

airBaltic

Fokker 50

**AEROPLANE
OPERATING
MATTERS**

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0 ADMINISTRATION AND CONTROL

0.1 ADMINISTRATION AND CONTROL OF OPERATIONS MANUAL PART B

0.1.1 Introduction

This Operations Manual Part B Fokker 50 (henceforth – OMB) is issued in accordance with the Joint Aviation Requirements. It complies with JAR-OPS 1 and with the terms and conditions of the airBaltic's Air Operator's Certificate, and manufacturers' Aircraft Operating Manual.

This manual is the property of airBaltic Corporation. All holders of this manual are personally responsible for the revision status of this copy. If a manual is under a department's responsibility, the chief for that department is responsible for assuring correct revision status of this copy.

0.1.2 Applicability

This Operations Manual is intended to serve as guideline for airBaltic pilots operating Fokker 50 (F50) aircraft. It covers company policies, operating procedures and limitations as well as applicable rules and regulations for operations of F50 aircraft.

The manual is applicable to all Flight Crew operating Fokker 50 under responsibility of airBaltic.

Operating personnel is responsible to comply with the procedures and regulations contained in this Operations Manual at all times; in the event of wilful or negligent disobedience to those rules and regulations the personnel concerned may become subject to disciplinary, legal or penal action! However, nothing contained in the Operations Manual shall prevent personnel from exercising their own best judgement during any situation for which the Operations Manual makes no provisions or in an emergency situation.

The commander of the aircraft has the authority and responsibility to declare an emergency situation whenever deemed necessary. He is authorized to deviate from any procedures and regulations and to follow any course of action deemed necessary in the interests of safety in an emergency situation. *Refer to OMA 1.4.*

0.1.3 Structure of Operations Manual

Refer to OMA 0.1

For brevity the pronoun 'he' is used throughout the manuals. Where appropriate the pronoun 'she' should be inferred or assumed.

0.1.4 The common language

Refer to OMA 0.1

0.1.5 Operations Manuals to be carried

Refer to OMA 0.1

0.1.6 Structure of the Manual

This OMB consists of twelve numbered and titled sections. These are further divided into numbered subsections and paragraphs.

0.1.7 Amendments and Revisions

The Operations Manual Part B, its amendments, and revisions are published and issued by airBaltic Flight Operations department. The SVP Flight Operations is responsible for its contents, and for keeping the procedures and instructions up-to-date. The SVP Flight Operations will authorize all amendments to this Manual, as required by airBaltic and by the LV CAA.

Minor changes and revisions such as:

- Editorial Changes or;
- Minor changes not affecting the policy or structure of the OMB, can be amended without prior approval from the LV CAA. Nevertheless LV CAA should be notified of these changes and revisions, as soon as practicably possible.

Flight Manuals administrators are responsible for the issuance and insertion of amendments and revisions, when prior approval from SVP Flight Operations has been granted.

In accordance to Distribution List amendments will be issued to copy-holders that will be required to amend designated copies. Amendments should be entered upon receipt and entry made and signed in Revision Index (0.3 of this section). When revisions/amendments are sent by mail there will be included Certificate of Receipt/Incorporation that shall be filled in and returned to Flight Operations Department, as soon as possible.

Amendments having operational character are named as Temporary Revisions and are confirmed by SVP Flight Operations. When immediate amendments or revisions are required in the interest of safety, they may be published (e.g. via Daily Read File) and applied immediately, provided that any approval required has been applied for.

All temporary revisions are on yellow paper and inserted in front of the instructions, which they are replacing; if location cannot be decided, in front of the section or manual.

Temporary Revisions will be cancelled as soon as they are no longer relevant. Those of long-term character will be incorporated into the manual, when it is next amended, or within six months of their effective date, whichever is sooner.

0.1.8 Revision System

The established revision system shall include:

- Certificate of Receipt/Incorporation (only if revisions are sent by mail);
- Transmittal Letter including reason for changes;
- List of Effective pages.

All revised pages will contain date of issue, number of revision, marked revised/amended portion of the text indicated by vertical marginal line adjacent to the change. Each amendment will be accompanied by a revised List of Effective Pages, with date of issue for each section/page.

In order to keep manual valid, after incorporation of each revision the copy holder is responsible to fill in and sign Revision Index (0.3 of this section).

0.1.9 Statement of Approval

Undersigning this manual (OMB F50 0.2 “List of Effective pages”) SVP Flight Operations assures that this Manual is prepared in accordance with company and regulatory requirements and it is made available to all staff operating airBaltic Fokker 50 aircraft.

0.1.10 The role of Authority

Refer to OMA 0.1

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0.2 LIST OF EFFECTIVE PAGES

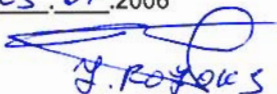
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0-TOC	1-2	01.07.2002	3.2	1-4	30.01.2006
0.1	1-4	30.01.2006	3.3	1-8	01.02.2003
0.2	1-4	30.01.2006	3.4	1-2	30.01.2006
0.3	1-2	01.07.2002	3.5	1-4	01.07.2002
0.4	1-2	30.01.2006	3.6	1-2	30.01.2006
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0.7	1-8	30.01.2006	3.8.1	1-30	01.07.2002
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2.2.2	1-8	30.01.2006	5.2	1-2	01.07.2002
2.2.3	1-4	30.01.2006	5.3	1-2	01.07.2002
2.2.4	1-2	01.08.2003	6-TOC	1-2	01.02.2004
2.2.5	1-10	30.01.2006	6.1	1-2	01.02.2003
2.2.6	1-2	01.02.2004	6.2	1-12	30.01.2006
2.2.7	1-2	01.02.2004	6.3-4	1-2	30.01.2006
2.2.8	1-4	15.08.2004	7-TOC	1-2	25.07.2005
2.2.9	1-24	30.01.2006	7.1-9	1-4	25.07.2005
2.2.10	1-4	30.01.2006	8-TOC	1-2	01.07.2002
2.2.11	1-4	30.01.2006	8.1	1-18	01.07.2002
2.2.12	1-2	01.08.2003	9	<i>Separate Approval (See Ch 9.0.1)</i>	
2.2.13	1-2	30.01.2006	10-TOC	1-2	30.01.2006
2.3	1-20	15.08.2004	10.1	1-6	30.01.2006
2.4	1-18	30.01.2006	10.2	1-2	01.07.2002
2.5	1-16	30.01.2006	10.3	1-2	01.07.2002
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3.0	1-6	01.07.2002	10.5	1-12	30.01.2006
3.1	1-8	30.01.2006	11-TOC	1-2	01.07.2002

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11.1	1-2	01.07.2002
11.2	1-6	01.02.2004
11.3	1-2	01.07.2002
11.4	1-4	01.07.2002

11.5	1-4	30.01.2006
12	1-2	01.07.2002

Approved by airBaltic

Date: 12. 01.2006Pauls Cālītis
SVP Flight operationsApproved by Civil Aviation
Administration of LatviaDate: 23. 01.2006

0.3 REVISION INDEX

REVISION	DATE OF REVISION	DATE OF INCORPORATION	SIGNATURE
001-6	Incorporated	-	-
007	01.07.2002	-	-
008	01.02.2003	-	-
009	01.08.2003	-	-
010	01.02.2004	-	-
011	15.08.2004	-	-
012	15.02.2005	-	-
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0.4 DISTRIBUTION LIST

Copy	Post-Holder	Copy	Post-Holder
1	SVP Flight Operations	25	Office Library RIX
2	Flight Operations office library	26	Office Library RIX
3	Civil Aviation Administration	27	Office Library RIX
4	Flight Operations training library	28	Office Library RIX
5	MCC RIX	29	Office Library RIX
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7	RIX TS	31	Office Library RIX
8	Ground Operations	32	Office Library RIX
9	YL-BAU	33	Office Library RIX
10	YL-BAR	34	Office Library RIX
11	YL-BAS	35	Office Library RIX
12	YL-BAT	36	Office Library RIX
13	YL-BAZ	37	Office Library RIX
14	SE-LJI	38	Office Library RIX
15	SAS FA	39	Briefing Room VNO
16	YL-BAW	40	Baltic Maintenance VNO
17	RIX DJ (1st copy)	41	YL-BAO
18	RIX DJ (2nd copy)	42	YL-BAV
19	MCC VNO	43	Head of Training
20	VNO TS	44	Office Library VNO
21	Briefing Room RIX	45	Office Library VNO
22	Technical Pilot (1st copy)	46	Office Library VNO
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24	Office Library RIX		

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0.5 AIRCRAFT GENERAL

The FOKKER 50 is a twin-engine, pressurized, high-wing aircraft, designed for short and medium-haul operations. Principal dimensions are given in the illustrations. The aircraft has a Maximum Take-Off Weight (MTOW) of 20'820 kg (45'900 lb). The maximum operating altitude is 25'000 ft.

airBaltic operates the following Fokker 50 (Fokker F27 Mk 050) aircraft:

Registration Mark	Serial Number
YL-BAO	20189
YL-BAR	20149
YL-BAS	20162
YL-BAT	20163
YL-BAU	20216
YL-BAV	20190
YL-BAW	20148
YL-BAZ	20153
SE-LJI	20180

FUSELAGE

Pressurization

The fuselage is pressurized in all compartments between fore and aft pressure bulkheads. An automatic pressurization system controls the outflow of conditioned air. The maximum pressure differential of approximately 5.45 psi allows a cabin altitude of 8000 ft at a flight altitude of 25'000 ft. The air conditioning packs are located in the non-pressurized aft section.

Doors

Four outward-opening cabin doors are provided, two on each side of the fuselage. For use and operation see subsection DOORS.

Windows

The flight deck windows are identified as front windows, direct-vision windows and sliding windows. The front windows are electrically heated. Rain is removed by two wipers. Direct-vision and sliding windows can be opened when the aircraft is not pressurized. Front and direct-vision windows are demisted by conditioned airflow. Sunvisors are provided. The cabin windows are equipped with adjustable sunblinds. The double pane construction allows a conditioned airflow for demisting.

Probes, Antennas, and Lights

Four pitot heads and an angle-of-attack vane are installed near the nose of the aircraft. To prevent ice buildup, they are electrically heated. Antennas for VHF communication, ATC transponder, DME, ADF, marker beacon, radio altimeter are installed on the top and/or bottom of the fuselage. An ELT antenna is located in the dorsal fin. Weather radar and glide slope antennas are located in the non-pressurized fuselage nose. Anti-collision lights are installed on the top and bottom of the fuselage (see illustration of antennas and external lights below).

WINGS AND TAIL SECTION**Flight Controls and Flaps**

Each aileron has a spring tab, a balance tab, and an integral horn balance which forms part of the wing tip. The balance tab at the RH aileron can be operated as a trim tab. The vertical stabilizer is equipped with a horn balanced rudder. The rudder is equipped with a balance tab and a trim tab. The horizontal stabilizer has two elevator surfaces and one trim tab. The flaps, which comprise two trailing-edge sections of each wing, are operated hydraulically.

Ice and Rain Protection

Inflatable rubber boots are recessed into the leading edges of the wings and the tail section. De-icing is obtained by alternately inflating and deflating the air ducts in the boots.

Antennas and Lights

See the illustrations below for location of navigation and anti-collision lights, wing inspection lights, strobe lights, logo lights, and landing lights. Both VOR/LOC antennas are located on the vertical stabilizer.

Fuel Tanks

Fuel is stored in two integral tanks, one in each wing, and in two collector tanks, one in each nacelle. Electrical pumps in the collector tanks ensure a continuous supply to the engines. Crossfeeding, to supply both engines from one tank, or one engine from both tanks, is possible. A pressure fuelling connector is located on the underside of the RH wing. The fuel service panel is installed in the RH nacelle.

Nacelles

The front section houses the power plant and its mounting. The forward bulkhead of the center section forms a firewall. The exhaust gases, led through the firewall and then outwards, exit below and slightly aft of the wing leading edge. The center section is used for housing the main landing gear and the collector tank. The rear section of the LH nacelle houses the hydraulic tank.

POWER PLANT

Engines and Propellers

The aircraft is equipped with two wing-mounted Pratt and Whitney PW 125B turboprop engines. Each engine is essentially a twin-spool turbojet combined with a free power-turbine assembly, which drives a reduction gearbox, and a six-bladed constant speed propeller via a third concentric shaft. The propellers have reverse thrust capability for braking and ground maneuvering. Propeller pitch is controlled by high-pressure engine oil and counterweights. Feathering can be initiated automatically or manually. Engines and propellers are protected against ice by electrical heating. The engines are equipped with fire detection and extinguishing systems.

Electric, Hydraulic, and Pneumatic Power

Each engine drives an Integrated Drive Generator (IDG). The IDG's generate 115 V/400 Hz three-phase AC power. 28 V DC power is obtained through two Transformer Rectifier Units (TRU). Emergency power is supplied by two batteries. Electrical power for starting is supplied by the batteries and/or by an external source. Two engine-driven pumps provide hydraulic power through a single system, for operation of landing gear, flaps, nose-wheel steering and brakes. Bleed-air, tapped from the compressors of both engines, is used for air conditioning and pressurization, airframe de-icing and hydraulic tank pressurization.

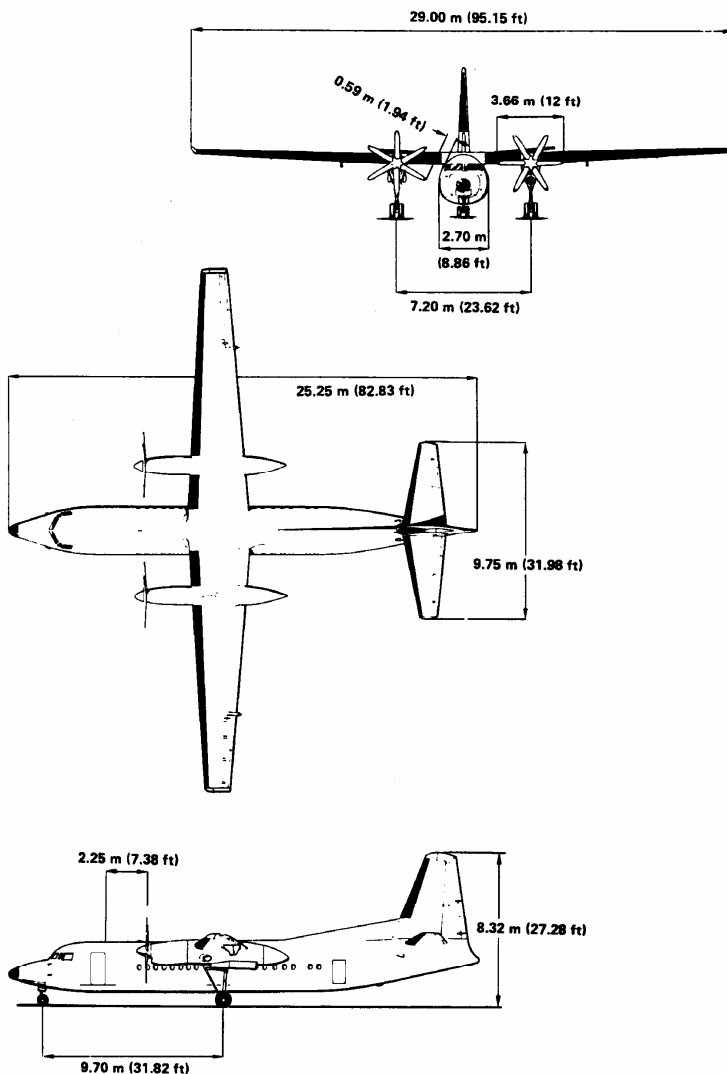
LANDING GEAR

The landing gear consists of a forward retracting nose gear and two rearward retracting main gears. Doors enclose the landing gear bays in the unpressurized fuselage nose and in each nacelle when the gear is retracted. Each gear is equipped with a shock absorber and two wheels. The main-gear wheels are equipped with brake units. A skid-control system provides optimum braking for all runway conditions. The nose gear is provided with nose-wheel steering and a centering system. The minimum turning radius is shown in the illustrations. The nose gear is equipped for pull-out or push-

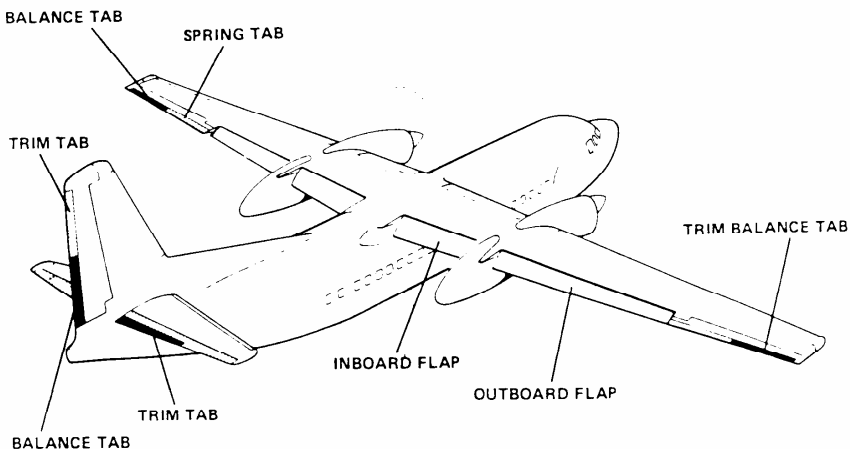
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back operations with a tow bar. A tail skid is provided to prevent or limit structural damage to the aft aircraft structure in case of excessive nose-up attitudes during take-off or landing. A taxi light is installed on the nose gear.

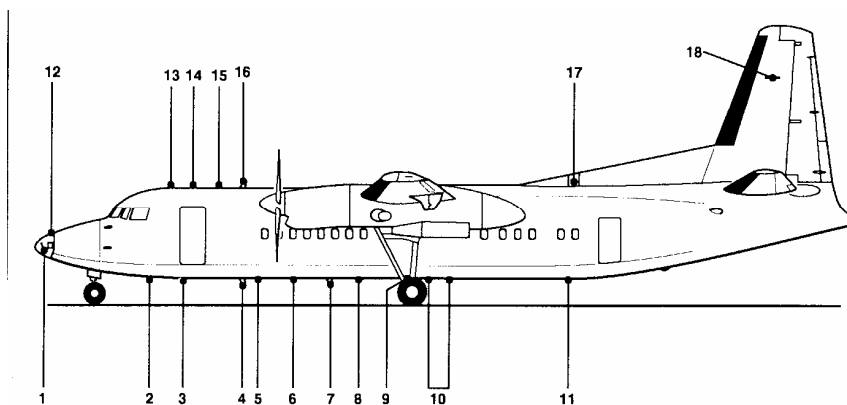
Three View Drawing with Dimensions



Flight Controls/Flaps



Antennas

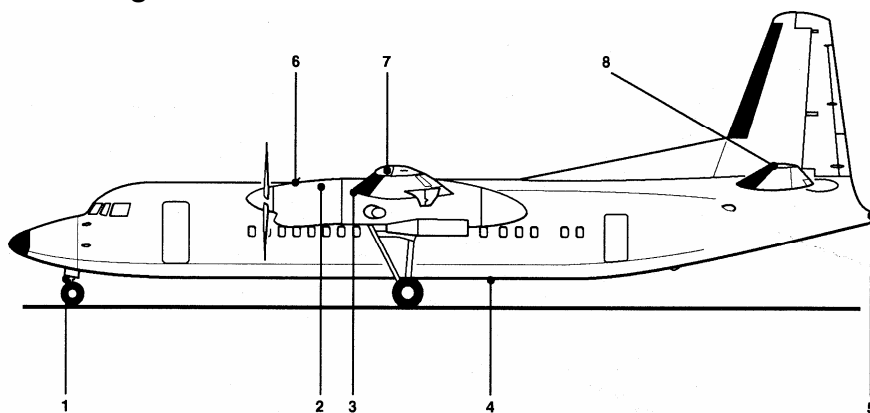


- 1 WEATHER RADAR
- 2 ATC 1
- 3 TCAS BOTTOM ANTENNA
- 4 VHF COM 2
- 5 MARKER BEACON
- 6 DME 2

- 7 ATC 2
- 8 DME 1
- 9 ADF 2
- 10 RADIO ALTIMETER
- 11 ADF 1
- 12 GLIDE SLOPE

- 13 ATC 1/2
- 14 GPS
- 15 TCAS TOP ANTENNA
- 16 VHF COM 1
- 17 ELT
- 18 VOR/LOC

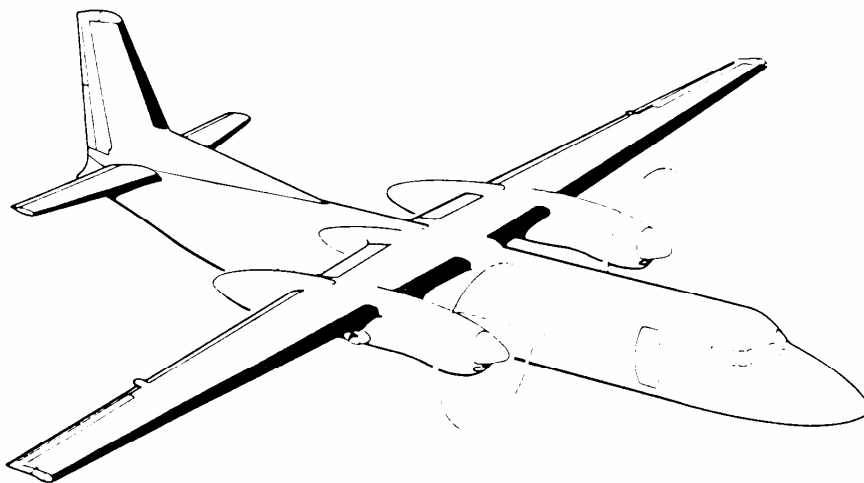
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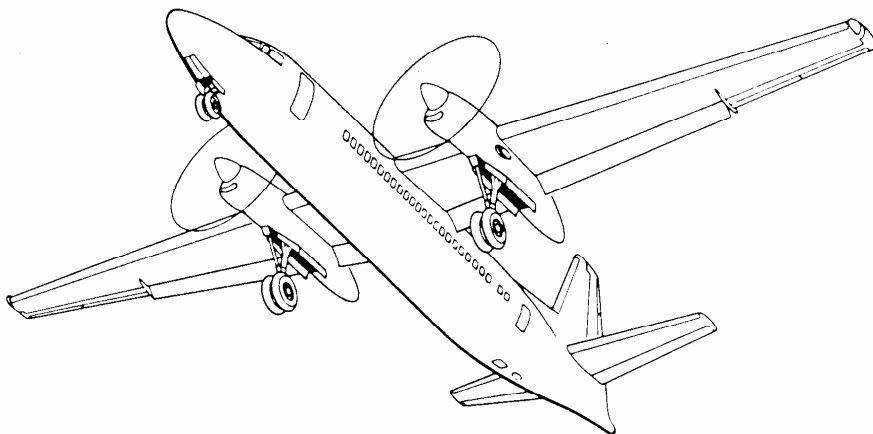
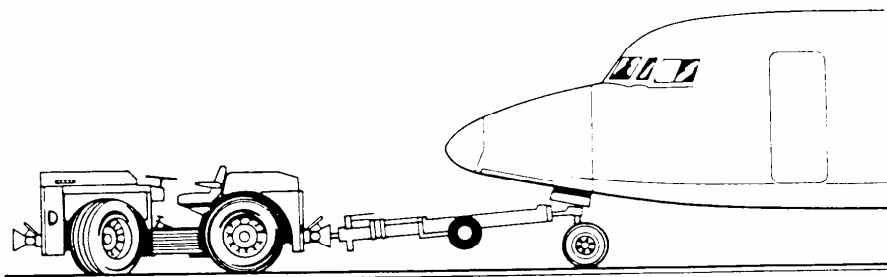
Exterior Lights

- 1 TAXI LIGHT
- 2 WING-INSPECTION LIGHT
- 3 LANDING LIGHT
- 4 ANTI-COLLISION LIGHT

- 5 NAVIGATION AND STROBE LIGHTS
- 6 ANTI-COLLISION LIGHT

- 7 NAVIGATION AND STROBE LIGHTS
- 8 LOGO LIGHT

De-icing Boots

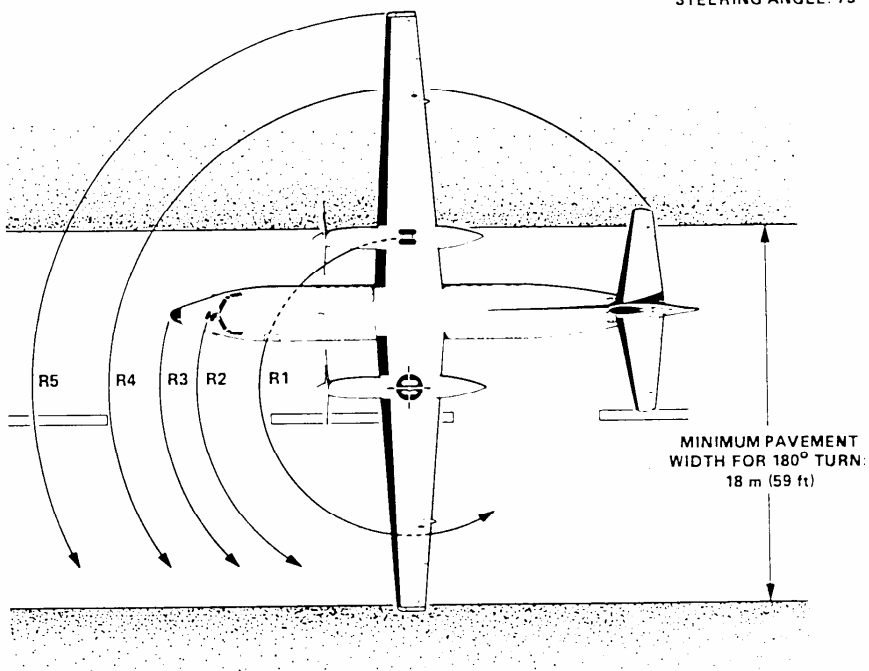
Landing Gear**Towing Arrangement**

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Turning Radius

R1 = 7.16 m (23.5 ft)
R2 = 10.41 m (34.1 ft)
R3 = 12.17 m (39.9 ft)
R4 = 14.25 m (46.8 ft)
R5 = 18.07 m (59.3 ft)

STEERING ANGLE: 73°



FLIGHT DECK

Seats

The flight deck is arranged for two-pilot operation. The pilots' seats are adjustable horizontally (forward and backward) and vertically. Thigh support, lumbar support and recline position are individually adjustable. The seat cushions can be electrically heated. To facilitate entry the armrests can be folded upwards. Each seat is provided with a five-point harness. A foldable seat for an observer is stowed in the flight deck entrance. The seat is provided with a shoulder harness and lap belt.

Reference Eye Position

A horizontal line in the top corner of each pilot's instrument panel is an aid for the adjustment of the pilots' seat. For an optimum combination of outside visibility and instrument scan, the line should be seen just below the glare shield.

Control Column and Pedals

Each control wheel comprises a microphone IC/RT selector, a touch-control steering button, an AP cut-out button and a chronometer button. Chart holders are also installed. The captain's control column is equipped with a stick shaker. Adjustable pedals provide for brake and rudder operation.

Control and Instrument Panels

Controls that are part of operational procedures are within easy reach of either pilot; instruments and annunciators are within the field of vision of both pilots. Controls and indicators for use by the pilots can be found on the following panels:

- The main instrument panel, which is tilted for better readability, is divided into a captain's, a first officer's (F/O), and a center panel. A Primary Flight Display (PFD) and a Navigation Display (ND) are installed, one above the other, at each pilot's panel. These panels also house controls and indicators for secondary flight and navigation data and standby instruments. The center panel contains power plant instruments, the standby horizon, the Central Annunciator Panel (CAP), the landing gear selector, the TAT indicator, the fuel quantity totalizer and the brake pressure and flap position indicators.
- A glare shield, located directly above the main instrument panel, contains EFIS, AFCS, VHF NAV control panels and the master warning and caution lights.
- The overhead panel consists of control and monitoring panels for aircraft systems. A standby compass is installed at the lower end. Loudspeakers

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and jack panels are installed in the flight deck ceiling next to the overhead panel.

- The pedestal contains controls for engine power, flap position, trim setting, flight control lock, and alternate landing gear operation. Panels are installed for communication, navigation, weather radar, flight deck lighting, autopilot control and system tests.
- The side panels contain tillers for nose-wheel steering, various controls for ventilation, and switches for the pilots' heated seat cushions. An alternate brake handle, a parking brake handle, and a towing switch are installed at the captain's side only.

Panels located at the flight deck but mainly for use by the maintenance crew are:

- The maintenance and test panel, located at the avionics rack on the RH side of the flight deck entrance.
- The circuit breaker panel, located behind the F/O's seat.
- The AC/DC circuit breaker panel, located at the electrical power center on the LH side of the flight deck entrance.

The layout of the maintenance and test panel and the circuit breaker panels is shown in section MISCELLANEOUS.

Annunciator Lights

Annunciator lights are located at the overhead panel, the main instrument panel, the glare shield and the pedestal. The general concept of the use of annunciator lights is that during normal continuous operation all lights are out (blank). Correct operation of red and amber lights can be tested by the pilots. See INTEGRATED ALERTING SYSTEM. All other annunciators are tested from the maintenance and test panel.

Switches

Lighted push buttons are installed primarily at the overhead panel. In addition to the switch function, most push buttons annunciate system status in accordance with the general annunciator concept. If an amber light comes on (FAULT, INOP), the push button must be depressed for corrective action. If a push button is not correctly set or is operated due to a normal or abnormal procedure, a white (OFF, MAN, ALTN, BACKUP, FLDK, CANCEL, ON) or blue (ON) light illuminates. Exceptions are described in the relevant section. Some push buttons are equipped with a transparent guard to prevent inadvertent operation.

Some guards are sealed.

