2	1.51 28.5	1.50 28.8	1.49 29.1	1.48 29.4	1.47 29.8	1.46 30.2	1.45 30.5	1.45 30.8	1.44 31.1
220 -29°C	0.78 477	EPR NAM/1000#	1.56 25.6	1.55 25.9	1.54 26.2	1.54 26.5	1.53 26.7	1.52 27.0	1.51 27.3	1.50 27.6	1.49 27.9	1.48 28.2	1.47 28.5	1.46 29.1	1.45 29.2	1.45 29.4	1.44 29.7	1.43 30.0
210 -27°C	0.78 479	EPR NAM/1000#	1.55 25.0	1.54 25.2	1.54 25.4	1.53 25.7	1.52 26.0	1.51 26.2	1.50 26.5	1.49 26.7	1.48 27.1	1.47 27.3	1.46 27.6	1.46 27.9	1.45 28.2	1.44 28.4	1.43 28.7	1.42 28.9

NOTES:

- (1) EPR and NAM/1000# are for indicated listed Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



CRUISE

4 ENGINE MACH .79 CRUISE

DC-8-61 JT3D-3B

FLIGHT LEVEL Std. Temp.	MACH TAS		GROSS WEIGHT (1000 LBS.)															
			320	310	300	290	280	270	260	250	240	230	220	210	200	190	180	170
410 -57°C	0.79 453	EPR NAM/1000#												1.91 41.3	1.85 44.6	1.79 47.6	1.74 50.5	1.70 53.1
390 -57°C	0.79 453	EPR NAM/1000#										1.90 38.0	1.85 40.5	1.80 43.0	1.75 45.4	1.71 47.6	1.67 49.6	1.64 51.5
370 -57°C	0.79 453	EPR NAM/1000#								1.89 35.2	1.84 37.3	1.80 39.3	1.75 41.3	1.72 43.1	1.67 44.8	1.64 46.4	1.62 47.8	1.59 49.1
350 -54°C	0.79 456	EPR NAM/1000#					1.91 31.0	1.87 32.9	1.82 34.6	1.78 36.2	1.75 37.8	1.71 39.3	1.67 40.7	1.65 42.0	1.62 43.2	1.59 44.3	1.58 45.4	1.56 46.4
330 -50°C	0.79 460	EPR NAM/1000#		1.92 28.0	1.88 29.4	1.84 30.8	1.80 32.2	1.76 33.6	1.74 34.9	1.70 36.1	1.67 37.2	1.64 38.3	1.62 39.3	1.60 40.2	1.58 41.1	1.57 42.0	1.56 42.8	1.54 43.5
310 -46°C	0.79 464	EPR NAM/1000#	1.85 27.9	1.80 29.1	1.77 30.2	1.75 31.3	1.72 32.3	1.68 33.3	1.66 34.2	1.64 35.1	1.62 35.9	1.60 36.6	1.59 37.4	1.58 38.2	1.56 38.8	1.55 39.4	1.53 40.1	1.52 40.7
290 -42°C	0.79 469	EPR NAM/1000#	1.75 28.4	1.73 29.3	1.70 30.1	1.67 30.8	1.65 31.6	1.63 32.3	1.61 33.0	1.59 33.6	1.58 34.2	1.58 34.8	1.56 35.4	1.55 35.9	1.54 36.4	1.52 37.0	1.51 37.5	1.50 38.1
280 -40°C	0.79 471	EPR NAM/1000#	1.72 28.3	1.68 29.0	1.66 29.7	1.65 30.4	1.63 31.0	1.61 31.6	1.59 32.2	1.58 32.8	1.57 33.3	1.56 33.8	1.55 34.3	1.54 34.8	1.53 35.3	1.51 35.8	1.50 36.3	1.49 36.8
270 -38°C	0.79 473	EPR NAM/1000#	1.68 28.0	1.66 28.7	1.64 29.3	1.62 29.8	1.60 30.4	1.59 30.9	1.58 31.4	1.57 31.9	1.56 32.4	1.55 32.8	1.54 33.2	1.53 33.7	1.52 34.2	1.50 34.6	1.49 35.1	1.48 35.6
260 -37°C	0.79 474	EPR NAM/1000#	1.65 27.7	1.63 28.2	1.62 28.7	1.60 29.2	1.59 29.6	1.58 30.1	1.57 30.6	1.56 31.0	1.55 31.4	1.54 31.8	1.53 32.2	1.52 32.6	1.51 33.1	1.49 33.5	1.48 34.0	1.48 34.3
250 -35°C	0.79 475	EPR NAM/1000#	1.63 27.2	1.61 27.6	1.60 28.0	1.59 28.5	1.58 28.9	1.57 29.3	1.56 29.7	1.55 30.1	1.54 30.4	1.53 30.8	1.52 31.2	1.51 31.6	1.50 32.0	1.48 32.4	1.48 32.8	1.47 33.1
240 -33°C	0.79 477	EPR NAM/1000#	1.61 26.6	1.59 27.0	1.58 27.4	1.58 27.8	1.57 28.2	1.56 28.5	1.55 28.8	1.54 29.2	1.53 29.5	1.52 29.9	1.51 30.2	1.50 30.6	1.49 31.0	1.48 31.3	1.47 31.6	1.47 32.0
230 -31°C	0.79 479	EPR NAM/1000#	1.59 26.0	1.58 26.4	1.58 26.7	1.57 27.0	1.56 27.4	1.55 27.7	1.54 28.0	1.53 28.3	1.52 28.6	1.51 28.9	1.50 29.3	1.49 29.6	1.48 30.0	1.47 30.2	1.47 30.5	1.46 30.9
220 -29°C	0.79 481	EPR NAM/1000#	1.58 25.4	1.57 25.7	1.56 26.0	1.55 26.3	1.55 26.5	1.54 26.8	1.53 27.1	1.52 27.4	1.51 27.7	1.50 28.0	1.49 28.4	1.48 28.7	1.47 28.9	1.47 29.2	1.46 29.5	1.45 29.9
210 -27°C	0.79 483	EPR NAM/1000#	1.57 24.7	1.56 25.0	1.55 25.2	1.54 25.5	1.53 25.8	1.53 26.0	1.52 26.3	1.51 26.6	1.50 26.9	1.49 27.2	1.48 27.5	1.48 27.7	1.47 27.9	1.46 28.2	1.45 28.6	1.44 28.8

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$

CRUISE



4 ENGINE MACH .80 CRUISE

DC-8-61 JT3D-3B

FLIGHT LEVEL Std. Temp.	MACH TAS		GROSS WEIGHT (1000 LBS.)															
			320	310	300	290	280	270	260	250	240	230	220	210	200	190	180	170
410 -57°C	0.80 461	EPR NAM/1000#												1.91 41.3	1.85 44.3	1.79 47.2	1.75 49.9	1.70 52.5
390 -57°C	0.80 461	EPR NAM/1000#										1.91 37.8	1.85 40.2	1.80 42.6	1.75 44.9	1.71 47.2	1.68 49.0	1.64 50.7
370 -57°C	0.80 461	EPR NAM/1000#								1.89 35.0	1.84 37.0	1.80 39.0	1.75 40.8	1.72 42.6	1.68 44.2	1.65 45.8	1.62 47.0	1.60 48.3
350 -54°C	0.80 464	EPR NAM/1000#					1.91 30.9	1.87 32.7	1.82 34.3	1.78 35.9	1.75 37.4	1.71 39.0	1.68 40.2	1.65 41.6	1.63 42.8	1.61 43.8	1.59 44.6	1.57 45.5
330 -50°C	0.80 468	EPR NAM/1000#		1.93 27.9	1.88 29.2	1.84 30.9	1.80 32.0	1.77 33.3	1.74 34.5	1.71 35.8	1.68 36.8	1.65 37.9	1.63 38.9	1.61 39.7	1.59 40.4	1.58 41.1	1.57 41.9	1.56 42.5
310 -46°C	0.80 472	EPR NAM/1000#	1.85 27.7	1.81 28.8	1.78 29.9	1.75 31.0	1.72 32.1	1.69 33.0	1.67 33.8	1.65 34.8	1.63 35.6	1.61 36.3	1.59 36.8	1.58 37.4	1.57 38.0	1.56 38.5	1.54 39.1	1.53 39.6
290 -42°C	0.80 476	EPR NAM/1000#	1.76 28.1	1.73 28.9	1.70 29.8	1.68 30.5	1.66 31.2	1.64 32.0	1.62 32.7	1.61 33.2	1.59 33.8	1.58 34.2	1.57 34.7	1.56 35.1	1.55 35.5	1.53 36.1	1.52 36.5	1.51 37.1
280 -40°C	0.80 478	EPR NAM/1000#	1.72 28.1	1.70 28.7	1.67 29.4	1.65 30.0	1.64 30.8	1.62 31.5	1.60 31.7	1.59 32.2	1.58 32.7	1.57 33.2	1.56 33.6	1.55 33.9	1.53 34.3	1.52 34.8	1.51 35.4	1.50 35.8
270 -38°C	0.80 480	EPR NAM/1000#	1.69 27.7	1.67 28.3	1.65 29.0	1.63 29.6	1.62 30.1	1.60 30.4	1.59 30.9	1.58 31.3	1.57 31.7	1.56 32.1	1.55 32.4	1.53 32.8	1.52 33.5	1.51 33.7	1.50 34.2	1.49 34.7
260 -37°C	0.80 482	EPR NAM/1000#	1.66 27.3	1.64 27.8	1.63 28.3	1.61 28.7	1.60 29.2	1.59 29.6	1.58 30.0	1.57 30.4	1.56 30.7	1.55 31.1	1.54 31.3	1.52 31.8	1.51 32.2	1.50 32.6	1.49 33.0	1.49 33.5
250 -35°C	0.80 484	EPR NAM/1000#	1.64 26.8	1.62 27.4	1.61 27.8	1.60 28.1	1.59 28.4	1.58 28.8	1.57 29.2	1.56 29.4	1.55 29.7	1.54 30.0	1.52 30.5	1.51 30.8	1.50 31.2	1.50 31.6	1.49 32.0	1.48 32.4
240 -33°C	0.80 486	EPR NAM/1000#	1.62 26.2	1.60 26.6	1.59 27.0	1.58 27.5	1.57 27.7	1.57 27.9	1.56 28.2	1.55 28.5	1.54 28.7	1.53 29.1	1.52 29.4	1.51 29.8	1.50 30.2	1.49 30.6	1.48 30.9	1.47 31.2
230 -31°C	0.80 488	EPR NAM/1000#	1.60 25.6	1.59 25.9	1.58 26.2	1.57 26.5	1.57 26.8	1.56 27.1	1.55 27.3	1.53 27.5	1.53 27.9	1.52 28.2	1.51 28.5	1.50 28.9	1.49 29.3	1.48 29.6	1.48 29.8	1.47 30.2
220 -29°C	0.80 490	EPR NAM/1000#	1.59 25.0	1.58 25.2	1.57 25.5	1.56 25.8	1.55 26.0	1.54 26.2	1.53 26.5	1.52 26.8	1.52 27.1	1.51 27.3	1.50 27.7	1.49 28.0	1.48 28.3	1.48 28.5	1.47 28.8	1.46 29.1
210 -27°C	0.80 492	EPR NAM/1000#	1.58 24.3	1.57 24.5	1.56 24.7	1.55 24.9	1.54 25.1	1.53 25.4	1.52 25.7	1.52 26.1	1.51 26.3	1.50 26.6	1.49 26.8	1.48 27.1	1.48 27.3	1.47 27.5	1.47 27.7	1.46 27.9

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE MACH .81 CRUISE

DC-8-61 JT3D-3B

FLIGHT LEVEL Std. Temp.	MACH TAS		GROSS WEIGHT (1000 LBS)															
			320	310	300	290	280	270	260	250	240	230	220	210	200	190	180	170
410 -57° C	0.81 467	EPR NAM/1000#												1.93 40.8	1.86 43.7	1.80 46.5	1.76 49.1	1.71 51.6
390 -57° C	0.81 467	EPR NAM/1000#										1.92 37.3	1.87 39.7	1.81 42.0	1.77 44.3	1.72 46.3	1.69 48.3	1.65 50.1
370 -57° C	0.81 467	EPR NAM/1000#								1.91 34.5	1.86 36.5	1.81 38.4	1.77 40.2	1.73 42.0	1.69 43.5	1.66 45.1	1.63 46.5	1.61 47.8
350 -54° C	0.81 469	EPR NAM/1000#					1.93 30.6	1.88 32.2	1.84 33.8	1.80 35.4	1.76 37.0	1.72 38.2	1.69 39.7	1.66 40.9	1.64 42.0	1.62 43.1	1.60 43.9	1.59 44.8
330 -50° C	0.81 473	EPR NAM/1000#			1.90 28.9	1.86 30.2	1.82 31.5	1.78 32.8	1.75 34.1	1.71 35.1	1.69 36.2	1.66 37.2	1.64 38.1	1.62 39.0	1.60 39.8	1.59 40.6	1.58 41.3	1.57 41.9
310 -46° C	0.81 477	EPR NAM/1000#	1.86 27.3	1.83 28.4	1.79 29.5	1.76 30.5	1.73 31.5	1.70 32.4	1.68 33.2	1.66 34.2	1.64 34.8	1.62 35.7	1.61 36.2	1.59 36.9	1.58 37.5	1.58 38.0	1.56 38.4	1.55 39.0
290 -42° C	0.81 482	EPR NAM/1000#	1.77 27.7	1.74 28.5	1.71 29.3	1.69 30.0	1.67 30.7	1.65 31.3	1.63 32.0	1.62 32.6	1.60 33.2	1.59 33.7	1.58 34.2	1.58 34.6	1.57 35.0	1.55 35.5	1.54 35.9	1.53 36.4
280 -40° C	0.81 484	EPR NAM/1000#	1.73 27.5	1.71 28.2	1.68 28.9	1.66 29.5	1.65 30.1	1.63 30.7	1.62 31.2	1.60 31.7	1.59 32.2	1.58 32.7	1.58 33.1	1.57 33.4	1.55 33.7	1.54 34.3	1.53 34.7	1.52 35.2
270 -38° C	0.81 486	EPR NAM/1000#	1.70 27.3	1.68 27.8	1.66 28.4	1.64 28.9	1.63 29.5	1.61 30.1	1.60 30.4	1.59 30.9	1.58 31.3	1.58 31.6	1.57 32.0	1.55 32.3	1.54 32.7	1.53 33.1	1.52 33.5	1.51 33.9
260 -37° C	0.81 488	EPR NAM/1000#	1.67 27.0	1.65 27.3	1.64 27.8	1.62 28.3	1.61 28.8	1.60 29.2	1.59 29.6	1.58 30.0	1.58 30.3	1.57 30.6	1.56 30.9	1.54 31.3	1.53 31.6	1.52 32.0	1.51 32.4	1.50 32.8
250 -35° C	0.81 490	EPR NAM/1000#	1.65 26.3	1.63 26.8	1.62 27.2	1.61 27.6	1.60 28.0	1.59 28.4	1.58 28.7	1.58 29.0	1.58 29.3	1.56 29.5	1.54 29.9	1.53 30.2	1.52 30.5	1.51 30.9	1.50 31.4	1.49 31.7
240 -33° C	0.81 492	EPR NAM/1000#	1.63 25.8	1.62 26.2	1.61 26.6	1.60 26.9	1.59 27.2	1.58 27.5	1.58 27.8	1.57 28.1	1.56 28.3	1.54 28.5	1.53 28.9	1.52 29.2	1.51 29.6	1.50 29.9	1.50 30.2	1.49 30.6
230 -31° C	0.81 494	EPR NAM/1000#	1.62 25.2	1.61 25.6	1.60 25.9	1.59 26.2	1.58 26.4	1.58 26.7	1.57 26.9	1.55 27.1	1.54 27.3	1.53 27.7	1.52 28.0	1.51 28.3	1.51 28.6	1.50 28.9	1.49 29.2	1.48 29.5
220 -29° C	0.81 496	EPR NAM/1000#	1.60 24.6	1.59 24.9	1.58 25.1	1.58 25.4	1.57 25.6	1.56 25.8	1.55 26.0	1.54 26.3	1.53 26.5	1.52 26.8	1.52 27.1	1.51 27.4	1.50 27.7	1.49 27.9	1.48 28.2	1.48 28.5

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



FLIGHT LEVEL Std. Temp.	MACH TAS		GROSS WEIGHT (1000 LBS.)															
			320	310	300	290	280	270	260	250	240	230	220	210	200	190	180	170
410 -57° C	0.82 472	EPR NAM/1000#												1.96 39.7	1.89 42.3	1.83 45.3	1.78 48.0	1.74 50.5
390 -57° C	0.82 472	EPR NAM/1000#										1.95 36.4	1.89 38.6	1.83 41.0	1.79 43.4	1.74 45.4	1.71 47.4	1.67 49.0
370 -57° C	0.82 472	EPR NAM/1000#								1.94 33.8	1.88 35.4	1.83 37.5	1.79 39.5	1.75 41.1	1.71 42.6	1.68 44.1	1.65 45.5	1.63 46.6
350 -54° C	0.82 474	EPR NAM/1000#						1.91 31.3	1.86 33.1	1.82 34.6	1.78 36.2	1.74 37.5	1.71 38.8	1.68 40.2	1.66 41.4	1.64 42.2	1.62 43.2	1.61 43.9
330 -50° C	0.82 479	EPR NAM/1000#			1.93 28.2	1.88 29.3	1.84 30.7	1.80 32.2	1.77 33.3	1.74 34.5	1.71 35.5	1.68 36.5	1.66 37.5	1.64 38.3	1.62 39.2	1.61 39.8	1.60 40.4	1.59 40.9
310 -46° C	0.82 483	EPR NAM/1000#	1.89 26.5	1.85 27.7	1.82 28.9	1.78 29.9	1.75 30.8	1.72 31.7	1.70 32.6	1.68 33.5	1.66 34.3	1.64 35.0	1.62 35.7	1.61 36.2	1.60 36.7	1.60 37.2	1.58 37.6	1.57 38.1
290 -42° C	0.82 487	EPR NAM/1000#	1.79 27.0	1.76 27.9	1.74 28.6	1.71 29.4	1.69 30.1	1.67 30.8	1.65 31.4	1.64 32.1	1.62 32.6	1.61 33.1	1.60 33.5	1.60 33.9	1.58 34.2	1.57 34.6	1.56 35.0	1.55 35.5
280 -40° C	0.82 489	EPR NAM/1000#	1.75 26.9	1.73 27.6	1.70 28.3	1.68 29.0	1.67 29.7	1.65 30.2	1.63 30.7	1.62 31.2	1.61 31.6	1.60 32.0	1.60 32.4	1.58 32.7	1.57 33.0	1.56 33.5	1.55 33.9	1.54 34.3
270 -38° C	0.82 491	EPR NAM/1000#	1.72 26.8	1.70 27.3	1.68 27.9	1.66 28.6	1.65 29.0	1.63 29.5	1.62 30.0	1.61 30.3	1.60 30.6	1.60 31.0	1.58 31.2	1.57 31.6	1.56 31.9	1.55 32.3	1.54 32.7	1.53 33.2
260 -37° C	0.82 493	EPR NAM/1000#	1.69 26.5	1.67 26.9	1.66 27.4	1.64 27.8	1.63 28.3	1.62 28.7	1.61 29.1	1.60 29.3	1.60 29.6	1.58 29.9	1.57 30.2	1.56 30.6	1.55 30.9	1.54 31.3	1.53 31.7	1.52 32.0
250 -35° C	0.82 495	EPR NAM/1000#	1.67 26.0	1.65 26.3	1.64 26.8	1.63 27.2	1.62 27.5	1.61 27.8	1.60 28.1	1.60 28.4	1.58 28.6	1.57 29.1	1.56 29.2	1.55 29.6	1.54 29.9	1.53 30.3	1.53 30.6	1.52 30.9
240 -33° C	0.82 497	EPR NAM/1000#	1.65 25.4	1.63 25.8	1.62 26.2	1.61 26.5	1.61 26.8	1.60 27.0	1.60 27.2	1.58 27.5	1.57 27.8	1.56 28.0	1.55 28.3	1.54 28.6	1.54 28.9	1.53 29.2	1.52 29.6	1.51 29.8
230 -31° C	0.82 499	EPR NAM/1000#	1.63 24.9	1.62 25.2	1.61 25.4	1.61 25.6	1.60 25.9	1.59 26.1	1.58 26.3	1.57 26.7	1.56 26.8	1.55 27.1	1.55 27.4	1.54 27.7	1.53 28.0	1.52 28.3	1.51 28.5	1.51 28.7
220 -29° C	0.82 501	EPR NAM/1000#	1.62 24.2	1.61 24.5	1.60 24.6	1.60 24.8	1.59 25.0	1.58 25.2	1.57 25.4	1.56 25.7	1.55 25.8	1.55 26.2	1.54 26.5	1.53 26.7	1.52 27.0	1.52 27.3	1.51 27.5	1.50 27.8

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE MACH .83 CRUISE

DC-8-61 JT3D-3B

FLIGHT LEVEL Std. Temp.	MACH TAS		GROSS WEIGHT (1000 LBS)															
			320	310	300	290	280	270	260	250	240	230	220	210	200	190	180	170
410 -57° C	0.83 479	EPR NAM/1000#													1.94 40.9	1.87 43.6	1.82 46.0	1.78 48.8
390 -57° C	0.83 479	EPR NAM/1000#											1.94 37.2	1.88 39.4	1.83 41.5	1.79 43.6	1.74 45.6	1.71 47.3
370 -57° C	0.83 479	EPR NAM/1000#									1.93 34.2	1.88 36.0	1.83 37.8	1.79 39.6	1.75 41.2	1.72 42.6	1.69 44.0	1.66 45.2
350 -54° C	0.83 481	EPR NAM/1000#							1.91 31.7	1.87 33.2	1.82 34.7	1.79 36.3	1.75 37.5	1.72 38.6	1.69 39.7	1.67 40.8	1.65 41.8	1.63 42.6
330 -50° C	0.83 486	EPR NAM/1000#					1.89 29.6	1.85 30.8	1.81 32.1	1.78 33.3	1.75 34.3	1.72 35.2	1.69 36.2	1.67 37.0	1.65 37.8	1.64 38.6	1.63 39.2	1.62 39.8
310 -46° C	0.83 490	EPR NAM/1000#		1.90 26.7	1.86 27.7	1.83 28.6	1.79 29.8	1.77 30.7	1.74 31.5	1.71 32.3	1.69 33.1	1.67 33.8	1.65 34.5	1.64 35.1	1.63 35.6	1.62 36.1	1.60 36.6	1.59 37.1
290 -42° C	0.83 494	EPR NAM/1000#	1.83 26.0	1.80 26.9	1.78 27.7	1.75 28.4	1.73 29.1	1.71 29.7	1.69 30.4	1.67 31.0	1.65 31.5	1.64 32.0	1.63 32.5	1.62 32.9	1.61 33.3	1.60 33.6	1.58 34.1	1.57 34.5
280 -40° C	0.83 496	EPR NAM/1000#	1.79 25.9	1.77 26.7	1.74 27.4	1.72 28.0	1.70 28.6	1.68 29.1	1.67 29.7	1.65 30.2	1.64 30.7	1.63 31.1	1.62 31.5	1.61 31.8	1.60 32.1	1.59 32.5	1.58 32.9	1.57 33.2
270 -38° C	0.83 498	EPR NAM/1000#	1.76 25.8	1.74 26.4	1.71 26.9	1.70 27.5	1.68 28.0	1.66 28.5	1.65 28.9	1.64 29.4	1.63 29.8	1.62 30.1	1.61 30.4	1.60 30.7	1.59 31.1	1.58 31.4	1.57 31.7	1.56 32.0
260 -37° C	0.83 500	EPR NAM/1000#	1.73 25.6	1.71 26.0	1.69 26.4	1.68 26.9	1.66 27.3	1.65 27.8	1.64 28.1	1.63 28.5	1.62 28.8	1.61 29.1	1.60 29.3	1.59 29.7	1.58 30.0	1.57 30.3	1.56 30.6	1.55 30.9
250 -35° C	0.83 502	EPR NAM/1000#	1.70 25.2	1.69 25.5	1.67 25.9	1.66 26.3	1.65 26.7	1.64 27.0	1.63 27.3	1.62 27.6	1.61 27.9	1.60 28.1	1.59 28.3	1.58 28.6	1.57 28.9	1.56 29.2	1.55 29.5	1.55 29.7
240 -33° C	0.83 505	EPR NAM/1000#	1.68 24.6	1.67 24.9	1.65 25.3	1.64 25.6	1.63 25.9	1.63 26.2	1.62 26.5	1.61 26.7	1.60 26.9	1.59 27.1	1.58 27.4	1.57 27.7	1.56 27.9	1.55 28.2	1.55 28.4	1.54 28.6
230 -31° C	0.83 507	EPR NAM/1000#	1.66 24.0	1.65 24.3	1.64 24.6	1.63 24.9	1.62 25.1	1.62 25.4	1.61 25.6	1.60 25.8	1.59 25.9	1.58 26.3	1.57 26.5	1.56 26.7	1.56 27.0	1.55 27.1	1.54 27.3	1.54 27.5

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE LONG RANGE CRUISE

DC-8-61 JT3D-3B

FLT LVL		GROSS WEIGHT (1000 LBS.)																
Std. Temp.		325	315	305	295	285	275	265	255	245	235	225	215	205	195	185	175	165
410 -57° C	EPR M/TAS NAM/1000#												1.97	1.83	1.82	1.76	1.71	1.65
													.796/458	.781/450				.746/429
													40.4	43.1	46.1	48.7	51.4	54.8
390 -57° C	EPR M/TAS NAM/1000#									.798/459			.794/457		1.72	1.67	1.64	1.58
											37.1	39.5	41.6	43.8	46.6	48.9	51.0	.736/424
																		53.9
370 -57° C	EPR M/TAS NAM/1000#						1.99	1.91	1.86	1.82	1.77	1.73	1.69	1.63	1.60	1.57	1.52	.717/413
						.805/463			.791/455			.784/451			.748/430			52.6
							32.2	34.7	36.5	38.3	40.3	42.1	44.0	46.5	48.3	50.1		
350 -54° C	EPR M/TAS NAM/1000#					1.94	1.89	1.85	1.80	1.76	1.72	1.68	1.64	1.61	1.56	1.54	1.51	1.47
						.798/461			.781/452			.768/444			.729/422			.695/402
						30.7	32.3	33.8	35.6	37.2	38.7	40.6	42.0	43.4	45.7	47.2	48.6	50.8
330 -50° C	EPR M/TAS NAM/1000#		1.97	1.92	1.88	1.82	1.78	1.74	1.70	1.67	1.64	1.60	1.57	1.55	1.50	1.48	1.46	1.42
			.810/463			.784/457			.766/447			.748/437			.709/414			.668/390
			27.2	28.6	29.8	31.8	33.0	34.3	35.9	37.2	38.4	39.9	41.2	42.3	44.4	45.6	46.7	48.6
310 -46° C	EPR M/TAS NAM/1000#	1.87	1.83	1.80	1.77	1.72	1.69	1.66	1.62	1.60	1.57	1.54	1.52	1.50	1.46	1.44	1.42	1.38
		.802/472	.796/468			.766/451			.748/440			.730/430			.682/402			.636/375
		27.3	28.6	29.6	30.6	32.2	33.3	34.3	35.6	36.6	37.6	38.9	39.9	40.9	42.7	43.7	44.7	46.6
290 -42° C	EPR M/TAS NAM/1000#	1.76	1.73	1.70	1.67	1.64	1.61	1.59	1.56	1.54	1.52	1.48	1.47	1.45	1.41	1.40	1.38	1.34
		.780/463	.776/461			.751/446			.728/433			.704/418			.654/388			.611/363
		28.0	29.0	29.9	30.8	31.9	32.8	33.7	34.9	35.7	36.6	37.8	38.6	39.4	40.9	41.8	42.8	44.7
280 -40° C	EPR M/TAS NAM/1000#	1.71	1.68	1.66	1.64	1.60	1.58	1.56	1.53	1.51	1.49	1.46	1.44	1.43	1.39	1.38	1.36	1.32
		.770/459	.765/456			.745/444			.718/428			.686/409			.641/383			.602/359
		28.2	29.1	29.9	30.6	31.7	32.5	33.2	34.4	35.2	36.0	37.1	37.9	38.6	40.0	41.0	41.9	43.8
270 -38° C	EPR M/TAS NAM/1000#	1.67	1.65	1.62	1.60	1.57	1.55	1.54	1.50	1.49	1.47	1.44	1.42	1.41	1.37	1.36	1.34	1.30
		.761/455	.754/452			.738/442			.710/425			.670/401			.630/378			.594/356
		28.2	28.9	29.7	30.4	31.3	32.0	32.7	33.9	34.6	35.2	36.3	37.1	37.8	39.2	40.2	41.1	42.9
260 -37° C	EPR M/TAS NAM/1000#	1.64	1.61	1.59	1.57	1.55	1.53	1.51	1.48	1.46	1.45	1.42	1.40	1.39	1.35	1.34	1.32	1.29
		.752/452	.744/447			.730/439			.701/422			.656/395			.622/374			.588/354
		28.0	28.7	29.4	30.1	30.9	31.5	32.2	33.2	33.0	34.5	35.6	36.3	37.0	38.4	39.3	40.2	41.8
250 -35° C	EPR M/TAS NAM/1000#	1.60	1.58	1.56	1.55	1.52	1.50	1.49	1.46	1.45	1.43	1.40	1.38	1.37	1.34	1.32	1.21	1.28
		.743/449	.738/446			.721/435			.692/418			.646/390			.613/371			.580/350
		27.8	28.5	29.1	29.6	30.5	31.1	31.6	32.6	33.1	33.7	34.8	35.5	36.3	37.6	38.5	39.4	40.7
240 -33° C	EPR M/TAS NAM/1000#	1.57	1.55	1.54	1.52	1.49	1.48	1.47	1.44	1.43	1.42	1.38	1.37	1.35	1.32	1.31	1.29	1.27
		.736/446	.730/443			.709/430			.682/414			.639/388			.604/367			.571/346
		27.5	28.1	28.7	29.2	30.0	30.6	31.1	31.9	32.4	32.9	34.1	34.8	35.5	36.9	37.7	38.5	39.6
230 -31° C	EPR M/TAS NAM/1000#	1.54	1.53	1.51	1.50	1.47	1.46	1.44	1.42	1.41	1.40	1.36	1.35	1.34	1.30	1.29	1.28	1.25
		.729/444	.723/440			.695/423			.668/407			.634/386			.599/365			.559/341
		27.1	27.7	28.2	28.7	29.5	30.0	30.5	31.2	31.8	32.3	33.4	34.0	34.7	36.1	36.8	37.5	38.6
220 -29° C	EPR M/TAS NAM/1000#	1.52	1.50	1.49	1.48	1.45	1.44	1.42	1.40	1.39	1.38	1.35	1.34	1.32	1.29	1.28	1.27	1.24
		.723/442	.716/438			.680/416			.652/399			.627/384			.590/361			.544/333
		26.7	27.3	27.7	28.2	28.4	29.4	29.8	30.6	31.1	31.7	32.7	33.3	33.9	35.2	35.8	36.4	37.7
210 -27° C	EPR M/TAS NAM/1000#	1.50	1.48	1.47	1.46	1.43	1.42	1.41	1.38	1.37	1.36	1.33	1.32	1.31	1.28	1.27	1.26	1.22
		.717/440	.708/435			.669/411			.640/393			.620/381			.580/357			.529/324
		26.3	26.8	27.2	27.6	28.3	28.8	29.2	30.4	30.6	31.1	32.0	32.6	33.2	34.3	34.9	35.5	36.9
130 -11° C	EPR M/TAS NAM/1000#	1.35	1.33	1.32	1.31	1.29	1.29	1.28	1.26	1.25	1.24	1.22	1.21	1.20	1.18	1.17	1.16	1.14
		.632/399	.619/391			.597/377			.567/358			.529/334			.490/309			.454/287
		22.6	23.0	23.3	23.7	24.2	24.5	24.8	25.3	25.7	26.0	26.8	27.3	27.7	28.7	29.4	29.8	30.9