Toggle switches are selected ON when swept to the top of the relevant panel (except as stated in note below). Some toggle switches are equipped with a guard or lock to prevent inadvertent operation. Rotary selectors are used

when three or more detented positions are required. The selector knob serves as a pointer on a scale. Normally the knob is in the upright position.

NOTE: Pay attention that direction of toggle switch operation for Battery Switch and External lights/Cabins Signs panel switches are different for a/c version.

Ventilation and Heating

Conditioned air is routed to window demisters, ceiling, floor and side wall outlets, and adjustable louvres which are located next to each pilot's main instrument panel. A fresh air scoop is installed at each side panel for ventilation during non-pressurized flight.

Windows

When the aircraft is not pressurized, the direct-vision windows can be opened by raising the lock handles and pulling the windows inward. The sliding windows can be opened by rotating the lock handles rearward, and then sliding the windows rearward with the operating handles. The sliding windows lock handles are located below the windows.

Flight Deck Door

The door opens into the cabin. The door lock can be operated from the flight deck by a thumb turn and from the cabin by a key. It is possible to lock the door in the open position. A door viewer is installed to allow observation of the cabin area.

Stowage

Each side console provides space for a manual and/or a handbook, and a flight kit. Sunvisors are stowed behind the Copilot seat. A cup holder and an ashtray are installed for each pilot and an observer. Spare bulbs are stowed in the captain's side console. Locking pins and pilot head covers are stowed in a box located in the passenger stairway. Two checklist holders are installed on the flight deck side wall panels.

Emergency Equipment

For location and use of emergency equipment in the flight deck, see section 10 SURVIVAL & EMERGENCY EQUIPMENT.

CABIN

Layout

The layout of the cabin provides for 46, 50 or 52 seats. Hand baggage stowage bins, equipped with handrails, are installed above the passenger seats. Service panels and loudspeakers are located at the lower side of the bins. Each service panel comprises reading lights, adjustable louvres, an attendant-call button, and "no smoking" and "fasten seat-belts" signs. A toilet compartment is installed at the forward LH side of the cabin. The toilet equipment consists of a bowl, a collector tank, flushing liquid and a flushing switch. The toilet flushing liquid is recirculated. Also installed are a fresh-air outlet, a wash basin with hot and cold water taps, a loudspeaker, an attendant-call button, a return to cabin sign, a smoke detection system, and a waste bin with an automatic fire extinguisher.

A "LAVATORY FORWARD/OCCUPIED" sign is installed in the forward part of the cabin. The words "LAVATORY FORWARD" are not illuminated. The word "OCCUPIED" will illuminate when the toilet compartment door is locked.

Two lockable cargo compartments are provided, one in the front of the cabin, the other at the rear. They are equipped with smoke detection systems. Two galleys are situated in the rear of the cabin.

A stowage unit is installed aft of the toilet compartment. Additional stowage units and wardrobes are installed aft of the last RH row of seats, a large wardrobe aft of the forward stowage unit and a smaller one forward of galley number-two;

Attendant's Provisions

Accommodation is provided for two attendants. Two foldable seats with electrically heated seat cushions are installed, one in the rear of the cabin facing forward, and one in the front facing aft. The switch for the forward attendant's seat heating is located on the cabin entrance ceiling. The switch for the rear attendant's seat heating is located at the attendant's panel at the end of the luggage bin, facing the rear attendants seat. Attendant-call lights and cabin signs are installed on the panel: layout is shown under MISCELLANEOUS. Handsets for telephone communication with the flight deck or the other attendant's station and microphones for passenger address are located in the front and rear of the cabin. Loudspeakers are installed at each attendant's position.

Lights

Cabin lights are controlled from the attendant's panel. An additional cabin lights switch is installed in the passenger entrance. A forward-cargo-compartment light switch is installed in the ceiling near the entrance of the compartment.

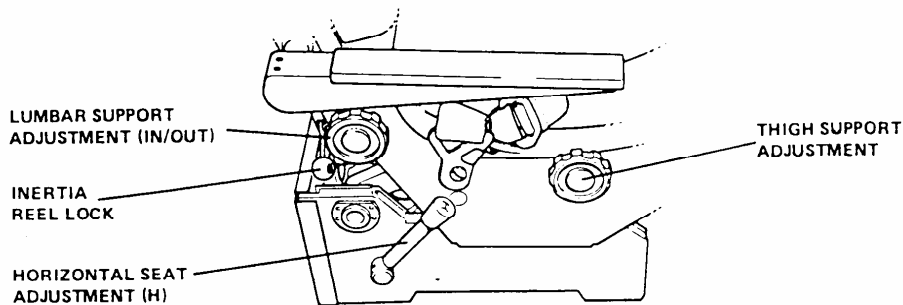
Emergency Equipment

For location and use of emergency equipment in the cabin see section 10 | SURVIVAL & EMERGENCY EQUIPMENT.

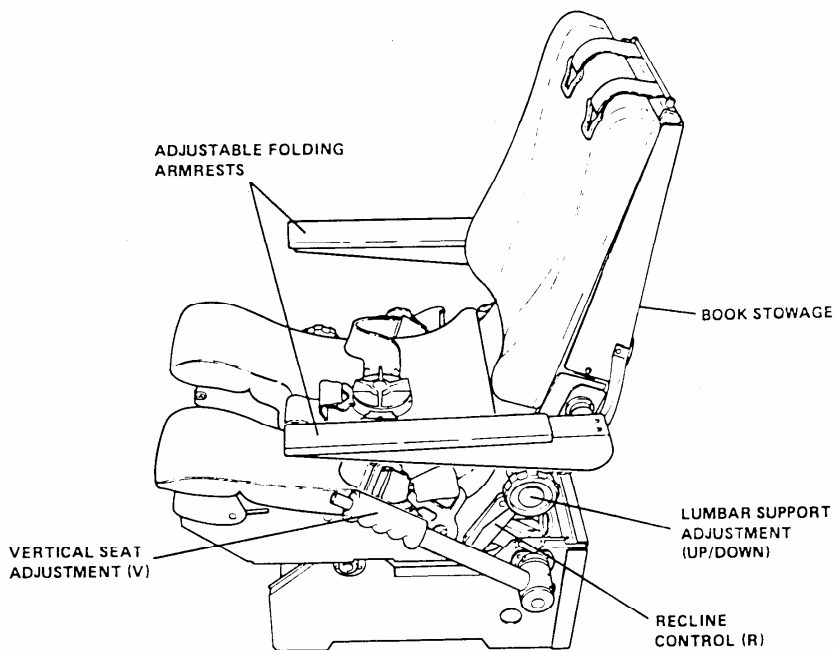
Water System

The aircraft is equipped with a potable water tank and a wash water tank. The potable water tank supplies equipment in the galleys. The wash water tank supplies the wash basin in the toilet compartment. Water is gravity supplied. Waste water from the wash basin and the galley is drained overboard through electrically heated drain masts.

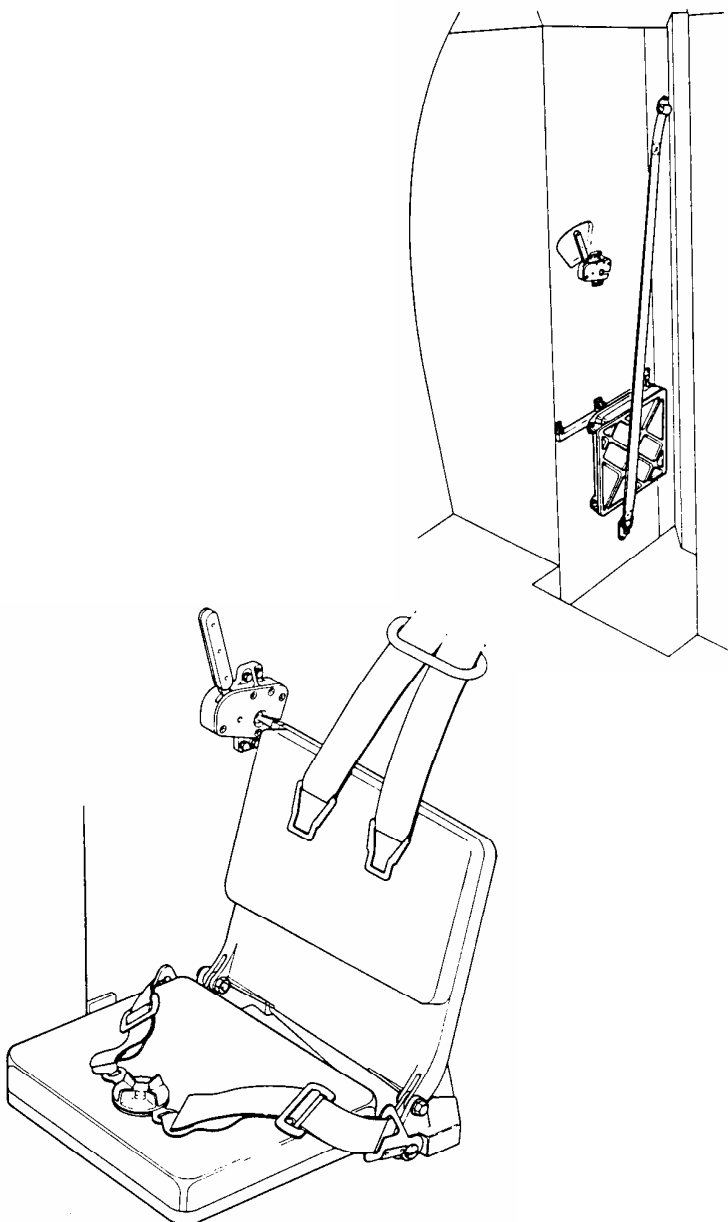
Pilot's Seat



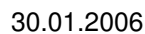
INBOARD SIDE CAPTAIN'S SEAT



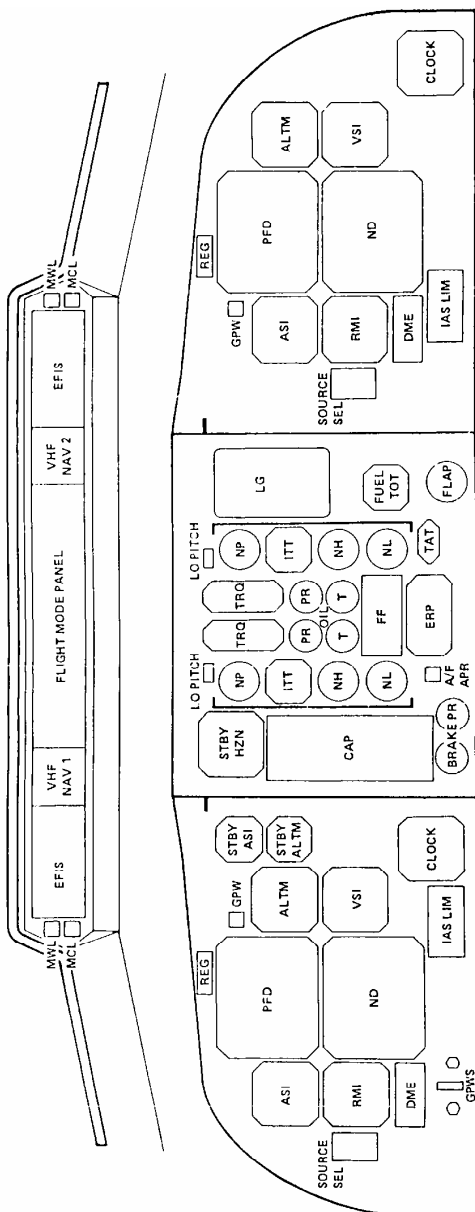
OUTBOARD SIDE CAPTAIN'S SEAT

Observer's Seat

Pedestal/Side Panels/Control Columns

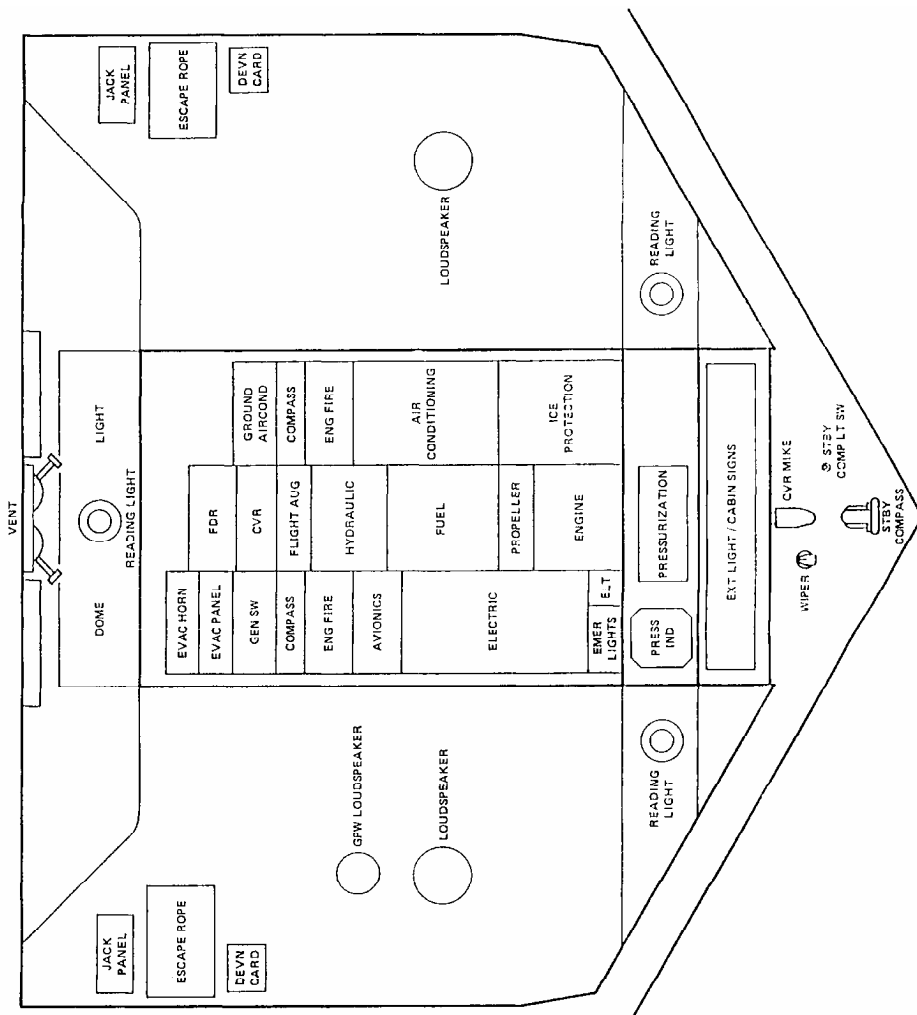


Glare Shield/Main Instrument Panel



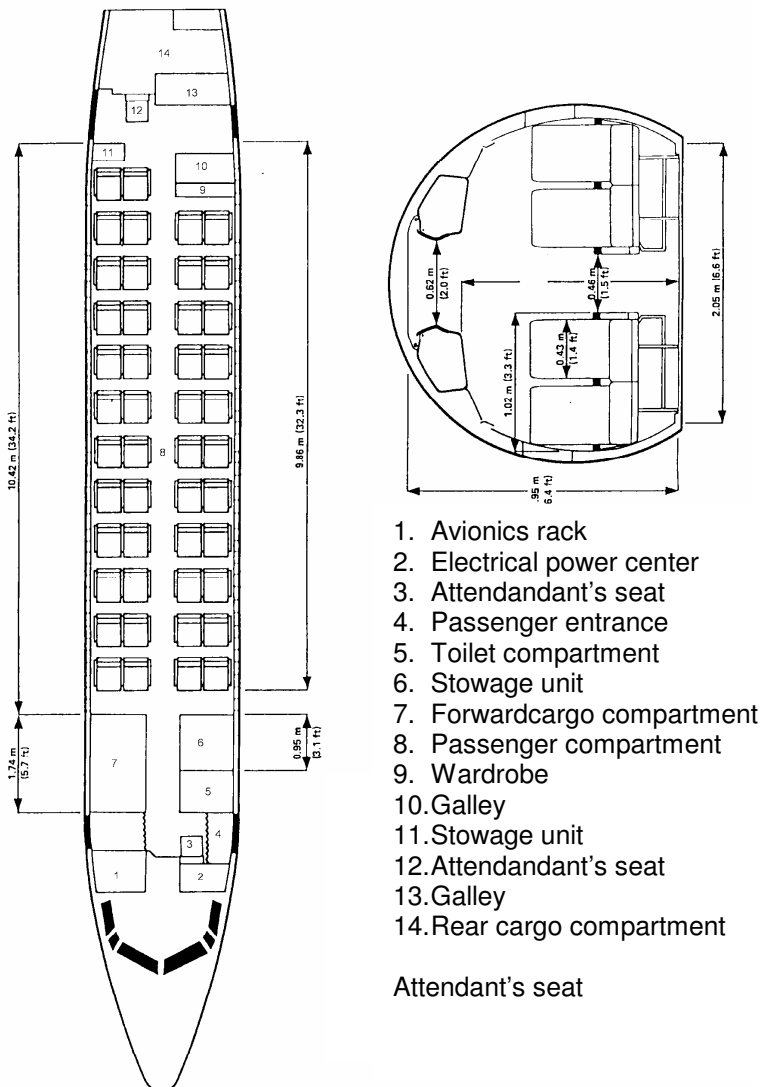
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Overhead Panel/Flight – Deck Ceiling

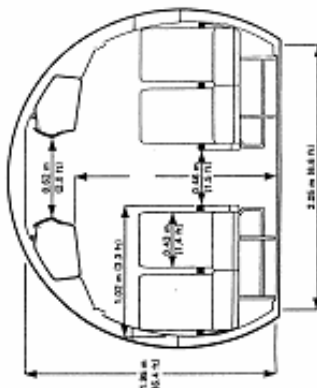
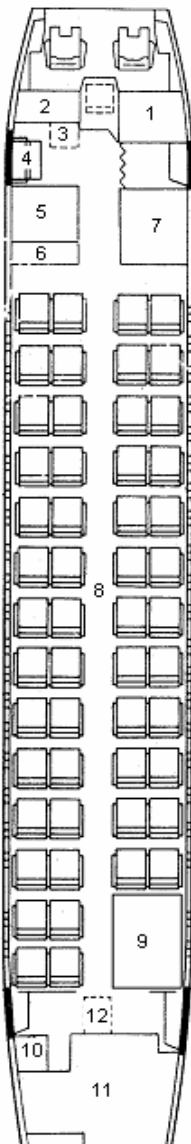


Cabin Layout

The diagram below shows the cabin layout of FOKKER 50 aircraft in **Version 5046** (46 seats):



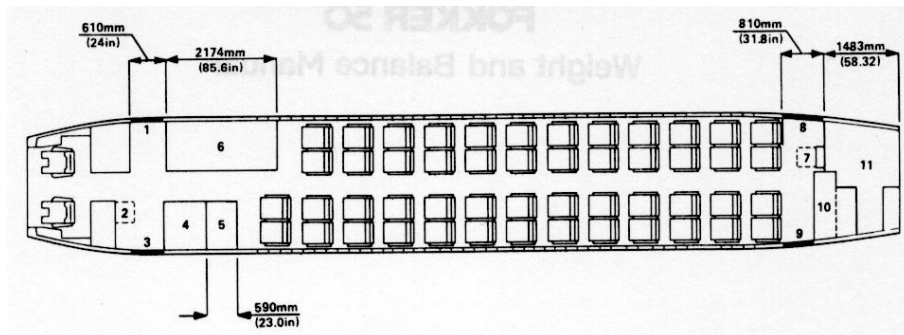
The diagram below shows the cabin layout of FOKKER 50 aircraft in **Version 5052** (52 seats):



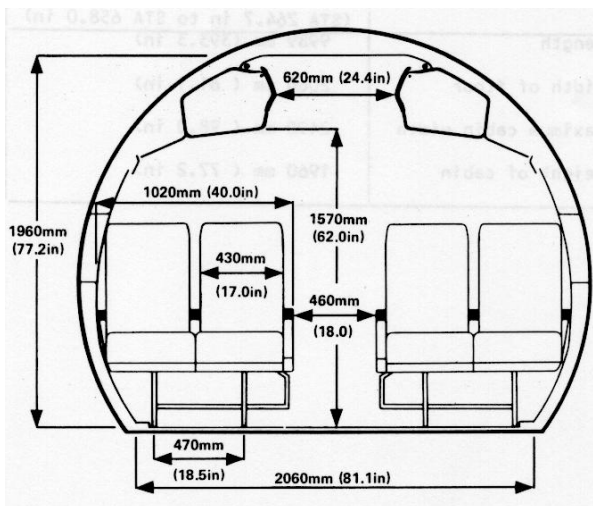
1. Avionics rack
2. Electrical power center
3. Attendant's seat
4. Passenger entrance
5. Toilet compartment
6. Stowage unit
7. Forward cargo compartment
8. Passenger compartment
9. Galley
10. Galley
11. Rear cargo compartment
12. Attendant's seat

Doors

The diagram below shows the cabin layout of FOKKER 50 **SE-LJI** aircraft (50 seats version):

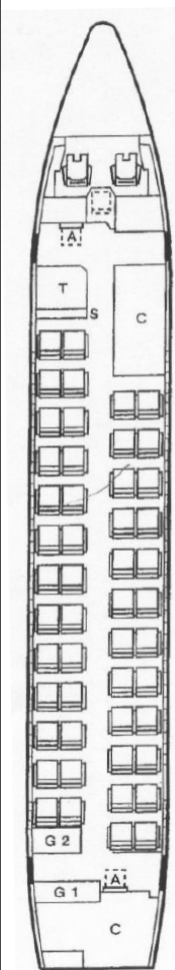


1. FORWARD CARGO DOOR
2. ATTENDANT'S SEAT
3. PASSENGER DOOR
4. TOILET COMPARTMENT
5. WARDROBE
6. FORWARD CARGO COMPARTMENT
7. ATTENDANT'S SEAT
8. AFT CARGO DOOR
9. SERVICE DOOR
10. GALLEY
11. AFT CARGO COMPARTMENT



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The diagram below shows the cabin layout of FOKKER 50 YL-BAO and YL-BAV aircraft (50 seats version):



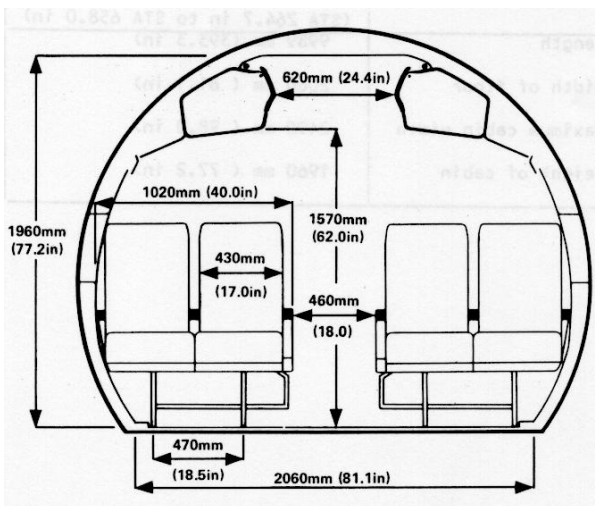
A – C/C seat

C – Cargo compartment

G – Galley

T – Toilet compartment

S – Stowage unit



The entries and exits to the aircraft comprise four doors;

- a passenger door on the forward LH side;
- a cargo door on the forward RH side;
- a cargo door on the aft RH side;
- a galley service door on the aft LH side.

Locking and Unlocking

All doors can be opened and closed from the inside or from the outside.

From inside, the doors can be locked and unlocked with door handles which must be turned 180 degrees. A closed door is locked when the door handle points in direction of flight. Black-and-yellow marks at the latches provide for verification.

From outside, each door can be locked and unlocked with a door handle which must be turned approximately 150 degrees. The handle, flush with the skin of the door, pops out when an integrated PUSH button is depressed. Instructions to lock or unlock the doors are printed on the outside and on the inside of the doors. Normal and emergency instructions are identical.

Indications

Indications of open doors are presented at the Central Annunciator Panel (CAP) for:

- the passenger door (PAX DOOR);
- the forward cargo door (FWD CARGO);
- any of the aft doors (AFT DOORS).

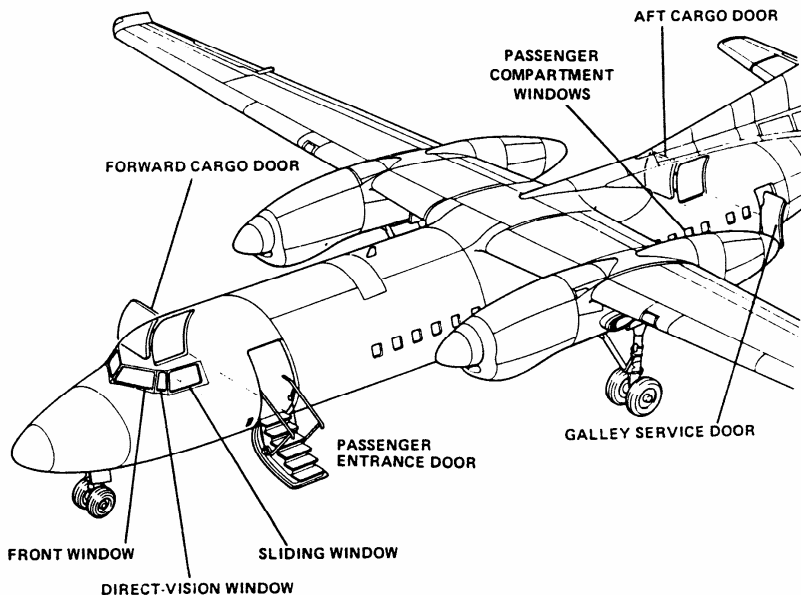
The lights are white and operate independent of the integrated alerting system. An alert will be presented when any of the doors is not locked, either engine is running, and the parking brake is released.

Passenger Door Stairway

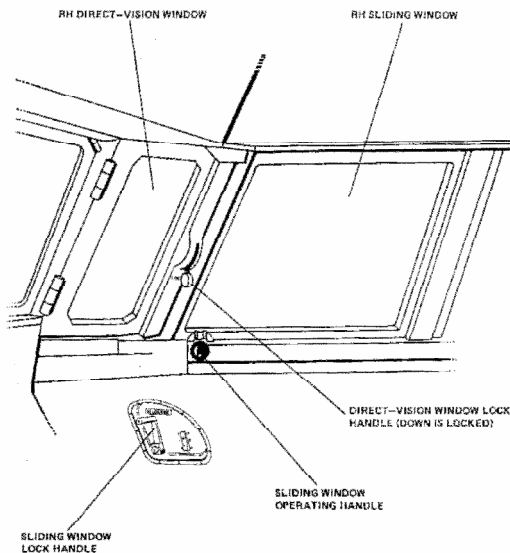
The passenger door, which is equipped with an integral stairway and two folding handrails, opens downwards. When unlocked, the door opens under its own weight. The door is retracted electrically. Controls to close the door, to stop the downward movement and to resume the downward movement, are located at two panels near the door, one inside the cabin and the other outside, flush with the fuselage, to the left of the door. If external power is not available the door can be operated by battery power. It is possible to raise the door manually if no electric power is available.

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Windows and Doors

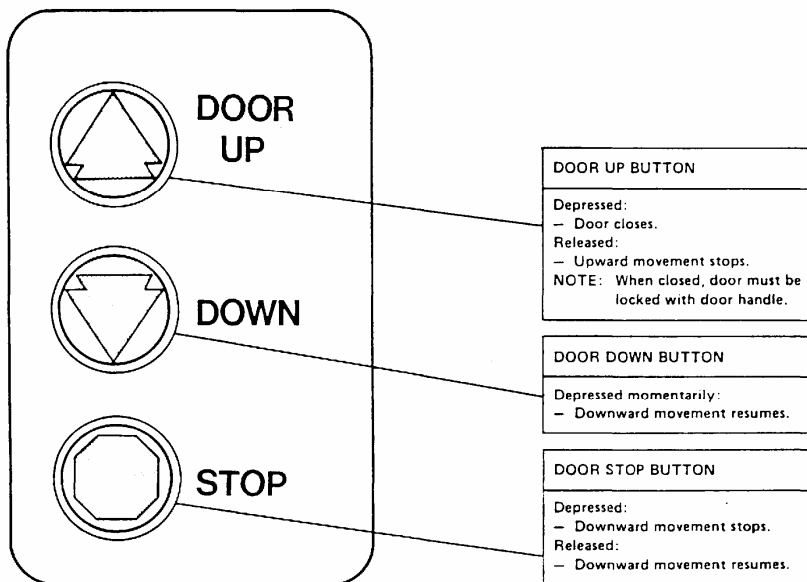


Windows



External Passenger Door Control Panel and Indicators

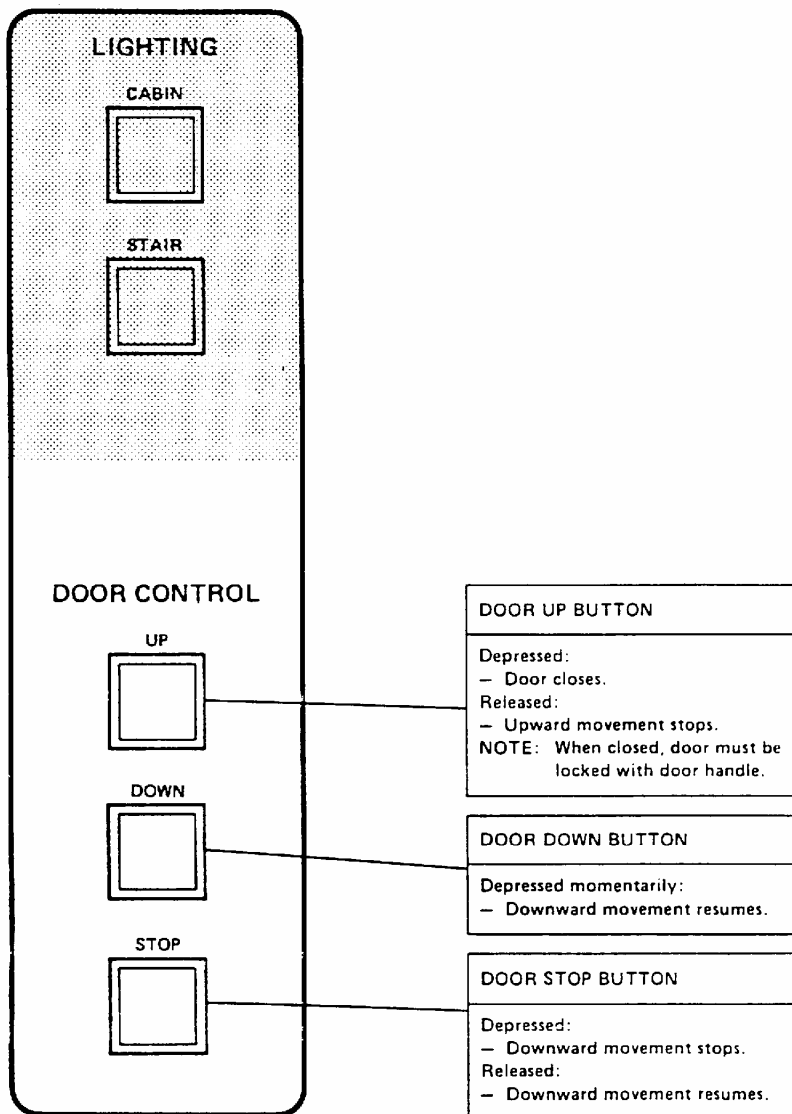
Location: Next to the passenger door on the outside of the fuselage.