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



3 ENGINE LONG RANGE CRUISE

DC-8-61 JT3D-3B

FLT LVL		GROSS WEIGHT (1000 LBS.)																
Std. Temp.		325	315	305	295	285	275	265	255	245	235	225	215	205	195	185	175	165
370 -57° C	EPR M/TAS NAM/1000#														1.96 .740/426 43.4	1.91 .740/426 45.4	1.87 .718/415 47.2	1.81 .703/405 50.2
350 -54° C	EPR M/TAS NAM/1000#											2.00 .754/436 37.8	1.96 .754/436 39.4	1.93 .718/415 40.9	1.87 43.2	1.83 44.8	1.80 46.5	1.73 .671/388 49.4
330 -50° C	EPR M/TAS NAM/1000#									2.00 .759/443 34.7	1.96 .738/431 36.1	1.92 .738/431 37.5	1.88 .738/431 38.8	1.85 40.1	1.78 .690/403 42.5	1.75 .690/403 44.1	1.72 45.5	1.66 .645/376 48.0
310 -46° C	EPR M/TAS NAM/1000#						1.99 .772/455 31.8	1.94 .738/434 33.3	1.91 .738/434 34.4	1.88 35.5	1.83 .712/419 37.1	1.80 38.3	1.77 39.4	1.71 41.5	1.69 .667/393 42.9	1.66 44.2	1.60 .625/368 46.6	
290 -42° C	EPR M/TAS NAM/1000#					1.97 .754/448 29.7	1.94 .754/448 30.6	1.91 .709/421 31.4	1.85 .709/421 33.1	1.83 34.1	1.80 35.1	1.75 .680/404 36.5	1.73 .680/404 37.6	1.70 38.6	1.65 40.3	1.63 .649/385 41.5	1.60 42.7	1.55 .609/362 44.9
280 -40° C	EPR M/TAS NAM/1000#			1.99 .758/452 27.8	1.96 28.6	1.93 29.6	1.90 .743/443 30.4	1.87 .743/443 31.2	1.81 .696/415 32.9	1.79 .696/415 33.8	1.76 34.7	1.72 .667/398 36.1	1.69 .667/398 37.1	1.67 38.1	1.62 39.7	1.60 .640/382 40.8	1.58 41.9	1.52 .598/357 44.0
270 -38° C	EPR M/TAS NAM/1000#		1.97 .747/448 27.0	1.95 .747/448 27.7	1.92 28.5	1.88 29.5	1.86 .730/437 30.2	1.83 .730/437 31.0	1.78 .686/411 32.5	1.75 .686/411 33.4	1.73 34.3	1.69 .655/393 35.6	1.66 .655/393 36.6	1.64 37.6	1.59 39.1	1.57 .631/378 40.2	1.55 41.2	1.49 .585/351 43.2
260 -37° C	EPR M/TAS NAM/1000#	1.96 .751/451 26.1	1.93 .739/443 26.9	1.91 .739/443 27.6	1.88 28.3	1.84 29.3	1.82 .720/432 30.0	1.80 .720/432 30.8	1.74 .679/407 32.2	1.72 .679/407 33.0	1.70 33.8	1.66 .646/389 35.1	1.63 .646/389 36.1	1.61 37.0	1.57 38.5	1.54 .619/372 39.5	1.52 40.5	1.46 .570/343 42.4
250 -35° C	EPR M/TAS NAM/1000#	1.92 .743/448 26.0	1.89 .730/440 26.8	1.87 .730/440 27.4	1.85 28.1	1.81 29.1	1.78 .709/427 29.8	1.76 .709/427 30.5	1.71 .669/403 31.8	1.69 .669/403 32.6	1.67 33.3	1.63 .639/385 34.7	1.60 .639/385 35.5	1.58 36.4	1.54 37.9	1.52 .608/366 38.8	1.50 39.7	1.44 .559/337 41.6
240 -33° C	EPR M/TAS NAM/1000#	1.88 .735/445 25.8	1.85 .723/437 26.6	1.83 .723/437 27.2	1.81 27.8	1.77 28.8	1.75 .699/423 29.5	1.73 .699/423 30.1	1.69 .664/402 31.3	1.67 .664/402 32.0	1.65 32.8	1.60 .631/382 34.1	1.58 .631/382 35.0	1.56 35.8	1.51 37.2	1.49 .593/359 38.1	1.47 39.1	1.42 .546/330 40.8
230 -31° C	EPR M/TAS NAM/1000#	1.85 .727/442 25.6	1.82 .713/433 26.4	1.80 .713/433 27.0	1.78 27.6	1.74 28.5	1.72 .687/417 29.1	1.70 .687/417 29.7	1.66 .656/398 30.9	1.64 .656/398 31.5	1.62 32.2	1.57 .623/378 33.6	1.55 .623/378 34.3	1.53 35.1	1.49 36.5	1.47 .583/354 37.4	1.45 38.3	1.39 .536/325 40.1
220 -29° C	EPR M/TAS NAM/1000#	1.81 .716/437 25.4	1.78 .701/427 26.2	1.76 .701/427 26.8	1.74 27.3	1.71 28.2	1.69 .675/412 28.8	1.67 .675/412 29.3	1.63 .646/394 30.4	1.61 .646/394 31.1	1.59 31.7	1.55 .613/374 33.0	1.53 .613/374 33.7	1.51 34.4	1.46 35.8	1.44 .570/347 36.7	1.43 37.6	1.37 .527/321 39.3
210 -27° C	EPR M/TAS NAM/1000#	1.78 .703/430 25.3	1.75 .688/421 25.9	1.73 .688/421 26.5	1.71 27.0	1.68 27.9	1.66 .661/405 28.4	1.64 .661/405 29.0	1.60 .635/389 30.0	1.58 .635/389 30.7	1.56 31.3	1.52 .602/368 32.4	1.51 .602/368 33.1	1.49 33.8	1.44 35.1	1.42 .561/343 35.9	1.41 36.8	1.35 .518/317 38.5
200 -25° C	EPR M/TAS NAM/1000#	1.74 .690/424 25.0	1.72 .675/415 25.7	1.70 .675/415 26.2	1.68 26.6	1.65 27.5	1.63 .650/399 28.0	1.61 .650/399 28.6	1.57 .623/383 29.6	1.55 .623/383 30.2	1.54 30.8	1.50 .591/363 31.8	1.48 .591/363 32.5	1.47 33.2	1.42 34.4	1.40 .553/340 35.2	1.39 36.0	1.34 .509/313 37.7
190 -23° C	EPR M/TAS NAM/1000#	1.71 .679/419 24.7	1.68 .663/409 25.4	1.67 .663/409 25.8	1.65 26.3	1.62 27.1	1.60 .640/395 27.7	1.58 .640/395 28.2	1.54 .611/377 29.1	1.53 .611/377 29.7	1.51 30.2	1.47 .580/358 31.2	1.46 .580/358 31.9	1.44 32.5	1.40 33.7	1.39 .548/338 34.5	1.37 35.2	1.32 .499/308 36.9
180 -21° C	EPR M/TAS NAM/1000#	1.68 .669/414 24.4	1.66 .653/404 25.0	1.64 .653/404 25.5	1.62 25.9	1.59 26.7	1.57 .631/391 27.2	1.56 .631/391 27.7	1.52 .600/372 28.6	1.51 .600/372 29.1	1.49 29.7	1.45 .569/352 30.7	1.44 .569/352 31.3	1.42 31.9	1.38 33.1	1.37 .539/334 33.8	1.35 34.6	1.30 .489/303 36.2

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Continuous Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 8 knots/10°C above standard. Subtract 8 knots/10°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



2 ENGINE LONG RANGE CRUISE

DC-8-61 JT3D-3B

FLT LVL		GROSS WEIGHT (1000 LBS.)																
Std. Temp.		325	315	305	295	285	275	265	255	245	235	225	215	205	195	185	175	165
270 -38° C	EPR M/TAS NAM/1000#															1.98 .597/358 36.9	1.95 38.3	1.87 .563/337 40.7
250 -35° C	EPR M/TAS NAM/1000#														1.93 35.0	1.90 36.4	1.86 37.8	1.78 .536/324 40.1
230 -31° C	EPR M/TAS NAM/1000#												1.96 .592/360 31.6	1.93 32.7	1.85 34.5	1.82 35.8	1.79 37.1	1.70 .511/311 39.2
210 -27° C	EPR M/TAS NAM/1000#											1.91 30.2	1.88 31.2	1.85 32.2	1.78 33.9	1.75 35.1	1.72 36.2	1.64 .493/302 38.2
190 -23° C	EPR M/TAS NAM/1000#									1.92 .580/359 27.6	1.89 28.4	1.83 29.7	1.80 30.6	1.78 31.6	1.71 33.1	1.69 34.1	1.66 35.1	1.58 .479/296 37.0
170 -19° C	EPR M/TAS NAM/1000#							1.92 .577/360 25.5	1.87 26.4	1.84 27.2	1.82 28.0	1.76 29.2	1.74 30.0	1.71 30.8	1.66 32.1	1.63 33.0	1.61 33.9	1.53 .466/290 35.7
150 -15° C	EPR M/TAS NAM/1000#						1.88 .569/358 24.4	1.85 25.0	1.80 26.0	1.77 26.7	1.75 27.4	1.70 28.5	1.68 29.2	1.65 30.0	1.60 31.2	1.58 32.0	1.56 32.8	1.48 .451/283 34.4
130 -11° C	EPR M/TAS NAM/1000#				1.87 .570/360 22.7	1.83 23.4	1.80 24.0	1.78 24.5	1.74 25.4	1.72 26.0	1.70 26.6	1.64 27.7	1.62 28.4	1.60 29.0	1.54 30.3	1.52 31.0	1.50 31.8	1.44 .436/276 33.4
110 - 7° C	EPR M/TAS NAM/1000#		1.84 21.3	1.82 21.8	1.80 22.3	1.76 23.0	1.74 23.5	1.72 24.0	1.68 24.8	1.66 25.3	1.64 25.9	1.58 27.0	1.56 27.6	1.54 28.2	1.49 29.2	1.47 30.0	1.45 30.7	1.39 .422/269 32.2
90 - 3° C	EPR M/TAS NAM/1000#	1.82 .556/358 20.3	1.78 21.0	1.76 21.4	1.74 21.8	1.70 22.5	1.68 22.9	1.67 23.4	1.62 24.1	1.60 24.6	1.59 25.1	1.53 26.1	1.51 26.7	1.49 27.3	1.44 28.4	1.42 29.1	1.41 29.7	1.36 .410/263 31.0
70 1° C	EPR M/TAS NAM/1000#	1.75 .540/348 19.9	1.72 20.5	1.70 20.9	1.69 21.2	1.65 21.8	1.63 22.2	1.62 22.7	1.56 23.5	1.55 24.0	1.53 24.4	1.48 25.2	1.47 25.8	1.45 26.3	1.40 27.4	1.39 28.1	1.37 28.7	1.33 .399/258 29.7
50 5° C	EPR M/TAS NAM/1000#	1.69 .523/341 19.5	1.66 19.9	1.65 20.3	1.64 20.6	1.59 21.3	1.58 21.7	1.56 22.1	1.52 22.7	1.50 23.2	1.49 23.6	1.44 24.4	1.42 25.0	1.41 25.5	1.37 26.4	1.35 27.0	1.34 27.6	1.30 .387/253 28.6
30 9° C	EPR M/TAS NAM/1000#	1.64 .507/328 19.0	1.61 19.4	1.59 19.8	1.58 20.1	1.54 20.7	1.52 21.1	1.51 21.4	1.47 22.0	1.46 22.4	1.45 22.8	1.40 23.7	1.39 24.2	1.38 24.6	1.34 25.4	1.33 25.9	1.32 26.4	1.28 .377/248 27.5
10 13° C	EPR M/TAS NAM/1000#	1.59 .495/326 18.5	1.55 18.9	1.54 19.2	1.53 19.5	1.49 20.0	1.48 20.4	1.46 20.7	1.43 21.3	1.42 21.7	1.41 22.1	1.37 22.8	1.36 23.3	1.35 23.7	1.31 24.5	1.30 25.0	1.29 25.4	1.26 .368/243 26.3

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's determine and set Max. Continuous Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 6 knots/10°C above standard. Subtract 6 knots/10°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



MAXIMUM CRUISE EPR - JT3D-7

					4 ENGINES				
TAT °C	SL - 30T		35T	40T	TAT °C	SL - 30T		35T	40T
50	1.34	ICING BLEED ON ↓			- 5	1.77	1.71	1.75	1.72
45	1.38				-10	1.81	1.73	1.78	1.76
40	1.42				-15	1.84	1.76	1.82	1.79
35	1.46				-20	1.87	1.78	1.85	1.83
30	1.50				-25	1.90	1.81	1.88	1.86
25	1.54				-30	1.92	1.83	1.91	1.89
20	1.58	1.54			-35	1.95	1.85	1.94	1.92
15	1.62	1.58			-40	1.97	1.86	1.97	1.95
10	1.66	1.61	1.63	1.60	-45	1.99	ICING BLEED ON ↑	1.99	1.97
5	1.70	1.65	1.67	1.64	-50	2.00		2.02	1.99
0	1.74	1.68	1.71	1.68					

- NOTES:**
- (1) Subtract 0.01 if Rain Removal ON.
 - (2) Add 0.02 for each 5°C above standard temperature up to a maximum increase of 0.06 for $T_S + 15^\circ\text{C}$ and above.

OPERATION WITH ENGINE THRUST BRAKE TRANSLATING RING UNSTOWED

Airplane fuel consumption is increased 15% for each translating ring not stowed.

CRUISE

FLIGHT PLANNING TABLE

DC-8-62

JT3D-7



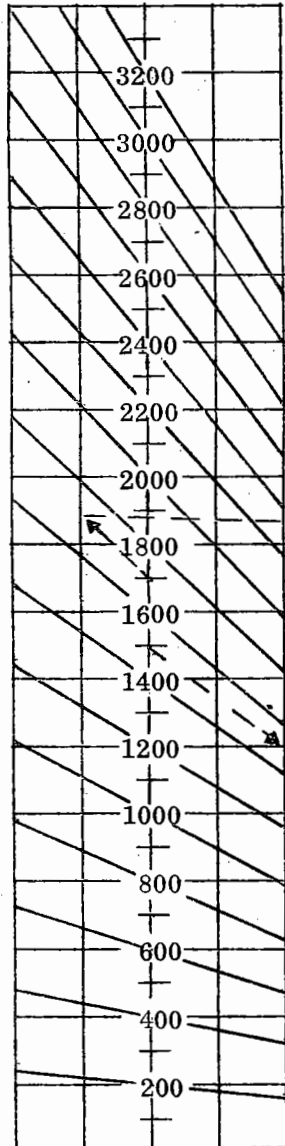
When the trip length line (corrected for wind) intersects between the horizontal time-fuel lines, use the time and fuel shown in the blocks for the flight altitude. Example: 1500 NM, 100 K Tailwind, Altitude 35,000. Time 2:44, Fuel 30.6.

When the trip length line (corrected for wind) intersects on a horizontal time-fuel line; interpolate. Example: 1700 NM, 50 K Headwind, Altitude 37,000. Time 4:10, Fuel 44.9.

BASED ON FOLLOWING SPEED SCHEDULE:

- CLIMB: 250 IAS to 10,000 Ft. - 300 IAS to 29,000 Ft. - Mach 0.78 above 29,000 Ft.
- CRUISE: S. L. to 10,000 Ft. - 250 IAS
10,000 Ft. to 20,500 Ft. - V_{MO}
20,500 Ft. and above - Mach 0.80
- DESCENT: Mach 0.82 to 28,000 Ft. - 330 IAS between 28,000 Ft. and 10,000 Ft. - 250 IAS below 10,000 Ft.

TRIP LENGTH - NM



100 0 100
HDWD TLWD

FLIGHT TIME AND FUEL BURNOUT

39,000 FT.		37,000 FT.		35,000 FT.		33,000 FT.		31,000 FT.		29,000 FT.		27,000 FT.		25,000 FT.		20,000 FT.		15,000 FT.		10,000 FT.	
460 TAS		460 TAS		462 TAS		466 TAS		471 TAS		475 TAS		479 TAS		483 TAS		484 TAS		441 TAS		403 TAS	
TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL
7:19	81.9	7:19	82.5	7:18	83.8	7:15	86.9	7:11	90.7	7:08	95.6	7:05	100.6								
7:06	79.1	7:06	79.8	7:05	81.1	7:02	84.1	6:59	87.8	6:55	92.5	6:52	97.4								
6:53	76.4	6:53	77.0	6:52	78.3	6:49	81.3	6:46	84.9	6:42	89.5	6:39	94.2								
6:40	73.8	6:40	74.3	6:39	75.6	6:36	78.6	6:33	82.1	6:30	86.5	6:27	91.0								
6:27	71.1	6:27	71.6	6:26	73.0	6:23	75.8	6:20	79.2	6:17	83.5	6:14	87.9								
6:14	68.5	6:14	68.9	6:13	70.4	6:10	73.1	6:07	76.3	6:04	80.5	6:01	84.7	5:59	89.8						
6:01	65.9	6:01	66.2	6:00	67.7	5:57	70.4	5:54	73.5	5:51	77.5	5:49	81.6	5:46	86.5						
5:48	63.3	5:48	63.6	5:47	65.1	5:44	67.7	5:41	70.7	5:39	74.5	5:36	78.5	5:34	83.2						
5:35	60.7	5:35	61.0	5:34	62.6	5:31	65.0	5:29	67.9	5:26	71.6	5:23	75.3	5:21	79.9						
5:22	58.1	5:22	58.5	5:21	60.0	5:18	62.4	5:16	65.1	5:13	68.7	5:11	72.3	5:09	76.6						
5:09	55.6	5:09	55.9	5:08	57.4	5:06	59.8	5:03	62.4	5:01	65.7	4:58	69.2	4:56	73.3	4:54	83.1				
4:56	53.1	4:56	53.4	4:55	54.9	4:53	57.1	4:50	59.6	4:48	62.9	4:46	66.2	4:43	70.1	4:41	79.4				
4:42	50.7	4:43	51.0	4:42	52.4	4:40	54.5	4:37	56.9	4:35	60.0	4:33	63.1	4:31	66.9	4:29	75.7				
4:29	48.2	4:29	48.5	4:28	49.9	4:27	51.9	4:24	54.2	4:23	57.1	4:20	60.1	4:18	63.6	4:16	72.0				
4:16	45.7	4:16	46.1	4:15	47.5	4:14	49.3	4:12	51.5	4:10	54.2	4:08	57.1	4:06	60.4	4:04	68.4				
4:03	43.2	4:03	43.7	4:20	45.0	4:01	46.8	3:59	48.8	3:57	51.4	3:55	54.1	3:53	57.2	3:52	64.7	4:11	68.9	4:34	76.6
3:50	40.9	3:50	41.3	3:49	42.5	3:48	44.2	3:46	46.1	3:45	48.6	3:43	51.1	3:41	54.1	3:39	61.1	3:58	65.0	4:19	72.3
3:37	38.5	3:37	39.0	3:36	40.1	3:35	41.7	3:33	43.5	3:32	45.7	3:30	48.1	3:28	50.9	3:27	57.5	3:44	61.2	4:04	67.9
3:24	36.2	3:24	36.6	3:23	37.7	3:22	39.2	3:20	40.8	3:19	42.9	3:17	45.1	3:16	47.8	3:14	53.9	3:31	57.4	3:49	63.6
3:11	33.8	3:11	34.3	3:10	35.3	3:09	36.7	3:08	38.2	3:06	40.1	3:05	42.2	3:03	44.6	3:02	50.3	3:17	53.5	3:35	59.3
2:58	31.5	2:57	32.0	2:57	32.9	2:56	34.2	2:55	35.6	2:53	37.4	2:52	39.2	2:51	41.5	2:49	46.7	3:04	49.7	3:20	55.0
2:44	29.3	2:44	29.7	2:44	30.6	2:43	31.7	2:42	32.9	2:41	34.6	2:39	36.3	2:38	38.4	2:37	43.2	2:50	45.9	3:05	50.7
2:31	27.0	2:31	27.4	2:31	28.2	2:31	29.2	2:29	30.4	2:28	31.9	2:27	33.4	2:26	35.3	2:25	39.6	2:36	42.1	2:50	46.5
2:18	24.8	2:18	25.2	2:18	25.9	2:18	26.8	2:17	27.8	2:15	29.1	2:14	30.5	2:13	32.1	2:12	36.1	2:23	38.3	2:35	42.3
2:05	22.6	2:05	22.9	2:05	23.6	2:05	24.3	2:04	25.3	2:02	26.4	2:02	27.6	2:01	29.0	2:00	32.5	2:09	34.5	2:20	38.0
1:52	20.4	1:52	20.7	1:52	21.2	1:52	21.9	1:51	22.7	1:50	23.7	1:49	24.7	1:48	26.0	1:48	29.0	1:56	30.8	2:05	33.8
1:39	18.3	1:39	18.5	1:39	18.9	1:39	19.5	1:38	20.1	1:37	21.0	1:36	21.8	1:36	22.9	1:35	25.5	1:42	27.0	1:50	29.6
1:25	16.2	1:26	16.3	1:26	16.6	1:26	17.1	1:25	17.6	1:24	18.3	1:24	18.9	1:23	19.9	1:23	22.0	1:28	23.2	1:35	25.4
1:12	14.0	1:13	14.1	1:13	14.4	1:13	14.7	1:13	15.1	1:11	15.6	1:11	16.1	1:11	16.8	1:11	18.5	1:15	19.5	1:20	21.3
:59	11.9	1:00	12.0	1:00	12.1	1:00	12.3	1:00	12.6	:59	12.9	:58	13.3	:58	13.8	:58	15.0	1:01	15.7	1:05	17.1
:46	9.8	:46	9.8	:47	9.8	:47	9.9	:47	10.1	:46	10.3	:46	10.5	:46	10.8	:46	11.5	:48	12.0	:50	13.0
				:34	7.6	:34	7.6	:34	7.6	:33	7.6	:33	7.6	:33	7.7	:33	8.1	:34	8.3	:36	8.9
																:21	4.7	:20	4.6	:21	4.8
490 LBS		450 LBS		370 LBS		300 LBS		270 LBS		240 LBS		200 LBS		180 LBS		170 LBS		110 LBS		150 LBS	

NOTE: Table valid only for landing weight of 200,000 lbs and less. For each 10,000 lbs deviation above 200,000 lbs, add fuel burnout correction shown at bottom of Table for each hour of Flight Time.

CRUISE

FLIGHT PLANNING TABLE

DC-8-62 JT3D-7



When the trip length line (corrected for wind) intersects between the horizontal time-fuel lines, use the time and fuel shown in the blocks for the flight altitude. Example: 4400 NM, 50 K Tailwind, Altitude 35,000, Time 8:36, Fuel 101.2.

When the trip length line (corrected for wind) intersects on a horizontal time-fuel line; interpolate. Example: 3000 NM, 50 K Headwind, Altitude 37,000. Time 7:26, Fuel 83.9.

BASED ON FOLLOWING SPEED SCHEDULE:

CLIMB: 250 IAS to 10,000 Ft. - 300 IAS to 29,000 Ft. - Mach 0.78 above 29,000 Ft.
CRUISE: S. L. to 10,000 Ft. - 250 IAS
10,000 Ft. to 20,500 Ft. - V_{MO}
20,500 Ft. and above - Mach 0.80
DESCENT: Mach 0.82 to 28,000 Ft. - 330 IAS between 28,000 Ft. and 10,000 Ft. - 250 IAS below 10,000 Ft.

FLIGHT TIME AND FUEL BURNOUT													
39,000 FT.		37,000 FT.		35,000 FT.		33,000 FT.		31,000 FT.		29,000 FT.		27,000 FT.	
461 TAS		461 TAS		464 TAS		468 TAS		472 TAS		476 TAS		480 TAS	
TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL	TIME	FUEL
11:49	146.2	11:49	147.1										
11:37	142.9	11:36	143.8	11:36	145.3								
11:24	140.0	11:23	140.4	11:23	141.9	11:19	145.7						
11:11	136.2	11:11	137.1	11:10	138.6	11:06	142.3	11:03	146.8				
10:58	133.0	10:58	133.8	10:57	135.3	10:54	139.0	10:50	143.5				
10:45	129.8	10:45	130.5	10:44	132.1	10:41	135.6	10:37	140.1	10:32	147.1		
10:32	126.6	10:32	127.2	10:31	128.9	10:28	132.3	10:24	136.8	10:19	143.7		
10:19	123.4	10:20	123.9	10:18	125.7	10:15	129.1	10:11	133.6	10:06	140.4	10:01	147.6
10:06	120.3	10:07	120.8	10:05	122.5	10:03	125.8	9:58	130.4	9:53	137.0	9:49	144.1
9:54	117.2	9:54	117.6	9:52	119.4	9:50	122.6	9:45	127.2	9:41	133.7	9:36	140.7
9:41	114.1	9:41	114.5	9:40	116.3	9:37	119.4	9:32	124.0	9:28	130.4	9:24	137.2
9:28	111.1	9:28	111.4	9:27	113.2	9:24	116.3	9:19	121.0	9:15	127.1	9:11	133.8
9:15	108.1	9:15	108.4	9:14	110.2	9:11	113.1	9:07	117.8	9:03	123.9	8:58	130.4
9:03	105.0	9:02	105.4	9:01	107.2	8:58	110.1	8:54	114.7	8:50	120.7	8:46	127.0
8:50	102.0	8:49	102.4	8:49	104.2	8:45	107.1	8:41	111.6	8:37	117.5	8:33	123.6
8:37	99.1	8:36	99.5	8:36	101.2	8:32	104.1	8:28	108.6	8:25	114.3	8:20	120.3
8:24	96.1	8:23	96.6	8:23	98.2	8:19	101.1	8:16	105.6	8:12	111.1	8:08	117.0
8:11	93.2	8:10	93.8	8:10	95.3	8:06	98.3	8:03	102.5	7:59	108.0	7:55	113.7
7:58	90.2	7:57	90.9	7:57	92.3	7:54	95.4	7:50	99.6	7:47	104.9	7:43	110.4
7:45	87.4	7:44	88.1	7:44	89.4	7:41	92.5	7:37	96.6	7:34	101.7	7:30	107.1
7:32	84.6	7:32	85.3	7:31	86.6	7:28	89.7	7:24	93.7	7:21	98.7	7:17	103.9
7:19	81.9	7:19	82.5	7:18	83.8	7:15	86.9	7:11	90.7	7:08	95.6	7:05	100.6
7:06	79.9	7:06	79.7	7:05	81.1	7:02	84.1	6:59	87.8	6:55	92.5	6:52	97.4
6:53	76.4	6:53	77.0	6:52	78.3	6:49	81.3	6:46	84.9	6:42	89.5	6:39	94.2
6:40	73.8	6:40	74.3	6:39	75.6	6:36	78.6	6:33	82.1	6:30	86.5	6:27	91.0
6:27	71.1	6:27	71.6	6:26	73.0	6:23	75.8	6:20	79.2	6:17	83.5	6:14	87.9
540 LBS		520 LBS		450 LBS		370 LBS		280 LBS		240 LBS		200 LBS	

NOTE: Table valid only for landing weight of 200,000 lbs and less. For each 10,000 lbs deviation above 200,000 lbs, add fuel burnout correction shown at bottom of Table for each hour of Flight Time.

DC-8-62 MAXIMUM RECOMMENDED INITIAL CRUISE WEIGHT

The maximum weight at which speed for long range cruise can be maintained at maximum cruise thrust.

NOTE: Below weights are limited to insure a minimum 1.4G buffet margin.

FLT. LEVEL STD. TEMP	ALL TEMPERATURES	
	WEIGHT	MACH/IAS
410 -57°C	210,000	0.79/233
390 -57°C	230,000	0.79/245
370 -57°C	254,000	0.80/259
350 -54°C	280,000	0.80/270
330 -50°C	307,000	0.80/282
310 -46°C	338,000	0.79/293



DC-8-62 JT3D-7

FAR 10% FLIGHT TIME OVERWATER RESERVE FUEL

NOTE: This fuel replaces contingency fuel used in domestic operation.
It is based on long range cruise at 20,000 feet.

EST. FLT. TIME (HRS)	FAR 10% FLT TIME RESERVE FUEL (LBS)
2.0	2200
2.5	2700
3.0	3200
3.5	3700
4.0	4200
4.5	4800
5.0	5200
5.5	5700
6.0	6200
6.5	6700
7.0	7200
7.5	7700
8.0	8200
8.5	8700
9.0	9200
9.5	9700
10.0	10,250
10.5	10,750
11.0	11,250
11.5	11,750

DC-8-62 JT3D-7

SUMMARY FLIGHT PLANNING RULES	
FAR DOMESTIC RESERVE	= 8,000 LBS.
FAR OVERWATER RESERVE	= 6,000 LBS.
MINIMUM ALTERNATE FUEL	= 1,700 LBS.
PLANNED HOLDING FUEL	= 10,000 LBS/HR.
CONTINGENCY FUEL (See FOM for exception)	= 4,000 LBS.
MIN. PLANNED BURNOUT AT END FINAL STEP-CLIMB	= 6,000 LBS.
FLIGHT PLAN TIME AND FUEL ADJUSTMENT FOR STEP-CLIMB:	
<u>Step-Climb</u>	<u>Additional Time and Fuel</u>
2,000 ft.	1/2 Min., 200 lbs.
3,000 ft., 4,000 ft., 5,000 ft.	1 Min., 400 lbs.
6,000 ft., 7,000 ft., 8,000 ft.	2 Min., 600 lbs.

DC-8-62 JT3D-7TIME, DISTANCE AND FUEL FOR NORMAL DESCENT

FINAL CRUISE ALTITUDE	TIME (MIN.)	DISTANCE (N. MI.)	FUEL (POUNDS)
41,000	26	160	2950
39,000	24	144	2720
37,000	22	127	2460
35,000	20	110	2150
33,000	19	99	2000
31,000	18	94	1970
29,000	18	90	1940
28,000	17	88	1930
27,000	17	86	1910
26,000	17	85	1900
25,000	16	81	1880
24,000	16	78	1860
23,000	16	75	1840
22,000	15	72	1820
21,000	15	70	1800
20,000	14	67	1790
19,000	14	65	1770
18,000	14	62	1750
17,000	14	60	1730
16,000	13	58	1710
15,000	13	56	1700
10,000	12	45	1520
5,000	7	21	1290



TIME IN MINUTES/FUEL IN LBS./DISTANCE IN NAUTICAL MILES

ALT. FT. TOGW 1000 LBS.	25,000				27,000			
	T _S -10°C	T _S	T _S +10°C	T _S +20°C	T _S -10°C	T _S	T _S +10°C	T _S +20°C
350	19/8413/94	22/9340/114	26/10639/143	33/12582/188	21/9214/110	25/10296/135	30/11806/170	38/14127/226
340	17/7980/89	19/8860/107	23/10009/134	29/11730/175	19/8720/104	23/9700/127	27/11020/159	34/13140/209
320	15/7220/80	18/7940/96	21/8910/118	26/10300/152	17/7870/93	20/8690/112	24/9810/139	29/11400/179
300	14/6450/71	16/7060/85	18/7880/104	23/9010/131	15/7020/83	18/7720/99	21/8650/122	26/9960/155
280	12/5870/64	14/6390/76	16/7070/92	20/8000/115	14/6370/74	16/6960/88	18/7730/107	22/8800/135
260	11/5280/57	12/5730/68	15/6300/82	18/7080/101	12/5720/66	14/6220/78	16/6900/95	20/7750/118
240	10/4800/51	11/5200/60	13/5670/72	15/6320/89	11/5180/59	12/5610/70	14/6150/84	17/6880/103
220	9/4350/46	10/4680/54	12/5100/64	14/5640/78	10/4680/52	11/5050/62	13/5510/74	15/6120/90
200	8/3930/41	9/4220/48	10/4570/57	12/5030/69	9/4220/47	10/4540/55	12/4930/65	14/5450/79
180	8/3540/36	9/3790/42	10/4090/50	11/4480/60	8/3800/41	9/4070/48	11/4400/57	12/4840/69
160	7/3170/32	7/3380/37	8/3640/43	10/3970/52	7/3390/36	8/3630/42	9/3911/50	11/4280/60

NOTES: 1. Based on use of maximum continuous thrust and 300 knots IAS to .78M.

2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute
 Fuel - 200 lbs.
 Distance - 2.0 N. M.

ALT. FT. TOGW 1000 LBS.	29,000				31,000			
	T _S -10°C	T _S	T _S +10°C	T _S +20°C	T _S -10°C	T _S	T _S +10°C	T _S +20°C
350	24/10142/131	28/11436/161	35/13262/206	45/16215/282	27/11032/152	32/12568/190	40/14790/247	54/18735/355
340	21/9670/123	25/10740/151	31/12360/191	40/14900/257	24/10350/142	28/11700/176	35/13620/225	47/16730/312
320	19/8590/109	23/9550/133	27/10860/165	34/12810/216	21/9220/124	25/10310/152	30/11800/191	39/14130/254
300	17/7840/96	20/8450/116	24/9520/143	29/11070/185	19/8180/109	22/9070/132	26/10270/164	33/12060/213
280	15/6910/86	18/7590/103	21/8470/126	25/9720/159	17/7360/97	19/8110/116	23/9090/142	28/10500/182
260	14/6190/77	16/6760/91	19/7500/110	22/8520/138	15/6580/86	17/7210/102	20/8020/124	25/9150/157
240	12/5590/68	14/6070/80	16/6690/97	19/7520/120	13/5920/76	15/6450/90	18/7130/109	21/8050/135
220	11/5040/60	12/5450/71	14/5970/85	17/6660/105	12/5330/67	14/5770/79	15/6340/95	19/7100/117
200	10/4530/53	11/4880/63	13/5320/75	15/5900/91	11/4780/59	12/5160/70	14/5630/83	16/6260/102
180	9/4060/47	10/4360/55	12/4740/65	14/5220/79	10/4270/52	11/4600/61	13/5000/72	15/5520/88
160	8/3620/41	9/3880/48	10/4190/57	12/4600/69	8/3800/45	9/4080/53	11/4420/63	13/4860/76



CLIMB PERFORMANCE

DC-8-62 JT3D-7

TIME IN MINUTES/FUEL IN LBS. /DISTANCE IN NAUTICAL MILES

ALT. TOGW 1000 LBS.	33,000				35,000			
	T _S -10°C	T _S	T _S +10°C	T _S +20°C	T _S -10°C	T _S	T _S +10°C	T _S +20°C
350								
340								
320	24/9980/144	28/11240/177	35/12990/225	46/15900/309				
300	21/8760/124	24/9760/151	29/11110/188	37/13180/248	24/9540/146	28/10720/179	34/12300/225	45/14970/306
280	18/7840/109	21/8660/131	25/9741/161	31/11330/207	21/8400/125	24/9320/151	28/10530/185	36/12370/241
260	16/6980/96	19/7660/115	22/8540/139	27/9800/176	18/7430/109	21/8170/130	25/9140/158	30/10540/201
240	14/6260/85	17/6830/101	19/7560/121	23/8570/151	16/6630/95	18/7250/113	21/8030/136	26/9140/170
220	13/5610/75	15/6100/88	17/6700/105	20/7530/130	14/5920/83	16/6440/98	19/7090/117	22/7980/145
200	11/5020/66	13/5430/77	15/5940/92	18/6610/112	12/5280/73	14/5720/86	16/6260/101	19/6980/124
180	11/4480/57	12/4830/67	14/5250/81	16/5810/97	12/4700/63	13/5060/74	15/5510/88	17/6110/107
160	9/3980/50	10/4270/58	12/4630/69	14/5090/75	9/4160/55	11/4470/64	12/4840/75	15/5340/91

NOTES: 1. Based on use of maximum continuous thrust and 300 knots IAS to .78M.

2. For each 1,000 feet takeoff airport above sea level reduce:

Time - 0.5 Minute
 Fuel - 200 lbs.
 Distance - 2.0 N. M.