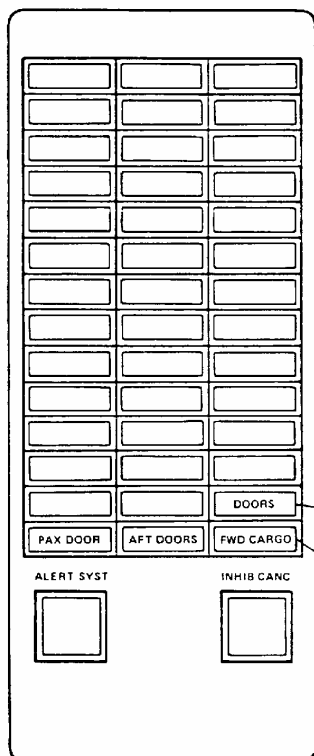
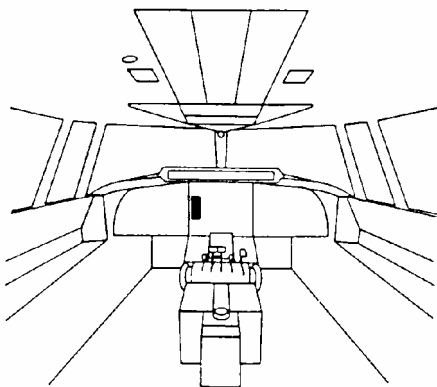
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Internal Passanger Door Control Panel and Indicators

Location: Next to the passanger door on the outside of the fuselage.



Central Annunciator Panel



DOORS LIGHT

DOORS (amber)

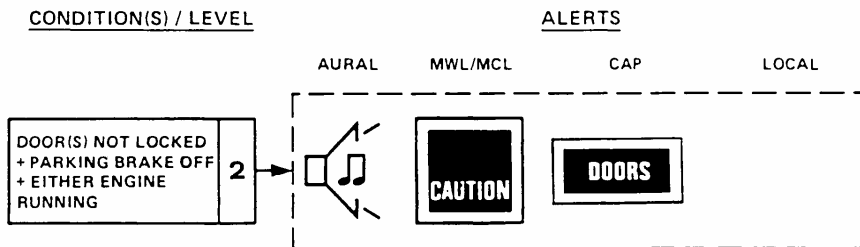
- Pax door, aft doors, or forward cargo door not locked when parking brake is released and either engine is running.

DOOR LIGHTS

PAX DOOR (white)

- Passenger door open.
- AFT DOORS (white)
- Either aft door open.
- FWD CARGO (white)
- Forward cargo door open.

Door Alerts



Aircraft Lighting systems

Aircraft Lighting systems controlled from the flight deck are:

- Exterior lighting;
- Flight deck lighting;
- Emergency lighting.

Exterior Lighting

Exterior lighting systems are controlled from the LIGHTS panel, located at the overhead panel, and comprise landing lights, a taxi light, wing-inspection lights, anti-collision lights, navigation lights, strobe lights, and logo lights. Two fixed landing lights are installed in the wing leading edge, each containing an anti-glare grille to shield the flight deck from the glare of the light. A taxi light is mounted on the nose landing-gear strut. The light will be inoperative when the nose gear is retracted. Two wing-inspection lights are installed on the outboard side of the engine cowlings to illuminate the outer wing leading edges. Anti-collision lights are installed. Navigation lights are installed in the LH wing tip (red), in the RH wing tip (green) and in the tail cone (white). During ground operations with the towing switch on, these lights come on irrespective of the position of the NAV lights switch. White strobe lights are installed next to the navigation lights in the wing tips. Logo lights are installed in the top surfaces of the horizontal stabilizers.

Flight Deck Lighting

Flight deck lighting systems, which are controlled from the FLIGHT DECK lighting panel at the pedestal, include dome, flight deck flood, panel, instrument, and annunciator lights. Chart holder lights, reading lights, and side panel lights are also installed. A dome light for general flight deck illumination is located aft of the overhead panel. Flight deck flood lighting is provided to illuminate all flight deck panels, and can be controlled between off and fully bright. The flood light is integrated in the dome light assembly, but control is independent of dome light switching. Overhead panel, glare shield, pedestal, and the instruments at the main instrument panel are provided with integral lighting. The main instrument panel is illuminated by a dimmable flood light. Each panel can be independently controlled. Annunciator-light brightness is controlled by one dim/bright selector. Those lights which are normally blank have two brightness levels: dim and bright. See also INTEGRATED ALERTING SYSTEM. All other lights have six brightness levels three dim and three bright. The maximum brightness levels is the reset position (RST). When electrical power is applied to the aircraft

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the lights come on fully bright, irrespective of selector position. RST resets the selector for brightness control.

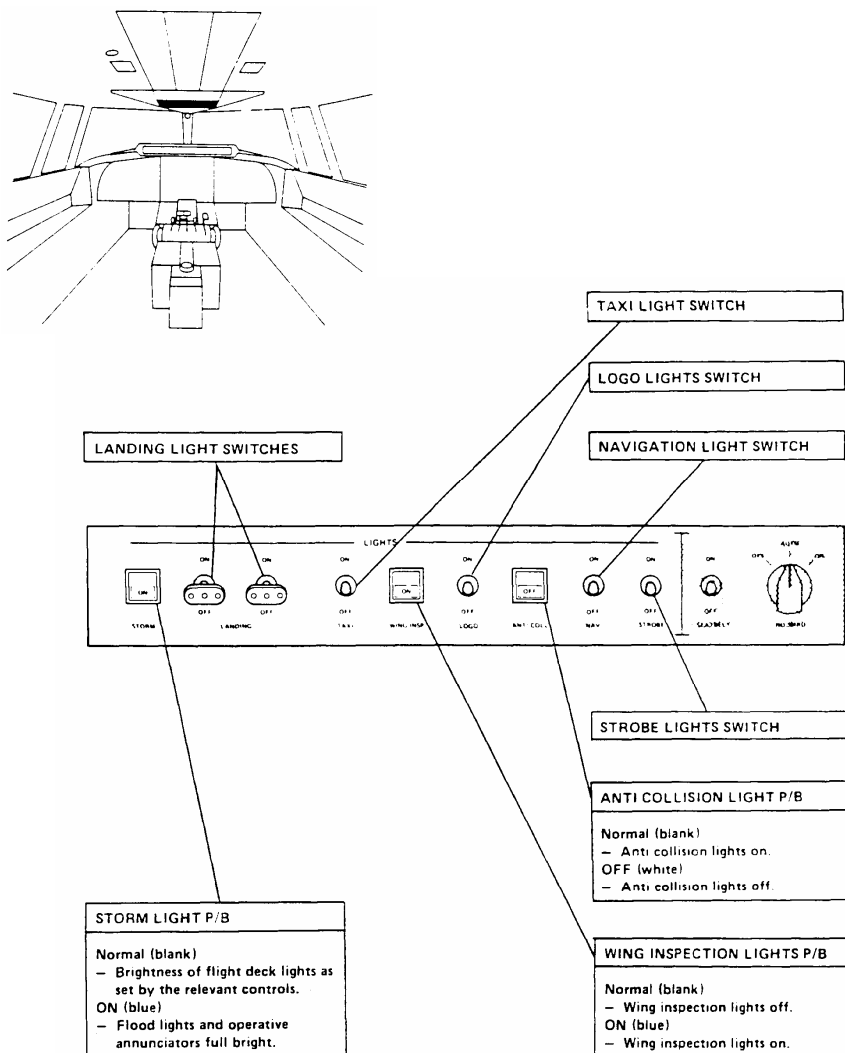
NOTE: A STORM p/b located on the LIGHTS panel is provided to override the individual controls. When depressed, flight deck flood, main instrument panel flood, and the lighted annunciator lights, will come on fully bright regardless of annunciator brightness selector position.

Two chart holder lights, one at each control wheel, can be controlled individually by a knob on top of each chart holder. Three reading lights, which are installed next to the overhead panel, provide captain, first officer, and observer with local illumination. The lights have integrated controls. Each side panel light is controlled by a selector located at the side panel.

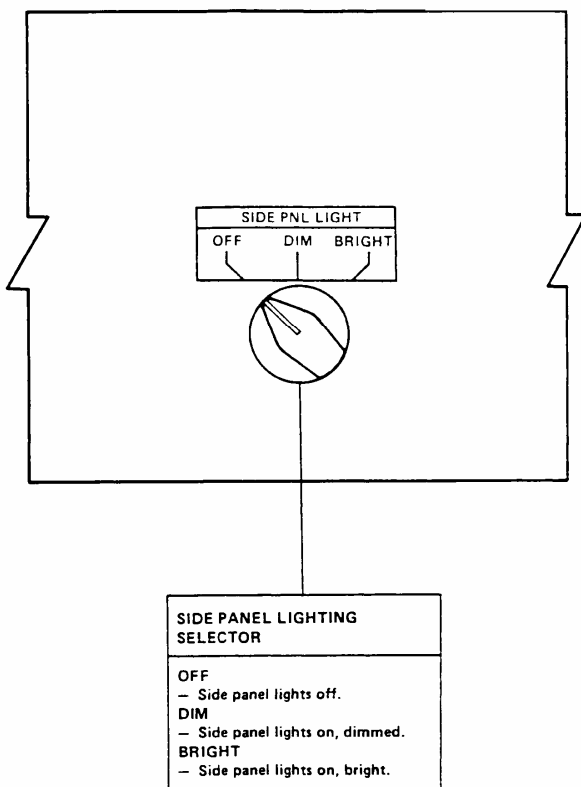
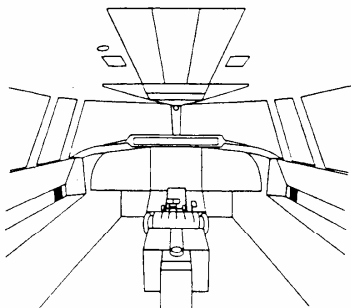
Emergency Lighting

The system includes standby and emergency lights. An emergency-lights selector with OFF, ARMED, and ON positions, is located at the overhead panel. Standby lights are installed in the toilet compartment, in the exit signs, and in the passenger compartment. The standby lights in the toilet compartment and in the exit signs come on when the emergency-lights selector is set to ARMED, and DC power is available; they remain on during flight. The standby lights in the passenger compartment come on automatically, when DC power is available and the emergency lights selector is in the ARMED position, when AC power is not available. Emergency lights, powered by emergency power packs, are installed at the flight deck, toilet compartment, passenger compartment, exit signs, floor proximity escape path, and externally near the exits. Automatic activation occurs if EMER DC bus No. 2 is not powered (battery off or run down) and the emergency-lights selector is in the ARMED position. The emergency lights can be manually switched on at the flight deck via the emergency-lights selector on the overhead panel, or via a guarded emergency-lights switch at the attendant's panel.

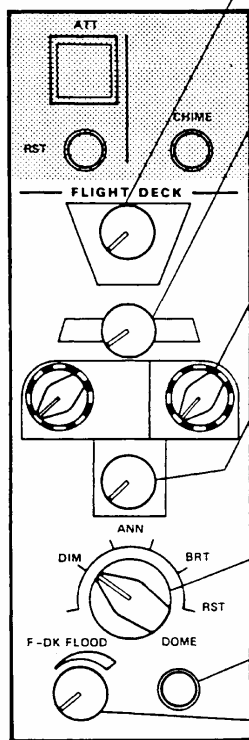
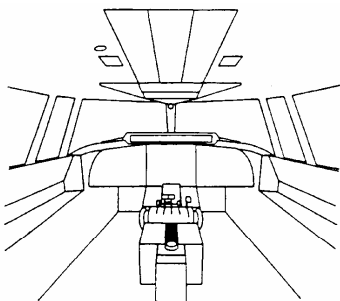
Light Controls and Indicators



Light Controls and Indicators (cont.)



Light Controls and Indicators (cont.)



FLIGHT DECK LIGHTING PANEL

OVERHEAD PANEL BRIGHTNESS CONTROL

Rotate to adjust brightness of integral overhead panel lights.

GLARE SHIELD BRIGHTNESS CONTROL

Rotate to adjust brightness of integral glare shield lights.

MAIN INSTRUMENT PANEL BRIGHTNESS CONTROL (F/O)

Rotate:

- Inner knob to adjust brightness of integral instrument lights.
- Outer knob to adjust brightness of flood light.

PEDESTAL BRIGHTNESS CONTROL

Rotate to adjust brightness of integral pedestal lights.

ANNUNCIATOR BRIGHTNESS CONTROL

DIM

- One dim level for annunciators normally blank.
- Three dim levels for all other annunciators.

BRT

- One bright level for annunciators normally blank.
- Three bright levels for all other annunciators.

RST

- Maximum bright level.
- Resets connection between control position and brightness level.

DOME LIGHT BUTTON

Push to switch DOME light on or off.

FLIGHT DECK FLOOD CONTROL

Rotate to adjust brightness of flight deck flood light.

INTENTIONALLY LEFT BLANK

0.6 Units of Measurement

Weights and dimensions are given in SI (metric) units.

<i>Weight:</i>	kilograms (kg)
<i>Length:</i>	metres (m)
<i>Area:</i>	square meters (m ²)
<i>Volume:</i>	cubic meters (m ³)
<i>Liquid:</i>	liters (L)
<i>Load:</i>	in kilograms per square meter (kg/m ²) in kilograms per running meter (kg/m)
<i>Density:</i>	kilograms per liter (kg/l)

Conversion factors

	<u>Multiply</u>	<u>by</u>	<u>to obtain</u>
<i>Weight</i>	pounds (lb)	0.4536	kilograms
<i>Length</i>	inches (in)	0.0254	meter (m)
	feet (ft)	0.3048	meter (m)
<i>Area</i>	square feet (ft ²)	0.0929	square meters (m ²)
<i>Volume</i>	cubic feet (ft ³)	0.0283	cubic meters (m ³)
	u.s. gallons (US gal)	3.7854	liters (l)
<i>Moment</i>	pounds-inches (lb in)	0.0115	kilogram meters(kg m)
	pounds-inches (lb in)	0.4536	kilogram inches(kg in)
<i>Load</i>	pounds per square foot(lb/ft ²)	4.8826	kilograms per square metre (kg/m ²)
<i>Density</i>	pounds per US gallon (lb/gal)	0.1198	kilograms per liter (kg/l)

Units of measurements and their abbreviations

lb	pounds
kg	kilograms
in	inches
ft	feet
m	meters
ft ²	square feet
m ²	square meters
ft ³	cubic feet
m ³	cubic meters
Usgal	U.S. gallons
l	liters
lb/ft ²	pounds per square foot
lb/ft	inpounds per running foot
kg/m ²	kilograms per square meter
kg/m	kilograms per running meter
lb in	pounds-inches
lb in/in	bending strength, pounds-inches per running inch
kg in	kilogram-inches
kpm/m	bending strength, kilopondmeter per running meter
lb/USgal	pounds per U.S. gallon
kg/L	kilograms per liter
g	standard acceleration (9.81 m/s ²)

0.7 Abbreviations and Definitions

A	Ampere	APR	Automatic Power Reserve
A/A	Air-to-Air	APT	Airport
A/ATR	Air-to-Air Transmit Receive	APU	Auxiliary Power Unit
A/C	Aircraft	ARM	Armed
A/D	Air Data, Analog-to-Digital Converter	ARSA	Air Radar Service Area
A/F	Auto feather	ASC	Approach Speed Control
A/S	Airspeed	ASAP	As Soon As Possible
ABBR	Abbreviation	ASEL	Altitude Select
AC	Alternating current	ASI	Airspeed Indicator
ACT	Active	ASR	Airport Surveillance Radar
ADC	Data Computer	ASYM	Asymmetry
ADF	Automatic Direction Finder	ATC	Air Traffic Control
ADV	Advisory	ATIS	Automatic Terminal Information Service
AFCS	Automatic Flight Control System	ATT	Attitude, Attendant
AFM	Airplane Flight Manual	ATTD	Attendant
AFT	Rear Part	AUG	Augmentation
AGL	Above Ground Level	AUTO	Automatic
AHRS	Attitude and Heading Reference System	AUX	Auxiliary
A-I; A-ICE	Anti-Ice	AVAIL	Available
AIL	Aileron	BARO	Barometric
AIRCOND	Air Conditioning	BAT	Battery
ALT	Alternate, Altitude	BC	Back Course
ALTM	Altimeter	BCF	BromoChlorodiFluorometh- ane (Fire extinguisher)
ALTN	Alternate	BEW	Basic Empty Weight
AM	Amplitude Modulation	BFO	Beat Frequency Oscillator
AMP	Amplifier	BIT	Built in Test
ANN	Annunciator	BRG	Bearing
ANNCMT	Announcement	BRK	Brake
ANT	Antenna	BRNAV	Basic Area Navigation
AOM	Aircraft Operating Manual	BRT	Bright(ness)
AP	Autopilot	C	Centigrade
APPR	Approach	C/A	Cabin Attendant
APPROX	Approximately	CAB	Cabin
		CANC	Cancel

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CANCL	Cancel	DECR	Decrease
CAP	Central Annunciator Panel	DEG. deg	Degree(s)
CAPT	Captain	DEL	Delete
CAT	Category	DEV	Deviation
CB	Circuit Breaker	DF	Direction Finding
CCW	Counterclockwise	DG	Directional Gyro
CDI	Course Deviation Indicator	DH	Decision Height
CDU	Control Display Unit	DIFF	Differential
CG	Center of Gravity	DIR	Direct
CH	Channel	DISCH	Discharge
CHAN	Channel	DIST	Distance
CHR	Chrono	DME	Distance Measuring Equipment
CLB	Climb	DN	Down
CLR	Clear	DR	Dead Reckoning
CMD	Command	DTO	Direct TO
CMP	Compass	DTRK	Desired Track
CMPL	Completed	DTU	Data Transfer Unit
CNCL	Cancel	DU	Display Unit
COLL	Collision	EC	Electronic Control
COM	Communication	ECAC	European Controlled Air-space
COMP	Compass	EEC	Electronic Engine Control
CONFIG	Configuration	EESS	Emergency Evacuation Signalling System
CONT	Continuous	EGT	Exhaust Gas Temperature
CP	Control Panel	EFIS	Electronic Flight Instrument System
CRG	Cargo	EL	Elevator
CRS	Course	ELEC	Electric(-al. -ity)
CRZ	Cruise	ELT	Emergency Locator Transmitter
CSD	Constant Speed Drive	ELEV	Elevation
CTL	Control	EMER	Emergency
CVR	Cockpit Voice Recorder	EMERG	Emergency
CW	Clockwise	ENG	Engine
CW	Continous Wave	ENR	Enroute
D	Deselected	ENT	Enter
DA	Decision Altitude	ERP	Engine Rating Panel
DAT	Data		
DB	Data Base		
DC	Direct Current		

ESS	Essential	FS	Fasten Seat Belt
EST	Estimated	FS	Fast Slew
ET	Elapsed Time	FT	Flight Time
ETA	Estimated Time of Arrival	FT,ft	Feet
ETD	Estimated Time of Departure	FWD	Forward
ETE	Estimated Time of En route	G	Gravity
EVAC	Evacuation	G	Guard
EXT	Extinguisher	GA	Go-around
EXT	External	GCA	Ground Controlled Approach
F	Fahrenheit	GCR	Ground Clutter Reduction
F-DK	Flight Deck	GCU	Generator Control Unit
FAIL	Failure/Failed	GEN	Generator
FAS	Flight Augmentation System	GMAP	Ground Mapping
FD	Flight Director	GMT	Greenwich Mean Time
FDAU	Flight Data Acquisition Unit	GND	Ground
FDEP	Flight Data Entry Panel	GPCU	Ground Power Control Unit
FDR	Flight Data Recorder	GPS	Global Positioning System
FF	Fuel Flow	GPWS	Ground Proximity Warning System
FIG	Figure	GS.G	Glide Slope
FL	Flight Level	GS	Ground Speed
FL	Field Length	GSPD	Ground Speed
FL-DK	Flight Deck	H	Hold
FLDK	Flight Deck	HAT	Height Above Threshold
FLEX	Flexible	HDG	Heading
FLT	Flight	HF	High Frequency
FLT	Fault	HI	High
FLX	Flexible Take-Off	HIL	Horizontal Integrity Limits
FM	Frequency Modulation	HLD	Hold
FMA	Flight Mode Annunciator	HP	High Pressure
FMP	Flight Mode Panel	HR	Hour
FMS	Flight Management System	HSI	Horizontal Situation Indicator
F/O	First Officer	HYDR	Hydraulic
FPL	Flight Plan	HORZ	Horizontal
FPM	Feet Per Minute	HZ	Horizon
FR	From	Hz	Hertz
FREQ	Frequency	I	Inner
FRQ	Frequency		

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IAS	Indicated Airspeed	L/G	Landing Gear
IAU	Integrated Alerting Unit	LB, lb, lbs	Pounds
IC; I/C	Intercom	LCD	Liquid Crystal Display
ID	Identification	LDG	Landing
IDG	Integrated Drive Generator	LED	Light Emitting Diode
IFR	Instrument Flight Rules	LEP	List of Effective Pages
IGN	Ignition	LH	Left-Hand
ILS	Instrument Landing System	LIM	Limit
IM	Inner Marker	LNAV	Lateral Navigation
IMC	Instrument Meteorological Conditions	LO	Low
IMP	Imperial	LOC	Localizer
Inch/Hg	Inches of Mercury	LON	Longitude
INBD	Inboard	LP	Low Pressure
INCR	Increase	LTG	Lighting
IND	Indicator	LT	Light
INBND	Inbound	M	Middle, Manual
INHIB	Inhibited	M,m	Meter
INOP	Inoperative	MAC	Mean Aerodynamic Chord
INSP	Inspection	MAG	Magnetic
INT	Interphone	MAINT	Maintenance
INTEG	Integrity	MAN	Manual
INTI	Initial	MAP	Mapping
INV	Inverter	MAP	Missed Approach Point
ISA	International Standard Atmosphere	MAX, max	Maximum
ITT	Inter Turbine Temperature	MB	Marker Beacon
IVSI	Instantaneous Vertical Speed Indicator	MB	Millibar
KG,kg	Kilogram(s)	MCL	Master Caution Light
KHZ. kHz	Kilohertz	MCT	Maximum Continuous Thrust
KPA. kPa	Kilopascal	MDA	Minimum Descent Altitude
KT,kt	Knot(s)	MEA	Minimum En route Altitude
KTS, kts	Knots	MEL	Minimum Equipment List
KVA, kVA	Kilovolt-ampere	MFC	Mechanical Fuel Control Unit
L	Left	MHZ.	Megahertz
L. l	Liter(s)	MHz	Megahertz
LAT	Latitude	MIC	Microphone
LG	Landing Gear	MIKE	Microphone
		MIN, min	Minimum

MIN, min	Minute(s)	OUTBD	Outboard
MKR	Marker Beacon	OVHD	Overhead
MLW	Maximum Landing Weight	OVHT	Overheat
MM	Middle Marker	OVRD	Override
MM, mm	Millimeter	OVSPD	Overspeed
MMEL	Master Minimum Equipment List	OUBND	Outbound
MNVR	Maneuver	OXY	Oxygen
MON	Monitoring	P	
MRW	Maximum Ramp Weight	P	Pressure
MSA	Minimum Safe Altitude	P/B, p/b	Push Button
MSG	Message	PA	Passenger Address, Public Address
MTOW	Maximum Take-Off Weight	PAX	Passengers
MTP	Maintenance Test Panel	PF	Pilot Flying
MWL	Master Warning Light	PFD	Primary Flight Display
MZFW	Maximum Zero Fuel Weight	PIT	Pitch
N	Normal	PLA	Power Lever Angle
NAV	Navigation	PLT	Pilot
NCU	Navigation Computer Unit	PM	Pilot Monitoring, <i>Refer to PNF</i>
ND	Navigation Display	PNF	Pilot Not Flying, <i>Refer to PM</i>
NDB	Non Directional Beacon	PNL	Panel
NH	HP Rotor Speed	POS	Position
NL	LP Rotor Speed	PP	Present Position
NLG	Nose Landing Gear	PPOS	Present Position
NM, nm	Nautical Miles	PR	Pressure
N0	Number	PR/SO	Pressure Regulating/Shut-Off(valve)
NORM	Normal	PRESS	Pressure(ization)
NP	Propeller Speed	PREV	Previous
NS	No Smoking	PROC	Procedure
NW		PROP	Propeller
STRG	Nose-Wheel Steering	PROT	Protection
NX	Next	PROV	Provision(s)
O	Outer	PSI, psi	Pound per Square Inch
OAT	Outside Air Temperature	PSID, psid	Pound per Square Inch Dial
OB	Obstacle	PTK	Parallel Track
OEW	Operational Empty Weight	PTT	Push to Talk
OK	Operative/Correct	PWR	Power
OM	Outter Marker		

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PVOR	Pseudo VHF Omni Directional Range	RT	Radar Transmitter
QAR	Quick Access Recorder	RT	Radio Transmission
QFU	Runway Heading	RTE	Route
QNH	Sea Level Atmospheric Pressure	R/T	Radio Transmission
QRH	Quick Reference Handbook	RVR	Runway Visual Range
QTY	Quantity	RW	Runway
R	Right	RWY	Runway
	Radio Altimeter, Radio Altitude, Resolution Advisory	Rx	Radio Receiver
RA		SAT	Static Air Temperature
		SBY	Standby
RAD	Radial	SCT	Sector
RAD	Radiation	SEC	Second(s)
RAIM	Receiver Autonomous Integrity Monitoring	SECT	Sector
RALT	Radio Altitude	SEL	Selected, Selector
RCL	Recall	SEN	Sensitivity
RCP	Radar Control Panel	SERV	Service
RCT/	Rain Echo Attenuation	SG	Symbol Generator
REACT	Compensation Technique	SHP	Shaft Horsepower
REC	Receiver	SID	Standard Instrument Departure
REC	Recorder	SMK	Smoke
RECIRC	Recalculation	SMKG	Smoking
REF	Reference	SNR	Signal to Noise Ratio
REG	Registration	Sov	Shut-Off Valve
REQ	Required	SPKR	Speaker
REV	Reverse	SQL	Squelch
RF	Radio Frequency	SS	Slow Slew
RH	Right-Hand	Sta	Station
RLD	Rijksluchtvaartdienst (Dutch Airworthiness Authorities)	STAB	Stabilizer, Stabilization
RMI	Radio Magnetic Indicator	STAR	Standard Terminal Arrival Route
RNAV	Aera Navigation	STAT	Status
RNG	Range	STBY	Standby
ROL	Roll	SW	Switch
ROD	Rate of Descent	SVR	Slant Visual Range
RPTC	Reporting	SXTK	Selected Cross-track
RPM	Revolution(s) Per Minute	SYS	System
RST	Reset	SYST	Svstem

T	True Heading	V _A	Maximum Design Maneuvering Speed
TA	Traffic Advisory	V _{FE}	Flap Extension Speed
TACAN	Tactical Air Navigation	V _{FR}	Flap Retraction Speed
TAS	True Air Speed	V _{FTO}	Final Take-Off Climb Speed
TAT	Total Air Temperature	V _{LE}	Maximum speed landing gear extended
TCAS	Traffic alert and Collision Avoidance System	V _{LO}	Maximum speed landing gear operating
TCS	Touch Control Steering	V _{MC}	Minimum Control Speed
TDZ	Touch Down Zone	V _{MO}	Maximum Operating Limit Speed
TEMP, T	Temperature	V _R	Rotation Speed
TGT	Target	V _{RA}	Rough Air Speed
THR	Threshold	V _{REF}	Landing reference Speed
TKE	Track angle Error	V _{APP}	VOR Approach
TL	Take-off Limit	VAR	Variable, Variation
TO	Take-Off	VENT	Ventilation
TOC	Top of Climb	VFR	Visual Flight Rules
TOD	Top of Descent	VLF	Very Low Frequency
TOGA	Take-Off Go Around	VHF	Very High Frequency
TOT	Totalizer	VI B	Vibration
TOW	Take Off Weight	VMC	Visual Meteorological Conditions
TPR	Transponder	VOL	Volume
T/R	Transmit Receive	VOR	VHF Omni Directional Range
TRB	Turbulence	VOR TAC	VOR Tactical Air Navigation
TRQ	Torque	VNAV	Vertical Navigation
TRSA	Terminal Radar Service Area	VS	Vertical Speed
TRU	Transformer Rectifier Unit	VSI	Vertical Speed Indicator
TST	Test	WNG	Warning
TTG	Time To Go	WPT	Way Point
TTS	Time To Station	WRN	Warning
Tx	Transmission	WX	Weather
UHF	Ultra High Frequency	WXA	Weather Alert
UNL	Unlimited	WXD	Weather Radar Display
UP	Upper	WXR	Weather Radar
USB	Upper Side Band	X-FEED	Cross Feed
UTC	Universal Time Coordinated	XPDR	Transponder
V	Velocity, Volt		
V ₁	Take-Off Decision Speed		
V ₂	Take-Off Safety Speed		

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XFR	Transfer	YD	Yaw Damper
XTK	Cross Track		

0.8 HIGHLIGHTS OF REVISION

014 from 30.01.2006

Effective from 30.01.2006, the Operations Manual Part B (Fokker) has been revised according to the List of 0.2 Effective Pages.