ALT. TOGW 1000 LBS.	37,000				39,000			
	T _S -10°C	T _S	T _S +10°C	T _S +20°C	T _S -10°C	T _S	T _S +10°C	T _S +20°C
350								
340								
320								
300								
280								
260	20/8000/126	24/8840/151	28/9920/184	35/11560/237				
240	18/7070/109	20/7750/129	24/8600/155	29/9840/195	20/7670/129	24/8460/154	28/9450/186	35/11000/240
220	15/6280/94	18/6830/111	20/7530/132	25/8500/164	18/6710/109	20/7330/128	23/8100/153	28/9220/192
200	14/5570/82	15/6040/96	18/6610/113	21/7390/139	15/5910/93	17/6420/109	20/7039/129	24/7610/159
180	12/9940/71	14/5330/83	16/5800/97	19/6440/118	14/5210/80	15/5630/93	17/6140/110	21/6830/134
160	11/4360/61	12/4680/71	13/5080/83	16/5600/101	12/4500/68	13/4920/79	15/5350/93	17/5910/112

4 ENGINE MACH .78 CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL TAT	MACH TAS/IAS		GROSS WEIGHT (1000 LBS.)																
			345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
410 -30°C	0.78 449/230	EPR NAM/1000#														1.78 45.8	1.72 50.5	1.68 52.9	1.64 55.0
390 -30°C	0.78 449/241	EPR NAM/1000#												1.77 44.0	1.72 46.3	1.68 48.3	1.64 50.0	1.61 51.7	1.58 53.4
370 -30°C	0.78 449/253	EPR NAM/1000#									1.81 38.9	1.76 40.9	1.71 42.7	1.67 44.3	1.64 45.7	1.61 47.1	1.59 48.6	1.56 49.9	1.54 51.2
350 -27°C	0.78 451/265	EPR NAM/1000#							1.78 36.6	1.73 38.2	1.66 40.8	1.63 42.0	1.61 43.2	1.58 44.3	1.56 45.5	1.54 46.6	1.52 47.7	1.50 48.8	1.48 50.0
330 -23°C	0.78 455/277	EPR NAM/1000#				1.78 33.1	1.74 34.4	1.71 35.6	1.68 36.7	1.65 37.7	1.62 38.7	1.60 39.6	1.58 40.6	1.56 41.6	1.54 42.5	1.52 43.4	1.50 44.3	1.48 45.3	1.47 46.2
310 -19°C	0.78 459/289	EPR NAM/1000#	1.78 30.3	1.74 31.4	1.71 32.4	1.68 33.3	1.66 34.2	1.63 35.0	1.61 35.8	1.59 36.6	1.57 37.4	1.55 38.2	1.54 38.9	1.52 40.0	1.50 40.4	1.49 41.2	1.47 42.1	1.45 42.9	1.44 43.7
290 -14°C	0.78 463/302	EPR NAM/1000#	1.68 30.4	1.66 31.1	1.64 31.8	1.62 32.4	1.60 33.1	1.60 33.8	1.56 34.4	1.55 35.1	1.53 35.7	1.52 36.3	1.50 37.0	1.49 37.6	1.47 38.3	1.46 39.0	1.44 39.7	1.43 40.4	1.42 41.0
280 -12°C	0.78 465/309	EPR NAM/1000#	1.65 30.0	1.63 30.7	1.61 31.3	1.59 31.9	1.57 32.5	1.56 33.1	1.54 33.7	1.53 34.2	1.51 34.8	1.50 35.4	1.48 36.1	1.47 36.7	1.46 37.3	1.44 38.0	1.43 38.6	1.42 39.1	1.41 39.7
270 -10°C	0.78 467/315	EPR NAM/1000#	1.62 29.7	1.60 30.2	1.58 30.8	1.57 31.3	1.55 31.9	1.54 32.4	1.52 32.9	1.51 33.4	1.50 34.0	1.48 34.6	1.47 35.2	1.46 35.7	1.44 36.3	1.43 36.9	1.42 37.4	1.41 37.9	1.40 38.4
260 - 8°C	0.78 469/322	EPR NAM/1000#	1.59 29.2	1.58 29.7	1.56 30.2	1.55 30.7	1.53 31.2	1.52 31.7	1.51 32.1	1.49 32.7	1.48 33.2	1.47 33.7	1.45 34.2	1.44 34.8	1.43 35.3	1.42 35.6	1.41 36.2	1.40 36.7	1.39 37.2
250 - 6°C	0.78 471/329	EPR NAM/1000#	1.57 28.7	1.56 29.2	1.54 29.6	1.53 30.0	1.52 30.5	1.51 30.9	1.49 31.4	1.48 31.9	1.47 32.4	1.45 32.9	1.44 33.3	1.43 33.8	1.42 34.2	1.41 34.7	1.40 35.1	1.39 35.6	1.38 36.0
240 - 3°C	0.78 473/335	EPR NAM/1000#	1.55 28.1	1.54 28.5	1.52 28.9	1.51 29.3	1.50 29.8	1.49 30.2	1.48 30.6	1.46 31.1	1.45 31.5	1.44 32.0	1.43 32.4	1.42 32.8	1.41 33.2	1.40 33.6	1.39 34.0	1.38 34.4	1.38 34.7
230 - 1°C	0.78 475/342	EPR NAM/1000#	1.53 27.5	1.52 27.9	1.51 28.3	1.50 28.7	1.48 29.1	1.47 29.5	1.46 29.9	1.45 30.3	1.44 30.7	1.43 31.1	1.42 31.4	1.41 31.8	1.40 32.2	1.39 32.6	1.38 32.9	1.38 33.2	1.37 33.4
220 1°C	0.78 477/349	EPR NAM/1000#	1.52 26.9	1.50 27.2	1.49 27.6	1.48 28.0	1.47 28.3	1.46 28.7	1.45 29.1	1.44 29.4	1.43 29.8	1.42 30.1	1.41 30.5	1.40 30.8	1.39 31.2	1.38 31.5	1.38 31.8	1.37 32.0	1.37 32.2
210 3°C	0.78 479/356	EPR NAM/1000#	1.50 26.2	1.49 26.6	1.48 26.9	1.47 27.3	1.46 26.6	1.45 28.0	1.44 28.3	1.43 28.6	1.42 28.9	1.41 29.3	1.40 29.6	1.39 29.9	1.39 30.2	1.38 30.4	1.37 30.6	1.37 30.8	1.37 30.9

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE MACH .79 CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL TAT	MACH TAS/IAS		GROSS WEIGHT (1000 LBS.)																
			345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
410 -29°C	0.79 455/233	EPR NAM/1000#													1.79 47.4	1.73 50.2	1.68 52.6	1.65 54.6	
390 -29°C	0.79 455/244	EPR NAM/1000#											1.78 43.7	1.73 46.0	1.69 48.0	1.65 49.6	1.62 51.2	1.59 52.9	
370 -29°C	0.79 455/256	EPR NAM/1000#										1.76 40.6	1.72 42.4	1.68 44.0	1.65 45.4	1.62 46.7	1.60 48.1	1.57 49.4	1.55 50.7
350 -27°C	0.79 457/268	EPR NAM/1000#						1.78 36.3	1.74 37.9	1.70 39.3	1.67 40.6	1.64 41.7	1.62 42.8	1.59 43.9	1.57 45.0	1.55 46.1	1.53 47.2	1.51 48.2	
330 -22°C	0.79 460/281	EPR NAM/1000#				1.79 32.9	1.75 34.2	1.71 35.4	1.68 36.5	1.66 37.4	1.63 38.4	1.61 39.3	1.59 40.2	1.57 41.1	1.55 42.0	1.53 42.9	1.51 43.8	1.50 44.8	1.48 45.7
310 -18°C	0.79 464/293	EPR NAM/1000#	1.79 30.1	1.75 31.2	1.72 32.2	1.69 33.1	1.67 33.9	1.64 34.7	1.62 35.5	1.60 36.2	1.58 37.0	1.56 37.7	1.55 38.5	1.53 39.2	1.51 40.0	1.50 40.8	1.48 41.6	1.47 42.3	1.45 43.1
290 -13°C	0.79 470/306	EPR NAM/1000#	1.69 30.2	1.67 30.9	1.65 31.5	1.63 32.1	1.61 32.8	1.59 33.4	1.57 34.1	1.56 34.7	1.54 35.3	1.53 35.9	1.51 36.6	1.50 37.2	1.48 37.8	1.47 38.5	1.47 39.1	1.44 39.8	1.43 40.3
280 -11°C	0.79 471/313	EPR NAM/1000#	1.66 29.9	1.64 30.4	1.62 31.0	1.60 31.6	1.59 32.2	1.57 32.8	1.55 33.3	1.54 33.9	1.52 34.5	1.51 35.0	1.50 35.6	1.48 36.2	1.47 36.8	1.45 37.4	1.44 38.0	1.43 38.5	1.42 39.0
270 - 9°C	0.79 473/319	EPR NAM/1000#	1.63 29.4	1.61 29.9	1.60 30.5	1.58 31.0	1.56 31.5	1.55 32.1	1.54 32.6	1.52 33.1	1.51 33.6	1.49 34.2	1.48 34.7	1.47 35.2	1.46 35.8	1.44 36.3	1.43 36.8	1.42 37.3	1.41 37.7
260 - 7°C	0.79 474/326	EPR NAM/1000#	1.60 28.9	1.59 29.4	1.57 29.9	1.56 30.4	1.55 30.8	1.53 31.3	1.52 31.8	1.51 32.3	1.49 32.8	1.48 33.3	1.47 33.8	1.46 34.3	1.44 34.7	1.43 35.2	1.42 35.7	1.41 36.1	1.40 36.5
250 - 5°C	0.79 478/333	EPR NAM/1000#	1.58 28.4	1.57 28.8	1.55 29.3	1.54 29.7	1.53 30.1	1.52 30.6	1.50 31.0	1.49 31.5	1.48 31.9	1.47 32.4	1.45 32.8	1.44 33.3	1.43 33.7	1.42 34.1	1.41 34.5	1.41 34.9	1.40 35.3
240 - 2°C	0.79 480/340	EPR NAM/1000#	1.56 27.8	1.55 28.2	1.54 28.6	1.52 29.0	1.51 29.4	1.50 29.8	1.49 30.3	1.48 30.7	1.46 31.1	1.45 31.5	1.44 31.9	1.43 32.3	1.42 32.7	1.41 33.0	1.41 33.4	1.40 33.7	1.39 34.0
230 0°C	0.79 481/347	EPR NAM/1000#	1.54 27.2	1.53 27.6	1.52 27.9	1.51 28.3	1.50 28.7	1.48 29.1	1.47 29.5	1.46 29.9	1.45 30.2	1.44 30.6	1.43 30.9	1.42 31.3	1.42 31.6	1.41 31.9	1.40 32.3	1.39 32.5	1.39 32.7
220 2°C	0.79 483/354	EPR NAM/1000#	1.53 26.6	1.52 26.9	1.50 27.3	1.49 27.6	1.48 28.0	1.47 28.4	1.46 28.7	1.45 29.1	1.44 29.4	1.43 29.7	1.42 30.0	1.42 30.3	1.41 30.6	1.40 30.9	1.39 31.1	1.39 31.3	1.39 31.5
210 4°C	0.79 485/361	EPR NAM/1000#	1.51 26.0	1.50 26.3	1.49 26.6	1.48 26.9	1.47 27.3	1.46 27.6	1.45 27.9	1.44 28.2	1.43 28.5	1.42 28.8	1.41 29.1	1.41 29.3	1.40 29.6	1.39 29.8	1.39 30.0	1.39 30.2	1.38 30.3

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



FLIGHT LEVEL TAT	MACH TAS/IAS		GROSS WEIGHT (1000 LBS.)																
			345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
410 -28° C	0.80 461/237	EPR NAM/1000#														1.81 46.5	1.75 49.4	1.70 52.0	1.66 54.0
390 -28° C	0.80 461/248	EPR NAM/1000#												1.81 42.9	1.75 45.2	1.70 47.4	1.67 49.1	1.64 50.6	1.61 52.1
370 -28° C	0.80 461/260	EPR NAM/1000#										1.79 39.9	1.74 41.8	1.69 43.6	1.66 44.9	1.64 46.2	1.61 47.4	1.59 48.7	1.56 50.0
350 -26° C	0.80 464/272	EPR NAM/1000#							1.81 35.6	1.76 37.2	1.72 38.8	1.68 40.1	1.66 41.2	1.63 42.2	1.61 43.2	1.59 44.3	1.56 45.4	1.54 46.5	1.52 47.6
330 -22° C	0.80 468/285	EPR NAM/1000#					1.77 33.6	1.73 34.9	1.70 36.1	1.67 37.0	1.65 37.9	1.63 38.8	1.61 39.6	1.58 40.5	1.56 41.4	1.54 42.3	1.53 43.2	1.51 44.1	1.49 44.9
310 -17° C	0.80 472/298	EPR NAM/1000#		1.77 30.6	1.74 31.7	1.70 32.7	1.68 33.6	1.66 34.3	1.64 35.0	1.62 35.7	1.60 36.4	1.58 37.2	1.56 38.0	1.54 38.7	1.53 39.4	1.51 40.1	1.50 40.9	1.48 41.5	1.47 42.7
290 -13° C	0.80 476/311	EPR NAM/1000#	1.70 29.8	1.68 30.5	1.66 31.2	1.64 31.8	1.62 32.4	1.61 32.9	1.59 33.6	1.57 34.2	1.56 34.8	1.54 35.4	1.52 36.0	1.51 36.6	1.50 37.2	1.48 37.9	1.47 38.3	1.46 38.9	1.45 39.4
280 -11° C	0.80 478/317	EPR NAM/1000#	1.67 29.5	1.65 30.1	1.63 30.6	1.62 31.2	1.60 31.7	1.58 32.3	1.57 32.9	1.55 33.4	1.54 34.0	1.52 34.6	1.51 35.1	1.50 35.6	1.48 36.2	1.47 36.7	1.46 37.2	1.45 37.7	1.44 38.1
270 - 8° C	0.80 480/324	EPR NAM/1000#	1.64 29.1	1.63 29.6	1.61 30.1	1.59 30.6	1.58 31.1	1.56 31.6	1.55 32.1	1.53 32.6	1.52 33.2	1.51 33.7	1.50 34.1	1.48 34.6	1.47 35.1	1.46 35.6	1.45 36.0	1.44 36.4	1.43 36.9
260 - 6° C	0.80 482/331	EPR NAM/1000#	1.62 28.5	1.60 29.0	1.60 29.5	1.57 30.0	1.56 30.4	1.54 31.0	1.53 31.4	1.52 31.8	1.51 32.3	1.49 32.7	1.48 33.2	1.47 33.6	1.46 34.0	1.45 34.4	1.44 34.8	1.43 35.2	1.42 35.6
250 - 4° C	0.80 484/338	EPR NAM/1000#	1.60 28.0	1.58 28.4	1.57 28.9	1.55 29.3	1.54 29.7	1.53 30.2	1.52 30.6	1.50 31.0	1.49 31.4	1.48 31.8	1.47 32.2	1.46 32.6	1.45 33.0	1.44 33.3	1.43 33.7	1.42 34.0	1.42 34.4
240 - .2° C	0.80 486/345	EPR NAM/1000#	1.57 27.4	1.56 27.8	1.55 28.2	1.54 28.6	1.52 29.0	1.51 29.4	1.50 29.8	1.49 30.2	1.48 30.5	1.47 30.9	1.46 31.3	1.45 31.6	1.44 31.9	1.43 32.2	1.43 32.6	1.42 32.9	1.41 33.1
230 1° C	0.80 488/352	EPR NAM/1000#	1.55 26.9	1.54 27.2	1.53 27.6	1.52 27.9	1.51 28.3	1.50 28.6	1.49 29.0	1.48 28.3	1.47 29.7	1.46 30.0	1.45 30.3	1.44 30.6	1.43 30.9	1.43 31.2	1.42 31.5	1.41 31.7	1.41 31.9
220 3° C	0.80 490/359	EPR NAM/1000#	1.54 26.2	1.53 26.6	1.52 26.9	1.51 27.2	1.50 27.5	1.49 27.8	1.48 28.1	1.47 28.5	1.46 28.8	1.45 29.1	1.44 29.3	1.43 29.6	1.43 29.9	1.42 30.1	1.41 30.3	1.41 30.5	1.41 30.7
210 5° C	0.80 492/366	EPR NAM/1000#	1.52 25.6	1.51 25.9	1.50 26.2	1.49 26.5	1.48 26.8	1.47 27.1	1.47 27.4	1.46 27.6	1.45 27.9	1.44 28.1	1.43 28.4	1.43 28.6	1.42 28.9	1.41 29.1	1.41 29.2	1.41 29.4	1.40 29.5

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE MACH .81 CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL TAT	MACH TAS/IAS		GROSS WEIGHT (1000 LBS)																
			345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
410 -28°C	0.81 467/240	EPR NAM/1000#														1.78 48.2	1.72 51.1	1.68 53.0	
390 -28°C	0.81 467/252	EPR NAM/1000#											1.84 41.7	1.77 44.2	1.72 46.6	1.68 48.2	1.65 49.7	1.62 51.2	
370 -28°C	0.81 467/264	EPR NAM/1000#									1.82 38.8	1.76 40.9	1.71 42.8	1.68 44.1	1.66 45.4	1.63 46.6	1.60 47.8	1.58 49.1	
350 -25°C	0.81 470/276	EPR NAM/1000#							1.79 36.4	1.74 38.0	1.70 39.4	1.68 40.5	1.65 41.5	1.63 42.5	1.60 43.5	1.58 44.6	1.56 45.7	1.54 46.7	
330 -21°C	0.81 474/289	EPR NAM/1000#					1.80 32.7	1.75 34.2	1.72 35.5	1.69 36.4	1.67 37.3	1.64 38.1	1.62 39.0	1.60 40.0	1.58 40.7	1.56 41.5	1.54 42.4	1.53 43.2	1.51 44.0
310 -17°C	0.81 478/302	EPR NAM/1000#			1.76 31.0	1.72 32.1	1.70 33.0	1.68 33.7	1.66 34.4	1.64 35.1	1.62 35.8	1.60 36.5	1.58 37.2	1.56 38.0	1.54 38.7	1.53 39.4	1.51 40.0	1.50 40.7	1.49 41.3
290 -12°C	0.81 482/315	EPR NAM/1000#	1.72 29.3	1.70 30.0	1.68 30.6	1.66 31.2	1.64 31.8	1.62 32.4	1.61 33.0	1.59 33.6	1.57 34.2	1.56 34.7	1.54 35.4	1.53 35.9	1.51 36.5	1.50 37.0	1.49 37.6	1.48 38.1	1.47 38.5
280 -10°C	0.81 484/322	EPR NAM/1000#	1.69 29.0	1.67 29.6	1.65 30.1	1.63 30.6	1.62 31.2	1.60 31.7	1.59 32.3	1.57 32.8	1.55 33.4	1.54 33.9	1.53 34.4	1.51 34.9	1.50 35.4	1.49 35.9	1.48 36.4	1.47 36.8	1.46 37.2
270 - 8°C	0.81 486/329	EPR NAM/1000#	1.66 28.6	1.64 29.1	1.63 29.5	1.61 30.0	1.60 30.5	1.58 31.0	1.57 31.5	1.55 32.0	1.54 32.5	1.53 33.0	1.51 33.5	1.50 33.9	1.49 34.3	1.48 34.8	1.47 35.2	1.46 35.6	1.45 36.0
260 - 5°C	0.81 488/336	EPR NAM/1000#	1.64 28.1	1.62 28.5	1.61 28.9	1.59 29.4	1.58 29.9	1.56 30.3	1.55 30.8	1.54 31.2	1.52 31.7	1.51 32.1	1.50 32.5	1.49 32.9	1.48 33.3	1.47 33.7	1.46 34.0	1.45 34.4	1.44 34.7
250 - 3°C	0.81 490/343	EPR NAM/1000#	1.61 27.5	1.60 28.0	1.59 28.3	1.57 28.8	1.56 29.2	1.54 29.6	1.53 30.0	1.52 30.4	1.51 30.8	1.50 31.2	1.49 31.5	1.48 31.9	1.47 32.2	1.46 32.6	1.45 32.9	1.45 33.2	1.44 33.5
240 - 1°C	0.81 492/350	EPR NAM/1000#	1.59 26.9	1.58 27.3	1.57 27.7	1.55 28.1	1.54 28.5	1.53 28.8	1.52 29.2	1.51 29.6	1.50 29.9	1.49 30.2	1.48 30.6	1.47 30.9	1.46 31.2	1.45 31.5	1.45 31.8	1.44 32.0	1.43 32.2
230 1°C	0.81 494/357	EPR NAM/1000#	1.57 26.4	1.56 26.7	1.55 27.1	1.54 27.4	1.53 27.7	1.52 28.1	1.51 28.4	1.50 28.7	1.49 29.0	1.48 29.3	1.47 29.6	1.46 29.9	1.45 30.2	1.45 30.4	1.44 30.7	1.43 30.9	1.43 31.0
220 4°C	0.81 496/364	EPR NAM/1000#	1.57 25.4	1.56 25.8	1.54 26.1	1.53 26.4	1.52 26.7	1.51 27.0	1.50 27.3	1.49 27.6	1.49 27.9	1.48 28.1	1.47 28.4	1.46 28.6	1.45 28.9	1.45 29.1	1.44 29.4	1.44 29.6	1.43 29.7

- NOTES: (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE MACH .82 CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL TAT	MACH TAS/IAS		GROSS WEIGHT (1000 LBS.)																
			345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
410 -27°C	0.82 473/244	EPR NAM/1000#															1.82 46.4	1.75 49.6	1.71 51.5
390 -27°C	0.82 473/255	EPR NAM/1000#													1.81 42.6	1.75 45.2	1.71 46.9	1.68 48.4	1.65 49.9
370 -27°C	0.82 473/267	EPR NAM/1000#											1.80 39.5	1.74 41.6	1.71 42.8	1.68 44.1	1.66 45.4	1.63 46.6	1.61 47.7
350 -25°C	0.82 476/280	EPR NAM/1000#							1.83 35.0	1.77 36.8	1.73 38.3	1.71 39.3	1.68 40.4	1.65 41.4	1.63 42.4	1.61 43.4	1.59 44.4	1.57 45.4	1.54 46.4
330 -20°C	0.82 480/293	EPR NAM/1000#						1.79 33.0	1.75 34.4	1.72 35.4	1.70 36.2	1.67 37.1	1.65 38.0	1.63 38.8	1.61 39.6	1.59 40.4	1.57 41.2	1.55 42.1	1.53 42.9
310 -16°C	0.82 484/306	EPR NAM/1000#				1.76 31.2	1.73 32.0	1.70 32.8	1.68 33.5	1.66 34.2	1.64 34.9	1.62 35.6	1.60 36.2	1.59 36.9	1.57 37.6	1.55 38.3	1.54 39.0	1.52 39.6	1.51 40.2
290 -11°C	0.82 488/320	EPR NAM/1000#		1.73 29.1	1.71 29.7	1.69 30.4	1.67 31.0	1.65 31.6	1.63 32.1	1.62 32.7	1.60 33.2	1.58 33.8	1.57 34.4	1.55 35.0	1.54 35.5	1.53 36.1	1.51 36.6	1.50 37.1	1.49 37.5
280 - 9 °C	0.82 491/326	EPR NAM/1000#	1.72 28.2	1.70 28.7	1.68 29.3	1.66 29.9	1.64 30.4	1.63 30.9	1.61 31.4	1.60 31.9	1.58 32.5	1.57 33.0	1.55 33.5	1.54 34.0	1.53 34.5	1.51 35.0	1.50 35.4	1.49 35.8	1.48 36.2
270 - 7 °C	0.82 493/333	EPR NAM/1000#	1.69 27.8	1.67 28.3	1.65 28.8	1.64 29.3	1.62 29.7	1.61 30.2	1.59 30.7	1.58 31.2	1.56 31.7	1.55 32.1	1.54 32.6	1.53 33.0	1.51 33.5	1.50 33.9	1.49 34.3	1.48 34.6	1.47 35.0
260 -4°C	0.82 495/340	EPR NAM/1000#	1.66 27.3	1.65 27.8	1.63 28.2	1.62 28.6	1.60 29.0	1.59 29.5	1.57 30.0	1.56 30.4	1.55 30.8	1.54 31.2	1.52 31.7	1.51 32.0	1.50 32.4	1.49 32.8	1.48 33.1	1.48 33.4	1.47 33.7
250 - 2 °C	0.82 497/347	EPR NAM/1000#	1.64 26.8	1.62 27.2	1.61 27.6	1.60 28.0	1.60 28.4	1.57 28.8	1.56 29.2	1.55 29.6	1.53 30.0	1.52 30.3	1.51 30.7	1.50 31.0	1.49 31.4	1.48 31.7	1.48 32.0	1.47 32.3	1.46 32.5
240 0°C	0.82 499/354	EPR NAM/1000#	1.62 26.2	1.60 26.6	1.59 27.0	1.58 27.3	1.57 27.7	1.55 28.1	1.54 28.4	1.53 28.8	1.52 29.1	1.51 29.4	1.50 29.8	1.49 30.1	1.49 30.3	1.48 30.6	1.47 30.9	1.46 31.1	1.46 31.3
230 2°C	0.82 501/362	EPR NAM/1000#	1.60 25.7	1.59 26.0	1.57 26.3	1.56 26.7	1.55 27.0	1.54 27.3	1.53 27.6	1.52 27.9	1.51 28.2	1.50 28.5	1.49 28.8	1.49 29.1	1.48 29.3	1.47 29.6	1.46 29.8	1.46 30.0	1.45 30.2
220 5°C	0.82 503/369	EPR NAM/1000#	1.58 25.1	1.57 25.4	1.56 25.7	1.55 26.0	1.54 26.3	1.53 26.6	1.52 26.9	1.51 27.1	1.50 27.4	1.49 27.6	1.48 27.9	1.48 28.1	1.47 28.3	1.46 28.5	1.46 28.7	1.45 28.9	1.45 29.0

- NOTES:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Cruise Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



CRUISE

4 ENGINE MACH .83 CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL TAT	MACH TAS/IAS		GROSS WEIGHT (1000 LBS.)																
			345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
410 -26°C	.083 479/247	EPR NAM/1000#															1.88 43.7	1.80 47.3	1.75 49.5
390 -26°C	0.83 479/259	EPR NAM/1000#													1.87 40.3	1.80 43.1	1.76 45.0	1.72 46.6	1.69 48.1
370 -26°C	0.83 479/271	EPR NAM/1000#											1.86 37.2	1.79 39.7	1.76 41.1	1.72 42.4	1.69 43.7	1.66 45.0	1.64 46.2
350 -24°C	0.83 482/284	EPR NAM/1000#									1.83 34.9	1.78 36.9	1.75 37.8	1.72 38.9	1.69 39.9	1.67 41.0	1.64 42.0	1.62 42.9	1.60 43.8
330 -19°C	0.83 486/297	EPR NAM/1000#						1.85 31.1	1.80 32.9	1.76 33.9	1.74 34.8	1.71 35.7	1.69 36.6	1.66 37.4	1.64 38.3	1.62 39.0	1.60 39.8	1.58 40.6	1.56 41.4
310 -15°C	0.83 490/310	EPR NAM/1000#				1.81 29.7	1.77 30.7	1.75 31.5	1.72 32.2	1.70 32.9	1.68 33.7	1.66 34.4	1.64 35.1	1.62 35.7	1.60 36.3	1.58 37.0	1.57 37.7	1.55 38.3	1.54 38.9
290 -10°C	0.83 495/324	EPR NAM/1000#			1.75 28.6	1.73 29.2	1.71 29.8	1.69 30.4	1.67 31.0	1.65 31.6	1.63 32.1	1.62 32.7	1.60 33.2	1.58 33.8	1.57 34.3	1.55 34.9	1.54 35.4	1.53 35.9	1.52 36.4
280 - 8°C	0.83 497/331	EPR NAM/1000#			1.72 28.2	1.70 28.7	1.68 29.3	1.66 29.8	1.64 30.4	1.63 30.9	1.61 31.3	1.60 31.8	1.58 32.4	1.57 32.9	1.55 33.4	1.54 33.9	1.53 34.3	1.52 34.7	1.51 35.1
270 - 6°C	0.83 499/338	EPR NAM/1000#			1.69 27.7	1.67 28.2	1.66 28.7	1.64 29.2	1.62 29.6	1.61 30.1	1.60 30.5	1.58 31.0	1.57 31.5	1.55 31.9	1.54 32.4	1.53 32.8	1.52 33.2	1.51 33.6	1.50 33.9
260 -4°C	0.83 501/345	EPR NAM/1000#			1.67 27.2	1.65 27.7	1.64 28.1	1.62 28.5	1.61 28.9	1.59 29.3	1.58 29.8	1.57 30.2	1.55 30.6	1.54 31.0	1.53 31.4	1.52 31.8	1.51 32.1	1.50 32.4	1.49 32.7
250 - 1°C	0.83 503/352	EPR NAM/1000#			1.64 26.7	1.63 27.1	1.62 27.4	1.60 27.8	1.59 28.2	1.58 28.6	1.56 29.0	1.55 29.4	1.54 29.7	1.53 30.1	1.52 30.4	1.51 30.7	1.50 31.0	1.49 31.3	1.49 31.6
240 1°C	0.83 505/359	EPR NAM/1000#			1.63 26.1	1.61 26.4	1.60 26.7	1.59 27.1	1.57 27.5	1.56 27.8	1.55 28.2	1.54 28.5	1.53 28.8	1.52 29.1	1.51 29.4	1.50 29.7	1.50 29.9	1.49 30.2	1.48 30.4
230 3°C	0.83 507/367	EPR NAM/1000#			1.61 25.4	1.60 25.7	1.58 26.1	1.57 26.4	1.56 26.7	1.55 27.0	1.54 27.4	1.53 27.6	1.52 27.9	1.51 28.2	1.50 28.4	1.50 28.7	1.49 28.9	1.48 29.1	1.48 29.2

- NOTE:**
- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR'S, determine and set Max. Cruise Thrust EPR if less than listed value.
 - (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
 - (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



4 ENGINE LONG RANGE CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL	STD. TEMP.	GROSS WEIGHT (1000 LBS)																
		345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
410 -57°C	EPR M/TAS NAM/1000#														1.79 .793/455 47.4	1.73 50.2	1.68 .786/451 52.8	1.64 54.9
390 -57°C	EPR M/TAS NAM/1000#											1.78 .794/456 43.7	1.73 46.0	1.69 .792/454 48.0	1.65 49.7	1.60 .774/444 52.0	1.57 53.8	
370 -57°C	EPR M/TAS NAM/1000#								1.83 .800/454 38.3	1.77 40.5	1.72 .796/457 42.3	1.68 43.9	1.64 45.8	1.61 .780/448 47.3	1.58 48.7	1.54 .763/438 50.7	1.52 52.2	
350 -54°C	EPR M/TAS NAM/1000#					1.84 .799/461 34.4	1.79 36.3	1.74 .794/458 37.9	1.70 39.3	1.66 40.8	1.64 .785/453 41.9	1.61 43.1	1.57 44.8	1.55 .769/443 46.0	1.53 47.2	1.49 .750/432 48.9	1.47 50.1	
330 -50°C	EPR M/TAS NAM/1000#		1.84 .797/464 31.3	1.79 32.8	1.75 .795/463 34.2	1.72 35.3	1.68 36.6	1.65 .789/459 37.6	1.63 38.5	1.59 40.0	1.57 .771/449 41.0	1.55 42.0	1.52 43.4	1.50 .756/440 44.4	1.48 45.3	1.45 .733/426 47.0	1.43 48.3	
310 -46°C	EPR M/TAS NAM/1000#	1.79 .796/467 30.0	1.76 31.1	1.72 32.1	1.69 33.2	1.66 .789/463 34.0	1.64 34.8	1.61 36.0	1.58 .744/454 36.9	1.56 37.7	1.54 38.8	1.52 .763/448 39.6	1.50 40.4	1.48 41.6	1.46 .745/437 42.6	1.44 43.6	1.41 .726/426 45.1	1.39 46.4
290 -42°C	EPR M/TAS NAM/1000#	1.69 .789/467 30.3	1.66 31.0	1.64 31.6	1.61 32.6	1.59 .776/459 33.3	1.57 34.0	1.55 34.9	1.53 .765/453 35.6	1.52 36.3	1.49 37.2	1.48 .751/445 37.9	1.46 38.7	1.43 39.9	1.41 .734/439 40.9	1.40 41.9	1.37 .716/424 43.2	1.36 44.0
280 -40°C	EPR M/TAS NAM/1000#	1.65 .783/466 30.1	1.63 30.7	1.61 31.3	1.58 32.2	1.56 .772/459 32.8	1.55 33.5	1.52 34.4	1.51 .760/452 35.0	1.49 35.6	1.47 36.5	1.45 .745/443 37.2	1.44 38.0	1.41 39.2	1.39 .729/433 40.1	1.38 41.0	1.36 .711/423 42.1	1.34 42.9
270 -38°C	EPR M/TAS NAM/1000#	1.61 .776/463 29.8	1.60 30.4	1.58 31.0	1.55 31.8	1.54 .767/458 32.3	1.52 32.9	1.50 33.7	1.49 .755/451 34.2	1.47 34.8	1.45 35.8	1.43 .738/441 36.6	1.42 37.3	1.39 38.5	1.38 .724/433 39.3	1.37 40.0	1.34 .704/421 41.0	1.33 41.7
260 -37°C	EPR M/TAS NAM/1000#	1.58 .771/462 29.5	1.57 30.0	1.55 30.6	1.53 31.2	1.52 .763/458 31.8	1.50 32.3	1.48 33.0	1.47 .749/449 33.6	1.45 34.2	1.43 35.2	1.41 .734/440 35.9	1.40 36.7	1.38 37.6	1.36 .720/432 38.3	1.35 38.9	1.34 .715/429 39.7	1.33 40.3
250 -35°C	EPR M/TAS NAM/1000#	1.56 .766/462 29.1	1.54 29.6	1.53 30.1	1.51 30.7	1.50 .758/456 31.1	1.48 31.6	1.46 32.4	1.45 .743/447 33.0	1.43 33.6	1.41 34.5	1.39 .730/440 35.2	1.38 35.9	1.36 36.8	1.35 .714/430 37.4	1.34 37.9	1.32 .680/409 39.0	1.31 39.6
240 -33°C	EPR M/TAS NAM/1000#	1.53 .761/460 28.7	1.52 29.1	1.51 29.5	1.49 30.1	1.48 .751/454 30.5	1.46 31.1	1.44 31.8	1.43 .737/446 32.4	1.41 33.0	1.39 33.9	1.38 .725/439 34.5	1.37 35.0	1.35 35.9	1.34 .705/439 36.4	1.33 37.0	1.30 .656/298 38.1	1.29 38.7
230 -31°C	EPR M/TAS NAM/1000#	1.51 .756/459 28.1	1.50 28.5	1.49 28.9	1.47 29.5	1.45 .745/452 30.0	1.44 30.5	1.42 31.2	1.41 .732/444 31.8	1.39 32.4	1.38 33.1	1.36 .722/438 33.6	1.35 34.1	1.33 35.0	1.32 .695/422 35.5	1.32 36.0	1.29 .632/384 37.1	1.28 37.7
220 -29°C	EPR M/TAS NAM/1000#	1.49 .751/458 27.6	1.48 27.9	1.47 28.4	1.45 29.0	1.43 .739/451 29.5	1.42 30.0	1.40 30.7	1.39 .727/443 31.3	1.38 31.7	1.36 32.4	1.35 .717/437 32.8	1.34 33.3	1.32 34.2	1.31 .681/415 34.7	1.30 35.1	1.27 .613/374 36.1	1.26 36.7
210 -27°C	EPR M/TAS NAM/1000#	1.47 .745/456 27.0	1.46 27.5	1.45 27.9	1.43 28.5	1.41 .734/449 29.0	1.40 29.4	1.38 30.1	1.37 .723/443 30.6	1.36 31.0	1.35 31.6	1.34 .711/435 32.0	1.33 32.4	1.31 33.3	1.30 .665/407 33.8	1.29 34.2	1.26 .594/364 35.2	1.25 35.8
130 -11°C	EPR M/TAS NAM/1000#	1.33 .675/426 23.3	1.32 23.5	1.32 23.8	1.31 24.0	1.31 .675/426 24.2	1.30 24.5	1.28 25.0	1.27 .625/395 25.2	1.27 25.5	1.24 26.2	1.23 .575/363 26.5	1.23 26.9	1.21 27.5	1.20 .549/347 27.9	1.20 28.2	1.17 .508/321 29.1	1.16 29.6

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's determine and set Max. Cruise Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 1 knot/°C above standard. Subtract 1 knot/°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