The main reason for this revision is: The incorporation of information regarding SE-LJI, YL-BAO, and YL-BAV A/C.

Below are listed highlights of introduced changes.

Sec	Chapter	Remarks
0	0.1	Revised substantially in accordance with OMA.
	0.2	Revised.
	0.4	Revised.
	0.5	Removed the count of BT F50 A/C. Inserted info regarding YL-BAO and YL-BAV. Editorial change. Specified the name of OMB F50 CH 10 (in 2 places). Supplemented with 50-seat cabin layout diagram for SE-LJI. Inserted the cabin layout diagram for SE-LJI A/C. Supplemented with 50-seat cabin layout diagram for YL-BAO and YL-BAV.
	0.7	Inserted PM.
	0.8	Revised.
1	1.1.1	Terminological change: CAT II → CAT 2.
	1.2	Inserted information regarding YL-BAO and YL-BAV.
	1.3	Revised the Weight Limitations.
	1.5	Terminological change: CAT II → CAT 2.
	1.8	Terminological change: CAT II → CAT 2.
2	2.1	Terminological change (C/A → C/C). Revised the Cockpit → Cabin Communication
	2.2.1.2	Revised the Pre-Flight Briefing items to be covered.

Sec	Chapter	Remarks
	2.2.2.1	Formatted. Terminological change (CAH → CCH). Revised the action order of Pre-flight Inspection for commander. Stipulated the need for reflecting crew vest usage during check.
	2.2.2.3	Revised START-UP callout. Revised the W&B calculation description. Revised the checklist to be done by commander before signing the Loadsheet.
	2.2.3	Revised the callout of Commander (“starting checklist”).
	2.2.3.1	Deleted “N _H ” at “Green Band”.
	2.2.3.2	Revised the name of Alternate start stage (Starting).
	2.2.5	Terminological change (PNF → PM).
	2.2.5.6	Inserted NAAP description.
	2.2.9	Terminological change (PNF → PM).
	2.2.9.1	Left CAT 2 only (deleted 3 due to inapplicability).
	2.2.9.2	Terminological change (Constant Rate of Descent → CANPA).
	2.2.10	Terminological change (PNF → PM).
	2.2.10.2	Revised the acceleration altitude callout (“Flaps up speed”).
	2.2.11	Terminological change (PNF → PM).
	2.2.11.3	Terminological change (Commander → PF).
	2.2.11.6	Terminological change (PNF → PM). Inserted the Note.
	2.2.13.1	Supplemented Crew coordination for LP with “reflecting crew vests” and “Mobile phone ON” check requirements.
	2.2.13.2	Revised the Post-Flight Documentation.
	2.4	Revised CERTIFIED AERODROMES FOR CAT 2 OPERATIONS.
	2.4.4.4	Terminological changes (PNF → PM).
	2.4.5	Terminological change (PNF → PM).

Sec	Chapter	Remarks
	2.5	Deleted the Table of contents. Formatted.
	2.5.3.2	Terminological change: $V_{FTO} \rightarrow V_{Clean}$.
3	3-TOC	Revised.
	3.1.1	Inserted the requirement for Captain to shout: "Remain seated". Terminological change (PNF $\rightarrow$ PM).
	3.2.1	Terminological change (PNF $\rightarrow$ PM).
	3.4	Revised the name of Chapter. Deleted the Note. Inserted EGPWS Callouts for SE-LJI.
	3.6.1	Inserted the missing names of categories. Formatted.
	3.7	Terminological change
	3.7.1	Supplemented with a Call-out for PF.
4	4-TOC	Inserted.
	4	Inserted.
6	6.2.1	Revised the General.
	6.2.5	Inserted Weight&Balance Data Sheet for SE-LJI.
	6.2.6	Revised the Manual Loadsheet description.
	6.3	Inserted load limitations for YL-BAO, BAV.
	6.4	Inserted DOM and indexes for YL-BAO, BAV.
10	10-TOC	Revised & Formatted.
	10.1	Inserted Emergency Equipment Location and quantity for SE-LJI, YL-BAO, and BAV.
	10.4.1	Revised substantially regarding ELT A06 description.
	10.4.2	Revised description of ELT for SE-LJI.
	10.4.3	Inserted description of PLB for YL-BAO, BAV.
	10.5	Inserted the description of Dragger Smoke Hood.

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Sec	Chapter	Remarks
11	11.5.1	Inserted details for Crew Co-ordination.
	11.5.3	Revised the shout for Commander. Terminological change.
	11.5.4	Revised the shout for cabin crew.

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1 LIMITATIONS

1.1 INTRODUCTION AND CERTIFICATION STATUS

1.1.1 Introduction

airBaltic Fokker 50 aircraft may only be operated within the limitations presented in this chapter.

Aircraft Flight Manual (AFM) and Airplane Operations Manual(AOM), **Route Manual (GWC)** may contain other and/or more detailed limitations, in addition to this manual.

CDL and MEL sections of this manual may contain additional limitations, applicable for operations with certain a/c parts missing or inoperative.

a) Certification status

For Fokker 50 Civil Aviation Administration of the Latvian Republic has issued the Type Acceptance Certificate based on the RLD (Dutch State Aviation Authority) Type Certificates.

Current Certificate for airBaltic Fokker 50 fleet is TCDC No. T-050-87, in May 15, 1987 approved on the basis of JAR 25, "Large Aeroplanes" and other applicable requirements.

b) Approved Types of Airplane Operation

The airplane is certified in the public transport category (passengers and freight) for day and night operations, in the following conditions when the appropriate equipment and instruments required by the airworthiness authorities and operating regulations are approved, installed and in an operable condition:

- VFR and IFR
- Flight in icing condition
- CAT 2 approach.

Ditching certification has not been applied for.

c) Noise Level Certification Status

AirBaltic Fokker 50 is certified in accordance to the requirements of ICAO Annex 16, Volume 1, Chapter 3 First Edition 1981 Volume 1, including amendment 2.

1.2 GENERAL LIMITATIONS

Minimum flight crew:	Two (2) pilots
Maximum number of passenger seats:	Forty-six (46) in BAT, BAS. Fifty (50) in SE-LJI, YL-BAO, BAV. Fifty-two (52) in BAU, BAR, BAW, BAZ.
Maximum operating pressure altitude:	25 000 ft
Max take-off & landing pressure altitude:	8000ft
Maximum operating temperature:	ISA + 35°C
Minimum operating temperature:	(minus)-54 C° OAT (all altitudes)
Runway slope limits:	2% up to 2% down
Maneuvering load limits:	Flaps up: + 2.5G to -1.0G Flaps down: + 2.0G to 0.0G
	The positive G limits the angle of bank in turns and the severity of pull up maneuvers.
Instrument markings:	GREEN -Normal operating range AMBER -Caution range RED -Limit of operation

1.3 WEIGHT LIMITATIONS

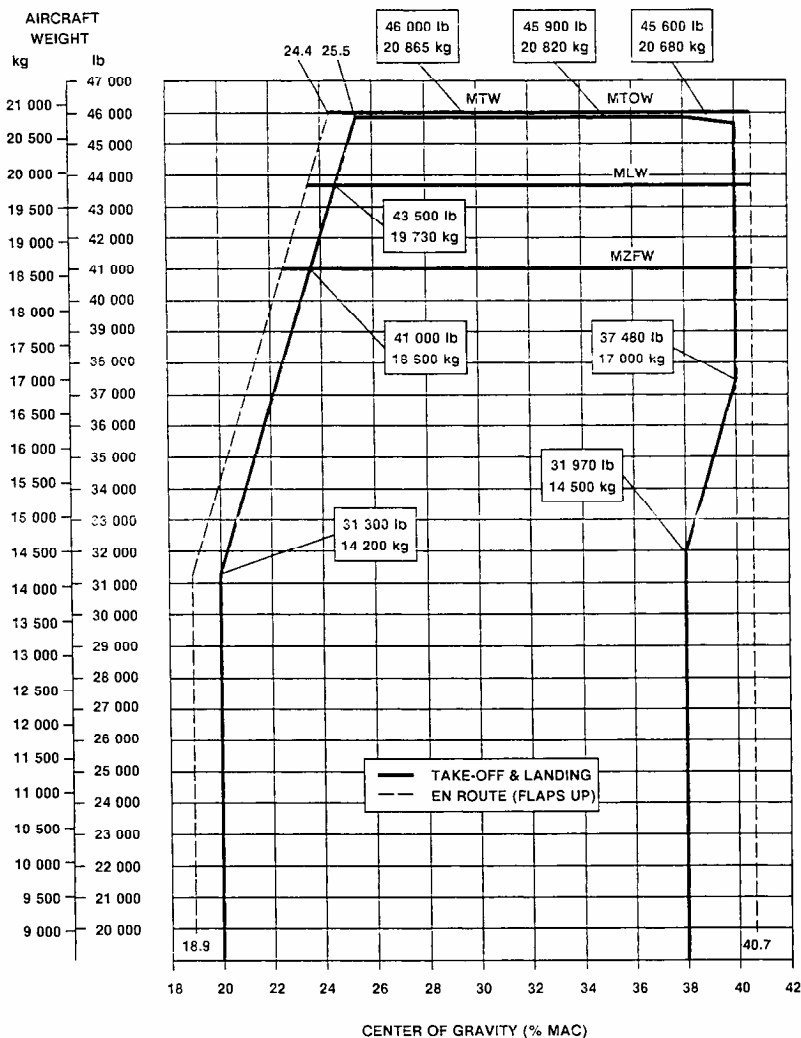
Description	Abbreviation	Limit*	Limit**
Max taxi weight	MTW	20 865 kg	
Max take-off weight	MTOW	20 820 kg	
Max landing weight	MLW	19 730 kg	20 030 kg
Max zero fuel weight	MZFW	18 600 kg	18 900 kg
Performance limited weights	Max take-off landing weight may be reduced by performance requirements		

* - YL- BAR, BAS, BAT, BAU, BAW, BAZ, SE-LJI

** - YL-BAO, BAV

For weight and loading distribution see Section 6, "Weight and Balance" of this manual.

Weight Limitations Graph



NOTE: Index System is used for the purpose of a/c loading within above specified CG envelope and operational convenience. See "Mass and Balance" Section 6 for more details.

1.4 SPEED LIMITATIONS

NOTE: All speeds mentioned in this section are indicated airspeeds (IAS). All altitudes mentioned in this section are pressure altitudes.

V_{MO} Maximum operating limit speed:
Up to 21 000 ft: 224 kt;
Above 21 000 ft: V_{MO} decreases linearly to 206 kt at 25 000 ft.

The maximum operating limit speed shall not be deliberately exceeded in any regime of flight (climb, cruise, or descent), except where a higher speed is specifically authorized for flight test or pilot training operation.

V_A Maximum design maneuvering speed: **175 kt**
Full application of rudder and aileron controls, as well as maneuvers that involve angle of attack near the stall, should be confined to speeds below V_A.

V_{RA} Rough air speed: **165 kt**

V_{FE} Maximum flap extend speed:

<u>Flap position</u>	<u>Speed</u>
5	180 kt
10	180 kt
15	180 kt
20	160 kt
25	160 kt
35	140 kt

Prolonged use of flaps other than for take-off and landing is prohibited.

V_{LO} = V_{LE} Maximum landing gear extended and operating speed:
170 kt

1.5 WEATHER LIMITATIONS

Maximum Wind Velocities

Maximum wind velocity from any direction for which the flight control lock provides protection:	52 kt
Maximum demonstrated crosswind component for take-off and landing on a hard dry runway:	33 kt
Maximum tailwind component	10 kt
For CAT 2 operation the maximum demonstrated wind velocities are:	
Total wind:	20 kt
Crosswind component:	15 kt
Tailwind component:	10 kt

Take-off from Contaminated Runways

Maximum depth of precipitation on the runway for take-off:

Take-off should not be attempted when more than 12 mm of standing water, or depth of slush or snow equivalent to more than 12 mm of water, covers a significant part of the required field length within the required width of the runway.

For more accurate RWY contamination limitations refer to para 2.5.2 of this manual.

1.6 POWER PLANT LIMITATIONS

Engine/Propeller Operating Limits

Engine: **Pratt & Whitney PW 125B**

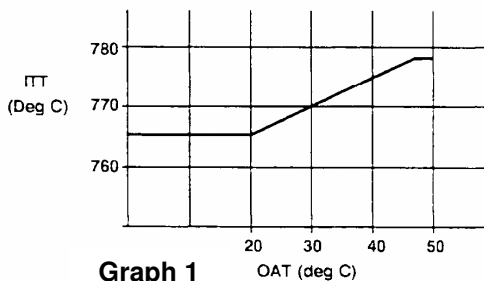
Propeller: **Dowty RotoI (c) R352/6-123-F/1 or
Dowty RotoI (c) R352/6-123-F/2**

CONDITION	TIME	TORQUE (%)	ITT (deg C)	RPM (%)		
				NH	NL	NP
NORMAL TO	10 min	92	see graph 1	101.6	101.6	100
MAX TO/GA	10 min	102	800	102.7	104.7	
MAX CONT	unl	87.5				
MAX CLIMB	unl	100		-	-	85
	10 min	102				
MIN GND IDLE	-	-	-	66	-	-
STARTING	5 sec	-	950	-	-	-
TRANSIENT	20 sec	115	840	103.8	104.3	115

NOTE: Fluctuations of ± 0.5 % is allowed relative to 85 % and 100 %.

For operation with PROP EC fault (overspeed governor):

CONDITION	TIME	TORQUE (%)	ITT (deg C)	RPM (%)		
				NH	NL	NP(1)
MAX TO/GA	10 min	96	800	102.7	104	106
MAX CONT	unl	82.5				



Graph 1

Oil pressure:	Minimum:	40 psid
	Normal operating range:	55 - 65 psid
	Transient:	Minimum 40 psid
Oil temperature:	For starting:	Minimum minus 54°C, without preheat
	GND IDLE:	Minimum minus 54°C, except for engine running with power levers below FLT IDLE: 0°C Maximum 115°C
	For operation	Minimum 0°C
	above GND IDLE:	Minimum in icing conditions 45°C Maximum 115 deg C, continuous 125 deg C, 20 minutes

Approved Oils

Mobil Jet Oil II;	Esso Turbo Oil 2380;
Mobil Jet Oil 254;	Exxon Turbo Oil 2380;
Castrol 5000;	Aeroshell Turbine Oil 500.

Approved Fuels

Normal fuels: Kerosine type: Jet A-1

Alternate fuel: For use of alternate fuels refer to OM-A, para 8.2.1.4.

If "alternate" fuel is used, take-off is not allowed when one or more fuel pumps are inoperative.

Mixing of Fuels:

If the fuel consists of a mixture of "normal" and any amount of "alternate" fuel, the tanks must be considered to contain "alternate" fuel.

Engine Rating Panel (ERP)

TO, GA, and MCT torque must be set in accordance with the Power Setting Tables in Quick Reference Handbook, section 12 or AFM, Chapter 6, Performance.

Flexible Take-Off

Flexible take-off (FLX) is prohibited.

Propeller Operating Limits

WARNING: DO NOT ATTEMPT TO SELECT GROUND IDLE IN FLIGHT. IN CASE OF FAILURE OF THE FLIGHT IDLE STOP, THIS WOULD LEAD TO LOSS OF CONTROL FROM WHICH RECOVERY MAY NOT BE POSSIBLE.

To avoid high propeller stresses, stabilized ground operation in the propeller rpm range 65 per cent to 90 per cent NP is not permitted with the airplane static. Excluded from this limitation is the use of reverse during ground maneuvering in engine EC operating mode.

1.7 FUEL SYSTEM LIMITATIONS

Usable Fuel Tank Quantity

Main tank plus collector tank:	5136 liters
	1356 US gal
	1130 IMP gal

Maximum Fuel Asymmetry

At airplane weight 20 820 kg:	150 kg
At airplane weight 19 005 kg:	500 kg

Linear interpolation may be applied between these weight brackets. Below airplane weight 19 005 kg/41 900 Lb. the maximum fuel asymmetry is 500 kg.

1.8 AUTOPILOT LIMITATIONS

En-Route Operation

The minimum altitude with the automatic pilot engaged shall be deduced from the data on altitude lost during malfunction tests as presented in chapter EMERGENCY PROCEDURES.

After take-off AUTOPILOT (Yaw Damper) shall not be used below 400ft AGL.

Approaches

When using an Instrument Approach Facility the minimum height to which the autopilot may be used is 50 ft when coupled to an ILS. Use of the AP and FD is limited to glideslope elevation angles ranging from 2 degrees up to and including 4 degrees for approaches with CAT I weather limits.

CAT 2 operations are limited to glideslope elevation angles ranging from 2.5 degrees up to and including 3 degrees.

During Non-precision approaches AP may be used down to 300 ft AGL.

Use of Touch-Control Steering

When Touch-Control Steering (TCS) is used the bank angle is limited to 40 deg.

1.9 NAVIGATION LIMITATIONS, BRNAV EQUIPMENT

The equipment required to be operational to meet BRNAV criteria is specified below:

Equipment	Minimum required	Conditions
GPS	1	
ADC 1	1	
NCD	1	
CDU	1	
GPS DISPLAY	2	For YL-BAU, BAW, BAZ.
GPS NAV.DATA BASE	Current	If not, the flight crew is required to verify each selected waypoint and navaid for accuracy by reference to other current approved data.
EFIS Display Unit	3	Refer to MEL chapter for possible additional limitations or procedures.
EFIS CP	2	Refer to MEL chapter for possible additional limitations or procedures.
EFIS Symbol Generator	1	Refer to MEL chapter for possible additional limitations or procedures.
GPS INTEG annunciator	1	One must be operational.
BARO ALT NOT AVAILABLE		Dependent on satellite constellation RAIM availability should be confirmed for the intended route prior to flight.

NOTE: The minimum equipment for DME, VOR and ADF required to continue flight when BRNAV capability is lost and to allow raw data monitoring by the flight crew, is determined by the Navigation aids available en-route.

1.10 MISCELLANEOUS LIMITATIONS

Propeller Overspeed Governor Control

When the propeller is controlled by the overspeed governor (PROP EC FAULT), the speed must be restricted to max 220 kt TAS.

Window Heat

If the window heat is inoperative, the speed must be restricted to max 180 kt IAS at altitudes below 10 000 ft and TAT below + 18 deg C.

Cabin Pressure Differential

The max cabin pressure differential (relief valve setting) is 5.7 psi. In case of a cracked cabin window, the max cabin pressure differential is 4.0 psi.

Flap Position in Icing Conditions

In icing conditions flap 35 shall not be selected above 300ft.

Communications

During flight below 10 000 ft all communications should be accomplished with headset and boom mike type equipment.

Push-back and Towing

Use of towbar-less equipment for push-back and towing is prohibited.

Circuit breaker reset

The tripped circuit breakers should not be reset in flight unless, in the judgment of the commander, it is necessary for the safe completion of flight. The circuit breakers related to fuel pumps should **never be reset** in flight. No reset is allowed upon a second trip of any circuit breaker.

Ground reset of a tripped circuit breaker should only be accomplished after maintenance has ascertained both the reason for the trip of CB and established that there is no airworthiness concern.

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2 NORMAL PROCEDURES

2.1 PREAMBLE

2.1.1 General

This section is designed to provide all necessary information for normal flight operations, also referred as Standard Operating Procedures (SOP's), concerning type and version of aircraft in service.

Information is subdivided to provide a possibility for pilots to review certain phases of operations or to get a quick reference for specific stage of flight. Additional summarized information is presented in a way of profile drawings where needed.

Where required, references are made to Aircraft Operations Manual (AOM), different parts of airBaltic Operations Manual (OM) or other official publications to provide additional information for flight deck personnel on the matter of performing the flight.

2.1.2 Subsection Integration

All sections are located in order of normal flight flow with subdividing when necessary.

Expanded checklists are presented in separate subchapter.

Sections "Low visibility procedures", "Adverse weather conditions" contains all requirements for such kinds of operations and divided on flight phases when deemed necessary.

2.1.3 Crew Co-ordination

Standard Operation Procedures (SOPs) presented in this section are based on airBaltic Policy/Philosophy and are the result of direct application of Crew Co-ordination Concept (CCC) principles.

Crew co-ordination is presented in a way of a separate subdivision in an appropriate section or as a reference to CCC (OM, Part A, ch. 8.0) to make it simpler.

The Cabin-Cockpit communication in details is presented below.

2.1.4 Cabin-Cockpit Communication

The following chimes, signals and Passenger Address announcements shall be used by the Commander and Cabin Attendant number one (C/C # 1) to pass signals between the Flight and Cabin Crew.

In situations when the chime signals are inoperative, the Commander shall brief the C/C # 1 on alternate signals / announcements via Passenger Address system that shall be used.

COCKPIT → CABIN

1) 1 Hi / low chimes:

- before takeoff (using Call button) - C/C to be seated for takeoff;
- after takeoff (using Chime button) - C/C are released for service;
- before landing (using Call button) - C/ to be seated for landing, anticipate landing in 1-2 minutes.

C/C #1 cancels call light to notify the pilots that all C/C are seated for take-off / landing.

If C/C are unable to be seated before take-off / landing, the C/C #1 shall contact the flight deck immediately.

2) 2 Hi / low chime - Call the flight deck when convenient.

3) 3 Hi / low chimes OR “Cabin Crew to Cockpit” via PA - C/C #1 shall call the flight deck immediately for instructions.

4) “Cabin Crew, prepare cabin for Landing” – C/C to terminate the service and to prepare/report cabin readiness for landing (normally when passing 10'000ft).

5) “Cabin Crew, cleared for Doors” - C/C may open the door, when the aircraft is parked on the stand.

CABIN → COCKPIT

- 1) **1 Buzz** – Call the cabin when convenient.
- 2) **3 Buzzes** - Urgent situation, contact the cabin immediately.
- 3) **“Cabin secure”** via intercom system - all pre-take off checks are completed.
- 4) **“Cabin secure”** via intercom system - all checks are completed and cabin is ready for landing.

NOTE: If C/C is unable to complete cabin checks in time, C/C #1 shall contact the flight deck via intercom system immediately with **“Cabin not ready”**.

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2.2 NORMAL HANDLING

2.2.1 PRE-FLIGHT (1 hr – 35 min before ETD)

2.2.1.1 Readiness Assessment and Decision-Making

Decision-making is a process to evaluate the conditions of particular flight and to make all necessary arrangements to complete the flight safely and on time. Both pilots shall be involved into the process but final responsibility lies with the Commander.

During the process the flight crew should evaluate and make decision about usability of the aerodromes, readiness of the crew and aircraft, using the following steps:

1. NOTAMs related to the flight;
2. Weather related to the flight;
3. Alternates selection;
4. The aircraft technical status;
5. Expected deviations from the normal procedures;
6. Fuel required.

After completion of the Decision making all necessary arrangements (fuel, de-icing, limitations etc.) shall be reported to Movement Control Center (MCC) or ground handling personnel.

The reason and expected time of delay shall be as soon as possible reported to MCC or ground handling personnel to provide all necessary actions.

In case of short turn-around the decision making process shall follow post-flight crew actions execution.

1. NOTAMs

NOTAMs will give information about status of ground facilities, services and restrictions in use of airspace for the aerodromes (departure, destination and alternates) and routes to be flown. NOTAMs are presented in SAS RM (Chapter NOTAM) and may be received via RODOS system or alternatively from ATS office.

SNOWTAM is the specific NOTAM, which may be delivered in period from October to April and related to runway conditions (snow, ice, etc). For decoding see chapter METEOROLOGY in SAS RM.

2. The Weather

The weather at departure, destination and alternates aerodromes as well as RW and flight conditions should be assessed related to:

- aircraft performance (**see chapter 4 and RM chapter “GWC”**), and
- aerodrome operating minimum.

Concerning aerodrome operating minimum the weather reports shall be used as follows:

- Departure aerodrome - the latest actual weather;
- Destination / Alternate - weather forecast during period of ETA ± 1 h.

If the weather forecast is not available or is not covering the ETA ± 1 -hour period - the airport shall be considered below the Planning Minima.

Weather reports are normally received via RODOS system or alternatively from ATS. For decoding see chapter METEOROLOGY in SAS RM.

NOTE: General procedure for weather assessment is presented in Part A-8.1.6. “Interpretation of meteorological information”.

3. Alternates selection

Alternate is an airport suitable in all respects (weather, runway, and facilities) to complete the flight safely if the landing at the destination cannot be accomplished due to weather or any other reason. Weather at Alternate shall be equal or above the Planning Minimum for Alternate.

For the planning purposes the special Planning Minima shall be used. They could be found in OM Part A, Ch. 8.1.2 and are as follows:

Planning Minima for Destination

Type of approach	Planning Minimum
Precision	RVR as for operating landing minimum
Non-precision	RVR and ceiling $\geq$ landing minimum
Circling	$\geq$ Circling minimum

Planning Minima for Alternate

Type of approach	Planning Minimum
Cat 2	RVR as for Cat 1 operating minimum
Cat 1	RVR and ceiling $\geq$ landing minimum for Non-precision
Non-precision	RVR and ceiling $\geq$ landing minimum for Non-precision plus 200' / 1000 m.
Circling	$\geq$ Circling minimum

- **Take-off Alternate** (OM Part A, 8.1.3.3.)

If take-off is to be executed in weather conditions below the landing minimum at the aerodrome of departure, take-off alternate shall be selected within one hour flight range with one inoperative engine.

- **Destination Alternate** (OM Part A, 8.1.2 and 8.1.7.4.)

The number of alternates required depends on the weather at Destination.

- If weather at Destination is below Planning Minimum for Destination, **two** Destination Alternates are required.
- If weather at Destination is $\geq$ Planning Minimum for Destination, **one** Destination Alternate is required.
- If there is no Destination Alternate available, the flight may be conducted **without** Destination Alternate, provided criteria prescribed in OM Part A, chapter 8.1.7.4 are met.

4. The aircraft technical status

Aircraft equipment, necessary for intended flight / operations shall be operative before departure. The Technical Department is responsible for maintaining an aircraft in good technical order.

The Flight Crew shall evaluate the aircraft technical status before the flight, presented on the Information desk in the Movement Control Center.

CAUTION: Performance limits, reduction of MTOW, RNAV compliance shall be checked in respect to opened MEL items.

5. Expected deviations from the normal procedures

The conditions, causing deviation from normal procedures, shall be evaluated from all aspects.

6. Fuel Required

In respect to above mentioned assessments the block fuel can be determined as sum of the “minimum required” fuel (calculated by RODOS system) and extra fuel requested by the Commander. Economy tankage should be adhered to, but shall never be in conflict with the safety and punctuality of the flight. Chapter 5 presents additional information.

2.2.1.2 Pre-Flight Briefing

Prior to the first flight of the day entire crew, including Cabin crew shall meet in the briefing room for Pre-Flight Briefing. This should happen 50 to 45 minutes before scheduled departure. The Commander is responsible to lead the briefing. The briefing should be short and shall at least cover the following:

- Crew introductions;
- Weather and flight conditions;
- Current irregularities and alternative action/s;
- Flight deck service;
- Discussion regarding the question of the day.

2.2.1.3 Crew Co-ordination

PHASE	LEFT PILOT	RIGHT PILOT
Blocks minus at least 1 h. (1 hr – 35 min before ETD)	Report to MCC Duty Officer	
	Check NOTAMS, weather, ATS and Operational Flight Plans and select alternate(s)	Print out NOTAMS, weather and Operational Flight Plan and take part in flight planning process
	Check remarks on the a/c technical status board in MCC	
	Check PAX / Load figures	
	Inform MCC if RTOW is limited	
	Order the required fuel	
	Order de/anti-icing if required	
	Carry out Pre-flight briefing	
	Pick up the mobile phone and proceed to the aircraft	Proceed to the aircraft

2.2.2 PRE-DEPARTURE (35min to ETD – doors are closed)

Pre-departure preparation consists of the following elements:

- Pre-flight Inspection;
- A/c acceptance;
- Pre-departure Preparation; and
- Take-off briefing.

2.2.2.1 Pre-flight Inspection (PFI)

General contents of pre-flight inspection, distribution of duties and responsibilities are presented in Part A, para 8.2.6.

Crewmembers shall complete the following in accordance to the procedure below:

1) Right Pilot

- Perform emergency equipment check in the cockpit (2.2.2.3, Flight Deck Preparation);
- Perform systems preparation/testing (expanded checklist);
- Check flight deck oxygen system.

2) Cabin Crew Member N1

- Emergency equipment check in the passenger cabin in accordance to procedure described in CCH.

NOTE: Crewmembers shall report to Commander immediately all abnormalities discovered during PFI.

3) Commander shall complete the following:

1. Inspect Tech Log for remarks and deferred defects.
2. Perform Aeroplane External Check (walk – around inspection) as follows (wear reflecting crew jacket during check):

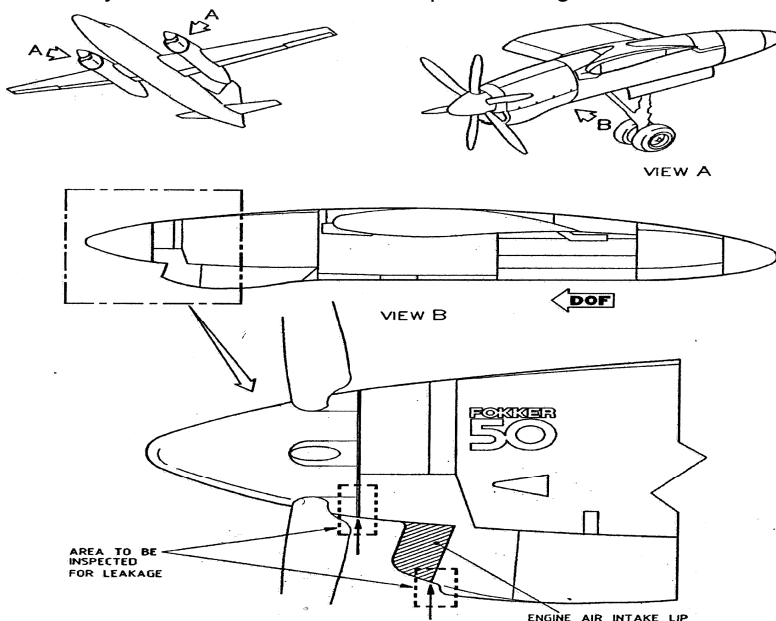
For fuselage, wings, flight controls and empennage check:

- all vents and ports are unobstructed, pitot covers are removed and stored in the passenger doors;
- aircraft is free of damage;
- no fluid leakage;
- no fuel leakage from tanks;
- all flight controls are unobstructed and that all surfaces are clear of sand, dust, ice, snow and frost.

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For engine, propeller and nacelles check:

- all engine covers and propellers straps are removed;
- air intake is free from damage and foreign objects;
- propellers, spinners and de-ice boots for general condition, leakage and damage;
- nacelles are free from damage and leakage;
- Perform visual inspection of the engine cowlings for the presence of signs of oil leakage from between the spinner and the engine cowl and directly behind the heater intake lip of the engine.



- all surfaces are clear of sand, dust, ice, snow and frost.

NOTE: Red marked drains – generally no leakage is permitted and maintenance actions must be applied.
Others drains – should any leakage occur, consult the maintenance staff for limitations.

For landing gears, wheels and brakes check:

- locking pins are removed and stored;
- no fluid leakage;
- landing gears for shock strut extension;
- wheels for general condition and inflation.

For the inboard and outboard main landing gear doors operating mechanism check:

- the indicator red lines on the latch lever and the plate align correctly.

All access panels, fairings and doors:

- check all access panels, fairings and doors are closed and secured.

Wheel chocks:

- check wheel chocks in place.

NOTE: See "Cold weather operations" chapter for additional items of PFI if icing conditions exist/expected during take-off and/or De-icing treatment is required.

3. Perform operational check to verify full movement of ailerons, elevator and rudder.

4. Check fuelling receipt and/or complete the Fuel Order.

2.2.2.2 Aeroplane acceptance

Upon completion of all checks prescribed by PFI procedure the Commander shall evaluate the aeroplane technical status and readiness for the intended flight.

1) No remarks/defects found

Commander shall sign PFI in the Tech Log (box named "PFI" in the Time log).

2) Any remark/defect found

Commander shall immediately contact MCC/handling agent and fill in the Complaint in the Tech Log with the reference to conducted and signed PFI.

a) If the defect is rectified, relevant "Action" slip for this Complaint shall be completed by Certifying Technician and the Commander shall conduct (and sign) new PFI.

b) If the defect is deferred and decision to continue the flight in accordance to MEL/CDL or Special Procedure (see Part A 8.6) is taken, relevant "Action" slip for this Complaint shall be completed by Certifying Technician or Commander, but new PFI is not required.

Commander has the final authority to accept an aeroplane with actual technical status for intended flight by signing Pre Flight Inspection completion.

NOTE: The necessary actions required to ensure that aeroplane is fit for the intended flight may not be completed by the moment when PFI is signed (de/anti-icing procedure, departure check etc). The Commander is responsible to ensure that aeroplane technical status and readiness for the intended flight remains valid until the take-off is commenced.

2.2.2.3 Pre-departure Preparation

Flight crew shall to arrange their works so, as to be at their station at least 20 minutes before ETD.

Before each flight the following preparation tasks shall be carried out, covering:

Flight deck preparation

FO should normally execute this check prior to assuming the crew position.

LANDING GEAR DOWN

- Check landing gear selector down.
- Check alternate landing gear selector normal.

BATTERIES ON

- Select Batteries switch ON
- Check BAT voltage 24V min.

WX CHECK OFF or STBY

EXT PWR CHECK ON

- Check voltage and frequency (100-130 Volt and 385-415Hz)
- If ext. power not available use "battery start only" checklist.

CIRCUIT BREAKERS CHECKED

- Check all circuit breakers are in or collared in compliance with dispatch requirements.

OXYGEN CHECKED

- Check crew oxygen bottle open;
- Minimum pressure: 1450 psi/3 crew or 1000 psi/2 crew;
- Check Oxygen masks (both pilots).

EMERGENCY EQUIPMENT CHECKED

- 1 Fire extinguisher
- 1 Axe
- 2 Flashlights
- 3 Life vests
- 3 Oxygen masks
- 3 Smoke goggles
- 2 Ropes

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- 1 Portable oxygen bottle
- 1 Smoke Hood (PBE)
- 1 Pair of Gloves

AIRCRAFT DOCUMENTS

CHECKED

- Check all required documents on board.

GROUND HANDLING SWITCH

ON

SIDE PANELS

L/R FRESH AIR SCOOPS

SHUT

L/R OXYGEN MASK

CKD

- On audio Panel select open IC, adjust INT volume. Select OXY on speaker switch.
- Open retainer cover.
- Push PRESS TO TEST knob on oxygen mask and check that the in-line blinker in the oxygen supply hose momentarily shows yellow and oxygen flow audible via the speakers.
- Release PRESS TO TEST knob
- Squeeze red release levers and check that the harness inflates.
- Release levers.
- Return speaker switch to "ON" and IC to OFF.
- Check mask is properly stowed and
NORMAL/100% switch is at 100%

Flight Deck Setup (to be conducted after assuming normal position):

- Adjustments of Seats, Harnesses and Rudder Pedals;
- Adjustments of Flight Deck Lights;
- Preparation of required flight documents (IAL charts, maps, etc).

Flight Documentation:

- ATIS latest report (Operational Flight Plan);
- ATC clearance (Operational Flight Plan);
- Weight and balance calculation / Approval of loadsheet;
- Other documentation, if applicable (NOTOC, General Declaration, etc)

Weight and balance calculation:

Prepared by flight crew (*Refer to Manual Loadsheets Ch 6.2.6*) or by ground staff using PALCO system. Specifications of Mass & Balance procedures for each station are presented on Station information sheets.

Before signing Loadsheet, the Commander shall check and mark the following Loadsheet entries:

- Flight Number;
- Aeroplane registration;
- Composition of the crew;
- Total number of PAX;
- Dry Operating Weight (DOW);
- Take-off fuel;
- Take-off weight;
- Index;
- Estimated flight time (insert, if not already there);
- Destination alternate (insert, if not already there);

Time of "Loadsheet on board" shall be entered by the Commander when signing.

NOTE: Last Minute Changes (LMC), if required, shall be entered by the Commander according to Section 6.2.7 of this manual.

2.2.2.4 Take-off Briefing

The purpose of the Take-off Briefing is to be well prepared for a normal take-off and to have a plan ready if any malfunction occurs during take-off or climb-out.

The PF should give the take-off briefing, normally prior to engine start when there is a minimum of distractions.

The following items and procedures shall be considered:

- RW in use;
- Weather for take-off;
- Take-off method;
- Power and Flaps setting, use of Engine anti-ice;
- Rejected take-off procedure;
- Continued take-off with engine failure;
- MSA, if engine failure, to be reached with a final speed of V_{CLEAN} ;
- Expected departure route (SID), setting of NAVAIDS.
- Any technical items INOP.

The extent of take-off briefing depends on weather conditions, aircraft equipment, condition of ground facilities, SID to be flown and crew experience. If both pilots are familiar with the airport, term "short briefing" may be used with the consent of the Commander. However, at least the following items shall be covered:

- Power and Flap settings;
- Continued take-off with engine failure;
- MSA.

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During taxi any deviation from the standard procedures (weather, RW, SID change, or change of previously issued departure clearance, take-off from intersections, etc.) should be clearly pointed out by the Commander. If take-off from intersection is to be executed, the Right Pilot shall check the aircraft performance for appropriate RW segment length in the Route Manual, section GWC.

When the observer's seat is occupied the observer shall be briefed on the requirements of maintaining sterile flight-deck environment during take-off and climb-out up to 10000' as well as operation of jump seat, oxygen supply and cockpit evacuation procedures, according to "Observer Safety Card" located behind LH seat.

2.2.2.5 Crew Co-ordination

Stage	Left Pilot	Right Pilot
35 min to ETD – doors are closed	1 Perform PFI, Make necessary arrangements, if required	1 Perform Flight Deck Preparation
	2 Receive report from C/A about the readiness for the flight	2 Receive latest ATIS information
	3 Accept the aeroplane for the flight by signing PFI*.	3 Request ATC clearance.
	4 Complete Flight Deck set-up.	
	5 Switch on SEAT BELTS sign when passengers boarding initiates.	
	6 Check and approve loadsheets.	6. When required, prepare manual loadsheet
	7 Confirm PAX figures with Cabin Crew and order to close the doors	7. Once payload is known enter data on Fuel Flow/Aircraft Weight Indicator and set speed booklet according to TOW
	8 Call for BEFORE START checklist	8 Action BEFORE START checklist

(*) An aeroplane should be accepted for the flight by the **Commander** regardless which seat he is occupying (see Part A Ch 4).

NOTE: BEFORE START checklist could be done at any convenient time after flight crew assumes their seats, if circumstances permit.

2.2.3 START-UP (doors are closed – engines started)

As soon as airplane doors are closed the Commander calls: "starting checklist". Make sure the parking brakes are ON before engine start. After approval has been obtained from ATC and ground personnel, the engines are started, the left-hand engine normally first. Then the GPU is disconnected, after removal of the GPU the right-hand engine is started. The Commander, who should also handle communication with the ground personnel, starts the engines. Both pilots should maintain a listening watch with the ground personnel until both engines have stabilised.

2.2.3.1. Normal Starts

Engine start with GPU

Check GPU is On. Either engine could be started as confirmed from the ground.

Engine start with Generator

Check Generator of started engine is on line before GPU disconnection.

Engine start with batteries (no GPU available)

Either engine could be started from batteries.

CALLOUTS DURING START

- L - „Starting R/L engine.”
- R - „R side free - fuel door closed.” (for right engine)
- L - „Timing.”
- R - „20”
- L - „Start.”
- L - „ITT.”
- R - „Oil Pressure” (above 40 PSI)
- R - „Green band”
- L - „Open”

2.2.3.2 Alternate start (Engine start with a/c batteries / DC –ground power)

The first engine will be started with battery power only. When the first engine has started, the generator will feed all buses, so starting the second engine will be with generator power. Follow the normal engine start procedure as described.

With BAT PWR ONLY the ERP will be in GA and the CAP will show an ERP FAULT indication. When the generator comes on line the ERP will automatically reset to T/O and the fault indication will disappear.

Select back-up mode to verify oil pressure on CAP. During start of first engine only NH and ITT are active. After generator online – normal indication of engine instruments.

NOTE: EFIS brightness to OFF before start up on battery/DC ext. power. This checklists below, substitute “Before start” and “After start” normal checklists.

BEFORE START

FLIGHT DECK PREP-A/C LOG.....	COMPL
CHOCKS.....	ON
PARKING BRAKE.....	SET
CVR.....	CKD/ON
HDG MODE SWITCH.....	SLAVE
FIRE PANEL.....	CHECK
BATTERY.....	ON
EXTERNAL POWER (DC).....	ON/OFF
EMERGENCY LIGHT.....	ARMED
FLIGHT RECORDER.....	SET
HYDRAULIC.....	CHECK
FUEL.....	PUMPS OFF/___KG

For battery start: totalizer only
(system 2 pumps “OFF” light only)

AIR CONDITIONING SET
 WINDOW HEAT LOW
 PRESSURIZATION SET
 EXTERNAL LIGHTS SET
 SEAT BELT/NO SMOKING ON
 RADAR/TRANSPONDER STBY
 TEST PANEL CHECK

- Skid control - Fire test - Smoke test	only on batt.
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TRIM 1-2-3-SET
 FUEL LEVERS SHUT
 POWER LEVERS GND IDLE
 T/O BRIEFING REVIEWED

STARTING

DOOR LIGHTS OUT
 FUEL PUMPS (all 4) ON
 START P/B ON
 ANTI COLLISION LIGHT ON
 ALERT SYSTEM BACK UP

AFTER START

FUEL TANK 1-2
 START P/B OFF
 ANTI-ICING SET
 NAVAIDS/FMS SET
 INSTRUMENT SYNC/X-CHECK
 ALERT LIGHTS OUT
 ERP T/O
 TO-WEIGHT/BUGS ___ KG/SET
 TAXI LIGHT ON
 CLEAR SIGNALS RECEIVED
 GROUND EQUIPMENT RIGHT SIDE FREE

CONTINUE WITH NORMAL CHECKLIST

2.2.3.3. Start-up Sequence

Left Pilot Actions Callouts	Right Pilot Actions and Callouts
“Starting L/R engine” Establish communication with ground personnel Check Left side free (for LH engine) .	Check right side free, fuel door in closed position and call “Right side free – fuel door closed” (for RH engine)
ENGINE selector L or R hold momentarily and call “Timing” -Check battery loads approx. - 150 A	Start timing
Set FL to START and call “Start” Start timing	When passing 20% N_H call “20”
Monitor engine acceleration and ITT, call “ITT”	Monitor oil pressure, call “Oil pressure”
Call “OPEN” Set FL to OPEN position Check NP stabilized 62.5 %	Check When N_H is stabilized in green band and call “Green Band”
Check Generator is on line, select EXTERNAL POWER off and signal REMOVE EXTERNAL POWER.	

Repeat starting procedure for the other engine when CLEAR signal is given from ground staff.

Engine shut down (aborted start)

In case of any abnormalities before, during or immediately after the engine start the abnormal checklists “Discontinued engine start on ground”, “Runaway during engine start” and “Start fault” shall be referred to.

2.2.4. TAXI-OUT (off chocks – holding point)

2.2.4.1. PUSH-BACK, PULL-OUT

Check whether pushback or pullout will occur before or after engine start. Engine starting may be performed before, during, or after pushback. AC power from a ground power unit and/or an engine driven generator should normally be available throughout the pushback procedure. If a ground power unit is used for starting, the engine(s) are started before pushback or pullout. Confirm parking-brake position before and after the procedure. Communication should be established with the ground crew. Do not oppose or hold the nose-wheel steering tiller during pushback or pullout.

Beacon and navigation lights should be ON at all times during pushback and towing.

When Towing, LP should be ready to apply brakes and stop the aircraft, in case of tow-bar failure / disconnect.

2.2.4.2. TAXIING

Make sure the parking brake is ON and advise ground engineer to remove the chocks. At certain airports chocks are removed prior to engine start. Complete the AFTER START CHECK. Then request taxi clearance and await **"All Clear"** signal. Switch on the taxi-light. Before releasing the parking brake both pilots should confirm that the area around the aircraft is free from obstacles, the right pilot checks the right side and confirms **"Right Side Free"**.

Advance the power levers slowly to commence rolling and check the brakes without stopping. When clear of obstacles perform the TAXI CHECK. Before bringing the aircraft to a stop centre the nose wheel. At an aft CG, nose wheel load is low and, consequently, nose-wheel steering is light. On slippery surfaces large tiller deflections may cause nose wheel skidding. If this occurs, decrease the steering angle and use asymmetric engine power for turning.

To increase nose-wheel steering effectiveness in strong crosswind conditions, load the aircraft to obtain forward CG. When taxiing asymmetric engine power may be necessary to keep the aircraft straight. Do not taxi out on one engine during normal operations.

NOTE: Under strong wind conditions and ground idle selected, the ventilation of the engine hot section area may be reduced. In some cases this may lead to a temperature rise above the level for activation

of the engine fire warning. A slight increase of NH will improve the ventilation. Based on the above, the following is advised:

During prolonged taxiing with ground idle and tailwind exceeding 20kt, increase the NH with 1 to 2% (keep NP below 65%). Avoid prolonged holding for take-off with the wind directed into the exhaust. If such a prolonged holding can not be avoided, increase NH with 1 to 2%. NP should be kept below 65% for propeller for propeller stress reasons.

2.2.4.3. POWER-BACK

Whenever the power-back is required, observe the following:

- Power-back manoeuvring may only be performed under supervision of ground marshaller;
- Remove your feet from the pedals, before applying reverse power;
- To start backward movement, smoothly apply reverse power;
- To control the speed of taxi, operate power levers only;
- For directional control use only tiller steering;
- To stop the aircraft, apply positive power;
- After stopping, set parking brake and wait for clearance from ground crew before commencing taxi.

CAUTION: Do not use brakes at any time. Sudden brake application while rolling backwards may cause the tail to touch the ground.

2.2.4.4. Maneuvering

Taxi speed should be determined by the LP to avoid collision with any obstacle(s) / object(s) and achieve safe stop, if required.

To ensure safe maneuvering during tight turns low speed should be maintained. Asymmetric braking and thrust also can be used. For description of turning radii refer to Section 0.5 of this manual.

2.2.4.5. Altimeter Setting and Checking

Prior to each flight all altimeters should be set and checked for accuracy, see OM Part A Ch. 8.3.3:

- The airfield QNH pressure shall be set on all three altimeters.
- Compare the altitude readouts and the aerodrome (aircraft actual position) elevation within the limit of 50 ft
- Crosscheck a difference between all three altimeter readouts is not more than 50 ft
- Set the altimeter bugs against the arrows.

2.2.5. TAKE-OFF (holding point – clean configuration)

2.2.5.1. General

Take-off shall never be initiated in conditions beyond any operational limitations presented in respective chapters:

- aeroplane technical status/conditions,
- weather and runway conditions (sec.2.4 and 2.5).
- aeroplane take-off performance (see Ch 4 and RM, GWC).

2.2.5.2. Flaps/Power setting

Take-off flaps position

Flap setting shall be separately computed in each case and is included in Gross Weight Chart. Standard flaps for take-off is 5. Flaps 15 is used for shorter runways, and also recommended for T/O from contaminated runways.

Power setting

TO mode shall be selected on ERP (except for EEC inoperative procedure). Obtain required torque for take-off from Normal checklist or Quick Reference Handbook (QRH). Enter the table with pressure altitude and ambient temperature.

2.2.5.3. Speeds Setting

Set the speed bugs as follows: V_2 ; $V_{\text{FLAP UP}}$; V_{CLEAN} . The speeds should be set according to airBaltic Sped Book for actual take-off weight and flap setting.

2.2.5.4. Take-Off methods

ROLLING TAKEOFF

A rolling takeoff is recommended, whenever possible.

The rolling takeoff may be started upon entering the runway. Power should not be increased before the aircraft is lined up, as any acceleration out of a turn or combination of high power setting and braking should be avoided.

STATIC TAKEOFF

A static takeoff shall be performed under the following conditions:

- Actual TOW is close to limiting MTOW for runway length or obstacle
- Tailwind takeoff
- Contaminated runway
- Reduced braking action

The aircraft shall be lined up, brought to a stop and the power levers should if friction permits be set to approximately 80% before releasing the brakes.

CROSSWIND TAKE-OFF

Crosswind take-off capability is good. The upwind wing will have a tendency to rise, and aileron deflection must be applied towards the wind. If the wings are kept in level during the take-off, directional control is maintained as during normal take-off. As the speed increases, the aileron deflection requirement will decrease. The main objective is to keep the wings level. Maintain a slight forward pressure on the control column until rotation. After lift-off, rudder and aileron control should be smoothly released and the aircraft crabbed into wind.

TAILWIND TAKE-OFF

10 Kts is tailwind component limit (see GWC).

2.2.5.5. Maneuvering

No turn below 500 feet AGL, if not otherwise stated in SID.

Normally a bank angle of 25° shall not be exceeded, if not otherwise stated in SID.

Maximum allowed bank angle is 30°

Maximum bank angle at V_2 and V_{CLEAN} is 15° . For bank angles of $15-30^{\circ}$, increase respective speed by 10 KIAS.

Do not exceed 15° nose up attitude.

NOTE: Rotation of take-off attitude should take approximately 3 seconds. Too fast rotation may result in the tail touching the runway. Following the correct rotation the speed at lift-off is normally slightly above V_2 .

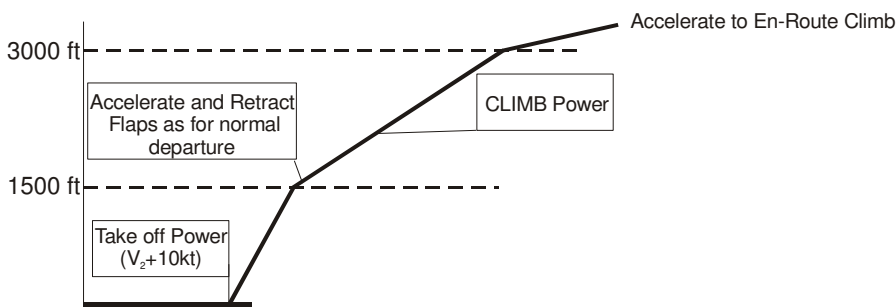
Acceleration Altitude: Company standard is 1000 ft AGL (if not specified by GWC, but never below 400 ft AGL).

2.2.5.6. Noise Abatement Procedure (NAP)

This noise abatement procedure shall be used only if Aerodrome Special Information and Regulations (RM, appropriate ASIR pages) require the use of NAP for aircraft certified in accordance to the ICAO Annex 16, Volume 1, Chapter 3.

Noise Abatement Departure Procedure (NADP)

Only this NADP shall be used irrespective from the NAP procedure (A, B, etc.) required for the particular airport.



- 1) Take-off to 1500 ft/GND:
 - Take-off Power;
 - Take-off Flaps 5° or 15° (ref. Performance calculations);
 - Climb at V_2+10kt .
- 2) At 1500 ft/GND:
 - Accelerate during climb and retract flaps; as for normal departure;
 - Climb Power;
 - Normal transition to en-route climb.

CAUTION: During initial climb the pitch attitude should not exceed 15° nose up. If this attitude is reached, allow the speed to rise above the target value.

Noise Abatement Approach Procedure (NAAP)

- No changes until starting descent on final (GS/GP);
- Glide Slope/Path – Flaps 10 deg and Speed 160 Kts;
- 1 500' to Minimum – Gear down, speed 160 Kts, and complete Landing Checklist without delay;
- 1 000' to Minimum – Final Flap/Final speed;
- 500' RA – stabilized.

2.2.5.7. Crew Co-ordination

Line-up

During taxi the take-off data for actual runway/conditions should be quickly reachable to approve or reject take-off from intersection, which may be offered by ATC.

When line-up clearance is received, taxi into takeoff position at the end of the runway or at other approved takeoff point. Align the aircraft on or close to the runway centerline before applying power. Complete "Line-up" checklist, shortly before entering the runway.

When lining up in takeoff position on the runway L/P confirms runway heading to correspond with compasses or visual markings and checks takeoff data to be valid for actual runway and takeoff position by calling out "**Runway Heading**". R/P confirms by calling "**Checked, Torque . . .**". L/P will turn on the landing lights when takeoff clearance is received for recognition and prevention of bird impact.

Check Flight Director is set to GA, HDG and ASEL modes, and first authorised ALT/FL is set.

Normal Take-off

Phase	LP	RP
When cleared for take-off	“Timing” Steer nose wheel steering., set Power Levers to TO detent position in approximately 4 seconds “Power Set” Control the nose wheel steering until a speed of 60 Kts	Hold control wheel and set aileron into the wind. Start timing, Check TRQ, T/O bug, NP=100%, Check AF/APR ARMED/STAND BY lights on, oil press/oil temp, ITT. Up to 60 Kts - hold the control wheel with the right hand and apply slight forward pressure.
60 Kts	“My /Your/ controls”	Verify required TRQ obtained and call: “60kts, Power Checked” “My controls” (if PF)
	PF will take over the controls. LP will keep the right hand on the Power Levers ready for take-off abortion before V1.	

CAUTION: In case of actual TRQ is less than required TRQ by more than 2%, or split between actual torques is more than 4%, Aborted Take-off procedure shall be performed.

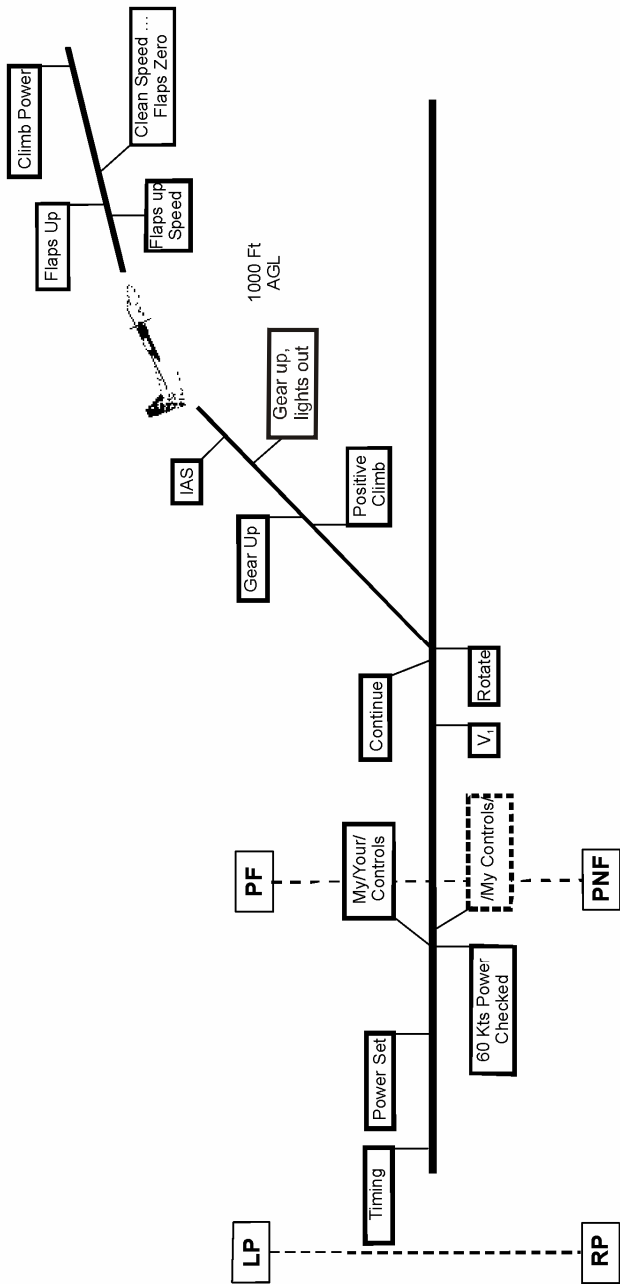
	PF	PM
V1	Maintain directional control by the use of rudder	Monitor the engine instruments and speed increase
	“Continue” LP removes his right hand from Power Levers. PF starts rotation of the aircraft to initial climb attitude by a positive back pressure on the control column. It is recommended to follow the FD. - Rotation to $8-10^{\circ}$ will result in a speed of V_2+10 KIAS. - Check the airspeed indicator to confirm that this speed is maintained.	“V₁” “Rotate”
Airborne	Fly command bar Insure positive rate “Gear up” The wheel brakes are automatically applied when landing gear is retracted. To avoid gear damage, do not brake the wheels with foot pedals.	When a positive rate of climb is established “Positive Climb”. select gear up, checks gear is up and locked “Gear is up, light out”
Initial climb	“IAS” Maintain speed at V_2+10 up to acceleration altitude	Select IAS mode on FMP. Cross-check aircraft attitude and speed indicators

Acceleration Altitude	1000' AGL (if not specified in RM, but never below 400').	
	PF, accelerating through the Flaps up speed, will call: "Flaps Up". When speed is V_{clean} or more and altitude above acceleration altitude command : "Climb power" PM will set, check Climb power and call: Accelerate to desired climb speed	"Flaps up Speed" "Clean Speed..." Select flaps up and when flaps have been checked to be up "Flaps Zero" Set, check Climb power and call: "Climb power set"
Not below 3 000 ft	"After Take-off Checklist" Do not allow the reading of After T/O Checklist to divert your attention from the flight instruments and normal look out. If the reading of After T/O Checklist is delayed, resetting of the altimeters when climbing through Transition Altitude or when cleared to a flight level.	

NOTE:

- If Autopilot is not engaged, all settings to be done by PM.
- AP may be switched ON above 400 ft AGL.

Normal Take-off



2.2.6. CLIMB (clean configuration – FL reaching)

2.2.6.1. Division of Duties

During climb duties of the crewmembers are divided into PF and PNF according to the Crew Co-ordination Concept see OM Part A Chapter 8.0.

2.2.6.2. Navigation

Conventional NAV aids for non-RNAV navigation (VOR, DME, NDB) should be used for navigation in Terminal Area (TMA) or R/V (vectoring) shall be requested. Use of FMS/GPS as a primary source for SID execution is not approved.

Vertical navigation requirements normally are included in the SID description. Minimum climb gradient (if indicated) shall be maintained. Failure to maintain the gradient shall be reported to controller. Adherence to published altitude crossing and speeds restrictions is mandatory unless otherwise cleared.

2.2.6.3. Speeds / Power Setting

Speeds

To accelerate to climb speed, maintain approximately 8° pitch. Normal climb speed is 160 kt. Alternate climb speeds are between 140 kt and 180 kt. Max R/C speed is approximately 140 kt. In icing conditions maintain minimum 160 kt. If climb speed is reduced below 140kt a rather pronounced propeller induced airframe vibration will occur.

Approaching assigned Altitude/FL (1 000 to go) the maximum of 1000 ft/min rate of climb should not be exceeded to prevent altitude deviation and for passengers comfort.

Do not operate AP pitch wheel when ASEL mode is active.

NOTE: Remember, that the final acceptance of ATC clearance to deviate from published SID lies with the Commander, provided obstacle clearance criteria, airplane limitations and operational conditions are taken into account.