3 ENGINE LONG RANGE CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL STD. TEMP.		GROSS WEIGHT (1000 LBS)																
		345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185
390 -57°C	EPR M/TAS NAM/1000#																1.98 .769/441 47.8	1.92 .769/441 50.4
370 -57°C	EPR M/TAS NAM/1000#													2.02 .769/442 42.2	1.95 .763/440 44.4	1.93 .743/428 45.8	1.88 .757/434 47.8	1.84 .743/428 49.4
350 -54°C	EPR M/TAS NAM/1000#											1.97 .779/428 40.2	1.92 .763/440 42.1	1.89 43.4	1.85 44.7	1.81 46.5	1.78 47.8	1.78 47.8
330 -50°C	EPR M/TAS NAM/1000#									1.95 37.4	1.91 38.6	1.88 39.7	1.85 41.0	1.82 42.0	1.79 43.1	1.74 45.0	1.71 46.3	1.71 46.3
310 -46°C	EPR M/TAS NAM/1000#							1.97 .767/450 33.6	1.93 .754/443 34.6	1.91 35.5	1.87 36.7	1.84 37.6	1.82 38.5	1.78 39.6	1.76 40.7	1.73 41.8	1.68 43.5	1.65 44.8
290 -42°C	EPR M/TAS NAM/1000#				1.98 30.4	1.95 31.2	1.92 32.0	1.88 33.0	1.86 33.7	1.84 34.4	1.81 35.4	1.78 36.2	1.76 37.1	1.71 38.4	1.69 39.3	1.66 40.4	1.61 41.9	1.58 43.1
280 -40°C	EPR M/TAS NAM/1000#	1.99 .760/452 28.7	1.96 29.5	1.93 30.3	1.91 31.0	1.88 31.7	1.85 32.5	1.83 33.2	1.81 33.8	1.78 34.8	1.75 35.6	1.73 36.4	1.68 37.8	1.66 38.7	1.64 39.6	1.57 41.2	1.55 42.3	1.55 42.3
270 -38°C	EPR M/TAS NAM/1000#	1.97 .760/454 27.9	1.94 28.7	1.92 29.3	1.88 30.0	1.87 30.7	1.85 31.3	1.82 32.0	1.80 32.6	1.78 33.3	1.74 34.3	1.72 35.1	1.70 35.8	1.65 37.2	1.63 38.0	1.61 38.8	1.54 40.5	1.51 41.7
260 -37°C	EPR M/TAS NAM/1000#	1.93 .760/456 27.8	1.91 28.4	1.88 29.0	1.86 29.6	1.84 30.2	1.82 30.8	1.79 30.8	1.77 32.2	1.75 32.8	1.71 33.8	1.69 34.5	1.67 35.2	1.62 36.5	1.60 37.4	1.58 38.2	1.51 39.9	1.48 41.0
250 -35°C	EPR M/TAS NAM/1000#	1.89 .759/457 27.5	1.87 28.0	1.85 28.5	1.83 29.2	1.81 29.7	1.79 30.2	1.76 31.1	1.74 31.7	1.72 32.3	1.68 33.3	1.66 34.0	1.64 34.6	1.59 35.9	1.57 36.7	1.55 37.5	1.48 39.3	1.46 40.3
240 -33°C	EPR M/TAS NAM/1000#	1.86 .757/458 27.3	1.85 27.7	1.83 28.0	1.80 28.7	1.78 29.2	1.76 29.8	1.73 30.6	1.71 31.2	1.69 31.8	1.64 32.9	1.62 33.6	1.60 34.2	1.55 35.3	1.53 36.2	1.51 37.0	1.46 38.5	1.44 39.5
230 -31°C	EPR M/TAS NAM/1000#	1.83 .754/458 26.9	1.82 27.1	1.80 27.5	1.77 28.2	1.75 28.8	1.73 29.3	1.69 30.2	1.68 30.8	1.66 31.4	1.61 32.3	1.59 33.0	1.57 33.7	1.52 34.8	1.50 35.6	1.48 36.4	1.44 37.8	1.43 38.7
220 -29°C	EPR M/TAS NAM/1000#	1.80 .747/456 26.3	1.79 26.7	1.77 27.1	1.74 27.8	1.72 28.3	1.71 28.8	1.66 29.7	1.65 30.3	1.63 30.8	1.57 31.8	1.56 32.5	1.54 33.1	1.49 34.3	1.47 35.0	1.46 35.8	1.42 37.0	1.41 37.8
210 -27°C	EPR M/TAS NAM/1000#	1.78 .742/454 25.9	1.76 26.3	1.74 26.8	1.71 27.4	1.70 27.8	1.68 28.3	1.63 29.3	1.62 29.8	1.60 30.3	1.54 31.3	1.53 31.9	1.51 32.6	1.47 33.7	1.45 34.4	1.44 35.2	1.41 36.3	1.39 37.0
200 -25°C	EPR M/TAS NAM/1000#	1.74 .734/451 25.5	1.73 26.0	1.71 26.4	1.68 27.0	1.66 27.5	1.65 27.9	1.60 28.7	1.59 29.3	1.57 29.8	1.52 30.8	1.50 31.4	1.49 32.1	1.45 33.1	1.43 33.8	1.42 34.5	1.39 35.4	1.38 36.0
190 -23°C	EPR M/TAS NAM/1000#	1.71 .724/419 26.2	1.69 25.6	1.68 26.0	1.61 27.2	1.59 27.8	1.57 28.3	1.57 28.3	1.56 28.8	1.54 29.3	1.49 30.3	1.48 30.9	1.46 31.5	1.43 32.4	1.42 33.1	1.40 33.7	1.38 34.6	1.37 35.2

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Continuous Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 8 knots/10°C above standard. Subtract 8 knots/10°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



2 ENGINE LONG RANGE CRUISE

DC-8-62 JT3D-7

FLIGHT LEVEL STD. TEMP.		GROSS WEIGHT (1000 LBS.)																	
		345	335	325	315	305	295	285	275	265	255	245	235	225	215	205	195	185	
270 -38°C	EPR M/TAS NAM/1000#																1.99 .586/350 37.0	1.94 38.6	
250 -35°C	EPR M/TAS NAM/1000#															1.97 .597/356 34.9	1.90 .575/346 36.5	1.86 37.8	
230 -31°C	EPR M/TAS NAM/1000#													1.96 .587/357 32.1	1.93 33.1	1.90 34.1	1.82 .561/341 35.7	1.79 36.8	
210 -27°C	EPR M/TAS NAM/1000#											1.93 .589/360 30.4	1.88 .574/352 31.5	1.85 32.4	1.82 33.3	1.75 .545/334 34.7	1.72 35.7		
190 -23°C	EPR M/TAS NAM/1000#										1.92 .580/358 28.2	1.89 28.9	1.86 29.7	1.83 30.0	1.80 30.9	1.77 31.7	1.67 33.7	1.65 .520/321 34.7	
170 -19°C	EPR M/TAS NAM/1000#								1.91 .578/360 26.2	1.88 26.8	1.84 27.7	1.82 28.3	1.80 28.9	1.76 30.0	1.70 30.7	1.68 31.4	1.60 32.8	1.58 33.7	
150 -15°C	EPR M/TAS NAM/1000#								1.86 .570/357 25.1	1.84 25.6	1.82 26.2	1.77 26.9	1.75 27.5	1.73 28.0	1.66 29.1	1.64 29.8	1.62 30.5	1.55 .484/303 31.8	1.53 32.7
130 -11°C	EPR M/TAS NAM/1000#								1.80 .558/353 24.5	1.77 25.0	1.75 25.4	1.70 26.2	1.68 26.7	1.66 27.2	1.59 28.3	1.57 29.0	1.55 29.7	1.50 .467/295 30.9	1.48 31.7
110 -7°C	EPR M/TAS NAM/1000#				1.82 .566/361 22.4	1.80 22.8	1.78 23.1	1.73 23.8	1.71 24.2	1.69 24.6	1.63 25.5	1.61 26.0	1.60 26.5	1.54 27.6	1.52 28.2	1.50 28.8	1.47 29.7	1.46 30.3	
90 -3°C	EPR M/TAS NAM/1000#				1.78 .547/351 21.8	1.73 22.1	1.72 22.5	1.66 23.1	1.64 23.5	1.63 24.0	1.57 24.8	1.56 25.3	1.54 25.8	1.50 26.6	1.49 27.2	1.47 27.7	1.44 28.5	1.43 29.0	
70 1°C	EPR M/TAS NAM/1000#	1.76 .549/355 20.0	1.74 20.4	1.73 20.7	1.68 21.2	1.67 21.5	1.65 21.8	1.60 22.5	1.58 22.9	1.57 23.3	1.53 24.1	1.51 24.5	1.50 25.0	1.47 25.6	1.46 26.1	1.44 26.5	1.40 27.3	1.39 27.8	
50 5°C	EPR M/TAS NAM/1000#	1.70 .533/334 19.5	1.68 19.7	1.67 20.0	1.62 20.6	1.61 20.9	1.60 21.2	1.54 21.9	1.53 22.3	1.52 22.7	1.49 23.3	1.48 23.7	1.47 24.1	1.43 24.7	1.42 25.1	1.41 25.5	1.37 26.2	1.36 26.7	
30 9°C	EPR M/TAS NAM/1000#	1.64 .515/338 18.9	1.62 19.3	1.61 19.4	1.57 20.0	1.55 20.4	1.54 20.7	1.50 21.3	1.49 21.6	1.48 22.0	1.46 22.4	1.45 22.8	1.44 23.1	1.40 23.7	1.39 24.0	1.38 24.4	1.34 25.2	1.33 25.6	
10 13°C	EPR M/TAS NAM/1000#	1.68 .495/326 18.5	1.57 18.7	1.55 19.0	1.62 19.5	1.51 19.8	1.50 20.0	1.47 20.5	1.46 20.8	1.45 21.1	1.42 21.6	1.41 21.9	1.41 22.1	1.37 22.7	1.36 23.1	1.35 23.4	1.31 24.1	1.30 24.6	

NOTES:

- (1) EPR and NAM/1000# are for listed indicated Mach number. When operating in region of shaded EPR's, determine and set Max. Continuous Thrust EPR if less than listed value.
- (2) TAS (knots) is for standard temperature. Add 6 knots/10°C above standard. Subtract 6 knots/10°C below standard.
- (3) Fuel consumption (1000#/hr) = $\frac{\text{TAS for actual temperature}}{\text{NAM/1000\#}}$



LANDING

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LANDING REFERENCE SPEEDS

FLAPS FULL DOWN

	GROSS WEIGHT - 1000 LBS													
	140	150	160	170	180	190	200	210	220	230	240	* 250	* 260	* 270
REF (IAS) (All Except DC-8-62)	110	114	118	122	126	129	132	135	138	141	144	147	150	153
REF (IAS) DC-8-62	106	109	113	116	120	123	126	129	132	135	138	141	144	146

* To be used in the event that overweight landing is best course of action.

MANEUVER, APPROACH AND THRESHOLD SPEEDS

FLAP POSITION	MANEUVER	APPROACH	THRESHOLD
0	REF +50	REF +35	REF +25
15 18 DC-8-62	REF +35	REF +25	REF +15
25 23 DC-8-62	REF +25	REF +20	REF +10
35	--	REF +15	REF +5
FULL DOWN	--	REF +5	REF

The following procedures contain flap setting and/or REF speed information for the particular condition involved:

Jammed Stabilizer
Two Engine Approach and Landing

EMERGENCY PROCEDURES

Undesirable Aileron or Rudder Operation
Rudder Manual Control Light Illuminated
Aileron Manual Control Light Illuminated
Wing Slot Disagreement Light Illuminated
No Spoiler Pressure

IRREGULAR PROCEDURES

Wind Corrections

Approach speed - add 1/2 the steady headwind component plus the full gust value. The total addition should not exceed 20 knots.

Threshold speed - add only the full gust value. Total addition should not exceed 20 knots.

Approach and threshold speeds after wind corrections are the target speeds.

CHALLENGE/RESPONDAPPROACH DESCENT CHECK LIST - S/O

Check and announce to Captain as complete.

Altimeters	CHECKED
Cabin Pressurization	SET TO FIELD ELEVATION
Engine Hydraulic Pumps	ON, PRESS & FLUID
Brake Pressure (Hydraulic & Air)	CHECK
Fuel Tank Selectors	MAINS
Blowaway Jet	BUTTON OUT
Landing Gross Weight	_____ LBS.
Reference Speed	_____ KTS.
Standby Reverser Hydraulic Pump (DC-8-62)	ON
Ejectors (JT4)	EXTENDED
Seat Belt Switch	ON
Antiskid	ARMED
PTC	RETRACTED AND OVERRIDE

FINAL DESCENT CHALLENGE/RESPOND

S/O

(Pilot Not Flying & S/O)

Flight and Navigation Instruments	CROSS-CHECKED
Reference Speed	_____ KTS., BUGS/SET
Wing Flaps	_____ ° INDICATING
Landing Gear	DOWN 3 GREEN LIGHTS
Hydraulic and Brake Pressure	NORMAL
Spoilers	ARMED & PRESS

Yaw Damper	OFF (OPTIONAL DC-8-61, -62)

CHALLENGE/RESPOND (Continued)PARKING CHALLENGE/RESPOND

S/O

C, S/O

Parking Brakes

SET

Gust Lock

ON

Fuel Shutoff Levers

OFF

Standby Reverser Hydraulic Pump (DC-8-62)

OFF

Windshield Heat

OFF

Engine and Scoop Anti-ice

OFF

Pitot Heaters

OFF

Landing Lights

RETRACT & OFF

Ignition

OFF

INS

OFF

Transponder, DME and Radar

OFF

Standby Attitude Indicator (Trip term.)

OFF

Battery Switch

EXT. PWR

Freon Compressors

OFF

Cabin Compressors

OFF

Fuel Boost Pumps

OFF

Rudder and Aileron Power

OFF

Emergency Exit Lights (Trip term.)

DISARMED & CHECKED

GO-AROUND EPR - JT4A-3

TEMP		EPR		TEMP		EPR	
(RAT)		Normal Bleed	Icing Bleed	(RAT)		Normal Bleed	Icing Bleed
°F	°C			°F	°C		
104	40	2.32		28	- 2	2.65	2.54
100	38	2.33		25	- 4	2.67	2.56
97	36	2.35		21	- 6	2.68	2.57
93	34	2.36		18	- 8	2.70	2.59
90	32	2.38		14	-10	2.71	2.60
86	30	2.39		10	-12	2.73	2.61
82	28	2.41		7	-14	2.75	2.63
79	26	2.43		3	-16	2.76	2.64
75	24	2.44		0	-18	2.78	2.65
72	22	2.46		- 4	-20	2.79	2.67
68	20	2.47		- 8	-22	2.81	2.68
64	18	2.49		-11	-24	2.83	2.70
61	16	2.50		-15	-26	2.84	2.71
57	14	2.52		-18	-28	2.86	2.73
54	12	2.54	2.45	-22	-30	2.88	
50	10	2.55	2.46	-26	-32	2.89	
46	8	2.57	2.47	-29	-34	2.91	
43	6	2.58	2.49	-33	-36	2.93	
39	4	2.60	2.50	-36	-38	2.94	
36	2	2.62	2.52	-40	-40	2.96	
32	0	2.63	2.53				

NOTES:

- (1) Subtract 0.01 if rain removal ON.
- (2) Above EPR settings applicable when four engines are operating. For three engine go-around, subtract 0.01 from normal bleed EPR or, if icing bleed used, subtract 0.03 from icing bleed EPR.
- (3) Underlined EPR is maximum allowable for pressure altitude.

GO-AROUND EPR - JT3D-1

TEMP		EPR		TEMP		EPR	
(RAT)		Normal Bleed	Icing Bleed	(RAT)		Normal Bleed	Icing Bleed
°F	°C			°F	°C		
104	40	1.63		28	- 2	1.90	1.85
100	38	1.65		25	- 4	1.91	1.86
97	36	1.66		21	- 6	1.92	1.87
93	34	1.68		18	- 8	3T 1.93	1.88
90	32	1.69		14	-10	1.94	1.89
86	30	1.70		10	-12	1.95	1.90
82	28	1.72		7	-14	1.97	1.92
79	26	1.73		3	-16	4T 1.98	1.93
75	24	1.74		0	-18	1.99	1.94
72	22	1.76		- 4	-20	2.00	1.95
68	20	1.77		- 8	-22	2.01	1.96
64	18	1.78		-11	-24	2.02	1.97
61	16	1.79		-15	-26	2.03	1.98
57	14	1.81		-18	-28	2.04	1.99
54	12	1.82	1.77	-22	-30	5T 2.05	2.00
50	10	1.83	1.78	-26	-32	2.05	2.00
46	8	1.84	1.79	-29	-34	2.06	2.01
43	6	1.85	1.80	-33	-36	2.07	2.02
39	4	1.87	1.82	-36	-38	2.08	2.03
36	2	1.88	1.83	-40	-40	2.09	
32	0	1.89	1.84				

- NOTES:
- (1) Subtract 0.01 if rain removal ON.
 - (2) Above EPR settings applicable when four engines are operating. For three engine go-around, subtract 0.01 from above settings.
 - (3) Underlined EPR is maximum allowed for pressure altitude.

GO-AROUND EPR - JT3D-3

TEMP		EPR		TEMP		EPR	
(RAT)		Normal Bleed	Icing Bleed	(RAT)		Normal Bleed	Icing Bleed
°F	°C			°F	°C		
104	40	1.73		28	- 2	1.97	1.95
100	38	1.73		25	- 4	1.98	1.96
97	36	1.74		21	- 6	1.99	1.96
93	34	1.75		18	- 8	2.00	1.97
90	32	1.76		14	-10	2.01	1.98
86	30	1.77		10	-12	2.01	1.99
82	28	1.78		7	-14	2.02	2.00
79	26	1.79		3	-16	2.03	2.01
75	24	1.80		0	-18	2.03	2.01
72	22	1.81		- 4	-20	2.04	2.02
68	20	1.82		- 8	-22	2.05	2.02
64	18	1.84		-11	-24	2.05	2.03
61	16	1.85		-15	-26	2.06	2.03
57	14	1.87		-18	-28	2.06	2.04
54	12	1.88	1.86	-22	-30	2.07	2.04
50	10	1.89	1.88	-26	-32	2.07	2.05
46	8	1.91	1.89	-29	-34	2.08	2.05
43	6	1.92	1.90	-33	-36	2.08	2.06
39	4	1.93	1.91	-36	-38	2.09	2.06
36	2	1.95	1.92	-40	-40	2.09	2.07
32	0	1.96	1.93				

- NOTES:
- (1) Subtract 0.01 if rain removal ON.
 - (2) Above EPR settings applicable when four engines are operating. For three engine go-around, subtract 0.01 from above settings.
 - (3) Underlined EPR is maximum allowed for pressure altitude.

GO-AROUND EPR - JT3D-3B

TEMP		EPR		TEMP		EPR	
°F	(RAT) °C	Normal Bleed	Icing Bleed	°F	(RAT) °C	Normal Bleed	Icing Bleed
104	40	1.76		28	- 2	1.95	1.93
100	38	1.78		25	- 4	1.97	1.95
97	36	1.80		21	- 6	1.98	1.96
93	34	1.82		18	- 8	1.99	1.97
90	32	1.82		14	-10	2.00	1.98
86	30	1.82		10	-12	2.00	1.98
82	28	1.82		7	-14	2.01	1.99
79	26	1.82		3	-16	2.02	2.00
75	24	1.82		0	-18	2.02	2.00
72	22	1.82		- 4	-20	2.03	2.01
68	20	1.82		- 8	-22	2.04	2.02
64	18	1.83		-11	-24	2.05	2.03
61	16	1.85		-15	-26	2.05	2.03
57	14	1.86		-18	-28	2.06	2.04
54	12	1.87	1.85	-22	-30	2.06	2.04
50	10	1.89	1.87	-26	-32	2.07	2.05
46	8	1.90	1.88	-29	-34	2.07	2.05
43	6	1.91	1.89	-33	-36	2.08	2.06
39	4	1.92	1.90	-36	-38	2.08	2.06
36	2	1.93	1.91	-40	-40	2.09	2.07
32	0	1.94	1.92				

- NOTES:**
- (1) Subtract 0.01 if rain removal ON.
 - (2) Above EPR settings applicable when four engines are operating. For three engine go-around, subtract 0.01 from above settings.
 - (3) Underlined EPR is maximum allowed for pressure altitude.

GO-AROUND EPR - JT3D-7 (DC-8-62)

TEMP		EPR		TEMP		EPR	
(TAT)		Normal Bleed	Icing Bleed	(TAT)		Normal Bleed	Icing Bleed
°F	°C			°F	°C		
104	40	1.74		28	- 2	1.97	1.96
100	38	1.76		25	- 4	1.98	1.97
97	36	1.78		21	- 6	1.99	1.98
93	34	1.81		18	- 8	2.00	1.99
90	32	1.83		14	-10	2.01	2.00
86	30	1.83		10	-12	2.02	2.01
82	28	1.83		7	-14	2.03	2.02
79	26	1.83		3	-16	2.04	2.03
75	24	1.83		0	-18	2.05	2.04
72	22	1.83		- 4	-20	2.06	2.04
68	20	1.83		- 8	-22	2.07	2.05
64	18	1.83		-11	-24	2.07	2.06
61	16	1.85		-15	-26	2.08	2.06
57	14	1.86		-18	-28	2.09	2.07
54	12	1.88		-22	-30	2.10	2.08
50	10	1.89	1.88	-26	-32	2.10	2.09
46	8	1.90	1.89	-29	-34	2.11	2.09
43	6	1.92	1.90	-33	-36	2.11	2.10
39	4	1.93	1.92	-36	-38	2.12	2.10
36	2	1.95	1.93	-40	-40	2.12	2.11
32	0	1.96	1.94				

- NOTES:**
- (1) Subtract 0.01 if rain removal ON.
 - (2) Above EPR settings applicable when four engines are operating. For three engine go-around subtract 0.01 from above settings.
 - (3) Underlined EPR is maximum allowed for pressure altitude.



LIMITATIONS AND SPECIFICATIONS

GENERAL

This airplane is certified in the transport category (CAR 4b and SR 422B) for VFR, icing, night flying, instrument (IFR), and overwater operations when the required equipment is installed.

The airplane must be operated in compliance with the limitations contained in this section. All pertinent limitations imposed upon the operation of the airplane and its systems and equipment by the FAA Approved Flight Manual have been included. System Specifications have been included to provide flight crews a reference to operating parameters of the airplane and airplane systems.

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TAKEOFF WEIGHT CONSIDERATIONS

Refer to Operating Gross Weight pages for specific airport and flap setting.

The published takeoff runway limiting weights are based on the full length of the runway except as noted. Exceptions occur on only a few runways on the UAL system. In cases where exceptions do occur, and the takeoff runway limiting weights are based on less than the full runway length, the point where the takeoff may be started, i.e. taxiway intersection, displaced takeoff threshold, etc., is described by appropriate notes on the Gross Weight page.

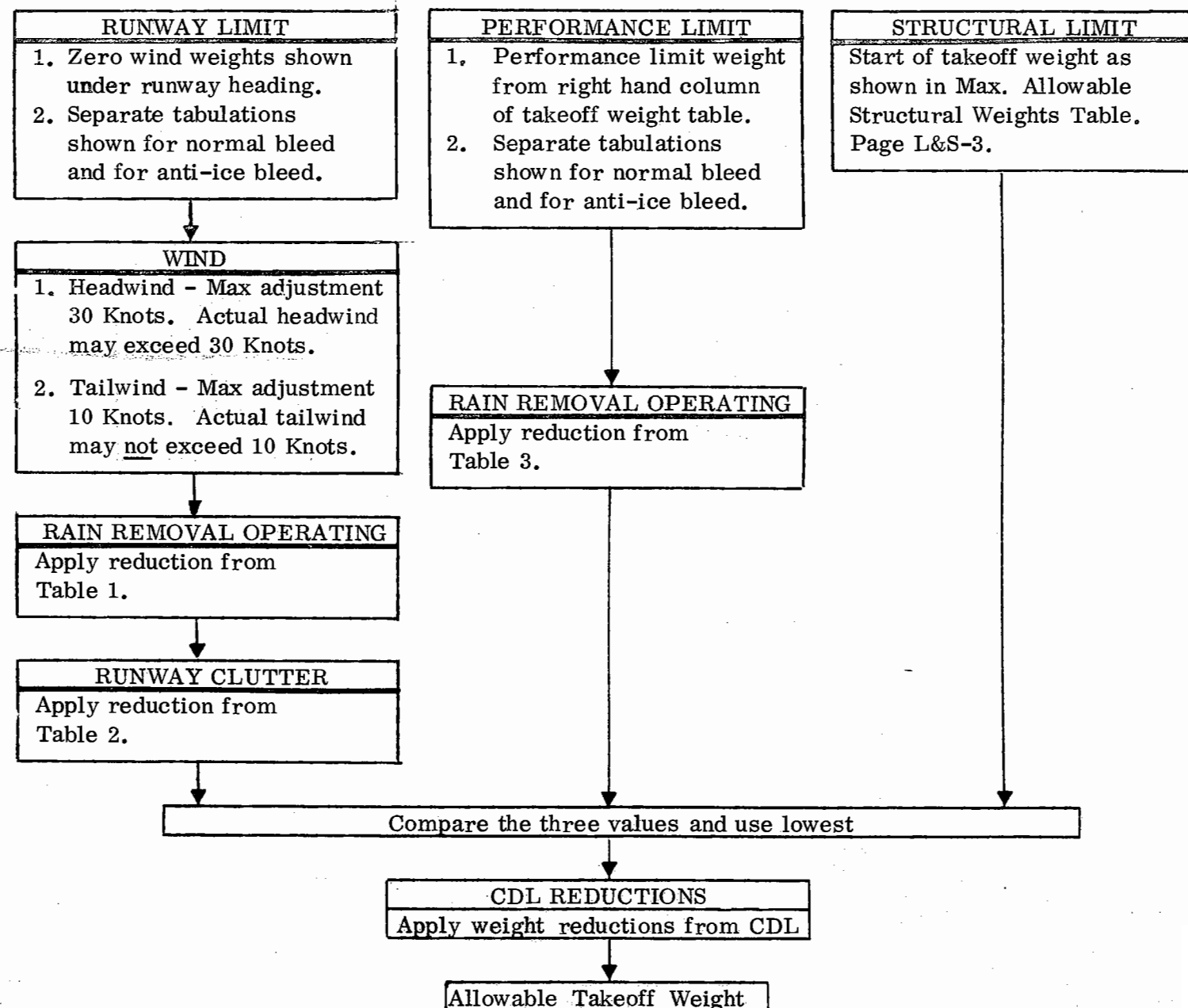


TABLE 1 - RAIN REMOVAL ADJUSTMENT - LBS. (RUNWAY LIMIT)

	JT4A-3	JT3D-3/-3B	JT3D-7
Reduce Normal Bleed Runway Limit Wt.	3300	4500	3000
Reduce Anti-ice Bleed Runway Limit Wt.	None	4500	3000

TABLE 2 - RUNWAY CLUTTER ADJUSTMENT - LBS. (RUNWAY LIMIT)(See NOTE below)

	SLUSH, WATER & WET SNOW	DRY SNOW	ALLOWABLE RUNWAY TAKEOFF WEIGHT - LBS.									
			180	200	220	240	260	280	300	320	340	360
JT4A-3	Under 1/4"	Under 4"	None						None			
	1/4"	4"	2000	2000	4000	5000	8000	10000	13000			
	1/2"	6"	4000	4000	8000	10000	15000	20000	26000			
JT3D-3/ -3B	Under 1/4"	Under 4"	None								None	
	1/4"	4"	2000	4000	6000	8000	11000	13000	15000	17000	20000	
	1/2"	6"	4000	7000	11000	16000	21000	26000	30000	34000	38000	
JT3D-7	Under 1/4"	Under 4"	None									None
	1/4"	4"	4000	5000	6500	8000	9000	10000	11500	12500	14000	15000
	1/2"	6"	7000	10000	13000	16000	19000	22000	25000	28000	31000	34000

NOTE: For each 1000 feet of airport elevation an additional weight reduction is required: JT4A 1200 pounds, JT3D-3 and -3B 2000 pounds and JT3D-7 700 pounds.

TABLE 3 - RAIN REMOVAL ADJUSTMENT - LBS. (PERFORMANCE LIMIT)

	JT4A-3	JT3D-3/-3B	JT3D-7
Reduce Normal Bleed Performance Limit Weight	3300	4500	3000

NOTE: Takeoff weight may be limited by allowable landing weight at destination.



LANDING WEIGHT CONSIDERATIONS

Refer to Landing Gross Weight pages for airport weights.

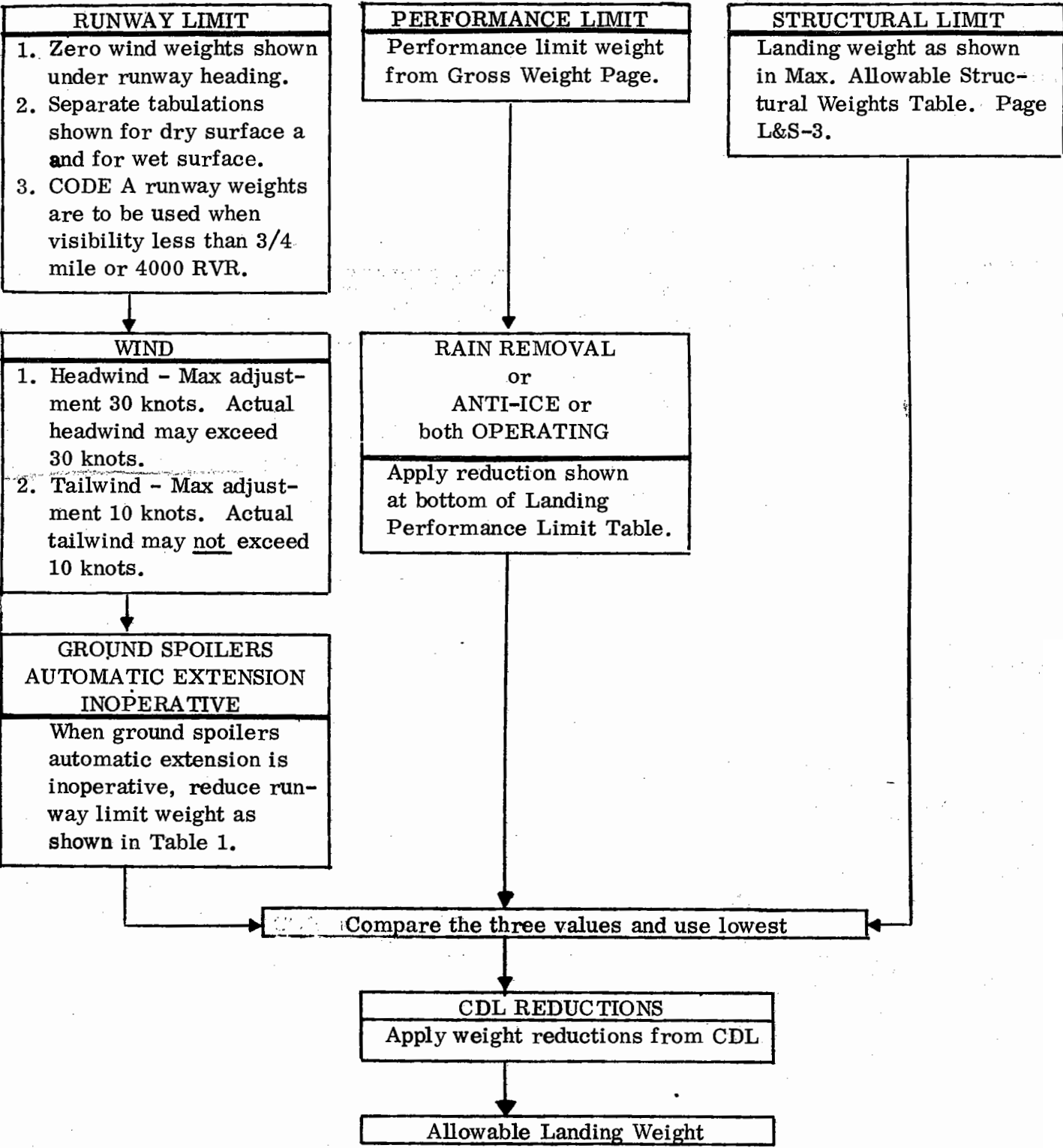


TABLE 1 - GROUND SPOILERS AUTOMATIC EXTENSION

INOPERATIVE		(RUNWAY LIMIT)
DC-8	(Mark I Brake System)	16,000 Lbs. (Nose gear spoiler extension inoperative.)
DC-8F	(Mark II Brake System)	35,000 Lbs. (Nose gear spoiler extension operative, main gear spoiler extension inoperative.)
DC-8-61	DC-8-62	56,500 Lbs. (Both nose and main gear spoiler extension inoperative.)
NOTE: When ground spoiler automatic extension feature(s) inoperative, the spoilers must be actuated manually when the main gear is firmly on the ground.		

WEIGHT LIMITATIONSMAXIMUM ALLOWABLE STRUCTURAL WEIGHTS - 1000 LBS.

UAL DES.	MODEL	ENGINE RATING	RAMP & TAXI	START OF TAKEOFF	AIRBORNE	LANDING	ZERO FUEL
20XX	DC-8F	JT3D-3	318.0	315.0	314.0	240.0	224.0*
2107	DC-8	JT4A-3	278.0	276.0	275.5	207.0	173.5
21XX	DC-8	JT4A-3	278.0	276.0	275.5	199.5	178.7
22XX	DC-8-62	JT3D-7	353.0	350.0	349.0	240.0	195.0
23XX	DC-8	JT3D-3	278.0	276.0	275.5	199.5	167.2
24XX	DC-8-61	JT3D-3B	328.0	325.0	324.0	240.0	224.0
25XX	DC-8-61	JT3D-3B	328.0	325.0	324.0	240.0	224.0
26XX	DC-8	JT4A-3	278.0	276.0	275.5	199.5	167.5
27XX	DC-8	JT3D-3	278.0	276.0	275.5	199.5	173.5 for N8035U 183.5 for N8060U-69U
28XX	DC-8	JT3D-3	278.0	276.0	275.5	199.5	173.5 for N8035U 183.5 for N8060U-69U
29XX	DC-8	JT4A-3	278.0	276.0	275.5	199.5	167.5
* When zero fuel weight exceeds 190,000 lbs. the airspeed indicator and overspeed warning must be set in the "C" (cargo) position. <u>NOTE:</u> The above weights may be further limited by other conditions and must not exceed those permitted by prescribed performance limitations.							

WEIGHT LIMITATIONS (Continued)

MAXIMUM LANDING WEIGHT FOR QUICK TURN AROUND

If the landing weight of the DC-8F, DC-8-61, or DC-8-62 exceeds the weight shown in the table following, one hour must elapse before a subsequent takeoff. This limitation precludes the possibility of tire plugs releasing pressure during or after takeoff.

AIRPORT ALTITUDE (FEET)	OAT - °F						
	0	20	40	60	80	100	110
SL	273.0	268.0	262.0	258.0	252.0	248.0	245.0
2000	263.0	258.0	253.0	248.0	243.0	239.0	237.0
4000	253.0	248.0	243.0	239.0	234.0	230.0	228.0
5331 (DEN)	247.0	242.0	237.0	233.0	228.0	224.0	222.0
6000	244.0	239.0	234.0	230.0	225.0	221.0	219.0
Increase above weight 600 lbs/kt headwind; decrease above weight 1200 lbs/kt tailwind (DC-8F and DC-8-61), 2000 lbs/kt tailwind (DC-8-62)							

WEIGHT SPECIFICATIONSAIRPLANE OPERATING WEIGHT EMPTY - 1000 LBS.

UAL DES.	MODEL	ENGINE	CONFIGURATION	OPERATING WEIGHT
20XX	DC-8F	JT3D-3	OVERWATER	131.0
21XX	DC-8	JT4A-3	DOMESTIC	136.5
22XX	DC-8-62	JT3D-7	OVERWATER	150.0
23XX	DC-8	JT3D-3	DOMESTIC	136.5
24XX	DC-8-61	JT3D-3B	DOMESTIC	161.0
25XX	DC-8-61	JT3D-3B	OVERWATER	163.0
26XX	DC-8	JT4A-3	DOMESTIC	136.5
27XX	DC-8	JT3D-3	OVERWATER	140.0
28XX	DC-8	JT3D-3	DOMESTIC	138.0
29XX	DC-8	JT4A-3	OVERWATER	138.0
Above weights are approximations. Specific operating weights and cabin configuration data for each airplane are tabulated in UAL regulations 40-5 (Operational Weight and Balance) used by load planning.				

SPEED LIMITATIONS

All limiting speeds shown are indicated airspeed and/or indicated Mach numbers using the normal airspeed system. The maximum operating limit speed (V_{MO}/M_{MO}) shall not be deliberately exceeded in any regime of flight, except where higher speed is specifically authorized for flight test or pilot training operations or in approved emergency procedures.

MAXIMUM OPERATING LIMIT SPEEDS - V_{MO}/M_{MO}

ALTITUDE (FEET)	AIRPLANE (UAL DESIGNATION)		
	20XX (See Note)	21XX, 23XX, 26XX, 29XX	22XX, 24XX, 25XX, 27XX, 28XX
SL	340	340	340
5,000	346	347	345
10,000	352	354	352
15,000	352	363	358
20,000	352	372	367
22,400	352	377 (.844M)	371
23,000	352	374 (.847M)	373 (.847M)
27,000	352 (.868M)	354 (.87M)	352 (.868M)
29,300	342 (.88M)	342 (.88M)	341 (.88M)
35,000	302 (.88M)	302 (.88M)	300 (.88M)
40,000	269 (.88M)	269 (.88M)	267 (.88M)
42,000	257 (.88M)	257 (.88M)	255 (.88M)

NOTE: The operating limit speeds shown for the DC-8F (20XX) are for ZFW of more than 190,000 pounds. For ZFW of 190,000 pounds or less speed limits for 27XX airplanes may be used.

SPEED LIMITATIONS (Continued)MANEUVERING SPEED - V_A

Maximum use of primary flight controls should be confined to speeds below 235 IAS at sea level increasing with linear variation to 269 IAS at 35,000 feet. Above 35,000 feet confine speed to Mach .79.

LANDING GEAR OPERATING/EXTENDED SPEEDS - V_{LO}/V_{LE}

230 IAS/.65 Mach whichever less.

LANDING LIGHTS OPERATING SPEED

The landing lights in the wing can be operated up to V_{MO}/M_{MO} .

FLAPS EXTENDED SPEED - V_{FE}

FLAP SETTING		DC-8 AND DC-8F		DC-8-61/-62	
DC-8, DC-8F, DC-8-61	DC-8-62	UNDER 15,000 FT.	OVER 15,000 FT.	UNDER 15,000 FT.	OVER 15,000 FT.
0° - 15°	0° - 12°	230	.46M	230	.46M
15° - 25°	12° - 23°	210	.42M	220	.44M
25° - 50°	23° - 50°	182	.37M	206	.41M

WINDSHIELD HEAT INOPERATIVE SPEEDS

SL - 10,000 FT: 245 IAS (glass intact)
 235 IAS (glass cracked)

10,000 FT. and Above: No speed restriction.

SPEED LIMITATIONS (Continued)

PITCH TRIM COMPENSATOR (PTC) INOPERATIVE SPEED

Below 19,000 Ft.: V_{MO} (barber pole)

Above 19,000 Ft.: .78M

On DC-8-61 and -62 with Autopilot Engaged: V_{MO}/M_{MO} (.78M if in Pitch Damp Mode)

AUTOPILOT

The maximum speed at which the autopilot may be operated is:

DC-8 and DC-8F: $V_{MO}/.85M$.DC-8-61 and -62: V_{MO}/M_{MO} .

TIRE SPEED

Do not exceed 174 knots ground speed.

OVERSPEED WARNING INOPERATIVE

 $M_{MO} = .82$ above 25,800 feet. $V_{MO} = 340$ IAS below 25,800 feet.

THRUST BRAKE

Maximum Using Speeds:

JT4 - 390 IAS or .88M (also ejector extend speed).

Ejector retract speed - 250 IAS or .82M.

JT3D - 390 IAS or .88M.

On DC-8-62, use of emergency dump switch limited to speed below 300 IAS or .80M whichever is lower.

Minimum Using Speeds:

Inflight - 200 IAS.

**SPEED LIMITATIONS (Continued)****FUEL DUMPING**

Reduce airspeed to 260 IAS or .75M (whichever less) but not less than 170 IAS.
Do not exceed 260 IAS or .75M with dump chute extended.

SPEED SPECIFICATIONS**NORMAL OPERATING SPEEDS**

CONDITIONS		KNOTS (IAS)	MACH
Climb Schedule	SL to 10,000 Ft.	250	-
	10,000 Ft. - 29,000 Ft.	300	-
	Above 29,000 Ft.	-	.78
Best Rate of Climb (3 Engines)		260	.55
Best Rate of Climb (2 Engines)		240	-
Minimum Drag Speed (Best Climb Angle)		1/2 G. W. + 100	
Holding Speed		1/2 G. W. +115	
Standard Cruise		-	.80
Rough Air Speed	SL to 10,000 Ft.	230	-
	10,000 to 20,000 Ft.	240	-
	20,000 to 42,000 Ft.	280	.80

MAXIMUM DEMONSTRATED CROSSWIND

Takeoff - 34 Knots (25 Knots for DC-8-61)

Landing - 25 Knots

SPEED SPECIFICATIONS (Continued)**STALL SPEEDS - KAS**

The stall speeds shown are applicable to Mach numbers below 0.27 with landing gear up or down.

ALL DC-8'S EXCEPT DC-8-62						
GROSS WEIGHT 1000 LBS.	FLAP SETTING					
	0°	10°	15°	25°	35°	FULL DOWN
325	172	150	146	141	138	134
315	170	148	144	139	136	132
300	165	144	140	135	132	129
280	159	139	135	130	126	124
260	153	134	130	126	123	120
240	147	129	126	121	118	115
220	141	124	120	116	113	110
200	134	118	115	111	108	105
180	127	112	110	106	103	100
160	120	106	104	100	97	94
140	112	100	98	94	91	89

DC-8-62						
GROSS WEIGHT 1000 LBS.	FLAP SETTING					
	0°	12°	18°	23°	35°	FULL DOWN
350	165	146	141	138	134	129
340	162	144	139	136	132	127
320	157	140	135	132	128	123
300	152	135	130	128	124	119
280	147	131	127	124	119	115
260	142	127	123	120	115	111
240	136	122	118	115	111	107
220	131	116	113	111	106	102
200	125	111	108	105	101	97
180	118	105	102	100	96	92
160	111	99	96	94	90	87
140	104	93	90	88	85	82

SPEED SPECIFICATIONS (Continued)MINIMUM CONTROL SPEED ON THE GROUND - V_{MCG}

The speed at which directional control on the ground can be maintained by aerodynamic controls alone when an outboard engine suddenly becomes inoperative with the airplane in takeoff configuration and with the remaining engines at takeoff thrust.

AIRPLANE ENGINE RATING	MINIMUM CONTROL SPEED ON THE GROUND - IAS									
	PRESSURE ALTITUDE	AMBIENT TEMPERATURE - °F								
		-40	-20	0	20	40	60	80	100	120
DC-8 JT4A-3	8,000 Ft.	104	101	98	95	92	89	86	84	81
	6,000 Ft.	106	106	102	99	96	93	90	88	84
	4,000 Ft.	107	107	107	104	100	97	94	91	88
	2,000 Ft.	106	106	106	106	105	102	98	95	91
	SL	106	106	106	106	106	106	102	94	95
DC-8 & 8F JT3D-3	8,000 Ft.	111	110	108	106	103	100	97	94	88
	6,000 Ft.	117	115	114	111	108	104	102	99	92
	4,000 Ft.	120	120	119	116	113	109	106	103	96
	2,000 Ft.	120	120	120	120	119	115	111	108	101
	SL	120	120	120	120	120	120	117	113	106
DC-8-61 JT3D-3B	8,000 Ft.	98	97	96	93	90	87	87	83	77
	6,000 Ft.	104	103	101	99	96	92	92	88	81
	4,000 Ft.	108	108	107	104	101	97	97	93	86
	2,000 Ft.	108	108	108	108	107	103	103	98	90
	SL	108	108	108	108	108	108	108	103	95
DC-8-62 JT3D-7	8,000 Ft.	115	113	111	109	106	102	102	98	91
	6,000 Ft.	120	119	117	114	111	107	107	102	95
	4,000 Ft.	125	125	123	120	116	112	112	107	99
	2,000 Ft.	124	124	124	124	122	118	118	112	104
	SL	124	124	124	124	124	124	124	117	109

NOTE: The above V_{MCG} speeds are increased approximately 40 knots with rudder power off.



SPEED SPECIFICATIONS (Continued)

MINIMUM CONTROL SPEED IN THE AIR - V_{MCA}

A speed at which aerodynamic control can be recovered when an outboard engine suddenly becomes inoperative and straight flight can be maintained with a 5° bank angle, with the airplane in takeoff configuration and with remaining engines at takeoff thrust.

AIRPLANE ENGINE RATING FLAP SETTING	MINIMUM CONTROL SPEED IN THE AIR - V_{MCA} - IAS										CORRECTIONS
	PRESSURE ALTITUDE (FEET)	AMBIENT TEMPERATURE - °C									
		-30	-20	-10	0	10	20	30	40	50	
DC-8	8000	116	114	112	110	-	-	-	-	-	Add 1 knot per 15,000 lbs. gross weight above 180,000 lbs.
JT4A-3	6000	120	118	115	113	111	109	-	-	-	
15° Flaps	4000	121	121	119	117	114	112	110	-	-	
	2000	120	120	120	121	118	115	113	111	-	
SL		120	120	120	120	120	119	116	114	110	
DC-8	8000	115	113	111	109	107	-	-	-	-	
JT4A-3	6000	119	117	114	112	110	108	-	-	-	
25° Flaps	4000	120	120	118	116	113	111	109	107	-	
	2000	119	119	119	120	117	114	112	110	107	
SL		119	119	119	119	119	118	115	113	111	
DC-8 & 8F	8000	110	-	-	-	-	-	-	-	-	Add 1 knot per 15,000 lbs. gross weight above 180,000 lbs.
JT3D-3	6000	115	114	112	110	-	-	-	-	-	
15° Flaps	4000	120	118	116	114	112	-	-	-	-	
	2000	118	118	118	118	116	113	110	-	-	
SL		118	118	118	118	118	117	115	112	-	
DC-8 & 8F	8000	108	107	-	-	-	-	-	-	-	
JT3D-3	6000	113	111	109	108	-	-	-	-	-	
25° Flaps	4000	116	116	114	112	109	106	-	-	-	
	2000	116	116	116	116	113	110	108	-	-	
SL		116	116	116	116	116	115	113	109	-	
DC-8-61	8000	108	-	-	-	-	-	-	-	-	Add 1 knot per 15,000 lbs. gross weight above 180,000 lbs.
JT3D-3B	6000	112	111	109	108	-	-	-	-	-	
15° Flaps	4000	116	115	113	111	109	108	-	-	-	
	2000	116	116	116	116	113	111	111	107	-	
SL		116	116	116	116	116	116	115	110	106	
DC-8-61	8000	106	104	-	-	-	-	-	-	-	
JT3D-3B	6000	110	109	107	105	-	-	-	-	-	
25° Flaps	4000	115	114	112	110	107	105	104	-	-	
	2000	115	115	115	115	112	110	109	104	-	
SL		115	115	115	115	115	115	114	109	103	
DC-8-62	8000	110	108	-	-	-	-	-	-	-	Add .5 knot per 20,000 lbs. gross weight above 200,000 lbs.
JT3D-7	6000	115	113	112	109	-	-	-	-	-	
18° Flaps	4000	121	119	117	114	111	109	108	-	-	
	2000	120	120	120	120	116	114	114	108	-	
SL		119	119	119	119	119	119	119	112	-	
DC-8-62	8000	109	108	106	-	-	-	-	-	-	
JT3D-7	6000	114	113	111	108	105	-	-	-	-	
23° Flaps	4000	120	118	117	114	111	108	107	-	-	
	2000	119	119	119	119	115	114	113	107	-	
SL		119	119	119	119	119	119	119	111	105	

NOTE:

The above V_{MCA} speeds are increased approximately 40 knots with rudder power OFF.



AUXILIARY SYSTEMS SPECIFICATIONS

DC-8F MAIN CARGO DOOR

Do not taxi or tow airplane with door unlatched or open.

Do not open door when actual or anticipated wind velocity is in excess of 40 knots except as follows:

1. The door may be opened to the 86 or 166 degree position with maximum wind velocity of 40 knots steady or gusts up to 52 knots.
2. If wind velocities from 40-60 knots are anticipated, the door may be opened to the 86 degree position only if airplane is parked so wind direction is against right side of airplane. Wind velocities greater than 40 knots directed against left side of airplane will blow door from the 86 degree position to full open or beyond and cause damage to airplane.

AVIONICS LIMITATIONS

PITOT CUTOFF

On airplanes equipped with Pitot Cutoff switch, retract PTC, disengage autopilot and pull the PTC circuit breakers prior to turning switch to CUTOFF position. Observe PTC inoperative airspeed limits.

OVERSPEED WARNING

If the overspeed warning system malfunctions during flight by sounding earlier than scheduled, the airplane is to be operated at speeds below the point at which the warning horn sounds if the system is operating. If the warning system activates below Mach .82 deactivate the system by pulling the circuit breaker and observe the speed limitations for Overspeed Warning Inoperative.

CAUTION: IN THE EVENT THE SYSTEM IS DEACTIVATED, CAREFULLY MONITOR AIRSPEED/MACH INDICATOR(S).

STALL WARNING

The stall warning system must be ON for all flight operations.

AUTOPILOT

When using the autopilot, the Captain or First Officer must be in his seat with his safety belt fastened so that if the autopilot should malfunction, he can regain control of the airplane immediately.

Observe maximum speeds at which autopilot may be operated as shown under Speed Limitations.

The autopilot must not be operated while on manual aileron or rudder control.

The yaw damper must be OFF for takeoff and landing. On DC-8-61 and DC-8-62 the yaw damper may be used during takeoff and landing.

The altitude loss from a nose down hardover in cruise is as follows:

DC-8 and DC-8F	-	140 Feet
DC-8-61	-	PTC Retracted - 200 Feet
		PTC Normal - 100 Feet
DC-8-62	-	270 Feet

AVIONICS LIMITATIONS (Continued)

AUTOPILOT (Continued)

The altitude loss from a nose down hardover during an automatic approach is:

DC-8 and DC-8F	-	20 Feet
DC-8-61	-	12 Feet
DC-8-62	-	6 Feet

AUTOPILOT IN LIEU OF PTC (DC-8-61/-62 ONLY)

The autopilot may be used as a stability device in place of the PTC at speeds up to V_{MO}/M_{MO} under following conditions:

1. Aural warning is provided for autopilot disconnect in the clean configuration.
2. The Autopilot Off light is connected with the Master Warning light.
3. Airplane nose down pitch authority of the autopilot is restricted to 10°.
4. The stabilizer in-motion aural warning system is installed and operating.
5. The autopilot automatic cutoff feature must be operative.

If the autopilot becomes inoperative, or is not used, either the PTC must be placed in operation or the PTC inoperative limitations must be observed.

NOTE: Pitch Damp Mode is limited to speeds of M. 78 or below when the PTC is inoperative or is not in use.

AUTOMATIC ALTITUDE REPORTING SYSTEM

The automatic altitude reporting system meets the requirements of FAR 91.36(b) when operated in conjunction with the altimeter used to maintain flight altitude. However, when maintaining flight with an altimeter in the uncorrected mode (altimeter flag indicates OFF) the ALT RPTG switch, on the ATC transponder panel in use, must be turned OFF.

INERTIAL NAVIGATION SYSTEM

The radio rack blower must be operating properly whenever INS is operated on the ground.

AVIONICS SPECIFICATIONS

AUTOPILOT

Minimum altitude to which the autopilot should be allowed to remain engaged is:

Cruise	-	1000 Feet AG
ILS Approach	-	100 Feet AG

Do not attempt to use the approach coupler for back course approaches on any localizer.

INERTIAL NAVIGATION SYSTEM

Alignment must be accomplished between latitudes 65°N and 65°S.

Automatic alignment and calibration must be accomplished while the airplane is parked.

When used as primary means of navigation, two sets must be operative at the departure gateway.

ELECTRICAL LIMITATIONS

AC LOAD

With loss of generator(s) do not allow the AC loadmeter to exceed 1.37 in flight.

PREFERENTIAL CIRCUIT

The preferential circuit must be operable prior to takeoff.

ELECTRICAL SPECIFICATIONS

	MINIMUM	MAXIMUM
DC Load	---	1.3
DC Tie Voltage	24v	30v
Battery Voltage	22v	---
AC Load		
Ground	---	1.0
Inflight	---	1.37
AC Voltage	107v	123v
AC Frequency	380 CPS	420 CPS
CSD Oil Temperature Rise		
DC-8	---	20°C
DC-8-61/-62	---	17°C
CSD Oil Outlet Temperature	---	146°C
Ground Power Requirements	115v AC, 400 CPS	
Generator(s) Output	115v AC, 400 CPS	
Transformer Rectifier(s) (TR) Output	28v DC	
Battery Output	24v DC	

LIGHTING LIMITATIONS

EMERGENCY EXIT LIGHTS

The emergency exit lights circuit must be armed for all flight operations.

EMERGENCY EQUIPMENT LIMITATIONS

EVACUATION SLIDES

The slide bar of all door mounted inflatable evacuation slides must be inserted in the floor fittings after the door is closed and prior to departure from the passenger ramp and remain in position until arrival at the unloading ramp.

EMERGENCY EQUIPMENT SPECIFICATIONS

OXYGEN

Crew and Passenger Systems Pressure: 1450 PSI (1650 Overwater) minimum at 70°F bottle temperature.

NOTE: Pressure varies 3 PSI for each 1°F.

ICE AND RAIN LIMITATIONS

WINDSHIELD HEAT

Place windshield heat to WARM UP during all ground and flight operations except as follows:

1. Place windshield heat to FULL POWER during descent from cruise altitude when the OAT is below NASA standard day temperature.
2. Place windshield heat to FULL POWER when required during icing conditions.

Windshield heat must be on as described above for all flight operations except as follows:

1. DC-8 (N8001U-94U and N8207U-66U):

Center windshield and/or clearview (sliding) window and/or eyebrow window heat may be inoperative provided windshield heat inoperative speed limits are observed. The left and right windshield heating systems are required for every flight.

ICE AND RAIN LIMITATIONS (Continued)

WINDSHIELD HEAT (Continued)

2. DC-8-61 (N8095U-99U) and DC-8-62:

The left, center, and right windshield heat may be inoperative provided windshield heat inoperative speed limits are observed. There is no speed restrictions for inoperative clear view (sliding) or eyebrow window heat.

Refer to IRREGULARITIES Section for cracked windshield procedure.

If windshield heaters are inoperative, use rain removal system to remove windshield ice.

ENGINE ANTI-ICE

Engine anti-ice shall be turned on prior to and used during takeoff and initial climb when following conditions exist:

Visible moisture is present (such as fog restricting visibility to less than 1/2 mile, rain, or wet snow), and

OAT is 46°F or less, and

The sum of OAT and dew point is 78° or less.

HYDRAULICS AND FLIGHT CONTROLS LIMITATIONS

HYDRAULIC PUMPS

Both engine driven hydraulic pumps must be ON and operating during takeoff.

AILERON AND RUDDER POWER

Aileron and rudder power must be on for all takeoffs.

SLOT DISAGREEMENT LIGHT

Takeoff shall not be made if slot disagreement light is ON.

UAL NOTE: When the disagreement light malfunctions so that it stays on regardless of slot/flap position, MEL procedures permit maintenance to deactivate the light after proper operation of the slot system has been verified.

GROUND SPOILERS

Do not extend ground spoilers during flight. Do not attempt to arm the ground spoilers below 1000 feet above the terrain.

PITCH TRIM COMPENSATOR (PTC)

During takeoff, approach and landing the PTC must be retracted and in OVERRIDE. The PTC may be retracted and in OVERRIDE during climb or descent at altitudes below 19,000 feet. If the system becomes inoperative or malfunctions during flight or it is desired to operate the airplane with an inoperative system when dispatching or releasing for flight, remove any trim that the system may be supplying by placing the PTC switch to OVERRIDE position and pulling the PTC system circuit breakers. Observe the PTC inoperative speeds.

The maximum altitude with PTC inoperative is 39,000 feet, except for the all cargo configuration (DC-8F).

On the DC-8-61 and -62 the autopilot may be used in lieu of the PTC. Refer to autopilot limitations.

ANTISKID

The antiskid system must be operative for all flight operations. The antiskid system (except on DC-8F, DC-8-61, and DC-8-62) does not operate until the main landing gear wheels have acquired rotational speed, therefore, the brakes must not be applied before touchdown.

LANDING GEAR

Refer to speed limitations and maximum landing weights for quick turn around table.

HYDRAULICS AND FLIGHT CONTROLS SPECIFICATIONS

Normal Hydraulic Pressure	2850 - 3200 psi
Minimum Auxiliary Pressure (Aileron and Rudder Power OFF)	2600 psi
Minimum Spoiler Pressure	2800 psi
System Relief Pressure	3300 - 3500 psi
Maximum Hydraulic Fluid Temperature	82°C
Hydraulic System Accumulator Precharge	1000 psi
Standby Rudder Accumulator Precharge	1000 psi
Spoiler Accumulator Precharge	2000 psi
Brake Accumulators (3) Precharge	700 psi
Nose Wheel Steering Accumulators (2) Precharge	500 psi
Shimmy Damper Accumulator Precharge	50 psi
Minimum Air Brake Bottle Pressure	2600 psi
Standby Reverser Accumulators (2) Precharge (-62)	1000 psi
Standby Reverser Hydraulic Pressure (-62)	2800-3200 psi
Alternate Ejector Air Bottle Pressure (JT4)	3000 psi
Spoiler Pump Duty Cycle	20 Mins. ON, 20 Mins. OFF

PNEUMATIC SYSTEM SPECIFICATIONS

Maximum Manifold Air Temperature	246°C
Normal Manifold Pressure	38 psi (DC-8-62, 20-38 psi)
Desired Manifold Pressure For Start	30 psi
Minimum Manifold Pressure For Start	22 psi

AIR CONDITIONING LIMITATIONSFREON SYSTEM

The following limitations are applicable prior to takeoff (does not apply to DC-8-61 and -62 airplanes):

85°F ambient and below - No Freon system operation or precooling required.

85°F to 95°F ambient - Precooling required to at least 85°F with no Freon system operation required.

85°F to 95°F ambient - One operative Freon system and operative diverter valve required if no precooling.

Above 95°F ambient - One operative Freon system and operable diverter valve required.

AIR CONDITIONING SPECIFICATIONSFREON TEMPERATURE

	Saturation	Superheat
Normal	20°-60°F	0°-20°F
Minimum	20°F	
Maximum	60°F	

The freon system may be operated with superheat above 35°F, but efficiency is greatly reduced and a Log Book entry should be made.

PRESSURIZATION LIMITATIONS

CABIN COMPRESSORS

Above 40,000 feet three cabin compressors must be operating.

CABIN PRESSURIZATION

Maximum cabin differential pressure - 8.77 psi

Maximum emergency relief pressure - 9.27 psi

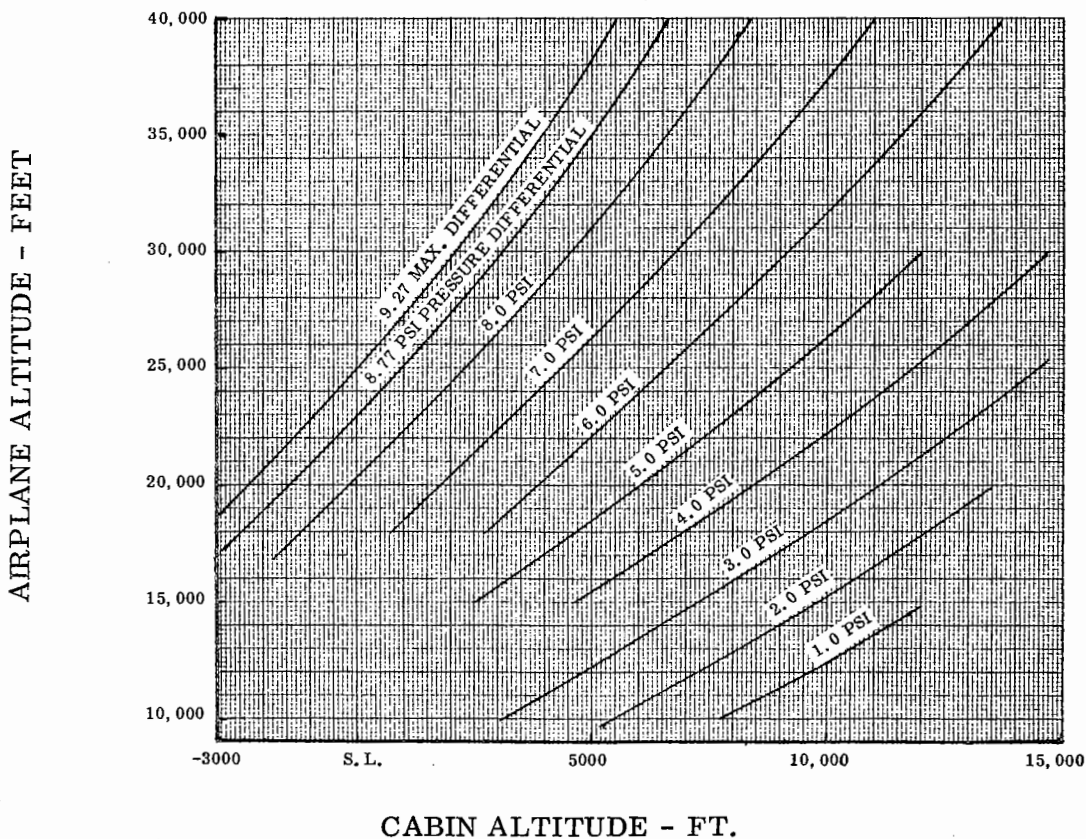
Cabin pressurization is not permitted during takeoff and landing.

UNPRESSURIZED OPERATION

1. For unpressurized flight the lower forward cargo compartment must not be used. On the DC-8-61 and -62, place Radio Rack Blower switch - ON.
2. If the Radio Rack Blower fails during unpressurized flight, and a cabin pressure differential of 2 psi cannot be maintained, turn the weather radar, ATC transponder, HF COMM and INS OFF.
3. If the pressure control valve is jammed or inoperable with the butterfly and nozzle open, then four cabin compressors must be operable and must be turned ON after reduction of power to Maximum Continuous Thrust.

PRESSURIZATION SPECIFICATIONS

AIRPLANE ALTITUDE VS CABIN ALTITUDE



**POWER PLANT LIMITS**

If an engine limit is exceeded, take immediate corrective action by retarding the throttle. Report the maximum value and time of operation in excess of the limit in the Airplane Log Book and call out as discrepancy.

ENGINE TEMPERATURE LIMITS

THRUST SETTING	TIME LIMIT	MAXIMUM EGT °C		
		JT4A-3	JT3D-3/-3B	JT3D-7
Takeoff	5 Min.	607	555	575
Max. Continuous or Climb	Continuous	500	490	510
Max. Cruise	Continuous	465	490	510
Idle	Continuous	340	340	340
Gnd. Start	Momentary	450	450	450
Air Start	Momentary	475	450	450
Acceleration	2 Min.	607	555	575

Whenever EGT exceeds 700°C (JT4A) or 600°C (JT3D), shut down engine. If possible allow a 5 minute cooling period at idle prior to shutdown unless it is obvious that continued operation will result in further damage.

ENGINE RPM

MAXIMUM % N ₁ AND % N ₂				
	JT4A-3	JT3D-3	JT3D-3B	JT3D-7
% N ₁	102.6	109.9	110.8	110.8
% N ₂	103.0	106.2	106.7	106.7

FUEL PRESSURE (MAXIMUM)

JT4: 55 PSI
JT3D: 50 PSI

POWER PLANT LIMITS (Continued)

OIL PRESSURE

JT4: 40-50 psi
JT3D: 40-55 psi

In flight, engine oil pressures between 35 and 40 psi are cautionary and should be tolerated only for remainder of flight, preferably at reduced thrust. An engine should be shut down if oil pressure drops below 35 psi. Minimum oil pressure during ground idle operation is 35 psi for JT3D engines, and 30 psi for JT4 engines.

NOTE: If engine shut down in flight, make entry in Log Book stating how long engine windmilled and if engine decelerated to windmilling RPM before oil pressure dropped to zero. Also note if engine windmilled more than 15 minutes without a positive indication of oil pressure.

OIL TEMPERATURE

JT4: 40-120°C
JT3D: 40-132°C (max. of 143°C is permitted for 15 minutes)

Providing engine operation is otherwise normal, no minimum oil temperature need be observed before commencing a takeoff.

THRUST BRAKES

Ground: Do not use more than maximum continuous thrust, except in an emergency. Avoid reverse throttle settings which produce engine stalls or popping except in an emergency. Reverse taxiing not permitted.

UAL NOTE: Use of idle reverse thrust on all engines is permitted to assist the tow tractor during pushback when requested by ground personnel and after complete coordination with the tow tractor operator.

In Flight: Maximum allowable thrust during thrust brake operation is:

#1 and #4 - Idle Reverse

#2 and #3 - Two Engines Maximum Continuous

Wing flaps must be completely retracted for all inflight thrust brake operations.

**POWER PLANT LIMITS (Continued)****INOPERATIVE THRUST REVERSERS****JT4 Airplanes:**

When dispatching with an inoperative ejector(s), the inoperative ejector(s) must be fixed in the extended or retracted position. No more than one ejector may be fixed in the extended position.

When dispatching with one inboard reverser inoperative the maximum operating altitude is 33,000 feet.

When dispatching with one outboard reverser inoperative the maximum operating altitude is 36,000 feet.

When dispatching with one symmetrical pair of reversers inoperative, the maximum operating altitude is 25,000 feet.

At least two symmetrically placed reversers must be operative.

Dispatch overwater not permitted with ejector inoperative in the extended position.

If an inoperative ejector is in the extended position, airplane performance will be affected. Refer to CRUISE section for fuel consumption corrections.

JT3D Airplanes:

For operations with one or both inboard reversers inoperative at takeoff, or, on a DC-8-62, in the event of a main system hydraulic pressure loss occurring at cruise altitude and the standby reverser is known to be inoperative, the maximum authorized operating altitude is:

1. No special limitations for DC-8F.
2. 35,000 feet for passenger airplanes.
3. 25,000 feet when the PTC is inoperative prior to takeoff or a subsequent loss of the PTC during any portion of the flight.

For operations with one or both outboard reversers inoperative, there are no special limitations.

At least two symmetrically placed reversers must be operative.

POWER PLANT SPECIFICATIONS

IGNITION

Ignition Override Duty Cycle:

JT4 and JT3D-7	-	10 minutes ON, 20 minutes OFF.
JT3D-3, and -3B	-	2 minutes ON, 3 minutes OFF, 2 minutes ON, 23 minutes OFF.

Continuous Ignition (JT3D-3 and -3B): May be used continuously.

PNEUMATIC STARTER

Engine Starting Duty Cycle - 1 minute ON (or 40% N₂/22% N₁), 1 minute OFF,
1 minute ON, 5 minutes OFF.

Engine Motoring Duty Cycle
(Fuel and Ignition Off) - 2 minutes ON and 5 minutes OFF

NOTE: If starting or motoring sequence interrupted, starter button must not be pressed again until N₂ indicates zero.

Idle N₂ RPM: Minimum - 59%
Maximum - 61%

FUEL SYSTEM LIMITATIONS

FUEL TEMPERATURE

Minimum fuel tank temperature is -36°C. If this limit is reached, and remaining cruise flight time is more than 1/2 hour, change to warmer altitude. If fuel tank temperature gauge is inoperative, assume RAT indicates fuel tank temperature.

FUEL SYSTEM LIMITATIONS (Continued)

FUEL LOADING

The fuel loading specified should only be used to determine the quantity of fuel to be contained in each tank upon the completion of fueling. All tanks may be filled simultaneously. However, upon completion of fueling, assure that final fuel quantities conform to the required Fuel Loading and Fuel Management Schedule. Crossfeed levers must be in the NORMAL position during pressure fueling.

FUEL MANAGEMENT

To maintain proper structural integrity and keep the airplane center of gravity within proper limits during flight, it is required that in all cases, including one or more engines out, distribution of fuel in the tanks must be maintained as specified in Fuel Loading and Management Schedules (L&S-28 thru L&S-31).

Engines should normally be supplied from the corresponding main fuel tanks.

Do not transfer fuel during takeoff.

Transfer fuel first from auxiliary tanks, then from the alternate tanks, to maintain the main tanks at the required levels prior to start of takeoff and after takeoff.

All DC-8 Airplanes Except DC-8-62:

When fuel quantity in #1 and #4 alternate tanks is less than full, do not exceed a fuel loading of 7500 pounds in the #1 and #4 main tanks.

During transfer of fuel from the outboard alternate tanks to the outboard main tanks, the main tank intermediate level of 7000 pounds will not always be maintained due to variations in fuel density and airplane altitude. Therefore, the system must be monitored to assure tank quantities do not exceed 7500 pounds.

DC-8-62 Airplanes:

With more than 5000 pounds of fuel in each of the outboard main tanks, the outboard alternate tanks must be kept full.

When the total fuel load is more than 32,700 pounds the outboard alternate tanks must be properly controlled to prevent the alternate low level lights from flashing.

During transfer of fuel from outboard alternate to outboard mains, the main tanks will normally be maintained at 2600 to 3600 pounds by the intermediate level control. Due to variable altitude and fuel density, this will vary, therefore the system must be monitored to assure that the quantity does not exceed 5000 pounds or fall below 2500 pounds.