Power

After selection of CLB power on ERP check:

- NP.....85%
- Torque....BUG

2.2.6.4. Altimeters Setting

Standard pressure (1013.25 HPa) shall be set and cross-checked on both primary pressure altimeters during climb, when cleared to FL but not later than passing Transition Altitude.

For maximum acceptable differences between altimeters see OM-A, 8.3.3.

2.2.6.5. Auto Flight

| AP may be engaged above 400 ft usually in clean configuration.

The AFCS is used in the NAV mode to intercept and track the required VOR-radial or in the HDG mode. Use IAS mode to maintain the required climb speed. Check ASEL mode armed.

For more detailed information see AOM "System operation" section.

2.2.7. CRUISE (FL reaching – FL leaving)

2.2.7.1. Division of Duties

During the cruise, duties of the crewmembers are divided as PF and PNF according to the Crew Co-ordination Concept (see OM Part A Chapter 8.0).

2.2.7.2. Navigation

For route flying use FMS/GPS and verify the airplane position using other navigation sources such as VOR, DME, NDB along the route.

If there is doubt about actual airplane position, do not hesitate to request assistance from ATS.

2.2.7.3. Speeds / Power Setting

After reaching cruise speed, select cruise power on the ERP. Do not exceed V_{MO} when cruising at low altitude. Specific fuel consumption improves with increasing altitude. For fuel economy the highest possible cruise level should be selected. Cost per flight hour may dictate lower cruise level. Highest speed is obtained at FL 170.

2.2.7.4. Fuel Management

Fuel consumption shall be monitored through the flight by verifying actual and in Flight Plan calculated fuel figures at suitable points along the route.

Fuel checks should be performed after 1 hour of flight time and thereafter at approx 30 min intervals, as well as before descent during the approach briefing. Deviations from pre-calculated fuel figures should be noted.

If the amount of usable fuel is decreased by any reason and the flight is diverted, for replanning see Section 5, Flight Planning.

2.2.7.5. Auto Flight

Autopilot (AP). The AP shall be switched ON, if operative.
For more detailed information see AOM "System operation" section.

2.2.8. DESCENT (FL leaving – cleared for approach)

2.2.8.1. Division of Duties

During descent duties of the crewmembers are divided as PF and PNF according to the Crew Co-ordination Concept (see OM Part A Chapter 8.0).

2.2.8.2. Navigation

Conventional NAV aids for non-RNAV navigation (VOR, DME, NDB) should be used for navigation in Terminal Area (TMA) or R/V (vectoring) shall be requested.. Use of FMS/GPS as a primary source for STAR execution is not approved.

Adherence to published altitude crossing and speeds restrictions is mandatory unless cleared otherwise.

NOTE: Remember, that the final acceptance of ATC clearance to deviate from published STAR lies with the Commander, provided obstacle clearance criteria, airplane limitations and operational conditions are taken into account.

2.2.8.3. Speeds / Power Setting

At top of descent point select VS mode with 1000 ft/min R/D. While maintaining cruise power increase speed to $V_{MO}/220$ kt. When reaching this speed select IAS mode and reduce torque to approx 40% for a R/D of 1500 ft/min. Adjust R/D compatible with distance to go by adjusting torque. For descent planning use the following table:

Speed (kt)	Torque %	R/D ft/min
220	60	500
220	50	1000
220	40	1500
220	25	2000
220	Flight Idle	3000
160	35	0
160	20	500
160	Flight Idle	1500

VS mode may be used for descent all the time, maintain $V_{MO}/220$ kt by torque adjustments.

For descent planning use 5 nm/1000 ft above FL 200 and 3 nm/1000 ft below FL 200.

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Cruising altitude should be maintained as long as possible. A number of factors affect the top of descent point.

- Flight level and airport elevation (initial approach altitude).
- Conditions during descent (wind, icing, turbulence).
- Weather at destination and alternate (visual or instrument approach).
- ATC requirements.
- Terminal area procedures and runway in use.

To reduce speed or to increase rate of descent R/D in a high and close situation, reduce power to flight idle. When reaching the desired speed or altitude increase power. Confirm arming ASEL mode to level off at assigned level or altitude. At approx. 10 000 ft or when cleared below transition altitude complete the APPROACH CHECK.

Approaching assigned Altitude/FL (1 000 to go) the maximum of 1000 ft/min rate of climb should not be exceeded to prevent altitude deviation and for passengers comfort.

NOTE: For Vertical Speed limitations see OM-A, 8.3.19.

2.2.8.4. Altimeters Setting

QNH (QFE in exceptional cases) should be set on altimeter pressure scales during descent, when cleared to Altitude, but not later than passing Transition Level (TL).

For Altimeters Setting Procedure see OM Part A Ch. 8.3.3.

2.2.8.5. Auto Flight

Flight Director (FD) shall be used as discussed above and followed.

Autopilot (AP) engagement is highly recommended for the flight in the areas of intensive traffic and during Checklist execution.

For more detailed information see AOM "System operation" section.

2.2.8.6. Holding

The recommended holding speed is $V_{REF} 25 + 50$. Use AFCS HDG mode and ALT mode. To descend in a holding pattern, select IAS mode and reduce power. To level off again, select ASEL mode.

For holding procedures flying see SAS RM Rules and Regulations Ch. 15.

2.2.8.7. Approach Briefing

The purpose of the approach briefing is to be well prepared for an approach to land on the assigned RW. The PF should conduct the briefing in good time before commencing the approach, normally about 5 minutes prior to descent. The following shall be considered:

- Actual weather for destination;
- Weather and Fuel requirements for alternate;
- RW-in-use;
- Type of approach, use of AFCS modes;
- Nav aids frequencies and settings;
- Initial routing and altitude, OM;
- Threshold elevation;
- MSA;
- Minimum and Missed approach procedure;
- Landing Weight / Speeds;
- Any technical INOP items;
- RW vacation and taxi route.

The volume of the approach briefing depends on weather conditions, aircraft equipment and ground facilities available, STAR to be flown, Crew experience. Deviation from the SOPs shall be mentioned separately. If both pilots are well familiar with the airport the term “short briefing” may be used. At least following items shall be covered:

- RW-in-use;
- Type of approach;
- Minimum and Missed approach procedure;
- MSA;
- Landing Weight / Speeds.

NOTE: 1) If observer has not been briefed before, he should be briefed on the requirements of maintaining a sterile cockpit below 10 000' as well as operation of jumpseat, oxygen supply and cockpit evacuation procedures. according to “Observer Safety Card” located behind LH seat.

2) For any significant changes during approach (weather, RW/ STAR etc.) additional briefing should be conducted.

Approach briefing accomplishment shall normally be followed by “Descent” checklist fulfillment.

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2.2.9. APPROACH (cleared for approach – DA/DH)

2.2.9.1. General

Before commencing an approach to land, the Commander shall satisfy himself that, according to the information available to him, the weather at the aerodrome and the condition of the runway intended to be used should not prevent a safe approach and landing.

All approaches should be flown in strict adherence to Standards specified below if not specified otherwise by the local procedures.

If controller requests to keep specific speed / profile due to traffic, remember, that the final acceptance of ATC clearance to deviate from published procedure lies with the Commander, provided obstacles clearance criteria, airplane limitation and operational conditions are taken into account.

a) Approach Ban Rules

An instrument approach may be commenced regardless of the reported RVR/Visibility*.

If reported RVR / Visibility* is less than the applicable minima, an instrument approach shall not be continued below an altitude when decision to establish final approach configuration and speed shall be made:

- **1500' Radio Altitude** for Cat2 approach. and
- **1000' to Minimum** for all other approaches.

If the reported RVR/visibility* falls below the applicable minimum after that, when final approach configuration and speed have been established, the approach may be continued **to DA/DH**.

The approach may be continued **below DA/DH** and the landing may be completed provided that the required visual reference is established and maintained.

NOTE: RVR/visibility* - where RVR is not available, RVR values may be derived by converting the reported visibility using the following table:

Operational lighting elements	RVR = Reported Met. Visibility x	
	Day	Night
HI approach and landing lights	1,5	2,0
Any other than above	1,0	1,5
No lighting	1,0	Not applicable

b) Stabilized Approach Concept

To ensure safe transition to visual flight and/or safe landing by decreasing flight crew workload, aircraft and flight crew readiness for these critical stages of the flight should be established and confirmed in advance. Use of 1000' and 500' Radio Height gates for that purpose is known as Stabilized Approach Concept.

1'000 feet gate used for all types of Non-precision and CAT 2 approaches;

500 feet gate used for all other approaches.

An approach that is not stabilized or becomes unstabilized **below 1000 / 500 RA** feet requires an immediate **go-around**.

CRITERIA:

1. The aircraft is on correct flight path, flown at the desired approach speed in the landing configuration. Only small changes in HDG, Pitch and Thrust/Power are required to maintain these stabilized parameters.

Flight Path	Precision approach	Max deviation from localizer and glide slope – one dot.
	Non-Precision approach	Along the desired flight path
	Circling	Wings shall be level at/before 300 RA
Configuration	Landing gear	Down
	Flaps	Landing Configuration
Speed	Target speed – minus zero, plus 20Kts	
Rate of descent	Max 1 500 feet/min	

2. The Flight Crew is fully ready for transition to visual flight and/or landing – all briefings / checklists and other preparations have been completed.

c) Transition to visual landing

Transition from instrument approach to visual landing shall be started not later than at 100' to Minimum and shall be accomplished not later than at Minimum (DA/DH).

The approach may be continued below DA/DH and the landing may be performed only if required visual reference is established and maintained.

At least one of the following visual references for the intended runway shall be distinctly visible and identifiable to the pilot:

- Elements of the approach light system;
- The threshold;
- The threshold markings;
- The threshold lights;
- The threshold identification lights;
- The visual glide slope indicator;
- The touchdown zone or touchdown zone markings;
- The touchdown zone lights; or
- Runway edge lights.

d) Use of Altimeters

Non-precision + CAT 1 ILS - MINIMUMS are based on QNH and read on the Pressure altimeter while the Radio altimeter DH selector will be set on/below Zero feet to avoid all unnecessary warnings.

NOTE: As pressure altimeters are calibrated to indicate TRUE Altitude under International Standard Atmosphere (ISA) conditions, all crossing altitudes and minima shall be corrected for extreme low ambient temperatures to maintain the desired Glide Slope / Path and not violate the Minimum.

CAT 2 - MINIMUMS are based on Radio altimeter and the Decision Height to be set on it (see Ch 2.4.4).

e) Use of Call-outs

Standard call-outs for approach are mandatory and given in respective chapter below for particular type of approach.

If visual contact has been established by PF earlier during approach and confirmed with the call-out "**Contact**", transition call-outs should be omitted.

f) Speed settings

Speed bugs should be set as follows:

- Inner bug at V_{REF} ;
- One outer bug at V_{CLEAN} ;
- Second outer bug at 160 kt.

The Approach speed ($V_{REF} + 10$) should be corrected for wind including gusts as follows:

- Wind up to 10 kt: no corrections;
- Wind and gust 10 to 20 kt: add 5 kt;
- Wind and gusts more than 20 kt: add 10 kt.

2.2.9.2. Non-Precision Approach

A standard instrument approach in which no electronic glide slope is provided e.g. LLZ, VOR, ASR or NDB.

General

For all types of non-precision approaches **CANPA** (Constant Angle Non-Precision Approach) procedure shall be used. As no electronic glide slope is available - desired Glide Path shall be established for particular approach by means of a number of crossing altitude check points that normally are given in appropriate tables on IAL chart plates.

Execution – Maximum use of automation is recommended.

Desired Glide Path shall be followed permanently by establishing required vertical speed appropriate to Glide Path angle and aircraft ground speed (vertical speed versus ground speed table is also given on IAL chart plates).

Altitude checks shall be made passing crossing altitude check points and vertical speed has to be adjusted respectively.

NOTE: All crossing altitudes and minima shall be corrected for extreme low ambient temperatures to maintain the desired Glide Path and not to violate the Minimum.

Transition from instrument approach to visual landing shall be made in the same manner as for precision approach – during constant descent down to the minimum (DA). If required visual contact has not been established upon reaching the Minimum (DA), go-around shall be initiated immediately.

NOTE: To avoid MDA penetration due to altitude loss during go-around Minimum (normally equal to MDA) has been raised by 30' feet for constant rate of descent procedure.

As soon as visual contact is established, prompt actions have to be taken to correct Glide Path using all available means (PAPI, VASIS, etc.).

Limitations:

- LNAV mode must not be used for an approach.
- The autopilot may remain engaged down to 300' AGL.

1) DME Available

ALT versus DME table will be depicted in IAL chart.

Briefing

As this type of approach is used very rarely in day-to-day operations, more detailed briefing should be completed covering procedure execution and crew co-ordination.

All available means shall be used to ensure that TRUE Glide Path is maintained and Minimum is not to be violated:

- All crossing altitudes and minima shall be corrected for extreme low ambient temperatures;
- **1000'RA.** Approach shall be stabilized. Pressure altimeter should be checked for reliability and indicate: 1000' + threshold elevation.

Initial Approach

Should be flown according to IAL chart using all available facilities with particular caution not to violate any Minimum Safe Altitude.

All radio aids used for approach should be identified and set to utilize PFD, ND and DBI in a more efficient manner.

The required QDM as a course on MSP should be set before the final turn.

Plan to establish on final not closer than about 3NM before the desired Glide Path.

Establish speed 180Kts.

Descent

Descent on Glide Path using crossing altitude checkpoints shall not be initiated unless not established on final (within $\pm 5^\circ$ on the NDB or $\frac{1}{2}$ scale deflection on VOR/LOC).

Once established in constant descent, deviations from desired Glide Path at the moment of passing crossing altitude checkpoints should be noted by PM as:

”XXX (feet) above / below”.

PF shall correct vertical speed respectively to return to desired Glide Path.

Transition

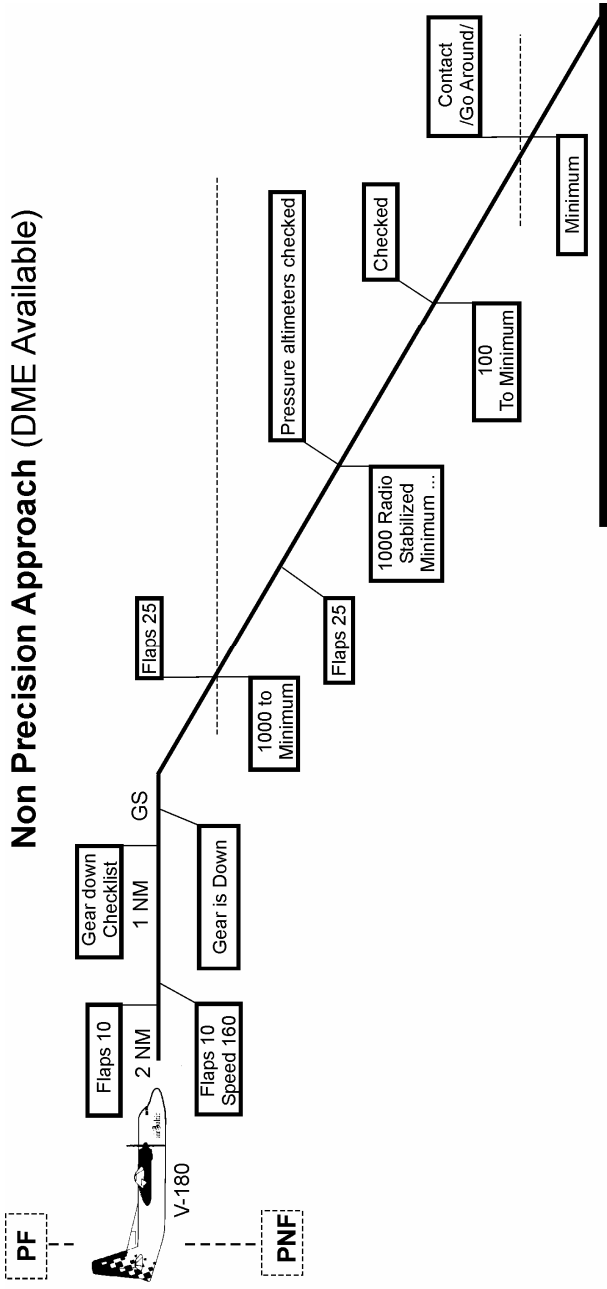
Transition from instrument approach to visual landing shall be started not later than 100' to Minimum and shall be accomplished not later than at Minimum (DA).

Required visual reference to continue below Minimum (DA) is given above.

Crew Co-ordination

Phase		PF	PM
Approaching the Glide Path	2 NM	Establish speed ≤ 180 Kts and call: "Flaps 10"	Check speed ≤ 180 Kts, Select flaps 10° and when they are reached selected position, call: "Flaps 10, Speed 160"
	1 NM	Establish speed 160KTS and set APA for GA altitude: "Gear down. Checklist" Select VS mode and start descent with the appropriate vertical speed.	Check the speed below 170, select Landing Gear down and when they are checked down, call: "Gear is down" Initiate Landing Checklist.
On GP		Correct the VS to pass advisory distance / altitude points at the published altitudes. Maintain /correct heading to stay on inbound radial (QDM)	Help PF to maintain flight profile by using proper standard call-outs
1 000 to Minimum		The approach to be continued only if officially reported RVR / visibility is not less than the Landing Minimum.	
		Check speed ≤ 160 Kts, call: "Flaps 25" Establish final speed. Adjust vertical speed to stay on GLIDE Path with reduced ground speed	"1 000' to Minimum" Check speed ≤ 160 Kts, Select flaps 25° and when they are reached selected position, call: "Flaps 25. Speed ..." Complete Landing checklist.

Phase	PF	PM
1 000' Radio	Pressure altimeter reliability check (1000' + threshold elevation) "Pressure altimeters checked"	Check pressure altimeter. "1000 Radio. Stabilized. Minimum ... "
100' to Minimum	Confirm validity of PM's call, "Checked" start to divide the attention between flight monitoring and look out for visual references. When sufficient guidance for landing has been obtained, "Contact" .	"100' to Minimum" Brief immediately PF about the deviations or malfunctions
Minimum	if required visual contact for landing is established and maintained: "Contact" Initiate Go-around if visual contact for landing is not established or aircraft position and/or movement relative to runway cannot guarantee safe landing.	"Minimum" Initiate Go-around if there is no response from PF on your challenge Continue to monitor instruments and PF performance
Visual Glide Slope guidance (e.g. PAPI) to be observed and prompt actions to be taken to correct GP.		



2) DME Not Available

FAF shall be well defined for which and ALT versus timetable will be given in IAL chart.

CAUTION: This type of approach is considered very complicated and should be avoided in daily operations whenever possible.

Briefing

As this type of approach is used very rarely in day-to-day operations, more detailed briefing should be completed covering procedure execution and crew co-ordination.

All available means shall be used to ensure that TRUE Glide Path is maintained and Minimum is not to violated:

- All crossing altitudes and minima shall be corrected for extreme low ambient temperatures;
- **1000'RA.** Approach shall be stabilized. Pressure altimeter should be checked for reliability and indicate: 1000' + threshold elevation.

Initial Approach

Should be flown according to IAL chart using all available facilities with particular caution not to violate Minimum Safe Altitude.

All radio aids used for approach should be identified and set to utilize PFD, ND and DBI in the most efficient manner.

The required QDM as a course on MSP should be set before the final turn.

Racetrack procedure to establish on final should be executed on a speed of 180 Kts outbound timing for Category C aircraft.

Initial descent (step down)

Descent to FAF (outer marker) crossing altitude shall be initiated when established on final (within $\pm 5^\circ$ on the NDB or $\frac{1}{2}$ scale deflection on VOR/LOC).

After leveling off at FAF (Outer marker) crossing altitude final speed and aircraft configuration to be established and Landing checklist has to be completed.

NOTE: Set APA for GA altitude, if not below, once the FAF (outer Marker) crossing altitude is captured.

Final descent (constant rate of descent)

Passing FAF (outer marker):

- Start Timing
- Establish constant rate of descent profile by adjusting vertical speed according to the ground speed (use IAL Chart).

Once established in constant descent, deviations from desired Glide Path at the moment of passing crossing altitude checkpoints should be noted by PM as:

"XXX (feet) above / below".

PF shall correct vertical speed respectively to return to desired Glide Path.

Transition

Transition from instrument approach to visual landing shall be started not later than 100' to Minimum and shall be accomplished not later than at Minimum (DA).

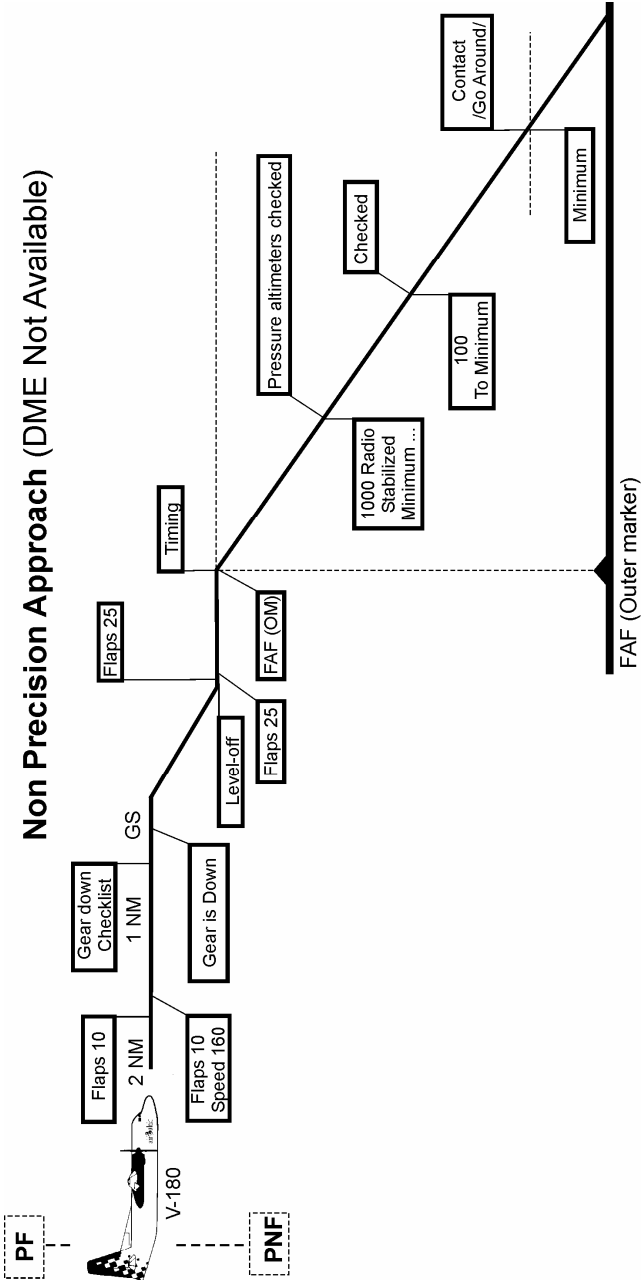
Required visual reference to continue below Minimum (DA) is given above.

Crew Co-ordination

Phase	PF	PM
Established on Final	Establish speed ≤ 180 Kts and call: "Flaps 10"	Check speed ≤ 180 Kts, Select flaps 10 ^o and when they are reached selected position, call: "Flaps 10, Speed 160"
	Establish speed 160KTS and set APA for FAF (Outer marker) crossing altitude: "Gear down. Checklist" Select ASEL/VS mode and start descent with the appropriate vertical speed.	Check the speed below 170, select Landing Gear down and when they are checked down, call: "Gear is down" Initiate Landing Checklist.
FAF (Outer Marker) crossing altitude	Level-off, Set APA for GA altitude: "Flaps 25" Maintain /correct heading to stay on inbound radial (QDM)	"Level-off" Check the speed ≤ 160 kts. Select flaps 25 ^o and call: "Flaps 25" Complete Landing checklist.
FAF (OM)	"Timing" Select VS, set vertical speed appropriate to ground speed to follow the glide path.	"FAF (OM)" Start timing.
Descending on Glide Path	Adjust vertical speed to stay on Glide Path with reduced ground speed.	Passing crossing altitude checkpoints call deviations from desired GP: "XXX (feet) above / below" .
1 000' Radio	Pressure altimeter reliability check (1000' + threshold elevation) "Pressure altimeters checked"	Check pressure altimeter. "1000 Radio. Stabilized. Minimum ..."

100' to Minimum	Confirm validity of PM's call, "Checked" start to divide the attention between flight monitoring and look out for visual references. When sufficient guidance for landing has been obtained, "Contact" .	"100' to Minimum" Brief immediately PF about the deviations or malfunctions
Minimum	if required visual contact for landing is established and maintained: "Contact" Initiate Go-around if visual contact for landing is not established or aircraft position and/or movement relative to runway cannot guarantee safe landing.	"Minimum" Initiate Go-around if there is no response from PF on your challenge. Continue to monitor instruments and PF performance.

Visual Glide Slope guidance (e.g. PAPI, VASIS) to be observed and prompt actions to be taken to correct GP.



Use of AP/FD

Approaches can be flown with AFCS in the following modes:

	APPROACH AID				
	ILS BC RS	LOC ONLY	ASR	VOR (DME)	NDB
AFCS LATERAL MODE	BC	NAV	HDG	VAPP	HDG

The FD is very useful if engaged in the appropriate horizontal mode (HDG or VOR/LOC) and vertically using VS.

Precision Approach – Cat 1 operations

Precision approaches are accomplished by using ILS or Ground Controlled Approach (GCA) with a decision height not lower than 200' and with RVR not less than 550 m.

Limitations:

- LNAV mode must not be used for an approach.
- The autopilot may remain engaged down to 50' AGL(ILS) and 200'AGL (GCA).

Initial Approach

Should be flown according to IAL chart using all available facilities with particular caution not to violate any Minimum Safe Altitude.

Before establish on Localizer (as a good rule at 5NM lateral) check / set ILS frequency and the final approach course on the FMP. Arm NAV / GS mode when angle between present and inbound course is less than 90°.

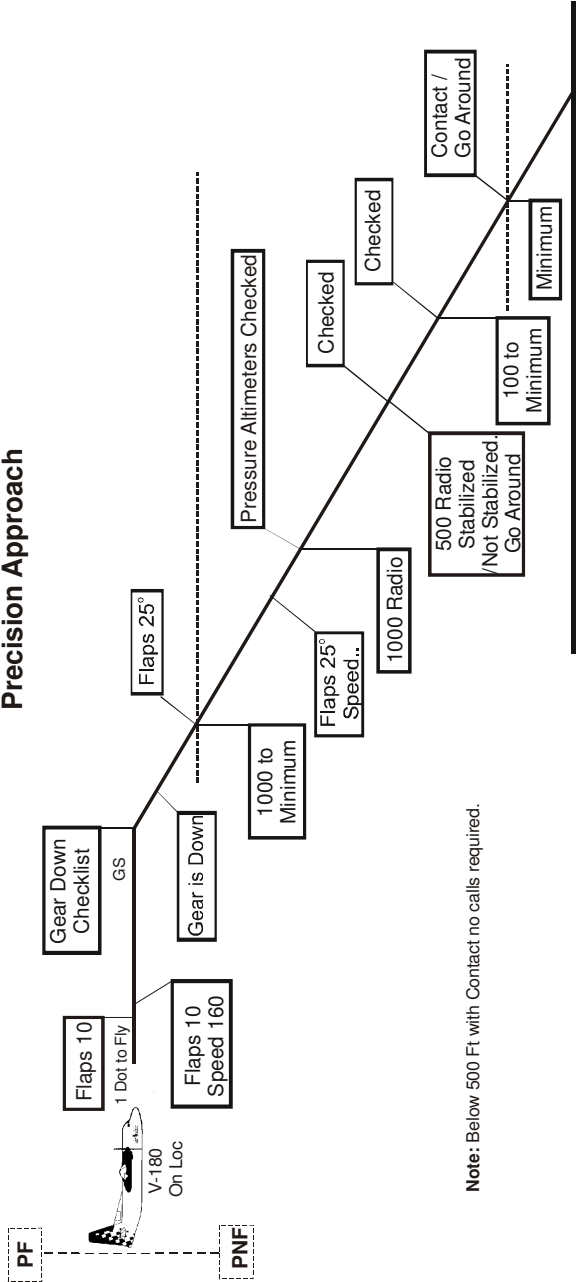
On Final

Establish speed 180 Kts in clean configuration.

Crew Co-ordination

Phase		PF	PM
Approaching Localizer/GS	LOC alive G/S alive	“Localizer coming/captured” “G/S coming”	“Checked/Checked” “Checked”
	1 dot	Check the speed ≤ 180 , and call: “Flaps 10”	Check the speed ≤ 180 , Select flaps 10, and when they reached selected position, call: “Flaps 10, Speed 160”
	GS	Check speed ≤ 170 Kts and call: “Gear down, Checklist”	“GS captured” Select Landing Gear down and when they are checked down: “Gear is down”
On GS		Monitor / crosscheck FD / AP performance	Help PF to maintain flight profile by using proper standard call-outs
1 000' to Minimum		The approach to be continued only if officially reported RVR / visibility is not less than the Landing Minimum.	
		Check speed ≤ 160 Kts, “Flaps 25”	“1 000' to Minimum” Check the speed ≤ 160 , Select flaps 25, and when they reach selected position, call: “Flaps 25” Complete Landing checklist
1 000' Radio		Pressure altimeter reliability check (1000' + threshold elevation) “Pressure altimeters checked”	“1000 Radio” Check pressure altimeter.
500' Radio		“Checked”	“500' Radio Stabilized”

100' to Minimum	Confirm validity of the PM's call, "Checked" start to divide the attention between flight monitoring and look out for visual references. When sufficient guidance for landing has been obtained: "Contact"	"100' to Minimum" Brief immediately PF about the deviations or malfunctions
Minimum	If required visual contact for landing is established and maintained: "Contact" Perform Go-around if visual contact for landing is not established or aircraft position and/or movement relative to runway cannot guarantee safe landing.	"Minimum" Perform Go-around if there is no response from PF on your challenge Continue to monitor instruments and PF performance



Note: Below 500 Ft with Contact no calls required.

2.2.9.3. Monitored Approach

Special procedure, applicable to both Precision and Non-Precision approaches and is intended to enhance the transition from instrument approach to visual landing in marginal weather conditions.

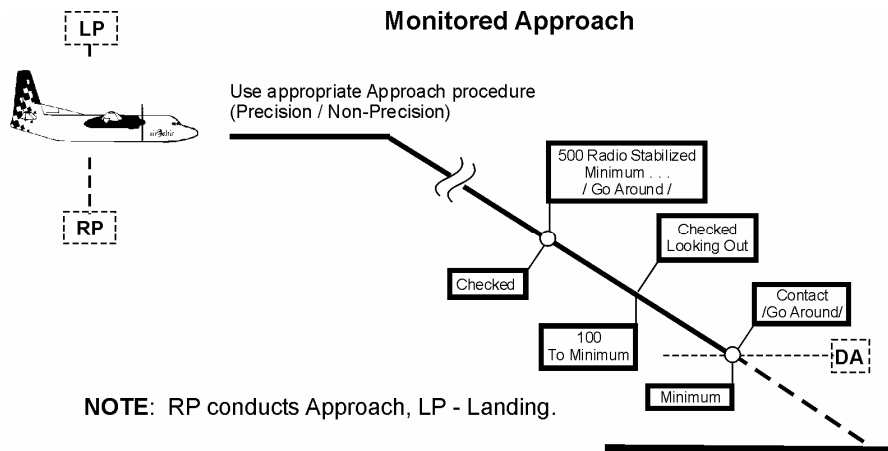
Monitored approach procedure **shall be used** when actual weather (vertical visibility and RVR / visibility) is equal or less than 300'/1'500m.

Monitored approach procedure **is recommended** for use when you expect not to be visual at 100' to Minimum altitude.

NOTE: There are no differences with normal approaches down "100' to Minimum" gate.

Crew co-ordination

	LP	RP
General	will execute transition to visual flight and landing – PF from the Minimum	will execute the instrument part of the approach – PF down to Minimum
100' to Minimum	Confirm validity of the PM's call and: "Checked, looking out" Start look out for visual references. When sufficient guidance for landing has been obtained: "Contact, My controls"	"100' to Minimum" Brief immediately LP about deviations or malfunctions and perform Go-around if there is no response from him.
Minimum	"Go-around" if visual contact for landing is not established or aircraft position and/or movement relative to runway can not guarantee safe landing, or "Contact, My controls" if required visual contact for landing is established and maintained. Take controls and perform landing.	"Minimum" Perform Go-around upon LP request or if there is no response from LP on your challenge Remove your hands from controls only after clear "My controls" from LP. Continue to monitor instruments and brief PF using standard call-outs, if deviation become excessive



2.2.9.4. Visual Approach

An approach by an IFR flight when either part or all of instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

a) Visual approach clearance and separation.

- Clearance for visual approach could be given when the pilot reports at any time during instrument approach that the meteorological conditions are such that allows visual reference without interruption to complete entire visual approach and landing.
- Separation during approach to be provided by the controller unless pilot reported the preceding traffic inside and are cleared to maintain "Own separation".

LIMITATION: Own separation procedure is prohibited at night.

b) Main rules that shall be followed

- The entire instrument approach procedure shall be executed unless the clearance for a visual approach is received.
- Aeroplane shall not be flown below 3 degrees prolonged glide path
- Approach shall be stabilized not later than at 500'RA.

c) Main rules that should be followed

- Instrument approach facilities (non-visual aids such as an ILS, VOR, DME, NDB etc) as back up for the visual approach should be used, if available.
- It is recommended to switch off AP/FD (STBY mode on FMP) and complete the visual approach manually.
- point yourself to intercept inbound course at 1000'RA (3 NM from threshold) to be stabilized at 500'RA.

Crew co-ordination

Within the limitations and recommendations presented the pilots are free to choose the way in which the particular visual approach will be completed.

Concerning the methods and profile to execute particular visual approach:

- It is PF obligation to brief PM about it;
- It is responsibility of the Commander to accept it;
- It is responsibility of PM to assist PF in execution of it.

Normal Circuit

The procedure described below covers a complete visual circuit and landing. This procedure normally is used for visual circuit during aerodrome or simulator training flights.

In situations where a circuit is not required, altitude, configurations and speeds should be adapted.

- Enter downwind at 1500 ft, speed 160 kt.
- Abeam runway midpoint select flaps 10.
- Abeam runway threshold, select landing gear down and start timing 30 sec plus or minus 1 sec/kts head-wind or tailwind component.
- When time is up, select flaps 25 and commence a descending turn to base leg.
- Reduce to approx. 20% torque
- Complete before landing check
- Aim to be established on a 3° glide path at approx. 500 ft
- Reduce speed to cross the threshold at VREF

2.2.9.6. Circling

A special procedure to brake through the clouds using instrument approach facilities for one runway accomplished with the visual phase to bring the aircraft into position for landing on a runway which is not suitably located for strait-in instrument approach. Will normally be flown whenever the instrument approach facility does not serve the landing runway.

a) Planning

- Appointment of the Pilot Flying for the approach depends on the circling direction, to have the runway in sight during the visual maneuvering circling at all times.
- With a choice of circling directions, in crosswind conditions, circle on the downwind side to reduce radius and ground speed in the final turn.
- Normally circle with gear down and flaps 10° at speed 130 Kts, which corresponds to Category B circling minima.

b) Execution

Instrument part of the approach

Should be flown according to appropriate instrument Precision / Non-precision approach procedure (except for Landing Gear down callout) and visual contact with the runway shall be established not later than leveling off at MDA.

Use the Altitude Preselect to level off at MDA, then select the APA for Go-around.

NOTE: During ILS approach the APP mode can be cancelled by selecting HDG and VS modes, and A/C will intercept MDA pre-selected on APA altitude.

The 45 and 30 seconds timing in procedure is given for still air. Reduce this by 3 seconds per 10 Kts tailwind component.

Disconnect F/D and AP once the descent from MDA is initiated.

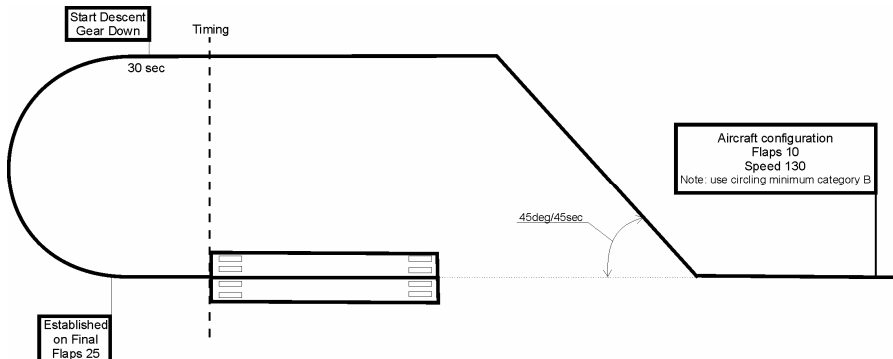
During final turn set the landing gear down and flaps 25° and establish final speed to be stabilized on final not below 300' RA.

Crew co-ordination

	PF	PM
At MDA	If required visual contact with the runway is established and maintained: "Contact" Level of at the MDA.	"Minimum" Perform Go-around if there is no response on your challenge.
1 NM	Turn by 45° and proceed 45 sec to provide the required lateral separation, then fly parallel to the runway of intended landing	
Abeam the threshold	"Timing" Disconnect A/P and F/D and start turn with descent profile about 3°. "Gear Down"	Start the clocks, and in 30 sec call: "Turn final" Select Gear Down.
Final turn	Established on final "Flaps 25" to be stabilized not below 300' Radio altitude.	Select flaps 25, and when they reached selected position "Flaps 25" Complete Landing checklist

c) Go-around

If the visual contact is lost during visual maneuvering, turn towards the runway to execute the Go-around overhead the runway to accomplish Missed Approach procedure intended for the instrument part of the approach.



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2.2.10 Go-Around

2.2.10.1 General

Go-around is the only way to discontinue unsuccessful approach.

Go-around **shall be initiated** whenever pilot is not ensured that continuation of approach and landing is safe. The following shall be considered:

- Approach ban rules, if weather below Minimum;
- A/C is not stabilized at 500' Radio Altitude;
- Visual contact is not established at DA / DH;
- Visual contact is lost below DA / DH;
- A/C position / movement relative to runway can not guarantee safe landing;
- There are obstacles in the air or on the runway.

Go-around **can be initiated** by any pilot and at any moment during approach and landing.

CAUTION: If Go-around is initiated after passing Missed Approach Point (MAPt) in IMC conditions, the minimum obstacle clearance could not be always assured and Climb out Procedure rather than Missed Approach Procedure for appropriate runway should be flown.

NOTE: In case of smoke or fire it is at Commander's discretion either to continue the approach and landing or start a go-around.

NOTE: In case of a go-around with one ENG EC in MAN, anticipate power lever stagger and avoid overtorque.

Maneuvering

No turns below 500' AGL if not otherwise stated in the RM.

Max bank angle at V_2 and V_{CLEAN} is 15° .

For bank angles of $15-30^\circ$, increase respective speed by 10 Kts.

2.2.10.2 Crew Co-ordination

Once initiated Go-around **shall be completed** by the PF.

Change of controls should not be made until the aircraft is in clean configuration, unless required for the safety reason.

Phs	PF	PM
General	Both pilots are responsible for it and can initiate the Go-around by proper challenge: “Go - around” .	
	Complete Go-around according to Missed Approach Procedure and profile	Assist PF to complete Go-around making requested selections and using proper call-outs
Initial	To stop the descent and establish the A/C in climb: Immediately advance the power levers to TO detent, disconnect AP, press GA button and call: “Flaps 10” (if flaps are on 25 ⁰ ;) or “Flaps 20” (if flaps are on 35 ⁰ .)	set Flaps 10 / 20 ⁰ and check GA –power on ERP and call: “Flaps 10/20”
Positive Climb	Fly command bar “Gear up, Check Power” Order: “Heading, ASEL, IAS”	When a positive rate of climb is established “Positive climb” Select gear up, check gear is up and locked “Gear is up, lights out, Power Checked” Selects HDG, ASEL on FMP and calls: “Heading, ASEL, IAS Set”

Phs	PF	PM
Acceleration Altitude	Perform further as for Standard Take-off till 1000' AGL (if not specified in RM, but never below 400').	
	Accelerate through the flap retraction schedule. Call "Flaps Up" Call "Climb Power" Continue climb and follow appropriate procedure, select the NAV aids as required.	Accelerating through Flaps Up speed "Flaps up speed" Select flaps up and call : "Clean Speed ..." When flaps have been checked to be up "Flaps Zero"
Climb	Follow Missed Approach Procedure, Inform passengers when convenient	Monitor flight progress.
	"After Take-off Checklist"	Complete the Checklist
	Engagement of Autopilot for Checklist reading is highly recommended.	

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2.2.11. LANDING (DA/DH – runway vacating)

2.2.11.1. General

In this chapter only DRY and WET runway conditions are considered.

For the Contaminated / Low friction runway see ch. 2.5.2.

The following considerations concerning landing on particular runway shall be applied during approach preparation:

- 1) Aeroplane landing performance.
- 2) Method and technique to be used (see Landing execution below).

2.2.11.2. Landing performance

Landing performance in particular weather and runway conditions could be limited by Max Landing Weight (MLW) and / or Landing Distance Required (LDR).

To ensure landing performance limitations are not exceeded, GWC shall be consulted (SAS RM, GWC, p. 9.4).

CAUTION: If any of the system/function which affects the landing distance is inoperative or not used, due account shall be taken calculating LDR.

Limitations

Landing performance could be limited with the weather and runway conditions.

To ensure directional control during ground roll the Crosswind limitations shall be applied. For crosswind component diagram see SAS RM GWC or Normal Checklist p. 11.

2.2.11.3. Landing Execution

General for PF / LP (speed below 60 kts)

- Cross the runway threshold at approx. 50 ft and at VREF;
- Flare to a slightly nose-up attitude and retard power levers smoothly to flight idle. Do not prolong the flare;
- Normal touchdown speed is between VREF and VREF – 10 kt;
- After touchdown on the main wheels, gently lower the nose wheel;
- Initially keep the aircraft straight with rudder;
- Select ground idle and use reverse when required.

NOTE: 1. Do not select ground idle until nose wheel is on the ground
2. The rudder is not effective for directional control with reverse.

- At approx. 60 kt when PM calls "60 knots" cancel reverse and release the control column
- The PM selects TO at the ERP when ordered by PF

NOTE: Unless runway length is limiting it is recommended to cancel reverse at 60 kt to reduce the probability of stone damage to the propeller or fuselage and to improve directional control at low speeds.

- Use nose-wheel steering for directional control
- The PM should hold the control column and the aileron into the wind
- Apply brakes until the speed is down to taxi speed
- RP selects flaps up when ordered, checks and reports: "**Flaps are up**" LP locks the flight controls. RP performs the after landing check.

Cross-wind Landing

- On final approach maintain runway alignment by crabbing into the wind
- When crossing the threshold, apply rudder to align the aircraft with the runway centre line and bank into the wind to counteract drift (3 - 5 deg bank angle)
- Do not delay touchdown after de-crabbing is completed
- After landing keep straight initially with rudder and counteract the tendency of the upwind wing to lift by decisive use of aileron
- If reverse is required, apply reverse slowly and symmetrically. If problems with directional control reduce reverse or select ground idle.

CAUTION: Too high landing speed will result in extra landing distance and may cause the nose gear touchdown before the main gear. Low landing speed may result in a rough landing.

2.2.11.4. Braking

It is assumed that brakes on landing are applied immediately after the nose wheel is lowered to the runway. If anti-skid system is operative, brakes could be used by application of maximum positive pressure on brake pedals to obtain maximum stopping capability.

However for operation from the long runways when Landing Distance is not a limiting factor, it is recommended to use the brakes as follows:

- Postpone brakes application until aeroplane decelerates down to a lower speed;
- Plan to slow down to a taxi speed by the place when the runway should be vacated with one steady application of brakes;
- rate of deceleration should be “comfortable” for passengers without skidding effect;

CAUTION: 1. If the runway to be vacated at the very end, brakes effectiveness shall be checked earlier during ground roll.
2. Do not aim to make short landing or vacate the runway at a high speed if it could be easily done using next runway exit.
3. Use of ruder due to X-wind and slippery RW could cause asymmetric braking. Nose wheel tiller control is highly recommended during braking in mentioned condition.

2.2.11.5. Runway vacating

The airplane has to be decelerated to safe taxi speed before turning off the runway.

CAUTION: Excessive speed could lead to extra load on landing gear, inconvenient skidding effect.

Accomplishment of the items on the After Landing Checklist should wait until the runway is vacated.

2.2.11.6. Crew Co-ordination

	PF	PM
Minimum - touchdown	Control the aeroplane (monitor the AP) Disengage AP not below 50 ft(if not done before) and call “Manual”	Continue to monitor instruments.
Touchdown.	After touchdown lower the nose gear, set ground power. Maintain the wing level and the runway direction.	If no Automatic Callouts, over the threshold start count the RA : “50...40...30..20...10”
60 kts		“60 knots”
	LP	RP
60 knots – Runway vacating	“My Control”(*) Revert to the nose-wheel steering, decelerate to taxi speed. Vacate the runway as instructed by ATC.	“Your Control”(*) Take over the handwheel, maintain the wing level.
	(*) NOTE: If stated during approach briefing, RP could control the A/C till the moment when runway is vacated. LP/RP duties shall be shifted vice versa.	

2.2.12. TAXI-IN (runway vacating – on-block)

2.2.12.1 General

Left Pilot should taxi the aircraft.

For power management, maneuvering and braking rules during taxi see Ch. 2.2.4.2.

Right pilot shall complete after landing Checklist.

Right Pilot is responsible for looking out and informing on any obstacles / objects, particularly on the right side of the a/c.

Before right turn, entering, crossing taxiway or runway Right Pilot observes and calls out:

“Right side free”

2.2.12.2 Parking

The aeroplane is to be parked with assistance of the guide man or mechanical devices such as mirror or light combinations. Do not taxi into an area bordered by safety lines without positive guidance from a marshal or signal device.

Before stopping the aeroplane, center the nose wheel and taxi straightforward a short distance to relieve side loads on the nose landing gear.

For main docking systems description see SAS RM Legends Ch 2. If you do not recognize a docking system or there are doubts how to use it, do not hesitate to request marshal.

2.2.12.3 Engine Shutdown Procedure

After landing run engine(s) on IDLE for at least **3 minutes** before shutdown for cooling.

It is recommended to switch off left engine (No.1) during taxi-in whenever it is convenient and safe, if not required for operational reasons.

Shutdown Sequence

Check :

- Power lever GND IDLE
- Engine Anti-Ice OFF

Set Fuel lever to START position.

Hold Fuel lever in START until torque indication drops to 0% (before decimal point) or at least 10 sec to insure propeller to feather.

Set FUEL LEVER to SHUT.

2.2.13 Post-flight

2.2.13.1 Ground Turnaround

The Commander shall ensure departure on schedule.

This should be achieved by appropriate supervision and gathering of information to determine possible causes for delay as well as making necessary contacts and arrangements/decisions to prevent or minimize delay.

Crew co-ordination

LEFT PILOT	RIGHT PILOT
1. Complete Technical Log	1. Complete Operational Flight Plan
2. Complete A/C external Check as a part of PFI ASAP (wear reflecting crew jacket during check).	2. Perform cockpit preparation in respect to forthcoming flight.
3. Check fuelling receipt and complete the Fuel Order.	3. Obtain ATIS and ATC clearances.
4. Commander has to sign PFI in Tech Log, Load sheet and other documentation relative to the flight.	4. Set/check aircraft weight/torque required for take-off.
5. Check mobile phone ON.	5. Prepare load sheet, if required.

NOTE: Take-off briefing may be accomplished and, after completion of the load sheet, take-off speeds bugs can be set prior to the BEFORE START checklist execution.

If the aircraft is to be immediately handed over to other crew, it can be left powered, without performing "Final Stop" checklist.

Leaving aircraft

Aircraft could be left by crew for a long turnaround or the Night stop, check Part A 8.2.7 for actions required.

RP shall complete Final Stop Checklist.

Commander shall ensure the following.

- 1) Aircraft is completely de-powered, if otherwise is not approved by technician or ground handling staff.
- 2) No defects are found during post-flight external check (the same as for PFI).
- 3) Aircraft is handed over to technician or other handling staff responsible to provide security during the absence of crew.
- 4) Aircraft is properly secured if left unattended (see OM Part A, 10.2.8).
- 5) Pins and covers will be installed, if required.

2.2.13.2 Post-flight Documentation

OPS FPL and supplement documentation shall be submitted to MCC as soon as practicable – immediately after the respective flight duty.

The documentation shall be fixed together in the following order:

- 1) Fuel order;
- 2) Fuel receipt;
- 3) Performance calculation;
- 4) Loadsheet;
- 5) Operational flight plan;
- 6) Aircraft Pre-Flight Security Check Report;
- 7) Loading instruction/Report form (when Manual loadsheet to be completed).

If there is any other document related to the flight (Voyage report, NOTOC, Cat2/3 Report, etc.), it also shall be collected and placed in the “Flight Crew Reports” box.

Flight Safety Report shall be submitted to MCC Duty Officer personally.

Security Check Report shall be placed in the “Security Check Report” box.

2.3 NORMAL CHECKLIST

2.3.1 GENERAL

This section contains the expanded and abbreviated normal checklist. Passenger Cabin checklist, as a part of Pre-flight Inspection (**PFI**), is delegated to the Cabin Crew and is included in Cabin Attendant Handbook.

Power chart table, Temperatures correction and wind limitation, Mass and Balance summary, CAT 2 Summary / Requirements, Landing performance and One engine flight are also included in Normal Checklist to make easier for pilots to ensure the aeroplane systems are operable and to solve some frequent non-standard situations which may have place. All this tables and procedures are based on the Manufacturer's documentation.

2.3.1.1 Checklist usage

Reading of the checklist to be done according to method and rules given in OM Part A Chapter 8.0.

When the aeroplane is on the ground, the **Right pilot** should read the checklist. When the aeroplane is airborne, this is duty of the **PNF** (Pilot not flying).

Following table shows stage of flight, when the checklist shall be initiated (some items may be postponed) and the crewmember to response for the checklist items.

Checklist	Stage of Flight	Response
BEFORE START (turn around)	Well before start-up.	The responsible for check pilot is nominated in the third column of the abbreviated checklist (see 2.3.3.2. below).
STARTING	Start-up clearance is received and doors are closed.	
AFTER START	After start of both engines and when ready for taxi-out.	
TAXI	During taxiing in take-off configuration and when out of congested areas.	
LINE-UP	Line-up clearance is received.	
AFTER TAKE-OFF	Clean configuration, initial FL is received, but not below 3.000 ft.	
DESCENT	Before starting descent.	
APPROACH	Initial altitude is received, normally after passing 10.000 ft.	
LANDING	Gear down, not below 1.000 ft to minimum.	
AFTER LANDING	Runway is vacated.	
AFTER PARKING	On chocks.	
FINAL STOP	Last flight of the day / crew change.	

2.3.1.2 Checklist Contents and Presentation

The expanded checklist contains all main and sub checklist items. The sub items are moved to the right and should be committed to memory.

For day-to-day operations the abbreviated normal checklist is used. It is divided to three columns:

- first column – challenges
- second column – responses expected
- third one (when applied) – crewmember, responsible for the check and response:

L	Left pilot
R	Right pilot
P	Both pilots
PF	Pilot flying
PNF	Pilot not flying

2.3.2. Normal Checklist

2.3.2.1. Abbreviated Normal Checklist / Torque table

BEFORE START

*	GND HANDLING SWITCH	ON	R
*	FLIGHT DECK PREP	COMPLETE	P
	A/C TECH LOG	CKD	L
	PARKING BRAKE	SET	L
	CVR	ON	L
	FLIGHT RECORDER	SET	L
*	HDG MODE SWITCHES	SLAVE	L
*	FIRE PANEL	CKD	L
*	BATTERY	ON	L
*	EXTERNAL POWER	ON	L
*	EMERGENCY LIGHTS	ARMED	L
	HYDRAULIC	CKD	L
	FUEL	PUMPS OFF/ KG..	L
	AIR CONDITION	SET	R
	WINDOW HEAT	AS REQ	R
*	PRESSURIZATION	SET	R
	EXTERNAL LIGHTS	AS REQ	R
	INSTRUMENTS	SYNC/X-CKD	P
	ERP	TO	R
*	RADAR/TRANSPONDER	STBY	R
*	TEST PANELS	CKD	P
	TRIM	1-2-3-SET	R
	FUEL LEVERS	SHUT	R
	POWER LEVERS	GND IDLE	R
	FMS	SET	R
	TAKE-OFF BRIEFING	COMPLETE	PF
	SEAT BELT/NO SMOKING	ON	R

STARTING

TO-WEIGHT / SPEEDS	KG/SET P
DOOR LIGHTS	OUT L
FUEL PUMPS	ON L
START P/B	ON L
BEACON	ON L

AFTER START

START P/B	OFF L
ANTI-ICING	SET L
ALERT LIGHTS	OUT L
* PROP OVERSPEED	COMPL L
CLEAR SIGNAL	RECEIVED L
TAXI LIGHT	ON L

TAXI

BRAKES	CKD L
FLAPS	___ ° SET L
FLIGHT INSTRUMENTS	CKD P
AP / FD	L/R, GA, HDG, ASEL L
CONFIG	CKD R
SEATS & HARNESES	SECURE P
NAVAIDS	SET P
BRIEFING	REVIEWED PF
SPEEDS	CKD L

LINE-UP

CABIN	SECURE / LIGHT OUTL
RADAR, TRANSPONDER	ON L
GND IDLE STOP	ON L
FLIGHT CONTROLS	CKD FREE P
LDG-STROBE LIGHTS	ON L

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AFTER TAKE-OFF

GEAR
FLAPS
CLIMB POWER
PRESSURIZATION
ALTIMETERS

UP / LIGHTS OUT PF
UP..... PF
SET..... PF
CKD PF
1013 & X CKD P

10'000 FEET

CABIN CALL

LIGHTS, BELTS PF
GIVEN L

DESCENT

PRESSURIZATION
BRIEFING
LAND WEIGHT / SPEEDS
NAVAIDS
FUEL
GROUND IDLE STOP
SEATS & HARNESSSES

SET..... PF
REVIEWED PF
SET..... P
SET/CKD P
CKD PF
OFF PF
SECURE P

10'000 feet**LIGHTS, BELTS .PF**

APPROACH

ALTIMETERS
SEAT BELT
LIGHTS
CABIN

QNH & X-CKD P
ON PF
ON PF
SECURE L

LANDING

ALTIMETERS
CABIN
HDG / ALT
GEAR
FLAPS
ERP

QNH & X-CKD P
SECURE, LIGHT OUTL
AS REQ..... PF
DOWN/4-GREEN... P
____° SET PF
GA PF

AFTER LANDING

ERP	TO	R
FLAPS	UP	R
FLIGHT CONTROLS	LOCKED	R
LDG, STROBE LIGHTS	AS REQ./OFF	R
RADAR, TRANSPONDER	STBY	R
FMS	OFF	R
ENGINE ANTI-ICING	AS REQ.	L
EFIS	AS REQ.	P

AFTER PARKING

PARKING BRAKE	SET	L
SEAT BELT	OFF	L
FUEL LEVERS	SHUT	R
FUEL PUMPS	OFF	R
ANTI-ICING	OFF	R
BEACON, TAXI LIGHTS	OFF	R

FINAL STOP

EFIS	CKD/OFF	R
EMERGENCY LIGHTS	OFF	R
BATTERIES	OFF	R
GND HANDLING SWITCH	OFF	R
OXYGEN	OFF	R

Take-off Rating

Equivalent airspeed

60 kt

Air conditioning:

ON

PRESS ALT (ft)	-800	-600	-400	-200	0	200	400	600	800
OAT (deg C)	TORQUE (%)								
20	86,1	86,4	86,8	87,2	87,5	87,9	88,3	88,6	89,0
18	85,7	86,1	86,4	86,8	87,2	87,5	87,9	88,3	88,6
16	85,4	85,7	86,1	86,4	86,8	87,2	87,5	87,9	88,2
14	85,0	85,4	85,7	86,1	86,4	86,8	87,1	87,5	87,9
12	84,6	85,0	85,3	85,7	86,1	86,4	86,8	87,1	87,5
10	84,3	84,6	85,0	85,3	85,7	86,1	86,4	86,8	87,1
8	83,9	84,3	84,6	85,0	85,3	85,7	86,0	86,4	86,7
6	83,5	83,9	84,3	84,6	85,0	85,3	85,7	86,0	86,4
4	83,1	83,5	83,9	84,3	84,6	85,0	85,3	85,7	86,0
2	82,8	83,2	83,5	83,9	84,2	84,6	85,0	85,3	85,7
0	82,5	82,8	83,1	83,5	83,9	84,2	84,6	85,0	85,3
-2	82,1	82,4	82,8	83,2	83,5	83,9	84,2	84,6	84,9
-4	81,7	82,1	82,4	82,8	83,2	83,5	83,9	84,2	84,6
-6	81,3	81,7	82,1	82,4	82,8	83,1	83,5	83,8	84,2
-8	80,9	81,3	81,7	82,1	82,4	82,8	83,1	83,5	83,8
-10	80,6	81,0	81,3	81,7	82,1	82,4	82,8	83,1	83,5
-12	80,2	80,6	81,0	81,3	81,7	82,0	82,4	82,8	83,1
-14	79,9	80,2	80,6	81,0	81,3	81,7	82,0	82,4	82,8
-16	79,5	79,9	80,2	80,6	81,0	81,3	81,7	82,0	82,4
-18	79,1	79,5	79,9	80,2	80,6	81,0	81,3	81,7	82,0
-20	78,8	79,1	79,5	79,9	80,2	80,6	80,9	81,3	81,7
-22	78,4	78,8	79,1	79,5	79,9	80,2	80,6	80,9	81,3
-24	78,0	78,4	78,8	79,1	79,5	79,9	80,2	80,6	80,9
-26	77,7	78,0	78,4	78,8	79,1	79,5	79,9	80,2	80,6
-28	77,3	77,7	78,0	78,4	78,8	79,1	79,5	79,8	80,2

NOTE: Use QRH if pressure altitude is out of the +/-800 ft.

2.3.2.2. Additional Materials

Additional materials such as: Temperatures correction and wind limitation, Landing performance and One engine flight etc, are extracts from operational documentation like AOM, RM, OM Part A or other chapters of OM Part B.

2.3.3. EXPANDED CHECKLIST**BEFORE START**

Perform all items in this check before:

1. First flight of the day.
2. After crew-change.
3. When flight-deck has been unattended.
4. When maintenance action has been performed on flight-deck.

During short turn-arounds items marked by * are not mandatory.

* GROUND HANDLING SWITCH	ON	R
* FLIGHT DECK PREP	COMPL	P
A/C TECH LOG	CHECKED	L

Verify inoperative items on maintenance status comply with MEL

PARKING BRAKE	SET	L
---------------	-----------	---

Check brake pressure

If pressure is below 1000 psi:

- Switch HYDRAULIC electric pump ON until pressure is sufficient (with EXT PWR only).
- With BAT PWR ONLY confirm chocks for wheels.

CVR ON	CKD/ON	L
--------	--------------	---

Press test button and check pointer in green band.

FLIGHT RECORDER	SET	L
-----------------	-----------	---

Insert date and flight no.

* HEADING MODE SWITCHES	SLAVED	L
-------------------------	--------------	---

* FIRE PANEL	CHECKED	L
--------------	---------------	---

Check fire-handle in and latched and AGENT LOW PRESSURE lights out.