FUEL SYSTEM LIMITATIONS (Continued)

**FUEL LOADING AND MANAGEMENT SCHEDULE (All DC-8 Airplanes
Except DC-8-62)**

	TOTAL FUEL		NO. 1 OR	NO. 1 OR	NO. 2 OR	NO. 2 OR	CW
	8 TANK	9 TANK	4 MAIN	4 ALT.	3 MAIN	3 ALT.	AUX
Structural Limit	- - -	- - -	20,240	10,475	17,605	12,550	- - -
Usable	121,740	150,050	20,240	10,475	17,605	12,550	28,310
Undumpable	14,860	23,480	2,710	70	4,115	535	8,620
	15,000		3,750		3,750		
	20,000		5,000		4,000		
	25,000		6,250		6,250		
	28,000		7,000		7,000		
	30,000		7,000	500	7,500		
	35,000		7,000	1,750	8,750		
	40,000		7,000	3,000	10,000		
	45,000		7,000	4,250	11,250		
	50,000		7,000	5,500	12,500		
	55,000		7,000	6,750	13,750		
	60,000		7,000	8,000	15,000		
	65,000		7,000	9,250	16,250		
	69,900		7,000	10,475	17,475		
	70,420		7,130	10,475	17,605		
	75,000		8,275	10,475	17,605	1,145	
	80,000		9,525	10,475	17,605	2,395	
	85,000		10,775	10,475	17,605	3,645	
	90,000		12,025	10,475	17,605	4,895	
	95,000		13,275	10,475	17,605	6,145	
	100,000		14,525	10,475	17,605	7,395	
	105,000		15,775	10,475	17,605	8,645	
	110,000		17,025	10,475	17,605	9,895	
	115,000		18,275	10,475	17,605	11,145	
	120,620		19,680	10,475	17,605	12,550	
	121,740		20,240	10,475	17,605	12,550	
	125,000		20,240	10,475	17,605	12,550	3,260
	130,000		20,240	10,475	17,605	12,550	8,260
	135,000		20,240	10,475	17,605	12,550	13,260
	140,000		20,240	10,475	17,605	12,550	18,260
	145,000		20,240	10,475	17,605	12,550	23,260
	150,050		20,240	10,475	17,605	12,550	28,310

- NOTES:**
- (1) Above schedule based on 6.8 #/gallon.
 - (2) When fuel with a density of less than 6.8 #/gallon is used, the fuel tanks will be volume limited. Weight of fuel in the tanks, regardless of density, must not exceed structural limit shown preceding.

(NOTES continued on following page)

FUEL SYSTEM LIMITATIONS (Continued)FUEL LOADING AND MANAGEMENT SCHEDULE (All DC-8 Airplanes
Except DC-8-62) (Continued)NOTES: (Continued)

- (3) The usable fuel capacity of 8 tank JT4 powered airplanes (N8001U-06U, N8012U-33U and N8037U-39U) is 119,360 pounds. The number 1 and 4 alternate tanks on these airplanes have a usable capacity of 9,285 pounds. All other tanks have same capacity as those shown preceding. Consequently, between total fuel load of 65,000 pounds to 119,360 pounds the 1 and 4 mains will contain approximately 1,000 pounds per tank more fuel than shown in preceding schedule and the 1 and 4 alternate tanks will indicate 9,285 pounds instead of 10,475 pounds.
- (4) Usable fuel was determined with feed pumps on.

FUEL SYSTEM LIMITATIONS (Continued)

FUEL LOADING AND MANAGEMENT SCHEDULE (DC-8-62)

	TOTAL FUEL	NO. 1 OR 4 MAIN	NO. 1 OR 4 ALT.	NO. 2 OR 3 MAIN	CW AUX	FWD AUX	X-FEED
Structural Limit		20,903	11,682	31,690	29,745	14,281	151
Usable	165,075	19,983	11,158	30,287	28,454	13,650	115
Undumpable	22,200	2,710	70	3,881	8,763	0	115
	12,115	3,000		3,000			115
	20,115	3,000	2,000	5,000			115
	25,115	3,000	3,250	6,250			115
	30,115	3,000	4,500	7,500			115
	35,115	3,000	5,750	8,750			115
	40,115	3,000	7,000	10,000			115
	45,115	3,000	8,250	11,250			115
	50,115	3,000	9,500	12,500			115
	55,115	3,000	10,750	13,750			115
	56,747	3,000	11,158	14,158			115
	60,115	3,842	11,158	15,000			115
	65,115	5,092	11,158	16,250			115
	70,115	6,342	11,158	17,500			115
	75,115	7,592	11,158	18,750			115
	80,115	8,842	11,158	20,000			115
	85,115	10,092	11,158	21,250			115
	90,115	11,342	11,158	22,500			115
	95,115	12,592	11,158	23,750			115
	100,115	13,842	11,158	25,000			115
	105,115	15,092	11,158	26,250			115
	110,115	16,342	11,158	27,500			115
	115,115	17,592	11,158	28,750			115
	120,115	18,842	11,158	30,000			115
	121,259	19,127	11,158	30,287			115
	122,971	19,983	11,158	30,287			115
	125,000	19,983	11,158	30,287	2,029		115
	130,000	19,983	11,158	30,287	7,029		115
	135,000	19,983	11,158	30,287	12,029		115
	140,000	19,983	11,158	30,287	17,029		115
	145,000	19,983	11,158	30,287	22,029		115
	150,000	19,983	11,158	30,287	27,029		115
	150,425	19,983	11,158	30,287	28,454		115
	155,000	19,983	11,158	30,287	28,454	3,575	115
	160,000	19,983	11,158	30,287	28,454	8,575	115
	165,075	19,983	11,158	30,287	28,454	13,650	115

(NOTES ON FOLLOWING PAGE)

FUEL SYSTEM LIMITATIONS (Continued)

FUEL LOADING AND MANAGEMENT SCHEDULE (DC-8-62) (Continued)

- NOTES:
- (1) Preceding schedule based on 6.8 #/gallon.
 - (2) When fuel density of less than 6.8 #/gallon is used, the fuel tanks will be volume limited. Weight of fuel in the tanks, regardless of density must not exceed structural limit shown preceding.
 - (3) The fuel quantity in the crossfeed will be reflected by the #2 main tank quantity indicator in flight after crossfeed fuel has been scavenged (not UAL procedure).
 - (4) Usable fuel was determined with feed pumps on.

FUEL UNBALANCE

DC-8 and

DC-8F: Fuel unbalance across airplane centerline is not permissible.

DC-8-61: Unbalance of 2000 pounds maximum across the airplane centerline is permissible after total fuel load is below 40,000 pounds.

DC-8-62: Unbalance between fuel systems is permissible below 40,000 pounds provided:

- (1) Unbalance across the airplane centerline does not exceed 2000 pounds.
- (2) Limitations noted for minimum fuel in outboard alternate tanks are observed.
- (3) Unbalance between inboard system and outboard system does not exceed 2000 pounds.

FUEL SYSTEM SPECIFICATIONS

FUEL		POUNDS
Taxi (Not in Takeoff Weight)		2,000
Minimum Dispatch	JT4	11,500
	JT3D	11,000
FAR Domestic Reserve	JT4	8,500
	JT3D	8,000
FAR Overwater Reserve	JT4	8,500
	JT3D	6,000
Minimum Alternate		1,700
Contingency		4,000
Holding Per Hour		10,000
Fuel Dump Rate Lbs./Min. (Approx.)		5,000
Undumpable	8 Tank	14,860
	9 Tank	23,480
	DC-8-62	22,200

MISCELLANEOUS LIMITATIONS

FLIGHT LOAD ACCELERATION LIMITS

Flaps Up: 2.5 "G's" for all weights up to maximum takeoff weight.

Flaps Down: 2.0 "G's" for all weights up to maximum landing weight.

MINIMUM CREW

Required Crew Members: Captain, First Officer and Second Officer.

TEMPERATURE AND ALTITUDE FOR OPERATION

	TAKEOFF AND LANDING	EN ROUTE
Temperature Limits	-54°C to 50°C (1) (-65°F to 122°F)	-76°C to STD +35°C
Altitude Limits Pressure Altitude	-1000 to 8000 feet	0 - 42,000 feet
<u>NOTES:</u> (1) -40°C to 50°C for pressure altitudes above 4700 feet for DC-8-61 and DC-8-62.		

CONFIGURATION DEVIATION LIST (CDL)

When operation is scheduled with certain secondary airframe and engine parts missing, the airplane must be operated in accordance with the limitations specified in the basic Airplane Flight Manual, and as amended by the Configuration Deviation List.

MISCELLANEOUS LIMITATIONS (Continued)

CG LIMITS

UAL DES.	MODEL	CG LIMIT (% MAC)		
		FORWARD ZFW CG LIMIT	AFT	
			ZFW CG LIMIT	FINAL WEIGHT CG LIMIT (FUEL INCLUDED)
20XX	DC-8F	16.8	34.1	34.0
21XX	DC-8	17.5	32.0	32.0
22XX	DC-8-62	18.2	31.4	34.6
23XX	DC-8	16.5	32.0	32.0
24XX	DC-8-61	16.0	33.6	34.0
25XX	DC-8-61	16.0	33.6	34.0
26XX	DC-8	16.5	32.0	32.0
27XX	DC-8	20.2	34.1	34.0
28XX	DC-8	20.2	34.1	34.0
29XX	DC-8	16.5	32.0	32.0

The ZFW CG Limits shown are adhered to when the airplane is loaded in accordance with the approved weight table and balance computers found in UAL Regulation 40-5. When fuel is added in accordance with the approved schedule, the CG moves aft and in some instances (when airplane loaded to an aft CG) may result in the final weight CG (the one shown on the weight manifest) being beyond the aft ZFW CG Limit. This is normal provided the final weight CG does not exceed the final weight CG shown in the preceding table.

INSTRUMENT LIMIT MARKINGS

Maximum and Minimum Limits	-	Red Radial Line
Cautionary Limits	-	Yellow Arc
Normal Operating Range	-	Green Arc



EMERGENCIES

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IMMEDIATE ACTION refers to steps which must be done from memory without undue delay. REFERENCE ACTION steps are those which will be completed by referring to the check list. After completing the IMMEDIATE ACTION steps, the pilot performing the procedure will call for the applicable check list. The Second Officer will read the check list in its entirety. Conditions permitting, the pilot not flying will check each item and repeat the response.

Silencing of aural warnings will improve crew coordination in performance of Emergency procedures.

ENGINE FIRE, SEVERE ENGINE DAMAGE, OR ENGINE SEPARATION

If fire warning light ON and/or bell rings (If no Fire Shutoff Lever light, actuate all ENG COMPT FIRE WARN TEST switches to determine origin of fire warning); or severe engine damage or engine separation is indicated:

IMMEDIATE ACTION

Throttle	IDLE
Fuel Shutoff Lever	OFF
Fire Shutoff Lever	FULL FORWARD

If fire indicated:

Fire Discharge System	ONE AGENT SYSTEM RELEASED (AGENT LOW PRESS LIGHT ON)

If fire persists, after 30 seconds, discharge the other bottle.

REFERENCE ACTION

Fuel Boost Pump (Associated Main Tank)	OFF
Tank Selector Lever	OFF
Crossfeed Valve Lever	NORMAL
Generator Drive	DISENGAGE
Engine Hydraulic Pump	IF INBOARD, USE OPPOSITE PUMP AND BYPASS AFFECTED PUMP
Oil Cooler Door	HOLD CLOSED (15 SEC.) AND THEN OFF
Fuel Management	AS REQUIRED

NOTE: Associated fuel boost pump and tank selector can be turned back ON to maintain proper fuel management after fire extinguished.



TOTAL ELECTRICAL POWER LOSS

This procedure should be followed until an EMERGENCY BUS is recovered. Further restoration of electrical power should be carefully considered because of the possibility of exposure to the same fault.

IMMEDIATE ACTION

BATT-EXT PWR Switch	VERIFY IN BATT POSITION
GALLEY PWR Switch	OFF
RECIRCULATING FAN Switches	OFF
AC BUS ISOLATE Switch	ISOL
GENERATOR CONTROL Switches	RESET, THEN "ON" IN SEQUENCE 2, 3, 1, 4, UNTIL POWER OBTAINED ON AT LEAST ONE BUS (REPEAT PROCEDURE IF NECESSARY)

REFERENCE ACTION

If neither EMERGENCY BUS is recovered and Bus #1 and/or #4 BUS PWR FAIL Light is out, then:

AC BUS ISOLATE Switch	NOR
#1 (or #4) BUS FAULT RESET Switch	RESET
#2 (or #3) BUS FAULT RESET Switch	RESET

When practical, and if desired, restore electrical system to normal operation.

If Electrical Power is not restored; (1) Antiskid, Spoilers, and Thrust Brake Lights will be inoperative, (2) JT3D-7 Reversing inoperative, (3) JT4 Reversing available only if the Ejectors are extended, and (4) JT3D-3, and -3B Reversing available. (Availability of Emergency and/or Battery Buses have no effect on these systems.)

If cabin pressure surges occur, or if AC Bus #4 is not powered, control pressurization manually.

NOTE: If the Gyro Horizon Warning Flag remains displayed when power is restored, the airplane must be flown straight and level at a constant speed for approximately four minutes (until the Warning Flag disappears).



RAPID DEPRESSURIZATION

IMMEDIATE ACTION

Crew Oxygen Masks ON
Manual Pressurization Control FULLY CLOSED

Start Emergency Descent

REFERENCE ACTION

Passenger Oxygen Masks Switch EJECT*
Seat Belt and No Smoking Sign ON

Inspect airplane for cause of depressurization

* Manually surge the oxygen system (pull and reset passenger oxygen Mask Eject C/B) if cabin altitude exceeds 15,000 feet to ensure mask deployment and oxygen flow.

EMERGENCY DESCENT

The following procedure assumes structural integrity of the airplane. If structural integrity is in doubt, limit speed as much as possible, reduce rate of descent if necessary and avoid high maneuvering loads.

IMMEDIATE ACTION

Autopilot OFF
Throttles MAX. AVAILABLE REVERSE
THRUST NOT EXCEEDING MAX.
CONT. THRUST
Target Speed BARBER POLE, LIMITING NOSE
DOWN PITCH TO NOT MORE
THAN 20° (WHEN PTC INOP,
LIMIT TO .83/BARBER POLE).

NOTE: Do not come out of reverse thrust above 300 knots IAS in order to prevent undue trim changes. The stabilizer should never be trimmed to less than 0° to prevent undue forces and trim changes when coming out of reverse thrust. On JT4A engines the ejectors are extended by use of the reverse throttles in the above procedure. The ejector control switches should be placed in EXTEND position before moving throttles to forward idle.



MAIN CABIN ALL CARGO (CLASS E) COMPARTMENT SMOKE OR FIRE

If a cargo compartment fire is indicated and verified, proceed as follows:

IMMEDIATE ACTION

Smoke Goggles	ON
Oxygen (All Crew except Second Officer)	MASK ON - 100%
Cabin Compressors	3 OFF (ONE AT A TIME), 1 ON
Recirculating Fans	OFF
Both Overhead Diffuser Valves	OPEN
Main Cargo Compartment Manual	
Air Shutoff Valve	CLOSED

REFERENCE ACTION

Cockpit Door and Door Louvers	CLOSED
Cargo Compt. Blowers (Guarded) Switch	OFF
Freon Compressors	OFF
Oxygen (Second Officer)	MASK ON - 100%
Cabin D/P (Manually)	0.5 PSI AND MAINTAIN
Weather Radar (at Cabin Altitudes above 20,000 ft.)	OFF
Autopilot (at Cabin Altitudes above 20,000 ft.)	DISENGAGE (PULL C/B)
ATC Transponder (at Cabin Altitudes above 30,000 ft.)	OFF
DME (at Cabin Altitudes above 30,000 ft.)	OFF (PULL C/B's)

NOTE: If required, portable O₂ bottles located aft of the Second Officer's table and in the lavatory are available to Second Officer when performing above procedure.

If on an overwater flight, calculate oxygen available at 0.5 PSI differential pressure versus altitude. (Refer to Cruise Section for Crew Oxygen Duration Chart.)

Oxygen capacity has not been evaluated for any particular route structure.



LOSS OF HYDRAULIC FLUID/OR FLUID AND PRESSURE

IMMEDIATE ACTION

Hydraulic System Selector	FULL DOWN (ABNORMAL)
Engine Hydraulic Pump Switches	BYPASS
Auxiliary Hydraulic Pump	OFF

REFERENCE ACTION

Aileron and Rudder Power Shutoff Levers	OFF
Autopilot	OFF

Continue flight using alternate longitudinal trim.

QUANTITY GAUGE CHECK: If the hydraulic fluid quantity gauge is indicating less than 5 gallons (standpipe level), place the hydraulic system selector lever to NORMAL and turn on either engine hydraulic pump. A rise in pressure indicates that the quantity gauge has failed. Return the system to normal.

BEFORE LANDING

- #1. If main reservoir fluid available, perform following in vicinity of intended destination.

Airspeed	UNDER 230 KIAS/MACH .46
Landing Gear Lever	UPLATCH CHECK POSITION
Flap Lever	15° (12° on DC-8-62)
Engine Ejector Switches (JT4)	EXTEND
Hydraulic System Selector	FULL DOWN (ABNORMAL)
Auxiliary Hydraulic Pump	START

Expect some fluid loss as the system accumulator is filled. If the hydraulic system has cold soaked, it will require considerable time for the auxiliary pump to build pressure. If all the main reservoir fluid is lost or if pressure fails to build, TURN OFF the auxiliary pump and proceed to #2.

If quantity holds and pressure builds, assume leak has been isolated and perform the following:

Gear Lever	DOWN (3 GREEN)
Auxiliary Hydraulic Pump	OFF
Rudder Power Shutoff Lever	ON
Standby Rudder Power Switch	START (LIGHT ON)
Rudder Manual Control Light	CHECK OUT

Monitor rudder system operation for a short time. If rudder power reversion occurs, the Rudder Power Shutoff lever and the Standby Rudder Power Switch should be turned OFF.

CONTINUED



EMERGENCIES

LOSS OF HYDRAULIC FLUID/OR FLUID AND PRESSURE (Continued)

Auxiliary Hydraulic Pump START
Flap Handle AS REQUIRED

Use Alternate Longitudinal Trim throughout approach
and landing.

Spoilers ARMED
Antiskid ARMED
Standby Reverser Pump (DC-8-62) ON
Check Lists COMPLETE AS
APPLICABLE

Monitor hydraulic fluid and pressure. If pressure
cannot be maintained, proceed to Procedure #2.

#2. If no fluid available from main reservoir or if Procedure #1 has failed,
perform following:

Landing Gear Lever DOWN (FREE-FALL)
Ejectors (JT4) EXTEND (USING ALT.
AIR SYSTEM)
Spoilers ARMED (CHECK PRESSURE)
Rudder Power Shutoff Lever ON
Standby Rudder Power Switch START (LIGHT ON)
Rudder Manual Control Light CHECK OUT
Hydraulic System Selector FULL UP (EMERGENCY)
Flap Handle AS REQUIRED
Auxiliary Hydraulic Pump START
Antiskid ARMED
Standby Reverser Pump (DC-8-62) ON
Wing Slots Light CHECK - IF ON ADD
10 KNOTS TO MAX SPEEDS
EXCEPT IN CASE OF NO
FLAPS.
Check Lists COMPLETE AS APPLI-
CABLE

CONTINUED



LOSS OF HYDRAULIC FLUID/OR FLUID AND PRESSURE (Continued)

NOTE: Monitor the emergency hydraulic level light (illuminates if emergency system reservoir fluid level drops to half full). If the light illuminates, monitor the flaps for drift back and adjust approach speeds if necessary.

When the hydraulic system selector is in the FULL UP (EMERGENCY) position, the flaps can be raised or lowered. THE GEAR CANNOT BE RAISED WITH THE HYDRAULIC SYSTEM SELECTOR IN THIS POSITION.

Allow for slower stabilizer movement when using the alternate longitudinal trim.

Normally there will be a reserve of hydraulic brake pressure from the brake accumulators. The hydraulic brake pressure gauge must be monitored for pressure loss.

CAUTION: EXCESSIVE BRAKING WILL CAUSE THE ANTISKID TO CYCLE EXCESSIVELY AND BLEED OFF AVAILABLE HYDRAULIC PRESSURE, THEREFORE:

Braking should be kept to a minimum commensurate with existing conditions.

If no hydraulic braking is available, use the emergency air brake. Do not apply foot brakes while using air brake.



PNEUMATIC MANIFOLD OVER-TEMPERATURE

IMMEDIATE ACTION

Low Press Pneu Shutoff Switches (affected side) ALTERNATELY OFF
(OBSERVE WARNING
LIGHT AND GAUGE AND
LEAVE OFFENDING
SYSTEM OFF.)

DC-8-62 Only:

Low Press Pneu Shutoff Switch (affected engine only) . . OFF

REFERENCE ACTION

If unable to determine cause of over-temperature:

Pneumatic Crossfeed Valve CLOSED
Low Press Pneu Shutoff Switches (affected side) BOTH OFF
Cabin Compressors (affected side) BOTH OFF
Freon Compressor (affected side) OFF
Airfoil Deice OFF
Rain Removal (affected side) OFF

NOTE: If the temperature is within limits but the light is on, a failure of the warning system has occurred. Use all available bleeds for balance of the flight, but continually monitor the manifold air temperature gauges to ensure the temperatures remain within the normal range.

If one side of pneumatic manifold is shut down, avoid icing encounters for the balance of the flight. If in ice when one side of the system is shut down, nose scoop and engine ice protection may be used as required.



MANIFOLD FAILURE WARNING LIGHT ON
(DC-8-61 N8073U and Subsequent and DC-8-62)

IMMEDIATE ACTION

Low Press Pneu Shutoff Switches (affected side) . . . BOTH OFF
Pneumatic Crossfeed Valve CLOSED

REFERENCE ACTION

Cabin Compressors (affected side) BOTH OFF
Freon Compressor (affected side) OFF
Airfoil Deice OFF
Rain Removal (affected side) OFF
Manifold Air Pressure. MONITOR (MANIFOLD
AIR PRESSURE LIGHT
WILL REMAIN ON.)

The manifold failure light should go out within approximately one minute. If the light does not go out, an overheat detector malfunction is indicated or physical damage to the sensor has occurred as a result of the duct rupture. Under any circumstances, maintain the corrective actions taken for the balance of the flight.

Avoid icing encounters for the balance of the flight. If in ice when the light comes ON, available scoops and engine ice protection may be used as required.



MANIFOLD AIR PRESSURE LIGHT ON

IMMEDIATE ACTION

Manifold Pressure Gauge	DETERMINE AFFECTED SIDE
Low Press Pneu Shutoff Switches (affected side)	BOTH OFF
Pneumatic Crossfeed Valve	CLOSED

REFERENCE ACTION

Cabin Compressors (affected side)	BOTH OFF
Freon Compressor (affected side)	OFF
Airfoil Deice	OFF
Rain Removal (affected side)	OFF

Avoid icing encounters for the balance of the flight. If in ice when one side of the pneumatic system is shut down, scoops anti-ice and engine ice protection may be used as required.

NOTE: The Manifold Air Pressure light may illuminate momentarily when anti-icing or deicing is turned ON or when engine power is reduced to idle for descent or slow-down.



JAMMED STABILIZER LANDING

IMMEDIATE ACTION

If the stabilizer becomes inoperative during approach, add 5 knots to reference speed.

REFERENCE ACTION

If the stabilizer becomes inoperative during climb, cruise, or descent, determine speed increment to be added to the reference speed from the tables following; however, the flap placard speed must be observed. Refer to Cruise Section for chart to determine en route CG.

During climb, cruise descent and approach, adjust the elevator wheel force with PTC as follows:

- A. Pull the PITCH TRIM COMPENSATOR OVERRIDE circuit breaker.
- B. Actuate pitch trim compensator switch to the TEST (Nose UP trim) or NORMAL (Nose Down trim) positions as necessary to maintain a slight push force of approximately 10 lbs. When the push force is obtained, place switch in OVERRIDE position.

This procedure must be used whenever the test position is used to relieve stick force.

During the flare, the thrust should be maintained at the level required for a normal final approach rate of descent until the airplane has attained a height of approximately 10 feet above the runway. At this point, the thrust should be reduced smoothly to idle while the airplane is flared for touchdown. It should be realized that elevator effectiveness under the jammed stabilizer condition may be seriously penalized. The force required to flare may be higher than normal even though the stick force is reduced by use of the pitch trim compensator and the speed is faster than the touchdown speed. If a missed approach becomes necessary with a jammed stabilizer, normal go-around procedures may be employed; however, if the CG is full forward and the stabilizer becomes jammed with full flaps, maximum indicated airspeed of 190 knots IAS in the clean configuration should be observed to prevent undue control wheel push forces. A lesser indicated airspeed, flap extension, and thrust less than takeoff may be employed to reduce control wheel push forces if operationally feasible.

CONTINUED



JAMMED STABILIZER LANDING (Continued)

SPEED TO BE ADDED TO NORMAL REFERENCE SPEED - KTS.

ALL AIRPLANES EXCEPT DC-8-61

CG % MAC	AND ← → ANU									
	STABILIZER POSITION									
	-0.5	0	0.5	1.0	1.5	2.0	3	4	5	6
16	35	32	28	25	22	20	15	11	7	4
18	30	26	24	21	18	16	12	7	4	
20	24	21	18	16	13	11	7	3		
22	19	16	13	11	8	6	2			
24	14	11	8	6	4	2				
26	8	5	3	1						
28	2	0								

(No Additional Speed Required)

DC-8-61

CG % MAC	AND ← → ANU								
	STABILIZER POSITION								
	1	.5	0	.5	1	1.5	2	2.5	3.0
16	16	15	14	12	10	8	6	4	2
18	12	10	8	6	4	2			
20	7	5	4	2					

(No Additional Speed Required)



TWO ENGINE APPROACH AND LANDING

IMMEDIATE ACTION

Flaps		25° (23° FOR DC-8-62)
Gear		UP OR DOWN (OPTIONAL AT PILOT'S DISCRETION)
Minimum Speed	:	160 KTS. IAS (170 KTS. FOR WEIGHTS GREATER THAN 207,000 LBS.)

When landing is assured, proceed with landing configuration and speeds as in a normal landing.

REFERENCE ACTION

Turn on standby rudder pump when starting final approach. If subsequent hydraulic failure occurs, leave rudder power ON while performing Loss of Hydraulic Fluid/or Fluid and Pressure Emergency Procedure.

Center rudder trim before touchdown.



EMERGENCIES

TWO ENGINE GO-AROUND

IMMEDIATE ACTION

1. Observe minimum maneuvering speeds listed for the 2 engine approach and landing.
2.
 - (a) If symmetrical engines are operating, apply takeoff thrust.
 - (b) If asymmetrical engines are operating, use thrust as necessary up to take-off or until directional control is limiting. At least 5° of bank angle toward the operating engines must be used.
3. Retract wing flaps to 10° (12° for DC-8-62)
4. Gear up.
5. Accelerate to 210 knots, then simultaneously reduce to Maximum Continuous Thrust and retract wing flaps to 0°.

NOTE: Do not attempt to go around if speed is below 160 kts. IAS (170 kts. for weights greater than 207,000 pounds).



PREPARATION FOR PASSENGER EVACUATION

Accomplish the following preparations in flight when the situation indicates an emergency evacuation of passengers may be necessary upon landing.

CAPTAIN

WHEN POSSIBLE

1. Notify ground station of emergency as follows:
 - A. Declare emergency (MAY DAY or PAN).
 - B. Airplane identification.
 - C. Operating frequency being used.
 - D. Position and altitude.
 - E. Nature of emergency.
 - F. Action being taken or planned.
 - G. Any additional information that may be available to effect an efficient rescue or relief.
2. Determine from Stewardess the passenger load in each compartment, the number of evacuation trained company employees, the number of infants, invalids or other passengers who should be given special consideration.
3. Advise Stewardess and issue necessary orders. Direct S/O and/or observers to assist in cabin.
4. Avoid landing until emergency equipment and crews are standing by.
5. Advise passengers when to BRACE for landing.
6. In case of fire, position airplane to provide greatest number of fire free exits.

NOTE: With cargo loading and only two Stewardesses, the Captain is responsible for opening the fwd. buffet door and activating the slide in an evacuation.

FIRST OFFICER

1. Assist as Captain directs.
2. Emergency light system Check - ARMED.
3. During landing roll retract spoilers.



PREPARATION FOR PASSENGER EVACUATION (Continued)

SECOND OFFICER

1. Depressurize cabin (below 10,000 feet).
2. Secure all loose equipment in cockpit.
3. Secure cabin-to-cockpit door in open position.
4. Assist Stewardess with preparation for passenger evacuation as Captain directs.
5. If in cabin on landing, sit in aisle seat over wing exit area.

- NOTES:
1. Navigator, if carried, assist Stewardess with cabin pressurization. On landing (standard DC-8) sit in aisle seat over wing area; DC-8-61, sit in aisle seat, first row, coach cabin.
 2. If these preparations have been made, Stewardesses are trained to evacuate passengers as soon as the airplane stops. They will do so unless directed otherwise by the Captain. In those cases where emergency evacuation is unnecessary, the Flight Crew should be alert to direct Stewardesses and passengers, by PA system or voice, to remain seated after the landing roll. If evacuation has been started, shut down all engines.

CABIN ATTENDANTS

MINIMUM TIME FOR PREPARATION -- SHOUT

1. "Grab your ankles."
2. Keep your head down until plane stops.

TIME PERMITTING

1. Reseat passengers as required, clear seats for helper passengers.
2. Instruct passengers (use safety card).
 - (a) Protective position.
 - (b) Seat belt tight.
 - (c) Brace signal.
3. Instruct passengers - When - Where - How to evacuate.
4. Brief helper passengers (008's).
5. Open curtains - latch internal doors open.
6. Remove sharp objects (including heels).

CONTINUED



PREPARATION FOR PASSENGER EVACUATION (Continued)

CABIN ATTENDANTS (Continued)

7. Stow all loose items.
8. Advise Captain of completed procedures.
9. Seat backs in upright position.
10. Assure seat belts tight.
11. Sit in assigned seat for landing. Use shoulder harness if available.
12. Signal to brace.

Crew Seats - Planned Emergency - Standard DC-8

4 Attendants -- 1 - Stwds. Station
 1 - Fwd. Jump Seat
 2 - Aft Jump Seat
5th Attendant - Aisle Seat Over Wing Exit Area.

NOTE: Additional cabin attendants or observers - aisle seat over wing exit area.

Crew Seats - Planned Emergency - DC-8-61

5 Attendants -- 1 Stwds. - Fwd. Jump Seat
 1 Stwds. - Aft Jump Seat
 1 Stwds. - LH Fwd. Emergency Exit Door
 1 Stwds. - Aisle Seat Row 25
 1 Stwds. - Aisle Seat Row 31
6th Attendant - Aisle Seat Over Wing Area.

Crew Seats - Planned Emergency - DC-8-62

5 Attendants -- 2 Stwds. - Fwd. Jump Seat
 2 Stwds. - Aft Jump Seat
 1 Stwds. - Jump Seat at Row 25
6th Attendant - Seat 13C



EMERGENCY PASSENGER EVACUATION

The following procedures apply when the airplane is on the ground, either in a normal attitude or with gear up or partially up. When an emergency condition is anticipated, the preparations for passenger evacuation should be carried out prior to landing. EACH CREW MEMBER SHOULD BE THOROUGHLY FAMILIAR WITH THE DUTIES OF OTHER MEMBERS, SO THAT HE WILL BE ABLE TO PERFORM THEM, IF NECESSARY.

CAPTAIN

1. Notify control tower, if possible. —
2. Flaps - 35° (full if tail high).
3. All controls and switches in appropriate position. (All fire shutoff levers - full forward Battery switch - OFF and fuel tank selectors - OFF, satisfies the most urgent requirements.)
4. Use portable fire extinguisher on any existing fires.
5. Direct and assist passengers to evacuate as conditions dictate. ^{PA?} ~~VOICE GUN~~ —?
6. Designate assembly point to account for passengers and crew, if practical.
7. If conditions permit, salvage personal articles, first aid equipment, and blankets.
8. Arrange for passenger comfort.

- NOTES:
- (1) If cargo only in First Class Section, open forward buffet door, activate slide and direct passengers to this door and to all available exits.
 - (2) Flaps will not extend over 5° for overwing evacuation without hydraulic pump ON.

FIRST OFFICER

1. Spoilers - Retract.
2. After airplane comes to a full stop, leave through forward main cabin door.

NOTE: If slide not in operation - activate.

3. Direct evacuation from ALL available exits by enlisting the aid of helpers. Circulate the entire exterior of the airplane to coordinate the evacuation.

CARGO LOADING - FORWARD

NOTE: If only two or three cabin attendants, proceed to open forward main cabin door, activate slide and follow #3 above.

CONTINUED



EMERGENCY PASSENGER EVACUATION (Continued)

SECOND OFFICER

1. Direct opening of overwing exits and evacuation of passengers.
2. Divert passengers to these exits; direct and assist passengers to evacuate via all available exits.

- NOTES:
- (1) Navigator, if carried, assume same duties as Second Officer.
 - (2) WATER LANDING - All crew members assist in cabin - direct passengers out all available exits and onto wing or fuselage to avoid immersion. Hook overwing exit escape ropes to wing attach point. Disconnect slide from floor brackets, turn slide over and inflate.

CABIN ATTENDANTS

If practical and not done before, assign specific duties to able-bodied passengers.

1. Instruct passengers to unfasten seat belts.
2. Open all available exits.
3. Activate slides.
4. Direct passengers out all available exits.
5. Assist Captain in assembling, counting and caring for passengers.



DITCHING - UNPLANNED

IMMEDIATE ACTION

1. Notify ground station of emergency
2. Notify Cabin Attendants/Passengers GRAB ANKLES.
KEEP HEAD DOWN UNTIL AIRPLANE STOPS .
3. Landing Gear UP
4. Flaps FULL DOWN
5. Cabin Compressors OFF
6. Throttles IDLE
7. Ditch AIRPLANE 8° NOSE HIGH (12° FOR DC-8-61)
MINIMUM FORWARD SPEED AND SINK RATE
8. Fire Shutoff levers FULL FORWARD
9. Evacuate Passengers and Crew

PLANE SINKING RAPIDLY

Insure all passengers out of cabin.

Assist in throwing seat cushions out exits.

Time permitting, assist in inflating escape slides and/or rafts.

PLANE FLOATING

Time permitting, on overwater airplane, refer to Ditching-Planned procedure.

Minimal time, or in domestic airplane:

Assist in deployment of the overwing escape lines.

Direct each passenger to obtain individual flotation seat cushion or life vests.

Insure all passengers out of cabin.

Assist in inflating escape slides and/or rafts.

Direct all passengers to remain on wing as long as possible when life rafts are unavailable.

DITCHING - PLANNED

CAPTAIN
REFERENCE ACTION

- A. Follow ditching checklist in the Flight Operations Manual - Pacific Supplement.
- B. Assist in evacuating passengers and crew from the airplane as follows:

Passenger Airplanes

- Proceed to cabin and direct evacuation by means of megaphone.
- Assist in launching most forward raft out of forward passenger door. On GIT airplanes, launch raft out of forward left overwing exit.

All Airplanes

- Check that all persons are out of airplane.
- Remove Emergency VHF Transceiver and carry aboard raft.
- Board such raft as judgment dictates.

DC-8F

- Open left cockpit window, move seat full aft.
- Standby to launch raft out window or door exit and then inflate.

FIRST OFFICER
REFERENCE ACTION

- A. Follow ditching checklist in the Flight Operations Manual - Pacific Supplement.
- B. Assist in evacuating passengers and crew from the airplane as follows:

Standard DC-8

- Launch raft through forward service door and inflate.
- Assist in evacuation of passengers into raft.
- Be alert for passengers attempting to board raft from wing.

DC-8-61

- Open forward left Jetescape door, be sure door opens sufficiently for slide to inflate and that slide is outside the airplane, then launch raft out of the door and inflate.
- Assist in evacuation of passengers into raft.
- Be alert for passengers attempting to board raft from wing.

*SLIDE

KITE
BATIC
LWS
INCL*

CONTINUED



DITCHING - PLANNED (Continued)

DC-8-62

- Move raft onto wing through forward right overwing window and then inflate.
- Direct the evacuation of passengers into the raft.

DC-8F

- Open right cockpit window, move seat full aft.
- Standby to launch raft through window or door exit and then inflate.

SECOND OFFICERREFERENCE ACTION

- A. Distribute emergency flashlight to each flight crew member.
- B. Upon command from the Captain, depressurize the airplane when below 10,000 feet and prepare the Air Conditioning and Pressurization systems for ditching as follows:
 - Radio Rack Cooling Valve closed.
 - Cabin Compressors OFF.
 - Cabin Pressure Manual Control lever CLOSED.
- C. Check following for security:
 - Cockpit door locked open.
 - Galley assemblies latched.
 - Cabin-to-galley doors locked open.
 - Hat rack life raft covers removed and stowed.
- D. Instruct helper-passengers at overwing areas how to:
 - Open emergency exits.
 - Remove escape lines from windows and fasten to escape line attach point.
 - Remove and move rafts onto wing.
 - Inflate and launch rafts when on wing.
 - Assist others into the rafts.
- E. Report to Captain when cabin is ready for ditching.
- F. Assume ditching station; if in cabin, use seat nearest forward left overwing exit.

CONTINUED



DITCHING - PLANNED (Continued)

G. Assist in evacuating passengers and crew from airplane as follows:

When airplane stops:

Passenger Airplanes

- Open left forward overwing window exit.
- Direct opening of other window exits.
- Direct helpers to hook-up escape lines.
- Direct other helpers in moving raft through the overwing window exits and inflating same.
- Insure other overwing rafts are launched.
- Assist in evacuation of passengers onto the left wing and boarding the rafts.

DC-8F

- Move seat to full stowed position.
- If crew door available, launch raft through door and inflate.
- If crew door unavailable, pass raft to Captain or First Officer for launching and inflation.

FLIGHT NAVIGATORREFERENCE ACTION

- A. Assist as directed by Captain; usually in cabin.
- B. Instruct helper-passengers at left aft passenger door, or right aft service door, area how to:
 - Open exits.
 - Remove rafts from compartment.
 - Launch and inflate rafts.
 - Assist others into rafts.
- C. Assume ditching station; if in cabin, use seat nearest the left aft passenger door, or the right aft service door.
- D. Assist in evacuation of passengers and crew from the airplane as follows:
When airplane comes to a stop:

Standard DC-8

- Launch raft through left aft passenger door and then inflate.
- Insure other aft cabin rafts properly launched.
- Assist in evacuation of passengers into the rafts.

CONTINUED



DITCHING - PLANNED (Continued)

DC-8-61

- Launch raft through right aft service door and then inflate.
- Insure other aft rafts properly launched.
- Assist in evacuation of passengers into the rafts.

DC-8F

- Release and remove left raft from stowage.
- Launch raft through crew door and inflate.
- If crew door unavailable, pass raft to Captain or First Officer as appropriate for launching and inflation.

LONG RANGE FIRST OFFICERREFERENCE ACTION

- A. Assist as directed by Captain; usually in cabin.
- B. Instruct helper-passengers at the left aft passenger door area how to:
 - Open exits.
 - Remove rafts from compartment.
 - Launch and inflate rafts.
 - Assist others into rafts.
- C. Assume ditching station; if in cabin, use seat nearest the left aft passenger door.
- D. Assist in evacuation of passengers and crew from airplane as follows:
 - Launch raft through left aft passenger door and inflate.
 - Insure that other aft cabin rafts properly launched.
 - Assist in evacuation of passengers into rafts.

OBSERVERREFERENCE ACTION

- A. Assist as directed by Captain; usually in cabin, as an overwing evacuation helper. Assigned ditching seat when in the cabin, is that nearest an overwing exit.
- B. Assist in evacuation of passengers and crew from the airplane.

DC-8F

- A. Assist as directed; swivel seat to face forward; assist as directed in launching and inflating raft.



DITCHING - PLANNED (Continued)

CARGO ATTENDANT

REFERENCE ACTION

- A. Assist as directed by Captain; occupy Courier's seat for ditching.
- B. Launch raft through aft entry door and inflate.

CONTINUED



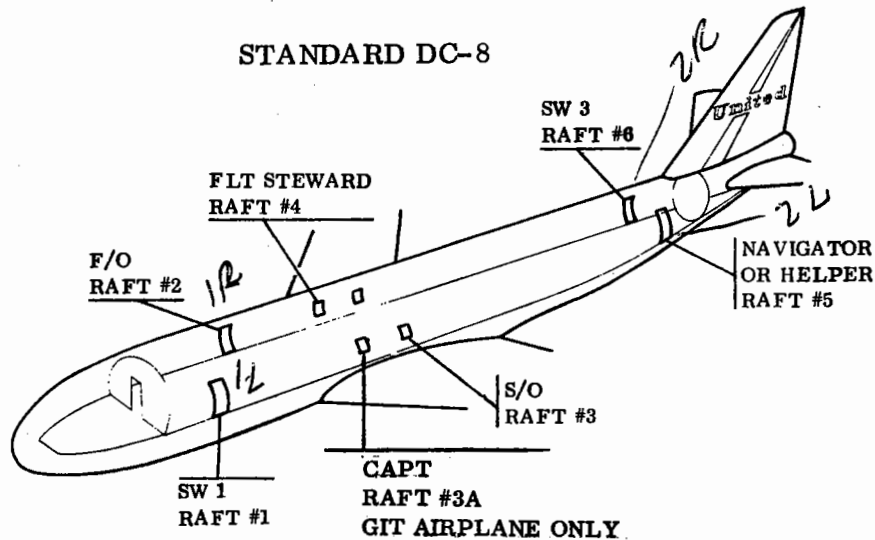
DITCHING - PLANNED (Continued)

CABIN INSPECTION CHECKLIST

1. Assure all cabin attendants are briefed and cabin seats to be used by the crew are vacated.
2. Passengers and cabin attendants wearing life vests. Passengers inflate one cell.
3. Seat belts fastened tight and low.
4. Meal service furnishings in appropriate secure area.
5. Seat backs upright and tables stowed.
6. Passengers briefed correct brace position and to stay in this position until the airplane stops.
7. Passengers reseated by seat rows to insure even distribution between life rafts.
8. Passengers know their assigned exits and rafts.
9. Passengers glasses and dentures removed.
10. Footware hazardous to raft removed.
11. Pillows and blankets distributed for impact protection.
12. Loose objects stowed in secure stowage areas.
13. Buffet/cabin doors latched open.
14. Slide bars disconnected, and stowed except at jet escape doors.
15. Hatrack life raft covers removed and stowed.
16. Rafts secured and static line attached.
17. Helper passengers qualified and adequately briefed.
 - (a) Speak English and can swim.
 - (b) Two assigned to each raft to assist in launching or take over crew duties.
 - (c) Briefed on specific doors and rafts.
18. OMC's, company trained people and helper passengers thoroughly briefed how to operate exit doors.
19. Helpers and/or crew at overwing exit briefed how to open exit and attach escape line.
20. Helpers and/or crew at jet escape doors briefed to insure slide inflate outside of airplane and how to inflate slide if it fails to inflate.
21. The first stewardess and the S/O inspect the cabin for preparedness.
22. Attendants prepared to sit in proper seat and assume brace position when commanded.
23. Attendants prepared to repeat brace command.
24. Attendants briefed to encourage passengers to remain seated until their assigned exit is open and raft is launched and inflated.

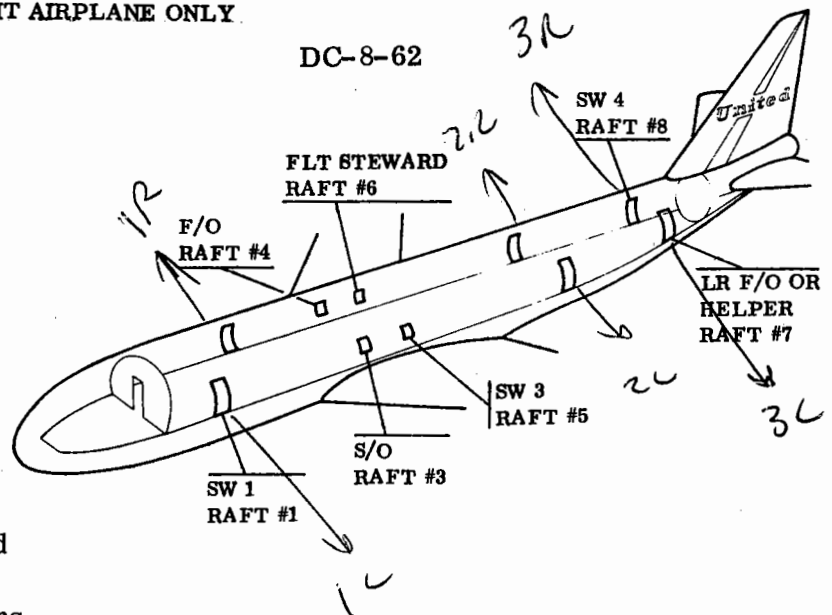
DITCHING- PLANNED (Continued)

RAFT ASSIGNMENTS



EVACUATION PHASE (After Airplane Stops)

1. Check slides disconnected except jet-escape doors.
2. Activate door handle and check doors full open.
3. Use foot to force jet-escape door and prevent slide from inflating in the cabin.
4. Launch rafts.
5. Command passengers to unfasten seat belts and board assigned raft.
6. Assure all assigned survivors aboard and cast off.
7. Join up with other rafts - use the sea anchor as necessary.
8. Use wind or sea to avoid drifting or blowing into or under part of the airplane. Use wing walkers to pull raft away from airplane if necessary.



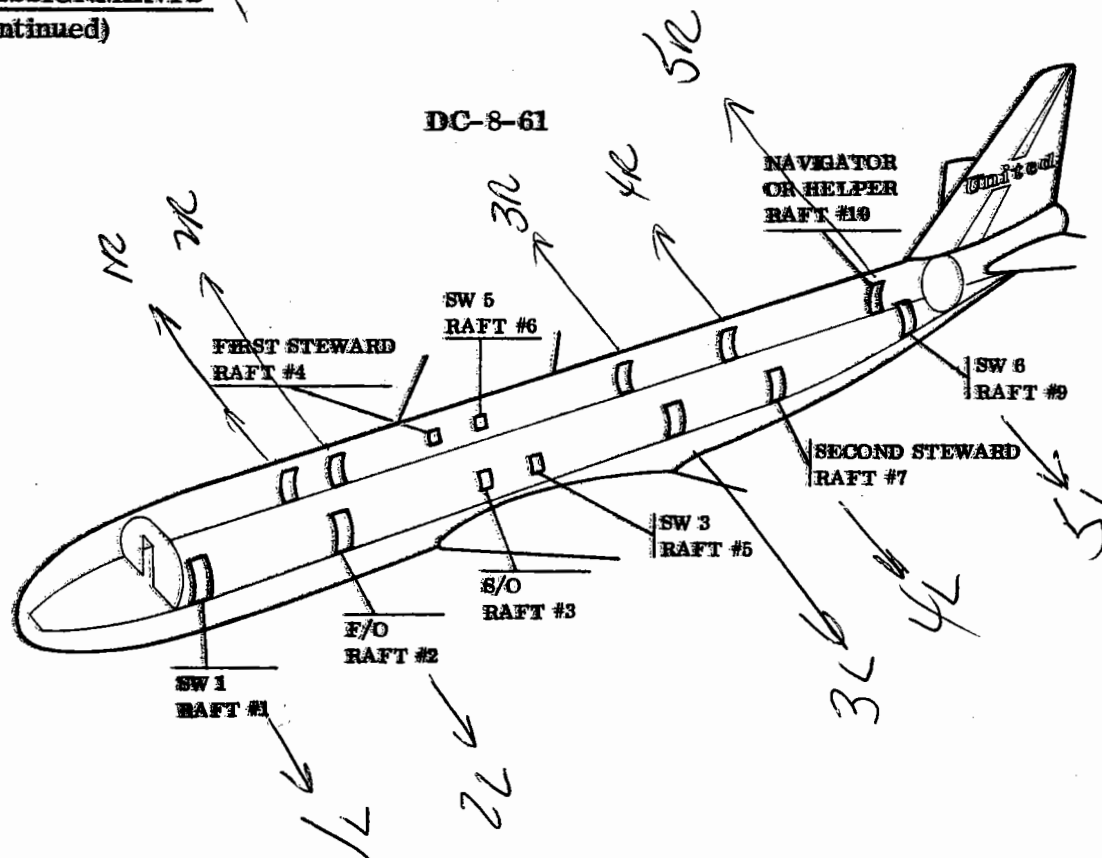
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DITCHING-PLANNED (Continued)

RAFT ASSIGNMENTS

(Continued)





IRREGULARITIES

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All Irregular procedures are Reference Action except where Immediate Action is designated.

AVIONICS

AT THE FIRST INDICATION OF AN INS MALFUNCTION DURING FLIGHT, IMMEDIATELY SWITCH TO ANOTHER INS FOR STEERING IF MALFUNCTIONING INS IS BEING USED.

INS WARN LAMP ON

Data Selector (Affected Unit) DSRTK/STS
Observe Action Code. (Second and third digits of Right Data Display)

TEST Switch PRESS AND RELEASE
Observe and record the Malfunction Code which appears in place of the Action Code.

CONTINUE TO PRESS AND RELEASE THE TEST SWITCH UNTIL ONE OF THE FOLLOWING OCCURS:

WARN Lamp Goes Out No Action or Malfunction Code Displayed;

Recognize the malfunction was intermittent and consider the INS to be operating normally.

WARN Lamp Remains On No Action or Malfunction Code Displayed;

If displayed data is accurate, monitor for degradation and continue system operation.

If displayed data is in error or "scrambled", a computer failure is indicated and the system should be turned off.

WARN Lamp Remains On Action Code Reappears.

Follow RESPONSE TO INS ACTION CODES procedure.

CAUTION:

DO NOT SWITCH TO NAV MODE IF A MALFUNCTION CANNOT BE CLEARED WHILE IN ALIGN MODE. IF A MALFUNCTION OCCURS WHILE IN ALIGN MODE, IT IS POSSIBLE TO ERASE MALFUNCTION CODE AND EXTINGUISH THE WARN LAMP AFTER SWITCHING TO NAV MODE EVEN THOUGH THE MALFUNCTION STILL EXISTS.

AVIONICS (Continued)

INS MALFUNCTION CODES

Malf. Code	Mode Affected	Data Affected	Recommended Action Code
10	STBY, ALGIN, NAV	Computer Malfunction - NAV Data Affected.	02
11	STBY, ALIGN, NAV	Computer Malfunction - NAV Data Affected.	02
12	ALIGN	Computer Malfunction - NAV Data Affected.	04
13	NAV	Computer Malfunction - NAV Data Affected.	02
14	NAV	Computer Malfunction - NAV Data Affected.	02
15	ALIGN, NAV	Gyro Malfunction - NAV Data Affected.	02
16	ALIGN, NAV	Gyro Malfunction - NAV Data Affected.	02
18	ALIGN	Computer Malfunction - NAV Data Affected.	05
22**	ALIGN, NAV	No Data Affected.	03
23**	ALIGN, NAV	No Data Affected.	03
24**	ALIGN, NAV	No Data Affected.	03
25**	ALIGN, NAV	No Data Affected.	03
26**	ALIGN, NAV	No Data Affected.	03
31	NAV	Computer Malfunction - NAV Data Affected.	02
32	STBY, ALIGN, NAV	Computer Malfunction - NAV Data Affected.	02
33	STBY, ALIGN, NAV	Platform Malfunction - NAV Data Affected.	01
34	STBY, ALIGN, NAV	Platform Malfunction - NAV Data Affected.	01
35	STBY, ALIGN, NAV	Platform Malfunction - NAV Data Affected.	01
36	STBY, ALIGN, NAV	Platform Malfunction - NAV Data Affected.	01
37	NAV	Temperature Problem - ALL Data Affected.	01
38	NAV	Temperature Problem - ALL Data Affected.	01

AVIONICS (Continued)

INS MALFUNCTION CODES (Continued)

Malf. Code	Mode Affected	Data Affected	Recommended Code
39	NAV	Temperature Problem - ALL Data Affected.	01
40	ALIGN	Heading Error	04
41	STBY, ALIGN	Incorrect Latitude Inserted	04
42	NAV	Drift Angle Greater than 45°	02
43	ALIGN	No Data Affected. Intersystem Comparison-Check present position	04
44	ALIGN	Navigation Accuracy	02
45	ALIGN	Navigation Accuracy	04
46	ALIGN	Incorrect Installation - ALL Data Affected.	01
47	ALIGN	Incorrect Installation - ALL Data Affected.	01
48	ALIGN	Incorrect Installation - ALL Data Affected.	01
49	ALIGN	Position Update Error Excessive	02
50**	ALIGN	No Data Affected.	None
51**	ALIGN, NAV	No Data Affected.	None
52**	ALIGN, NAV	Check CADC	None
53	NAV	After Landing Pos. Update Too Large - Affects Accuracy For Next Trip.	01
59	STBY, ALIGN, NAV	Computer Malfunction - NAV Data Affected.	02
60	ALIGN	Platform Malfunction - NAV Data Affected.	04
61	ALIGN	Platform Malfunction - NAV Data Affected.	04
62	ALIGN, NAV	Platform Malfunction - NAV Data Affected.	02
63	STBY, ALIGN, NAV	Computer Malfunction - NAV Data Affected.	02

** Failed test or malfunction does not light WARN lamp on C/DU.

AVIONICS (Continued)

RESPONSE TO INS ACTION CODES

<u>CODE</u>	<u>RECOMMENDED ACTION</u>
01	Shut down INS.
02	Monitor for degradation. Turn INS OFF if necessary.
03	Check inputs to INS Course Deviation Indicator and Autopilot. Check circuit breakers.
04	Downmode to STBY and restart alignment (ground operation only).
05	Downmode to OFF and again perform turn on (ground operation only).

DISAGREEMENT BETWEEN TWO AVAILABLE INS SYSTEMS

IF CROSSTRACK DIFFERENCE EXCEEDS 20 NM, CROSS-CHECK SYSTEMS FOR REASONABLENESS OF OUTPUTS, ESPECIALLY BOTH GROUND SPEEDS WITH TAS.

Crosstrack Difference Less Than 20 NM	CONTINUE USING INS WHICH APPEARS MORE RELIABLE
Crosstrack Difference 20-60 NM	USE AVERAGE CROSSTRACK DIFFERENCE BETWEEN THE TWO SYSTEMS.
Crosstrack Difference Greater Than 60 NM	ASSUME FAILURE OF BOTH AVAILABLE SYSTEMS (UNLESS ONE DEFINITELY CAN BE DETERMINED TO BE UNRELIABLE FROM OTHER DATA)

AVIONICS (Continued)**ONLY ONE INS SYSTEM OPERATIVE**

Autopilot APPROPRIATE FOR OPERATING INS
CONTINUE USING OPERATING INS AND USE DR PLOTTING AS CROSS-CHECK
RECORD ON INFLIGHT MONITOR FORM EVERY 15 MINUTES.
ADVISE ATC AND COMPANY.

NO INS SYSTEM OPERATIVE

VERIFY ON DESIRED HEADING.
PLOT PRESENT POSITION FROM TIME AND COORDINATES OF LAST RELIABLE
RECORDED FIX.
PLOT DESIRED COURSE.
DETERMINE WIND FROM BEST AVAILABLE SOURCE.
USE COMPUTER TO DETERMINE GROUND SPEED, TIME, AND MAGNETIC HEADING.
MAKE REQUIRED ESTIMATES.
KEEP ATC AND COMPANY ADVISED.

LOSS OF GROUND POWER WHEN INS OPERATING

NOTE: Loss of ground power without the engines running will cause the loss of
Radio Rack Blower operation and radio rack cooling. Because the INS,
if turned on, will continue to operate on its own battery, there is a possibility
of the INS unit overheating.

INS in ALIGN Mode NO ACTION REQUIRED

If ground power is restored within a short time, no temperature problem will exist.
The INS will automatically shut down if unit temperature reaches a value below unit
damage temperature. If unit shuts down; when ground power is restored, recycle
unit through OFF and ALIGN and reprogram PRESENT POSITION and WAYPOINTS.
Position Mode Switch to NAV prior to taxiing.

AVIONICS (Continued)

LOSS OF GROUND POWER WHEN INS OPERATING (Continued)

INS in NAV Mode

Position Mode Selector switch to ALIGN for Overtemperature protection described preceding. When ground power is restored, follow procedures outlined preceding as needed.

NOTE: If Mode Selector is in ALIGN, or is returned to ALIGN from NAV, and there is no automatic or manual shutdown, nothing is lost in the alignment process.

ELECTRICAL

LOSS OF MORE THAN ONE GENERATOR

Following the loss of a second generator, the Captain may proceed to an airport of his selection if he determines such action to be as safe as landing at the nearest suitable airport.

ANY BUS POWER FAIL LIGHT ON

Warning Lights and Meter Indications **CHECK**

If one AC loadmeter indicates zero and one or more GEN UNPARL'D lights ON, proceed to Step A. If all loadmeters indicate load and all GEN UNPARL'D lights are out, proceed to Step B.

- A. (1) Volt and Freq. Sel **TURN TO AFFECTED GEN.**
 If AC voltage and frequency is normal refer to Step B.
 If zero, proceed to Step (2)
- (2) Affected Generator Control Switch **RESET THEN TO OFF**
 If generator voltage and frequency abnormal or zero, leave GENERATOR CONTROL Switch OFF. Reset the corresponding BUS FAULT RESET Switch and monitor load of remaining generators.
 If generator voltage and frequency normal and steady, proceed to Step (3)
- (3) Affected Generator Control Switch **ON**
 If BUS PWR FAIL light goes out and the AC loadmeter indicates some load proceed to step (4).
 If BUS PWR FAIL light remains ON, or AC loadmeter indicates abnormal load, turn GENERATOR CONTROL switch OFF and operate without affected bus for remainder of flight.
- (4) Associated Bus Fault Reset Switch **RESET**
- (5) Gen Parallel Button **PRESS**
- B. There is a fault in the associated load monitor relay circuit or an AC Bus Limiter fuse has blown. Operate without affected bus.

NOTE: If power is not restored to a bus, careful consideration should be given to the systems NOT available for the approach and landing phases of the flight. Refer to the "OPERATION WITH BUSES UNPOWERED" list in this section of the Flight Handbook.



SMOKE OF UNKNOWN ORIGIN OR SUSPECTED ELECTRICAL FIRE

In most cases of smoke or suspected electrical fire, the cause may be determined by looking around the cockpit and observing the source of smoke. If the faulty system can be determined, it should be shut down and the remainder of the electrical systems left operating.

If the cause of smoke or suspected electrical fire can not be determined, perform the following:

REFERENCE ACTION

Manual Pressurization Control	LOCKED
Emergency Electrical Control Switches	OFF ONE AT A TIME (ON COMMAND)

NOTE: Except for VHF - 1 Comm on DC-8-62, electrical power to Communications and Navigation equipment will be lost when both #2 and #3 EEC switches are OFF.

Perform the following operations in sequence indicated, pausing to check between each step to determine if smoke has been eliminated. Do not perform remaining steps after smoke eliminated.

A. If #2 and #3 Generators operative:

AC Bus Isolation Switch	ISOL
DC Bus Isolation Switch	ISOL
#3 Generator Control Switch	OFF
#3 Generator Control Switch	ON
#2 Generator Control Switch	OFF
#2 Generator Control Switch	ON
#1 Generator Control Switch	OFF
#1 Generator Control Switch	ON
#4 Generator Control Switch	OFF
#4 Generator Control Switch	ON

CONTINUED

SMOKE OF UNKNOWN ORIGIN OR SUSPECTED ELECTRICAL FIRE (Continued)

B. If #2 and/or #3 Generator(s) inoperative:

LH Emer Bus AC and DC Circuit Breakers . . .	OPEN
LH Emer Bus AC and DC Circuit Breakers . . .	CLOSE
RH Emer Bus AC and DC Circuit Breakers . . .	OPEN
RH Emer Bus AC and DC Circuit Breakers . . .	CLOSE
DC Bus Isolation Switch.	ISOL
#1 and #4 TRANSFORMER RECTIFIER	
Circuit Breakers	OPEN
#1 and #4 TRANSFORMER RECTIFIER	
Circuit Breakers	CLOSE
#1 Generator Control Switch	OFF
#1 Generator Control Switch	ON
#4 Generator Control Switch	OFF
#4 Generator Control Switch	ON

If the smoke continues, pull SAI BAT and SAI NORM circuit breakers to check Standby Attitude Indicator System.

After smoke is eliminated, the unaffected portions of the electrical systems may be restored to normal operation at the Captain's discretion. Prior to restoring power, turn off Galley Power and Recirculation Fans.

If power is not restored to a bus, careful consideration should be given to the systems NOT available for the approach and landing phases of the flight. Refer to the "OPERATION WITH BUSES UNPOWERED" list in this section of the Flight Handbook.

NOTE: If the gyro horizon warning flag remains displayed when power restored, the airplane must be flown straight and level at a constant speed for approximately four (4) minutes (until the warning flag disappears).



OPERATION WITH BUSES UNPOWERED

If power cannot be restored to one or more buses, refer to the following list of systems important to the approach and landing phases of flight that will NOT be available. This list does not include all electrically controlled and/or powered systems, and is no substitute for a complete check of the circuit breaker panel to determine the affected systems.

Bus System #1

Spoiler pump (and control on later airplanes).
Antiskid (also main gear spoiler control with Mark II brakes).
Standby rudder pump.
JT4 outboard ejectors
-62 reversing on #2 and #3 engines.

Bus System #2

#1 Comm and Nav Radios
Hydraulic and spoiler pressure gauges.

Bus System #3

#2 Comm and Nav Radios
-62 standby reverser pump (reversing available if buses 1 and 4 are powered)

Bus System #4

Spoiler pump control (some early airplanes)
Spoiler selector valve (some later airplanes which also require right ground control relay power for spoiler operation).
Aux hydraulic pump
Main gear spoiler control (with Mark II brakes)
JT4 inboard ejectors.
-62 reversing on #1 and #4 engines (no reversing on #'s 1, 2, 3, or 4 if bus #3 is also lost).

Left EMERG Bus

Captain: horizon, compass, and pitot heat.
Spoiler selector valve (some early airplanes which also require right ground control relay power for spoiler operation).

Right EMERG Bus

F/O: horizon, compass, and pitot heat.

Battery Bus

-62 #1 VHF Comm.
-61 and -62 fire agent discharge.

NOTE: After landing with electrical power failure, engines should be shut down as soon as practicable because engine ground cooling may be inoperative. Bus system #4 power and left ground control relay power are required for normal engine cooling.

ELECTRICAL (Continued)

ALL GENERATOR UNPARALLELED LIGHTS ON
AND NO BUS POWER FAIL LIGHTS ON
(Except with ground power connected).

Volt and Freq. Selector AC TIE
AC voltage and frequency should be zero

#2 Bus Fault Reset Switch RESET
If #2 GEN UNPARL'D light goes out, operate for 30 seconds then:

Remaining BUS FAULT RESET Switches RESET
Gen Parallel Button PRESS

If the number 2 generator does not stay on the AC tie bus after reset,
(Unparalleled light comes back on), operate with systems unparalleled.
After landing, do not select EXT PWR position because damage to the
airplane or ground power unit may result.

GENERATOR UNPARALLELED LIGHT ON
AC LOADMETER INDICATING NORMAL

Volt and Freq. Selector AFFECTED GEN
If voltage and frequency are normal:

Gen Parallel Button PRESS
If GEN UNPARL'D light remains on:

Freq. and Load Control Switch TEST
On DC-8-62, cycle corresponding Fuel Boost Pump Switch.
If still unable to parallel check following:

Batt./Ext Pwr. Switch BATT

Autoparalleling Control and Tie Bus Voltage Fuse
(or circuit breaker on DC-8F, DC-8-61/-62) CHECK

Gen. Preferential Cont. Circuit Breaker CHECK

Affected Generator Autoparallel Control Circuit Breaker CHECK

Affected Bus Fault Reset Switch RESET

Gen Parallel Button PRESS

If unable to parallel, operate system with generator unparalleled.



ELECTRICAL (Continued)

GENERATOR UNPARALLELED LIGHT ON -
AC LOADMETER INDICATING ZERO

Volt and Freq. Selector AFFECTED GEN
No voltage or frequency indicated proceed to Step A. If voltage is normal but
frequency is abnormal, proceed to Step B.

- A. Affected Generator Control Switch RESET THEN OFF
If voltage and frequency return to normal:
Affected Generator Control Switch ON
Gen Parallel Button PRESS

If corresponding voltage and frequency cannot be restored:
Affected Generator Control Switch LEAVE OFF
Monitor electrical load of remaining generators.

- B. Affected Generator Control Switch OFF
Operate without affected generator; monitor loads on remaining generators.

Monitor CSD oil temperature and GEN DRIVE OIL warning light. If malfunction indicated, refer to applicable CSD Irregular Procedure.

NOTE: Turning OFF associated FREQ. and LOAD CONT. Switch may restore frequency to normal. If so, consider retaining generator as a standby source of power. Leave GENERATOR CONTROL Switch OFF unless needed.

ELECTRICAL (Continued)

HIGH OR RISING GENERATOR DRIVE OIL TEMPERATURE

IMMEDIATE ACTION

Temperature rise or oil outlet temperature in "CAUTION" or "DANGER" zone.

Associated Generator Control Switch OFF

If temperature decreases to "Normal" range, consider retaining generator as a standby source of power. Leave GENERATOR CONTROL Switch OFF unless needed.

REFERENCE ACTION

If temperature does not start decreasing toward "Normal" range:

Associated Generator Drive Disconnect Lever (or Switch) DISENGAGE

NOTE: CSD oil temperature indications may continue to show an increase into the danger zone after CSD is disengaged. This should be disregarded. Continue normal engine operation.

CAUTION: DO NOT RE-ENGAGE THE GENERATOR DRIVE (CSD).

GENERATOR DRIVE OIL WARNING LIGHT ON

IMMEDIATE ACTION

Associated Generator Drive Disconnect Lever (or Switch) DISENGAGE

NOTE: Oil temperature indications may increase into the danger zone after the CSD is disengaged. This should be disregarded. Continue normal engine operation.

CAUTION: DO NOT RE-ENGAGE THE GENERATOR DRIVE (CSD).

GENERATOR DRIVE FAILS TO DISCONNECT WHEN DISCONNECT
LEVER (OR SWITCH) PLACED TO "DISENGAGE"

Associated Generator Control Switch OFF

Continue normal engine operation. If CSD or generator seizes, the input shaft to CSD will shear.

ICE AND RAIN

TAIL DEICE SYSTEM LIGHT ON

If other than momentary, or while at reduced thrust settings.

Tail Duct Valve Switch OFF

NOTE: If it can be determined that the light is not caused by a tail duct failure, tail deicing may be continued.

On airplanes N8073U-99U and N8966U-75U pneumatic manifold pressures below 25 psi will turn on TAIL DEICE SYS. light when TAIL DUCT VALVE Switch is in NORMAL.

ENGINE ANTI-ICE VALVE LIGHT ON CONTINUOUSLY

Pneumatic Manifold Pressure CHECK

With ENGINE ANTI-ICE Switch ON, light will normally come on with low manifold pressures (approximately 13psi).

If Manifold Pressure Not Low:

Associated Engine Anti-Ice Switch RECYCLE

Associated Engine Anti-Ice Circuit Breaker CHECK

If light is still on, any one of the three corresponding engine anti-ice valves is in disagreement with the switch position. To isolate malfunctioning valve;

Pneumatic Crossfeed Valve CLOSED

Corresponding ENGINE ANTI-ICE Switch OFF THEN ON

If manifold pressure fluctuates nose cowl anti-ice valve has opened. If EPR drops, either one or both inlet guide vane and bullet nose anti-ice valve (s) has opened. Log book write-up should state whether or not nose cowl anti-ice valve is operating.

CAUTION: IF IN ICING CONDITIONS, AND ANTI-ICE VALVE LIGHT IS ON, CLOSELY MONITOR ENGINE OPERATION AND REDUCE THRUST AS NECESSARY TO PREVENT ERRATIC ENGINE OPERATION.

ICE AND RAIN (Continued)**WINDSHIELD CRACKED**

Determine if crack is in outer pane. If so:

Associated Windshield Heat Circuit Breakers PULL
Observe windshield heat inoperative speeds

NOTE: If determined that inner pane is cracked but vinyl layer is not bulged, cracked or separated, adequate strength remains for continued flight.

WINDSHIELD ANTI-ICING MALFUNCTION

Associated Windshield Heat Circuit Breakers CHECK
If circuit breakers are set, and windshield heat is still inoperative:

Associated Rain Removal Lever ON (ONLY TO REMOVE WINDSHIELD ICE)

Observe windshield heat inoperative speeds.



HYDRAULICS AND FLIGHT CONTROLS

HYDRAULIC OIL TEMPERATURE LIGHT ON

Hydraulic Temperature Indicator CHECK

If temperature normal, indicating light has malfunctioned and can be ignored.

If indicator is above normal, proceed as follows:

Engine Hydraulic Pump Switches BYPASS (ONE AT A TIME
TO ISOLATE FAULTY PUMP)

If no decrease in temperature:

Auxiliary Hydraulic Pump Switch ON

Engine Hydraulic Pump Switches BOTH BYPASS

Hydraulic System Selector FULL DOWN
(ABNORMAL)

Restore to normal and use entire system only when necessary (approach and landing).

CAUTION: CONTINUED USE OF SYSTEM WHILE OVERHEATING WILL DAMAGE
THE SYSTEM.

LOSS OF HYDRAULIC PRESSURE (NO FLUID LOSS)

Engine Hydraulic Pump Switches BOTH ON

If Pressure not restored:

Auxiliary Hydraulic Pump Switch ON

If still no pressure indicated, refer to Loss of Hydraulic Fluid or Pressure
Emergency Procedure.

HYDRAULIC SYSTEM PRESSURE 3300 PSI

Engine Hydraulic Pump Switches BYPASS (ONE AT A TIME
TO ISOLATE FAULTY PUMP)

Leave faulty pump bypassed and turn on the auxiliary hydraulic pump during
approach descent.

HYDRAULICS AND FLIGHT CONTROLS (Continued)

RUNAWAY STABILIZER

IMMEDIATE ACTION

Longitudinal Trim (Suitcase) Handles MOVE TO OPPOSE
THE RUNAWAY

If runaway was at slow rate indicating alternate (electric) longitudinal trim malfunction:

A/P and Alt. Longitudinal Trim C/B's (3) PULL

REFERENCE ACTION

Continue flight operating stabilizer hydraulically.

PITCH TRIM COMPENSATOR INOPERATIVE OR MALFUNCTIONS

Overpower out-of-trim control forces and reduce speed to PTC inoperative limits.
(See Limitations)

Pitch Trim Comp. Switch OVERRIDE
Pitch Trim Compensator Circuit Breakers (3) PULL

On DC-8-61, -62 airplanes if it can be verified that the Autopilot OFF light is connected to the Master Warning light and the stabilizer in-motion aural warning system is installed and operating, the autopilot may be used in lieu of the PTC.

NOTE: A protection circuit in the computer may lockup under certain conditions of electrical system interruptions or fluctuations and cause the PTC system to become inoperative. Such a lockup can be cleared by opening and resetting either PITCH TRIM COMPENSATOR circuit breaker.

If the pitch trim compensator cannot be retracted with the OVERRIDE switch, it is possible to reduce the elevator control wheel push force by trimming the stabilizer airplane nose down. This will result in (1) decreasing the elevator available for landing and (2) decreasing the stability of the airplane. Because of this, the elevator force should not be trimmed to zero, but the stabilizer should be positioned to maintain a slight push force (approximately 10 lbs.) for the remainder of the flight and the following procedure should be used during the landing approach.

HYDRAULICS AND FLIGHT CONTROLS (Continued)

LANDING WITH PITCH TRIM COMPENSATOR EXTENDED

Approach:

1. Determine CG from table in CRUISE Section of this manual.
2. Adjust stabilizer trim to at least the following airplane nose up settings:

C. G. % MAC	° TRIM - MINIMUM SETTING FOR FLARE		
	BASIC WING	4% L. E. & DC-8-62	DC-8-61
16%			4-1/2°
18%	6°	7-1/2°	3-1/2°
20%	5°	6°	2°
22%	3-1/2°	5°	1°
24%	2-1/2°	3-1/2°	-1/2°
26%	1-1/2°	2-1/2°	-1°
28%	1/2°	1°	-1°
29%	-1/2°	0°	-1°
30%	-1/2°	-1/2°	-1°

NOTE: In some cases, especially if the pitch trim compensator fails fully extended, push forces will be required during the approach and landing, when the recommended stabilizer setting is applied. These push forces will not be excessive if normal recommended approach and flare speeds are utilized. Adequate elevator may not be available to properly land the airplane if the airplane is trimmed to relieve the forces. If it becomes necessary to execute a missed approach with a jammed pitch trim compensator use normal procedures and retrim as necessary.

Landing:

1. Avoid high rate of descent.
2. Maintain approach thrust throughout flare.



HYDRAULICS AND FLIGHT CONTROLS (Continued)

UNDESIRABLE AILERON OR RUDDER OPERATION

IMMEDIATE ACTION

Aileron or Rudder Power Shutoff Lever OFF (ON COMMAND)

CAUTION: ONE ENGINE INOPERATIVE MINIMUM CONTROL SPEED IS INCREASED 40 IAS WHEN RUDDER POWER OFF.

RUDDER MANUAL CONTROL LIGHT ILLUMINATED

Hydraulic Fluid and Pressure CHECK

If pressure or quantity low, refer to Loss of Hydraulic Fluid or Fluid and Pressure Emergency Procedure.

If no loss of fluid or pressure:

Rudder Power Shutoff Lever OFF

Prior to Landing:

Rudder Power Shutoff Lever ON

Standby Rudder Power Switch START (LIGHT ON)

Rudder Manual Control Light should go out. If not:

Standby Rudder Power Switch STOP

Rudder Power Shutoff Lever OFF

CAUTION: ONE ENGINE INOPERATIVE MINIMUM CONTROL SPEED IS INCREASED 40 IAS WHEN RUDDER POWER OFF.

AILERON MANUAL CONTROL LIGHT ILLUMINATED

Hydraulic Fluid and Pressure CHECK

If pressure or quantity low refer to Loss of Hydraulic Fluid or Fluid and Pressure Emergency Procedure.

If no loss of fluid or pressure:

Aileron Shutoff Lever OFF

NOTE: If SPOILER HYD PRESS falls below normal, limit flaps to maximum of 35° for Approach and Landing.



WING SLOT DISAGREEMENT LIGHT ILLUMINATED

1. After flap retraction or during cruise:

Top Slot Doors **VISUALLY CHECK**
If doors are closed and there is no marked degradation of cruise performance or perceptible buffet, continue normally.

If any upper door open do not exceed 280 KIAS or .80 Mach. Refer to CRUISE Section for performance decrement with wing slots open.

NOTE: Report the malfunction in the log book. If a door was open or if any buffeting occurred, a maintenance inspection is required if airplane speed exceeded 230 KIAS or .46 Mach.

2. After flaps extended:

Add 10 knots to all MAR card speeds and be aware of additional runway required.

NO SPOILER PRESSURE DROP AFTER LANDING GEAR RETRACTION

After a maximum of 15 minutes:

Flt. Spoiler Switch **OFF**

If pressure does not decrease, it is possible that the main hydraulic system fluid is pressurizing the spoiler system. Under this condition it is possible to lose fluid overboard by overflow from the spoiler reservoir. Report as a malfunction in the airplane log book.

Prior to landing place Flt. Spoiler Switch in NORM.

UNABLE TO ARM SPOILERS

(DC-8F, DC-8-61 and DC-8-62 only)

CAUTION: DO NOT PERSIST IN ATTEMPTS TO ARM THE SPOILER LEVER. IF THE ELECTRIC ACTUATOR HAS FAILED IN THE "EXTEND" POSITION, THE SPOILER LEVER WILL BE UNGUARDED AND APPROXIMATELY ONE INCH OF LEVER MOVEMENT WILL FULLY DEPLOY THE SPOILERS.

(Continued)

HYDRAULICS AND FLIGHT CONTROLS (Continued)

Spoiler Control Lever LEAVE IN RETRACT POSITION

After nose gear is firmly on the ground:

Spoiler Control Lever EXTEND MANUALLY

NOTE: Additional runway length will be required.

NO SPOILER PRESSURE

If SPOILER HYD PRESSURE fails to increase after landing gear extension:

FLT SPOILER Switch CHECK IN NORMAL
FLT SPOILER Switch OVERRIDE

If OVERRIDE restores spoiler pressure, the spoiler pump output may be limited if the pump motor is operating on two phase power. Therefore, OVERRIDE should be used only if flight spoilers are required.

If there is no increase in spoiler pressure, check three spoiler hydraulic pump fuses and the spoiler hydraulic pump control circuit breaker.

If no SPOILER HYD PRESSURE:

FLT SPOILER Switch OFF

If SPOILER HYD PRESSURE is below normal for Final Approach:

IMMEDIATE ACTION

Wing Flaps 35° MAXIMUM
Full Flaps Approach and Landing Reference Speeds ADD 5 KNOTS
Assumed Landing Distance 15% GREATER THAN FULL FLAPS
GRD SPOILER POWER Switch ALT

REFERENCE ACTION

After clear of runway:

GRD SPOILER POWER Switch NORMAL

To prevent possible loss of main system hydraulic fluid.

NOTE: If spoiler pressure is not available a spoiler that is not locked down may float up as a result of flap extension. This will result in a lateral out of trim condition which will be excessive if flaps are extended more than 35°.



HYDRAULICS AND FLIGHT CONTROLS (Continued)

**INBOARD SPOILERS EXTEND IN FLIGHT OR
FLIGHT SPOILERS DO NOT RETRACT IN FLIGHT**

Flt. Spoiler Switch OFF
 Spoiler Control Lever RETRACT
 Air loads should retract spoilers.

MAIN GEAR SPOILERS INOPERATIVE LIGHT ON

(DC-8F, DC-8-61. and DC-8-62 only.)

Main Landing Gear Gnd Spoiler Lockout

Circuit Breakers (2) (DC 1 & 4) PULL AND RESET

If light still on, automatic extension of ground spoilers will be available only through action of nose gear strut compression which will result in an increased landing roll distance.

MAIN GEAR "DOORS" LIGHT ON

Airspeed REDUCE TO 230 KIAS
 0.65 M OR BELOW
 Landing Gear Lever RECYCLE

If light goes out, perform uplatch check and continue flight normally.

If the light stays on, the flight is restricted to Mach 0.65/230 KIAS and domestic operations only. Refer to Mach 0.65/230 KIAS performance data in CRUISE Section.

**HYDRAULICS AND FLIGHT CONTROLS (Continued)****LANDING GEAR UPLATCH CHECK FAILURE****IMMEDIATE ACTION**

Airspeed 230 KIAS/.65M
OR BELOW
Landing Gear Lever OPERATE
Cycle landing gear through several complete cycles. Make uplatch check
after each cycle.

REFERENCE ACTION

If a satisfactory check is achieved, continue normal operation.

If a satisfactory check is not obtained:

Landing Gear Lever UP
Autopilot and/or Yaw Damper OFF
Aileron and Rudder Power Shutoff Levers OFF
Eng. Hyd. Pump Switches BYPASS
Aux. Hyd. Pump Switch OFF

As system pressure bleeds to zero, the gear and doors will drop to the uplatches.

If LDG GEAR UNSAFE light does not come on, place landing gear lever UP, restore hydraulic pressure, turn on aileron and rudder power and continue normally.

If the LDG GEAR UNSAFE light does come on, flight is restricted to Mach 0.65/230 KIAS and domestic operations only. Refer to Mach 0.65/230 KIAS performance data in CRUISE Section. Place landing gear lever UP, restore hydraulic pressure, and turn on aileron and rudder power.

NOTE: On DC-8-61 and -62, if during uplatch check LDG GEAR UNSAFE light comes on and DOORS light remains out and nose gear does not fall (as evidenced by no increase in air noise and/or visual check) continue flight at normal speeds.

If the DOORS light comes on, flight is restricted to Mach 0.65/230 KIAS and domestic operations only. Refer to Mach 0.65/230 KIAS performance data in CRUISE Section.



HYDRAULICS AND FLIGHT CONTROLS (Continued)

LANDING GEAR LEVER DOWN AND "LDG GEAR UNSAFE" LIGHT ILLUMINATED

Hydraulic Quantity and Pressure	CHECK
Landing Gear Down and Locked Lights	CHECK
Main Gear Downlock Visual Indicators	CHECK
	(NOT VISIBLE ON DC-8F)

If gear not down and locked and hydraulic pressure and quantity normal, recycle landing gear lever to give system a chance to operate properly.

If gear still not down and locked with gear lever down:

Eng. Hyd. Pump Switches (2)	BYPASS
Hydraulic System Selector	FULL DOWN (ABNORMAL)
Landing Gear Lever	UPLATCH CHECK

Landing gear should free-fall if problem was hydraulic.

Landing Gear Lever	DOWN
Eng. Hyd. Pump Switches	ON
Hydraulic System Selector	NORMAL

LANDING WITH PARTIAL GEAR

General:

1. If nose gear available use it.
2. If nose gear is not available but both main landing gears appear to be down and locked, land with both main gears down.
3. If either main gear is not available, retract all gears and make a wheels-up landing.
4. Landing should be on a hard surface in preference to sand, grass, etc.

HYDRAULICS AND FLIGHT CONTROLS (Continued)

LANDING WITH PARTIAL GEAR (Continued)

Landing Without Nose Gear:

1. If possible move passengers aft to provide an aft C. G.. Execute "Preparation for Passenger Evacuation" emergency procedure.
2. Use normal approach technique and approach configuration. Disarm spoilers.
3. After touchdown, use normal reversing. Use stabilizer trim to hold airplane level with decreasing speed. Maintain control column neutral in order that adequate elevator control remains to lower the nose gently to runway.
4. Continue normal braking and available reverse to a full stop.
5. Fuel, generators and battery OFF.
6. Fire shutoff levers, full forward.
7. Execute "Emergency Passenger Evacuation" emergency procedure.

Landing With All Gear Retracted:

1. Execute "Preparation for Passenger Evacuation" emergency procedure.
2. Use normal approach technique and approach configuration.
3. Before ground contact, turn fuel, battery, and generators OFF.
4. Make normal touchdown with slightly tail low attitude.
5. After touchdown, all Fire Shutoff levers full forward. If fire is evident, discharge associated extinguishing agent. (DC-8-61 and DC-8-62: Battery Switch must be ON to discharge agent).
6. Execute "Emergency Passenger Evacuation" emergency procedure.

Gear Apparently But Not Conclusively Down:

1. If possible, have tower visually check.
2. If there is reasonable indication that the gear is down then the landing can be made assuming gear is down.
3. Do not taxi the airplane until gear locks have been installed.

HYDRAULICS AND FLIGHT CONTROLS (Continued)**LANDING GEAR LEVER CANNOT BE MOVED TO DOWN POSITION**

Remove locking screw and separate the two halves of the gear lever. Two rivets must be sheared to separate the halves. This requires considerable force, especially if the long lever is jammed.

Whichever lever half is free DOWN
Visually check landing gear DOWN.

NOTE: Disconnecting the gear lever halves separates the mechanical and hydraulic systems and permits the operable one to be used.

If the long handle (mechanical system) used;

1. The landing gear and door uplatches are released mechanically and the gear will free-fall.
2. All indications should be normal

If the short handle (hydraulic system) used;

1. Landing gear and door uplatches are released hydraulically and the landing gear is lowered hydraulically.
2. The LDG. GEAR UNSAFE will remain illuminated.
3. The green landing gear down and locked lights will not illuminate.
4. Main gear rear wheel spin-up actuation of ground spoilers (Mark II System) will be inoperative.
5. Antiskid will not be available.
6. Nose gear landing and taxi lights will not be available.
7. Increased wing slot deicing cycle frequency will not be available. If in icing conditions add 10 knots to MAR card speeds.
8. The landing gear unsafe warning horn will sound when landing flaps are selected.
9. The short handle does not have a detent. Tie down to prevent inadvertent gear retraction.

(Items (2) thru (8) result from the fact that the short handle does not actuate the gear lever limit switch)

HYDRAULICS AND FLIGHT CONTROLS (Continued)**UNABLE TO MOVE LANDING GEAR LEVER AFTER TAKEOFF**IMMEDIATE ACTION

Handle Latch Flt. Release PUSH

At the same time:

Landing Gear Lever UP

REFERENCE ACTION

If the Electrical Functions of Groundshift have not changed to normal flight operations:

Ground Control Relay Circuit Breakers (2) PULL

If the Mechanical Groundshift Mechanism has failed in the Ground Mode:

1. Use care in operating the Thrust Brake Levers in flight as the outboard engine reverse thrust gate mechanism will allow full reverse thrust on all engines.
2. The Nosewheel Steering Controls will remain partially connected to the rudder pedals and the Steering Wheel will turn in flight with any rudder deflection, however the nosewheel will not steer when retracted.
3. Manually extend the Ground Spoilers during landing. Use care in operating the Spoiler Control Lever as it will be possible to extend the Ground Spoilers in flight.

Immediately after the nosewheel contacts the runway:

Ground Control Relay Circuit Breakers (2) RESET

CAUTION: MARK II EQUIPPED AIRPLANES; IF THE GROUND CONTROL RELAY CIRCUIT BREAKERS ARE NOT RESET AFTER LANDING, HYDRAULIC BRAKING WILL BE LOST WHEN THE AIRCRAFT SLOWS TO TAXI SPEED. IF THE GROUND CONTROL RELAY CIRCUIT BREAKERS WILL NOT RESET, THE ANTISKID SWITCH MUST BE TURNED OFF (APPROACHING TAXI SPEED) FOR NORMAL BRAKING.

ANTISKID FAIL LIGHT ILLUMINATES

Landing Gear Lever CHECK IN DOWN DETENT
Antiskid Circuit Breakers CHECK
Antiskid Control Switch ARMED
Parking Brake CHECK OFF

If light still on:

Antiskid Control Switch OFF (LEAVE ARMED FOR MARK II SYSTEM)

When Antiskid is off or malfunctioning, landing roll will be increased.

Brakes should be used with extreme care to preclude locking wheels.



PNEUMATICS

MANIFOLD FAILURE LIGHT ILLUMINATED

(Airplanes N8001U-72U and N8207U-66U)

Cabin Altitude MONITOR

If the manifold shroud should also fail a sudden increase in cabin pressure will be noted. Additionally, pneumatic manifold pressure would decrease.

If no such indications are noted, continue normal operation.

If a shroud failure is indicated:

Pneumatic Crossfeed Valve CLOSED

Low Pressure Pneumatic Switches BOTH OFF ON
AFFECTED SIDE

Turn off pneumatically operated systems on the affected side.

ENGINE RELIEF VALVE LIGHT ILLUMINATED

Manifold Pressure Gauge CHECK TO DETERMINE
IF INDICATION VALID

If Valid:

Pneumatic Crossfeed Valve CLOSED

Either Low Pressure Pneumatic Switch on affected side OFF

If manifold pressure returns to normal and relief lights go out, leave pneumatic switch OFF. If not, return switch to on and turn other LOW PRESSURE PNEUMATIC on affected side off.



AIR CONDITIONING

RADIO RACK BLOWER LIGHT ILLUMINATES

Inflight:

Radio Rack Blower Circuit Breakers (3) CHECK AND SET

If light still on:

DC-8:

Radio Rack Blower Light. DEPRESS FOR
10 SECONDS
AND RELEASE

If light goes out, normal operation restored.

If light remains on, monitor cabin rate of climb to determine Radio Rack Cooling Valve opens. If valve opens, adequate radio rack cooling available but cargo compartment will not be heated. If valve does not open, overheating and failure of electronic equipment can be expected.

DC-8-61/-62:

Radio Rack Blower Switch OFF

When INS no longer needed for navigation:

INS Mode Selectors BOTH OFF

On Ground:

Turn off Weather Radar, INS, Transponders and pull Autopilot, DME, and HF Radio Circuit Breakers. Limit use of remaining radios to maximum of 30 minutes.

FREON COMPRESSOR OVERHEAT LIGHT ILLUMINATES

Affected Freon Compressor Switch. OFF

Occasionally, in high ambient temperatures with recirculation fans OFF, freon compressor oil overheating may occur in a normal system. If there is no other indication of malfunction, the compressor may be restarted after the light goes out. A compressor that continually overheats should not be operated.

PRESSURIZATION

CABIN COMPRESSOR WARNING LIGHT ILLUMINATED

Cabin Compressor Switch OFF
 Cabin Rate of Climb and RPM. MONITOR

If rate of climb surges, leave compressor off as problem is high oil temperature.

If no rate of climb change occurs - problem is low flow and compressor may be restarted.

NOTE: If a compressor is turned off and rpm drops and comes back up, reverse windmilling may be suspected and the other compressor on that side should be turned off.

CABIN COMPRESSOR STALLING, SURGING, OR ABNORMAL RPM

Cabin Compressor Switch. OFF

On DC-8-62, placing LOW PRESSURE PNEUMATIC Switches to HIGH may eliminate surging or stalling and preclude having to turn off compressor.

NOTE: Compressor may be restarted if sufficient pneumatic pressure available, temperature controller in full cold, and cabin pressure differential normal.

CABIN COMPRESSOR RPM INDICATION INOPERATIVE

Cabin Compressor Switch OFF
 Cabin Compressor Valve Control & RPM
 Indicator Fuse (C/B on DC-8F, DC-8-61 & -62) CHECK
 Cabin Compressor Switch ON
 If RPM indicator does not indicate normally;
 Cabin Compressor Switch OFF

NOTE: Unless two cabin compressors have been turned OFF for other reasons, do not operate a compressor with an inoperative RPM indicator as there will be no overspeed protection.



PRESSURIZATION (Continued)

CABIN COMPRESSOR OVERSPEED ACTUATES

Cabin Compressor Switch. OFF

NOTE: Compressor may be restarted if overspeed trip off occurred with an abrupt change in electrical load; i. e., recirculation fans turned on, generator failure, etc.

PRESSURIZATION INOPERATIVE ON TAKEOFF

Cabin Pressurization Outflow Valve Lever CHECK IN AUTO

Ground Control Relay Circuit Breakers (2) PULL

If pressurization is not normal, use manual pressurization and:

Ground Control Relay Circuit Breakers (2) RESET

CABIN PRESS CONTR Circuit Breaker (AC Bus #4) RESET

If pressurization is normal after pulling the Ground Control Relay Circuit Breakers leave them pulled until:

Immediately after the nosewheel contacts the runway;

Ground Control Relay Circuit Breakers (2) RESET

CAUTION: MARK II EQUIPPED AIRPLANES; IF THE GROUND CONTROL RELAY CIRCUIT BREAKERS ARE NOT RESET AFTER LANDING, HYDRAULIC BRAKING WILL BE LOST WHEN THE AIRCRAFT SLOWS TO TAXI SPEED. IF THE GROUND CONTROL RELAY CIRCUIT BREAKERS WILL NOT RESET, THE ANTISKID SWITCH MUST BE TURNED OFF (APPROACHING TAXI SPEED) FOR NORMAL BRAKING.



POWER PLANTS

BATTERY START

If no external electrical power is available but ground pneumatic supply is available, use following procedure:

NOTE: Fire detection system will not be available while starting #3 engine. Cockpit to ground contact should be maintained through the Service Interphone System.

Batt/Ext Pwr Switch BATT
Emergency Electrical Control Switches EXCEPT #3 OFF
Starter and Ignition Arming Switch (Except DC-8-62) ARMED

On DC-8-62:

Ignition Power Switch TEST
(70-150 volts AC required for start)
Ignition Power Switch ARM

Use normal start procedure for #3 engine.

After starting #3:

Emergency Electrical Control Switches ON
Ignition Power Switch (DC-8-62) OFF

Use normal start procedure for remaining engines.

POWER PLANTS (Continued)

IRREGULAR STARTS

(Hot Start, Hung Start, No Light Up, No Fuel Flow)

IMMEDIATE ACTION

Fuel Shutoff Lever FUEL OFF

Starter Button AFTER 20 SECONDS - RELEASE

REFERENCE ACTION

Associated Tank Boost Pump OFF

NOTE: An engine must be cleared of trapped fuel or vapor when light off does not occur and the starter button was not held in for at least ten seconds after shutting off fuel lever.

STARTER VALVE FAILS TO CLOSE

When no manifold pressure rise noted when starter button released:

If suspected valve on #1 or #2 engines:

Pneumatic Crossfeed Valve CLOSED

If suspected valve on #3 or #4 engines:

External Air Supply OFF

If pneumatic manifold pressure drops to zero in less than 5 seconds, a starter valve is open.

Affected Engine SHUTDOWN

NOTE: The starter air supply must be off before the engine is shutdown to avoid shock loading the starter when the engine decelerates and the starter clutch re-engages.

IRREGULARITIES



POWER PLANTS (Continued)

INFLIGHT SHUTDOWN

Throttle	IDLE
Fuel Shutoff Lever	FUEL OFF
Associated Main Tank Boost Pump	OFF
Associated Engine Ignition Circuit Breakers	PULL

NOTE: Approximately every hour, if conditions permit, turn associated fuel boost pump and fuel shutoff lever ON for three minutes to run cold fuel through the engine driven pump. For maintenance purposes, record windmilling oil pressure and windmilling time.

FLAMEOUT

If detected while EGT and RPM are rapidly decreasing:

IMMEDIATE ACTION

Ignition Override Switch	ALL ENGINES
Associated Main Tank Boost Pump	BOOST AND FEED

NOTE: On the DC-8-62, in the event of a simultaneous flameout of all engines, the Ignition Power Switch must be positioned to ARM and the 2 and 3 engines started first. With no airplane electrical power available, arming the Ignition Power Switch permits the battery to be used to energize the ignition system on the 2 and 3 engines.

REFERENCE ACTION

If engine does not relight discontinue ignition override and perform Inflight Shutdown procedure. If conditions permit, perform Inflight Air Start procedure.

NOTE: Complete "Flameout or Loss of Thrust Report" and route to SFOEG - Director, Flight and Development Engineering.

POWER PLANTS (Continued)

FLAMEOUT REPORT

REPORT OF FLAMEOUT OR LOSS OF THRUST DUE TO SUSPECTED FUEL SYSTEM MALFUNCTION

This form must be submitted to SFOEG-Mgr. of Flight Engineering immediately after the incident. A replacement page for your Flight Manual will be returned.

PLEASE PRINT ALL ENTRIES

AIRPLANE NO.		ENG. POS.		CAPT.		DOM	
FLIGHT				F/O		DOM	
DATE		TIME		Z S/O		DOM	
ENTER VALUES IN EFFECT JUST PRIOR TO INCIDENT							
ALTITUDE		FUEL TEMP		N ₂		FUEL PRESS	
MACH/IAS		EPR		FUEL FLOW		OIL PRESS	
RAM AIR TEMP		EGT		N ₁		OIL TEMP	
CIRCLE FOLLOWING AT TIME OF INCIDENT							
Engine Anti-Ice Being Activated?		YES		NO		Was throttle movement coincident with flameout or loss of thrust?	
Engine Anti-Ice On?		YES		NO		YES NO	
Continuous Ignition On?		YES		NO		If YES circle following Accelerated : Decelerated	
FUEL FLOW SEQUENCE AT TIME OF OCCURENCE							
Main Tank To Engine		Alternate Tank To Engine		Boost Pumps On?		YES NO	
				Crossfeed		YES NO	
Fuel Quantities	1A	1M	2A	2M	CW	3M	3A 4M 4A
How long on existing tank to engine combination:							
CIRCLE FLIGHT CONDITIONS AT TIME OF OCCURENCE							
CLIMB		CRUISE		DESCENT		Approx. how long had airplane been in this flight regime before occurrence?	
CIRCLE WEATHER CONDITIONS AT TIME OF OCCURENCE							
CLEAR		IN CLOUDS		OTHER (Explain)			
IN TURBULENCE		IN RAIN					
Give additional information/remarks to help explain incident, such as EPR, N ₂ , N ₁ , EGT, etc., after incident in such cases as partial loss of thrust, inflight relight, etc.							

POWER PLANTS (Continued)

INFLIGHT AIR START

Throttle	IDLE
Fuel Shutoff Lever	FUEL OFF
Engine RPM	INDICATING
Associated Main Tank Boost Pump	BOOST AND FEED
Starter and Ignition Arming Switch (Except DC-8-62)	ARMED

On DC-8-62:

Ignition Selector Switches	BOTH
Ignition Override Switch	ALL ENGINES

Fuel Shutoff Lever	FUEL ON

NOTE: Rise in EGT should be obtained within 20 seconds for a relight. Observe engine operating limits.

Starter and Ignition Arming Switch	OFF
Ignition Override Switch (DC-8-62)	OFF

OIL PRESSURE WARNING LIGHT ILLUMINATES (DC-8-62)

Oil Pressure Gauge	CHECK

If oil pressure is normal, reduce thrust until light goes out. Continue operation at reduced thrust.

If the light does not go out when thrust is reduced, shut down engine or reduce thrust to minimum required to sustain flight.

If oil pressure is below normal, observe limitations.

POWER PLANTS (Continued)**ENGINE THRUST BRAKE LIGHT FLASHES INADVERTENTLY (DC-8-62)**

Unscheduled extension of thrust brake translating ring.

Asymmetric drag experience.

Standby Reverser Pump ON

NOTE: Failure of the translating ring to stow increases fuel consumption 15% for each affected engine.

FUEL FLOW ABNORMALLY HIGH

Record fuel tank quantity of affected engine and its opposite number.

Make immediate visual check of engine.

If engine is smoking or if there is a significant increase in fuel consumption, shut down engine if flight conditions permit.

HIGH ENGINE OIL TEMPERATURE

NOTE: DC-8-62 aircraft may have unusually high oil temperature indications during long slow descents when engines are at idle power settings. These high oil temperatures can normally be lowered by increasing engine RPM.

If oil temperature above limit:

Associated Throttle	IDLE
Associated Oil Cooler Door Switch (If Installed)	HOLD OPEN (15 SEC) AND THEN OFF

If temperature decreases below limit, continue engine operation adjusting throttle and oil cooler door to maintain temperature below limits.

If temperature does not decrease below limit, shut down engine and record in Airplane Log Book the maximum oil temperature attained and the length of time that the limiting temperature was exceeded.

NOTE: If oil temperature on any engine is higher than remaining engines but less than limit, control by manually opening applicable oil cooler door. If no reduction in oil temperature is noted, the oil cooler may be clogged and should be reported in the Airplane Log Book.

POWER PLANTS (Continued)

ENGINE STUCK IN REVERSE - JT4

Fuel Shutoff Lever	OFF
Airspeed	220 KIAS OR LESS
Pneumatic Crossfeed Valve	CLOSED
Low Pressure Pneumatic Switches for Affected Side	OFF
Applicable Ejector Switch	RETRACT

NOTE: A lower airspeed may be conducive to ejector/thrust brake retraction. If flight conditions permit, reduce airspeed progressively while cycling ejector switch until ejectors are retracted. Allow sufficient time for system air pressure to bleed off. Several minutes may be required to displace air from the thrust brake bucket retraction cylinder before complete retraction takes place. Both engine driven hydraulic pumps should be used to assure maximum hydraulic pressure for ejector retraction.

Thrust Brake Light	CHECK OUT

If affected throttle can be returned to forward range engine may be restarted.

ENGINE STUCK IN REVERSE - JT3D

Thrust Brake Lever	FORWARD IDLE IF POSSIBLE
Emer. Thrust Brake Retraction Switch	RETRACT

On DC-8-62:

Emergency Dump Switch	DUMP (BELOW 300 KIAS OR .80 MACH)

Do not attempt to use the thrust reverser for the affected engine again for the remainder of the flight.

- NOTE: (1) The ENG. DOORS OPEN light (not installed on -62) may remain on if pneumatic pressure is low or due to a component malfunction. Under this condition it is permissible to continue the flight.
- (2) On -62 higher pneumatic pressure aids the dump function. The THRUST BRAKE light may continue to flash, however, the engine may be operated normally.

FUEL**FUEL DUMPING**

Reduce speed to 260 KIAS or M .75 (whichever is the lesser), but not less than 170 KIAS unless limited by gear or flap speed restrictions. Assume a level flight attitude if practical.

Landing Gear	UP OR DOWN
Wing Flaps	NOT MORE THAN 25° (23° FOR DC-8-62)
Fuel Tank Selector Levers	MAINS (FWD AUX TANK SELECTOR ON DC-8-62 TO FWD AUX)
Crossfeed Levers	NORMAL
All Fill Valves	CLOSED
Fuel Quantity Gauges	CHECK
Fuel Dump Switch	FUEL DUMP
Fuel Dump Position Indicator	CHECK-EXTENDED

If fuel dump actuator fails to move, operate system manually using the Fuel Dump Handcrank after pulling the Fuel Dump Control circuit breaker.

After dumping desired amount:

Fuel Dump Switch	DRAIN

CAUTION: LEAVE THE SWITCH IN DRAIN FOR 5 MINUTES TO ASSURE DRAINAGE OF RESIDUAL FUEL. IF THE SWITCH IS MOVED DIRECTLY FROM THE FUEL DUMP POSITION TO THE RETRACT POSITION, THE CHUTE WILL NOT BE ACTUATED AND FUEL WILL CONTINUE TO DUMP.

Fuel Dump Position Indicator	CHECK
If possible, visually check from aft cabin that dump valves have closed and no fuel is being discharged.	
Fuel Dump Switch	RETRACT
Fuel Dump Position Indicator	CHECK-RETRACTED

If manual chute operation is necessary or chute does not fully retract:

Fuel Dump Control Circuit Breaker	PULL
Fuel Dump Handcrank	RETRACT CHUTES
Fuel Distribution	AS REQUIRED

FUEL (Continued)

#1 OR #4 ALTERNATE QUANTITY LOW
LIGHT ILLUMINATES (EXCEPT DC-8-62)

If light illuminates prior to initiating fuel transfer from the #1 and #4 alternate tanks to their respective main tanks:

Alt. Tank Quantity Fill Bug MAX CLOCKWISE POSITION
Associated Alt. Tank Fill Valve FILL
Associated Main Tank Boost Pump BOOST & FEED

If transfer has commenced from #1 and #4 alternate tanks to their associated main tanks:

#1 and #4 Main Tank Fill Valves CLOSED
Burn fuel from #1 and #4 main tanks until fuel quantity decreases to 5500 lbs.

#1 and #4 Main Tank Fill Valves FILL
Transfer from associated alternate tanks until mains reach 7500 lbs.

Repeat until alternate tanks are empty.

ALTERNATE TANK QUANTITY LOW INDICATING LIGHT
FLASHES ON AND OFF (DC-8-62)

Prior to transferring fuel from alternate tanks to associated main tanks.

Alt. Tank Fuel Quantity Selector Bug MAX CLOCKWISE
POSITION
Associated Alt. Tank Fill Valve FILL
Associated Main Tank Boost Pump BOOST AND FEED

NOTE: If in process of transferring fuel from center wing tank, it is not necessary to turn on associated main tank boost pump.

If light continues to flash:

Associated Alt. Tank Refill Switch ON
Hold switch ON for approximately 15 seconds after light stops flashing then release.

NOTE: During climb or attitude changes, light may flash. If fuel distribution is normal, no action is required.

The light may also flash due to fuel shrinkage as the fuel cools. While this is normal, the above corrective action must be applied to extinguish light.

FUEL (Continued)

If transfer had commenced from alternate tanks to their associated main tanks, check that the Main Tank Fill Valve switch is in the intermediate level position. If switch is in intermediate level position and corresponding main tank quantity is above 4000 pounds, a failure of the intermediate level control valve is indicated. Perform the following step:

Affected Main Tank Fuel Quantity Selector Bug SET AT 3000 LBS.

INOPERATIVE FUEL QUANTITY GAUGE

"Q" Button ("T" Button - DC-8-62) PUSH TO RUN INDICATED
 QUANTITY OFF FULL SCALE
 IF FUEL TRANSFER DESIRED
 Circuit Breaker for Inop. Gauge PULL WHEN GAUGE
 OFF FULL SCALE

NOTE: The totalizer is inaccurate with an inoperative gauge.



DOOR WARNING LIGHT ILLUMINATES

Flight may be continued at Captain's discretion if pressurization normal.

On DC-8F airplanes, the light must be out prior to takeoff.

THREE ENGINE APPROACH

Turn on standby rudder pump when starting final approach. If subsequent hydraulic failure occurs, leave rudder power on while completing Loss of Hydraulic Fluid or Fluid and Pressure Emergency Procedure.

Center rudder trim before touchdown.