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* BATTERY ON L

* EXTERNAL PWR ON L

* EMERGENCY LIGHTS ARMED L
Pull and turnHYDRAULICS CHECKED L
Check QTY minimum 70%; Check ELEC. PUMP off.

FUEL PUMPS OFF/_KG .. L

- Check PUMP OFF lights on;
- Check total fuel on board corresponds with flight fuel and check fuel distribution.

AIR CONDITION SET..... R

Set temperature selectors at mid position +/- one dot according to actual cabin temperature.

WINDOW HEAT AS REQUIRED..... R

Set LOW approx 20-30 min prior to departure in winter and 5-10 min in summer.

* PRESSURIZATION SET..... R

- Set take off field elevation on LDG ALT indicator
- Set barometric scale on QNH
- Check rate limit selector on mark
- Check manual pressure control lever centre position
- Check manual rate control max. DECR

EXTERNAL LIGHTS AS REQ R

- Check Storm/Ldg/Taxi/Wing insp./Anti collision is OFF/
- Strobe light OFF
- Check Nav light and LoGo lights is ON during darkness

INSTRUMENTS SYNC/X-CHECK ... P

- EFIS, check heading
- RMI, compare heading, select pointers
- Altimeters: set QNH, compare all 3 altimeters; altitude bug set to airport elevation
- VSI, approx. zero
- Clock, check correct UTC time and zero elapsed time
- Set up EFIS panel + PFD-ND
- R/P will turn on the Area Nav, initiate and activate actual Flight Plan

- Set navigation and communication equipment as required for departure
 - Select AP COMMAND to the L or R FD
 - Set course, heading and altitude as required for departure
- ERP TO R

Select TO

- * RADAR/TRANSPONDER STBY R

- * TEST PANELS CHECKED P

First flight of the day perform all tests.

After crew-change perform bottom line on test panels.

AUTOFEATHER TEST, first flight of the day only, with EXT PWR 115V ac only

POWER LEVER..... GND IDLE

FUEL LEVERS..... OPEN

ERP TO or GA

AUTOFEATHER TEST buttons DEPRESS

- Note position of torque bug
- AF/APR ARMED and STBY lights on

LH AUTOFEATHER TEST button RELEASE

- RH engine torque bug increases with 10 %
- LH ENG OUT alert on and fuel lever light on
- Repetitive triple chime and master warning light on CAP
- AF/APR ARMED and STBY lights go out
- LH FEATHER PUMP light on

RH AUTOFEATHER TEST button..... RELEASE

Repeat procedure for RH engine.

Both FUEL LEVERS SHUT

- * SKID CTL TEST

- Depress TEST button
- Check INBD and OUTBD lights on
- Release TEST button
- Check INBD and OUTBD lights out

Skid control system is tested by depressing the SKID CTL TEST button on the test button at the test panel. The system is divided into separate circuits for the inboard and outboard wheels (INBD and OUTBD). When one or both skid-controls-test lights remain on after the button is released, a fault is

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present. The test can be performed only when the aircraft is stationary.

NOTE: Skid control is not available when the TOWING switch is in the ON position.

* **ALERT SYS TEST**

- Depress TEST button momentarily
- Check TEST light on - Check FAULT light in ALERT SYST p/b ON
- Wait for chime
- TEST light ON means system failure
- Check CMPL light ON
- Depress TEST button to acknowledge

* **FIRE WARNING TEST**

- Select fire test switch to LH
- Check repetitive triple chime and the master warning lights
- LH fuel lever white light
- LH fire handle red light
- LH engine fire light on CAP
- Repeat procedure for RH engine

* **SMOKE TEST**

- Depress smoke test button
 - Check smoke lights on CAP on and triple chime
- First flight of the day set Annunciator light to DIM via RESET and cancel warning 3 times. Check that one of the 3 warning lights goes out each time.

* **GPWS TEST**

Depress GPWS TEST button on left-hand side instrument panel.

* **TCAS TEST**

- set mode switch to STBY
- set ATS switch to 1
- switch ABOVE/NORM/BELOW set to NORM
- select RANGE switch to 5NM
- check ATS FAIL indicator is blank
- turn and hold Mode switch to TEST for 3 seconds.

Check:

- status read-out shows ATS 12 and R, ident code 8888

Rev.: 011 Corrected

- yellow TEST status message, other traffic, proximity, traffic advisory, resolution advisory symbols and vertical speed resolution advise are shown on LH and RH TA/VS
- "TCAS system test OK" message is heard

TRIM 1-2-3 SET..... R

- Set elevator trim within green band (depending on CG position)
- Set rudder trim zero
- Set aileron trim zero

FUEL LEVERS SHUT R

POWER LEVERS GND IDLE R

FMS/GPS SET R

Activate route for the next leg and check waypoints according to Operational FPL.

TO BRIEFING COMPLETE..... PF

- Observe ERP setting ,TRQ, speeds
- Review SID and engine failure procedure

SEAT BELT / NO SMOKING. ON R

- Check SEAT BELT SIGN to be ON unless refuelling is in progress;
- Select NO SMOKING on.

STARTING

TO-WEIGHT / SPEEDS KG/SET P

- Set TOW in weight indicator
- Set speed bugs on airspeed indicators

For take-off the speed bugs should be set as follows:

Inner bug..... V_2 First outer bug..... V_{FR} Second outer bug V_{CLEAN}

DOOR LIGHTS OUTL

FUEL PUMPS ONL

Check FUEL ON BOARD and PUMP lights out

START P/B ON.....L

BEACON ONL

ANTI COLLISION LIGHT push button set ON.

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AFTER START

Signal "Remove Chocks"

START P/B OFF L

ANTI ICING .SET L

Right Pilot will:

- ...Select ENGINE ANTI-ICING as required and check ON lights;
- ...Switch PITOT and VANE heating on and check INOP lights out;
- ...Check AIRFRAME DE - ICING OFF;
- ...Check WINDOW HEAT LOW.

ALERTS LIGHTS OUT L

- Check all CAP lights out
- Scan overhead panel and check all amber and white lights out

* PROP OVERSPEED TEST, first flight of the day only COMPL L

Right Pilot will perform test as follows:

- Both ENG EC's on
- Power levers in Ground Idle
- Depress over-speed test button and hold
- NP will increase to approx. 66 per cent +/- 2 per cent
After approx. 7sec and up to 20sec NP will decrease to idle (approx. 62.5%)
- Release test button

NOTE: If test fails, NP will increase to 95%. If the actual value is more than 68% dispatch is not allowed. If less than 64% note in Technical Log, but it is allowed to dispatch.

CAUTION: Over-speed test must be conducted with ERP in TO only.

CLEAR SIGNAL RECEIVED L

Make sure the left side is clear and signal "CLEAR" is received from ground staff and RP.

TAXI LIGHT ON L

TAXI

When free of congested area L calls for flap setting and "Taxi " check.

BRAKES CHECKED L

FLAPS SET L

Insure that the flaps are at the proper setting for the desired type of take-off Cross-check the flap selector against the indicator.

FLIGHT INSTRUMENTS CKD P

Altimeters – Hpa/FT; EFIS – check heading; RMI – compare heading.

AP/FD L (R),GA,HDG,ASEL L

- Select GA mode by depressing the GA button;
- Check the heading bug to runway heading;
- Select HDG mode;
- Select ASEL mode for initial altitude.

SEATS & HARNESSSES SECURE P

Flightdeck crew seats locked, harnesses secure.

NAVAIDS SET P

Check setting or reset for departure

CONFIG CHECKED R

RP Hold TO configuration button down for 3 sec. and check no TO CONFIG warning.

BRIEFING REVIEWED PF

Review departure procedure.

SPEEDS CHECKED L

LINE-UP

When CLEARED FOR LINE UP or TAKE OFF, LP will call for "Line-up" check.

CABIN SECURE/ LIGHT OUT L

Confirm "Cabin Secure" report received via intercom.

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RADAR & TRANSPONDER ON L

Radar & Transponder shall be switched ON shortly before entering RW.
RP shall select Radar ON and transponder – TA/RA

GND IDLE STOP ON L

CONTROLS CHECKED/FREE... P

R will hold controls to prevent movement due to wind L will select control lock off and check lever locked in down position. L will check rudder for full and free movements and call: "Rudder Free". R will check ailerons and elevator for full and free movements and call: "Checked Free" and hold controls to prevent movement from wind.

LDG-STROBE LIGHTS ON L

- RP switches strobe light on when entering active runway.
(Strobe light should be off in the vicinity of other aircraft during darkness).
- LP will turn LDG light ON when cleared for T/O.

AFTER T/O

Check should be completed above 3.000 ft/or at transition altitude when cleared to FL.

GEAR UP / LIGHTS OUT PF

FLAPS UP..... PF

CLIMB POWER SET..... PF

PRESSURIZATION CHECKED PF

Check differential pressure increasing, the cabin rate shows climb.

ALTIMETERS 1013 & CROSS-CHECKED P

Set Altimeters to 1013 Hpa when cleared to FL or passing TA
(Transition Altitude) and call out "----HPA / -----Ft"

10'000 FEET**LIGHTS, BELTS .PF**

CABIN CALL

GIVEN L

LP shall press CHIME button once to release Cabin Crew from their seats.

EXTERNAL LIGHTS REGULATIONS

- Anti-collision light shall be on from engine start until engine shut down unless reflections are disturbing;
- Strobe Lights shall be switched on when entering active runway unless reflections are disturbing;

- Navigation Lights ON;
- Taxi Lights should be on when taxiing;
- Logo lights should be on during darkness below 10'000 feet.
- Landing Lights On below 10'000 feet unless disturbing.

DESCENT

PRESSURIZATION SET PF

PNF shall set landing field QNH and elevation.

BRIEFING REVIEWED PF

- Perform Approach briefing
- Set altimeter bug to landing minima
- Check LW, set speed bugs
- Speed bugs:
- Inner bug V_{REF}
- First outer bug V_{CLEAN}
- Second outer bug 160

LAND. WEIGHT / SPEEDS SET P

NAVAIDS SET/CKD P

Set for appropriate STAR

FUEL CKD PF

Check that remaining fuel quantity is in accordance to requirements.

GND IDLE STOP OFF PF

SEATS & HARNESSSES SECURE P

Seats locked & harnesses secure.

10'000 FEET LIGHTS, BELTS . PF

At 10'000 feet LP shall announce

to Cabin Crew via PA: **"Prepare the cabin for landing"****EXTERNAL LIGHTS REGULATIONS**

- Navigation Light ON.
- Anti collision Light on, except if reflections disturb.
- Strobe Lights on, except if reflections disturb.
- Landing Lights should be on below 10'000 feet except if reflections disturb.
- Logo Lights should be on during darkness below 10'000 feet.

APPROACH

ALTIMETERS QNH & X-CKD P

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SEAT BELT

ON PF

LIGHTS

ON PF

CABIN

SECURE L

Confirm "Cabin Secure" report received via intercom.

LANDING

ALTIMETERS

QNH & X-CHKD P

Altimeter with lower readings is to be used for "100'to minimum" and "Minimum" call outs and the pilot with greater altimeter reading has to increase his Minimum (reset Pressure Altimeter bug) by the appropriate amount.

CABIN

SECURE, LIGHT OUTL

LP will make one hi/low chime using Cabin Crew CALL p/b.

Wait for Cabin Crew response: CALL light out.

GEAR

DOWN/4-GREEN... P

HEADING / ALTITUDE

..AS REQ..... PF

Heading bug and altitude selector should be selected for go-around or for continuation of approach by PNF.

FLAPS

. ____ PF

ERP

GA PF

PNF shall select ERP to GA upon request from PF.

Selection of ERP to GA will result in a TRQ increase.

AFTER LANDING

ERP

TO..... R

Commander will when suitable select or command the co-pilot to select TO on ERP

FLAPS

UP..... R

When down at taxi-speed L will call for "**Flaps Up**". R will select flaps up, check flaps coming to 0 and confirm "**Flaps are up**"

FLIGHT CONTROLS

LOCKED..... R

When the flaps are up L will:

Select Flight Control Lock on. The Control Lock should be engaged during taxing

LANDING/STROBE LIGHTS AS REQ/OFF R

- Landing light and TAXI light are set by LP
- F/O will switch strobe light OFF when leaving active RW

RADAR & TRANSPONDER STBY R

Set Radar & Transponder to STBY when vacating active RW

FMS/GPS OFF R

Check landing time, fuel used & turn off the system.

ENGINE ANTI-ICING AS REQ L

Shall be selected by RP upon request from the LP.

EFIS AS REQ P

Switch PFD and ND brightness OFF if not needed.

AFTER PARKING

PARKING BRAKE SET L

SEAT BELT .OFF L

FUEL LEVERS SHUT R

- Allow engines to operate on idle for at least three minutes before engine shutdown
- Power lever GND IDLE
- Engine Anti-Ice CKD OFF
- Fuel lever START

Hold Fuel lever in START until torque indication drops to 0% (before decimal point) or at least 10 sec to insure propeller to feather.

- FUEL LEVERS SHUT

NOTE: If oil quantity check is required allow engine to stabilise with Fuel lever in start position for at least 20 seconds before shut down.

FUEL PUMPS OFF R

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ANTI ICING OFF R
Check: -ENGINE ANTI-ICING OFF
 -AIRFRAME DE-ICING OFF
Switch: -PROBE HEAT OFF
 -WINDOW HEAT OFF

BEACON / TAXI LIGHTS OFF R

NOTE: If no external PWR available, swich:

EMER LIGHT OFF R

BATTERIES OFF R

FINAL STOP

EFIS OFF R

EMERGENCY LIGHTS OFF R

-When passengers have disembarked.

BATTERIES OFF R

GROUND HANDLING SWITCH OFF R

OXYGEN OFF R

2.4. LOW VISIBILITY OPERATIONS / CAT 2 APPROACH

- 2.4.1 Low Visibility Procedures
- 2.4.2 Taxi
- 2.4.3 Low Visibility Take-Off
- 2.4.4 Category 2 Approach
 - Limitations
 - Additional Requirements
 - Execution
- 2.4.5 Failures during CAT 2 Approach
- 2.4.6 Simulated CAT 2 approach procedure.
- 2.4.7 Documentation Appendices

2.4.1. Low Visibility Procedure (LVP)

LVP is initiated by ATC when the weather deteriorates below established parameters (usually 200'/800m) to provide the following:

- The information to flight crews about the weather and status of the ground facilities;
- The OFZ (Obstacle Free Zone) will be clear of obstacles such as vehicles and aircraft;
- The ILS sensitive area will be clear of all vehicles and aircraft capable of causing reflection and/or refraction of signals;
- Safeguarding actions of maneuvering area (runways, taxiways, apron areas), provide protection of maneuvering areas from uncontrolled traffic;
- Increased minimum separation between aircraft during approach.

2.4.2. Taxi

In addition to basic procedures for taxi (see page 4 of 2.1) the following should be considered.

- Use utmost care to taxi according to issued clearance with an airport map available in the chart holder on the steering wheel.
- Do not hesitate to request from ATC the positions of other taxiing aircraft or to ask for a "follow me" car.
- Taxi as slowly as necessary for safety. Bear in mind that poorly lit obstacle such as aircraft tails or wing tips and their navigation lights from certain angles do not show up well.
- Taxi check to be performed with the aircraft stopped at the holding area.
- Always confirm an authorization to cross a red stop-bar when it is lit.

2.4.3. Low Visibility Take-Off

Low Visibility Take-Off (LVTO) – a take-off where the Runway Visual Range (RVR) is less than 400 m, and Low visibility procedures are in force.

Before commencing a LVTO the Commander shall satisfy himself that:

- Appropriate Low Visibility Procedures are in force according to information received from Air Traffic Services;
- Both pilots are qualified for LVTO;
- LVTOs are the part of Cat 2 training. LVTO qualification is attained and maintained together with Cat 2 qualification (see below);
- Check CAT 2/3 RATING forms;
- Take-off alternate is selected and reported to ATS;
- The weather is not below the Take-off Minima;
- Take-off Minima is established to ensure sufficient guidance to control the aircraft in the event of critical engine failure and depends primarily on the runway visual facilities:

Facilities	RVR/Visibility, meters
Nil (day only)	500
RW edge lighting and/or centerline marking	250 *
RW edge and centerline lighting	200
RW edge and centerline lighting and multiple RVR information	150

* For night operations at least RW edge and RW end lights are required.

Use of multiple RVR

Normally TDZ, Midpoint and Stopend reports should be available.

- Midpoint RVR shall never be below the take-off minima.
- TDZ RVR (initial part of take-off run) - can be replaced by pilot assessment from the line up position.

NOTE: The spacing of CL and RL can be checked by comparing with TDZ lights, which are always spaced 30 m. If TDZ lights are not available or in doubts, ask ATC about the spacing of the lights.

- Stop-end RVR may be disregarded provided GWC calculations (refer to Route Manual, section Fueling/GWC) show that only the first two segments of the runway are needed for take-off.

TAKE-OFF EXECUTION

LP shall perform LVTO. TO (ERP) power shall be used.

In addition to basic take-off procedures (see 2.2.5) the following should be considered.

		LP	RP
General		May not look inside.	- May not look outside; - Select Localizer frequency on NAV 2; - Advise immediately any deviation from the runway heading or localizer; - Announce very clearly the problem so that the LP can decide without looking inside.
	incapac 60 Kts	“My controls”	“60 Knots. PWR Checked” If the LP doesn't react repeat the call and, if no reply, abort the T/O.
	V ₁	“Continue”	“V₁” “Rotate” If the LP doesn't react, take over controls and perform the T/O.

2.4.4. Category 2 Approach

2.4.4.1 General

Cat 2 approach is an autopilot coupled precision monitored approach completed by manual landing with a Decision Height (DH) between 200 and 100 feet, and controlling runway visual range not less than 300m.

Decision Height (DH) for Cat 2 Approach always refer to ground and the Radio Altimeter shall be used.

- Limitations:**
1. Autopilot may remain engaged down to 50' RA;
 2. As in table in Appendix 2.

2.4.4.2 Approach planning

Before execution of the Cat 2 Approach the Commander shall satisfy himself that the following requirements are fulfilled:

- Low Visibility Procedures are in force.
- airBaltic is authorized to use Cat 2 Minima for particular countries/aerodromes as specified in the Appendix 1 of this section.
- Weather and RW conditions are within the limitations for Cat 2 Operations (see Appendix 2 of this section).
- Status of the aerodrome facilities is sufficient for Cat 2 (App 2).
- Status of the aircraft and it's relevant systems is adequate (App 2).
- Pilots are properly qualified (check Cat 2/3 RATING form).

2.4.4.3 Pilot's qualification

Properly filled CAT2 RATING form shall be carried along at all times while on flight duty as a document proving pilot's qualification for particular category of operations.

Initial Qualification

Both pilots have completed the Cat 2 training (OM Part D, para 4.9).

Line training consists as minimum of three (3) landings using Cat 2 procedures with the Radio Altimeter set to Cat 1 Decision Height.

Simulator training and Line training shall be signed of by appropriate Instructor/Line Commander (Cat 2/3 RATING form).

Type and command experience

50 hours or 20 sectors shall be completed as the Commander on the a/c type before performing any Cat 2/3 operation.

Up to 100 hours or 40 sectors as the Commander on the a/c type, add 100 meters to the applicable Cat 2 RVR minima, unless previously qualified as the Commander for Cat 2 operations.

Recency requirements

A minimum of 3 approaches and landings using approved Cat 2 procedures during the previous 6-month period. Two approaches and one go-around have to be completed during Proficiency Check as mandatory exercise and at least one approach must be conducted in the airplane. All conducted approaches shall be properly documented in CAT2/3 RATING form.

2.4.4.4 Approach Execution

General

a) Approach Ban Rules (Commencement and continuation of approach)

An Cat2 approach may be commenced regardless of the reported RVR/Visibility.

If the reported RVR/visibility is less than the applicable minima, an instrument approach shall not be continued below **1 500' Radio Altitude** when decision to establish final approach configuration and speed shall be made.

If the reported RVR/visibility falls below the applicable minimum after that, when final approach configuration and speed have been established, the approach may be continued **to DH**.

The approach may be continued **below** and the landing may be completed provided that the required visual reference is established and maintained.

b) Stabilized Approach Concept (see 2.2.9.1, b)

Cat2 Approach shall be stabilized at **1 000'RA**.

c) Transition to visual landing

Transition from instrument approach to visual landing shall be started not later than at 100' to Minimum and shall be accomplished not later than at Minimum (DH).

The approach may not be continued **below DH** unless a visual reference containing a segment of at least 3 consecutive lights being the:

- centreline of the approach lights;
- touchdown zone lights;
- runway centreline lights;
- runway edge lights, or

a combination of these is attained and can be maintained.

This visual reference must include a lateral element of the ground pattern, i.e. an approach lighting crossbar or the landing threshold or a barrette of the touchdown zone lighting.

d) Use of Altimeters

Radio Altimeters are primary altimeters for CAT 2 approaches.

Cat 2 Minima for particular runway, presented in IAL charts in Route Manual, shall be:

- set on both Primary Flight Displays before approach commencement;
- used for Decision Height determination during approach.

Pressure Altimeters are used as secondary but could be used as primary if decision to revert to Cat 1 Approach Procedure is made by Commander during Cat 2 Approach taking into account the following:

- Technical deficiencies preclude Cat2 approach continuation, but do not require immediate go-around execution;
- Approach Ban Rules for Cat 1 approach are observed;
- Pressure Altimeters bugs are set on Cat 1 Minimum (DA) before approach commencement.

e) Go-around

During Cat 2 operations the probability of Go-around is very high, therefore the following to be observed:

- Therefore Go-around procedure shall be reviewed during approach briefing and the pilots should be mentally prepared for it with regard to the actions to be executed.
- The Go-around may result in an inadvertent touchdown during the maneuver. There should be no rush in landing gear retraction until the go-around power and flaps are set/reported and positive climb is confirmed.
- For call outs and performance refer to Go-around procedure.

f) Use of call-outs

Standard call-outs for approach are mandatory and are also used for early recognition of pilot incapacitation.

If incapacitation is recognized during Cat 2 approach, Go-around shall be initiated immediately and “Crew Incapacitation” procedure (3.6.1) shall be followed.

Crew co-ordination

Approach Briefing shall be complete by Left Pilot but Go-around procedure by Right Pilot (use Appendix 2 of this section, Cat 2 Procedure Summary).

Phase	LP	RP
General	Cat 2 Decision Height (DH) is set on the Radio Altimeters and the Pressure Altimeter bug is set to the Cat 1 Decision Altitude (DA);	
	Will execute transition to visual flight and landing – PF from the Minimum	Will execute the instrument part of the approach – PF down to Minimum and Go-around if required contact has not been established at the Minimum.
Initial Approach	Right Pilot is Pilot Flying and AP engaged from the Right side. Controller must be advised, and approval received. Before establish on Localizer (as a good rule at 5NM lateral) both pilots are to check/set ILS frequency and the final approach course on the FMP. Arm NAV/LOC mode when angle between present and inbound course is less than 90°.	
On Final	Establish on Localizer well before intercepting the Glide Slope. If under Radar Vectors, increased separation and not shorter than 10 NM final will be provided by controller. Establish speed 180 Kts. From now the RP follows through the controls and ready to take over incase of AP failure /disconnect.	

Approaching Localizer/GS	LOC Alive G/S Alive	“Localizer coming/captured” “G/S coming”	“Checked/Checked” “Checked”
	1 DOT	Check the speed ≤ 180, Select flaps 10, and when they reached selected position, call: “Flaps 10,Speed 160”	Check the speed ≤ 180, and call: “Flaps 10”
	GS	“GS captured” Select Landing Gear down and initiate Landing checklist.	Check the speed ≤ 170, and call: “Gear down Checklist”
1 500’ Radio	The purpose of an introduction of this gate for final speed/flap selection is to be stabilized at 1 000’RA and to make the pace of actions during approach more even.		
	Check the speed ≤ 160, Select flaps 25, and when they reached selected position, Complete Landing checklist	Check speed ≤ 160 Kts and call, “Flaps 25”	
1000’ Radio	This is the gate for Stabilized Approach concept. A/c is fully stabilized in rate of descent, heading, speed and Landing Checklist is complete.		
	Cross-check Radio Altimeters, check GS, LOC and no warnings/flags on instruments, “1000’ Radio, Stabilized”	Cross-check Radio Altimeters; Call “Checked”	
	From this moment, the Go-around shall be initiated for Master warning or any other excessive deviation. NOTE: In case of smoke or fire it is the Commander’s decision weather to continue the approach and landing or to initiate the Go-around.		

Phase	LP	RP
500' Radio	Cross-check Radio Altimeters, check GS, LOC and no warnings/flags on instruments, “500' Radio, Stabilized”	
	With the callout “Minimum” The Commander reminds that the RA is to be used for further PF's calls. If the Approach is going to be continued to the CAT 1 minimum, the Commander will call “MinimumFT pressure” , to emphasize that the pressure altimeter with the bug preselected to CAT 1 minimum will be used for further PF's calls.	Cross-check Radio Altimeters; Call “Checked”
	From this moment the PF/PM duties are completely split. PF From now is the only pilot who will monitor the instruments and must initiate and complete the Go-around in case of any malfunction, warning or excessive deviations are observed until Commander calls: “CONTACT” .	
100' To Minimum	Check validity of PF's call and call: “Checked, Looking out” Will put left hand on control wheel and right hand ready to assume controls; Start to look outside to accustom vision to long focus to established visual references; When sufficient guidance for landing has been attained, at least 3 successive approach lights, call: “Contact” .	Call: “100 To Minimum”

Phase	LP	RP
Minimum	“Go-around” if visual contact for landing is not established or aircraft position and/or movement relative to runway will not provide safe landing (see Note), or	“Minimum” at DH+10' (the automatic call will follow your call). Perform Go-around upon LP request or if there is no response from LP on your challenge.
	During Cat 2 Operations the probability of the Go-around is very high, and the pilots should be mentally prepared for it with regard to the actions to be executed. Because of being very close to the ground, the Go-around may result in an inadvertent touchdown during the manoeuvre, so the no rush in landing gear retraction until the go-around power and flaps are set/reported and positive climb is confirmed. For call outs and performance refer to Go-around procedure.	
	“Contact, My controls” if required visual contact for landing is established and maintained Take controls and perform landing	Remove your hands from controls only after clear “My controls” from LP. Continue to monitor instruments and brief PF using standard call-outs, if deviations become excessive.
	NOTE: maximum lateral deviation is such, that aircraft position is within the red approach lights rows on a trajectory towards the centerline.	

	LP/PF	RP/PM
Below DH	If AP performance was confirmed satisfactory on the DH, postpone disconnect till the 50' altitude for manual landing	Continue to monitor instruments and brief PF using standard call-outs, if deviation become excessive At 50' RA will start counting of height every 10 FT: "50, 40, 30, 20, 10" Below 10FT RA will count the speed relative to V_{REF} "Plus....., Target speed, Minus..."
Landing	If the visual reference during landing roll is loosed, do not attempt a Go-around, but apply full brakes (reverse) and use Localizer as reference for directional control.	Remains head down until the call "60 KNOTS" . From now you may look outside
Taxi	Vacate the runway by following the taxiway centerline lights.	Report RW vacated when clear of the sensitive area (alternating green and orange taxiway centerline lights changes to green only)
	Continue as cleared/instructed and apply recommendations for taxiing given in 2.7.2 above.	

2.4.5. Failures During Cat 2 Approach

The Minimum equipment required for CAT 2 Operations shall be serviceable before the CAT 2 Approach is commenced (see Table of requirements).

Failure above 1000' RA

The PM (Commander) will consult appropriate table in the Normal Checklist, (which should be placed readily to hand) perform the required abnormal procedures; announce clearly the Landing Minima to be used.

NOTE:

- 1) Abnormal procedures, required for the Approach continuation, must be completed before passing 500' RA (for engine failure Memory Items only) without distraction pilots attention from performing their main duties concerning approach execution;
- 2) In any case the Approach Ban Rules requirements must be met (the Outer Marker/equivalent position must not be passed with RVR below appropriate Minimum).

Failure below 1000' RA

In case of engine failure, any warning flag on EFIS, autopilot disconnect, comparator warning or excessive deviation, a Go-around must be initiated.

NOTE: In the event of Go-around because of ATT, ROL or PIT warning check the aircraft attitude by reference to the standby attitude indicator.

2.4.6. Simulated CAT 2 approach procedure.

Simulated CAT 2 approach procedure is used to gain and retain qualification in CAT 2.

For initial CAT 2 qualification the procedure is exercised during line training with a Line Captain. For re-qualification purposes regular crew executes the procedure.

Conditions:

- Weather conditions are above CAT 1 minimum;
- Aircraft technical status as required for CAT 2;
- Status and quality of the ground facilities should provide successful automatic approach and landing, as required for exercise

NOTE: As every CAT 2 approach shall be reported and counted for a/c technical reliability statistic to conduct automatic approaches. Pilots should refrain from conduct of Simulated CAT 2 approaches if technical status of a/c and/or ground facilities precludes successful execution of the approach. (see criteria in OM, Part A, 8.4).

Execution:

- Briefing and preparations for the approach shall be completed to full extent;
- Radio Altimeter in this case shall be set and used on CAT 1 minimum with cross-reference to Pressure altimeters that still are used as the primary one;

2.4.7. Documentation

After completion of any particular Cat 2 approaches:

- Both pilots are responsible for filling their CAT II/III RATING forms;
- Commander is responsible for filling CAT II/III REPORT form.

NOTE: Following criteria to be used for Cat 2 Approach evaluation.

A successful approach is considered to be an approach with no relevant system failure below 500'ft to start of flare and/or no excessive deviations from 300'ft to DH (for more details see OM Part A, para 8.4).

APPENDIX 1

CERTIFIED AERODROMES FOR CAT 2 OPERATIONS

Countries	Aerodromes
Austria	Approved CAT2 aerodromes
Belarus	Approved CAT2 aerodromes
Belgium	Approved CAT2 aerodromes
Bulgaria	Approved CAT2 aerodromes
Czech Republic	Approved CAT2 aerodromes
Denmark	Approved CAT2 aerodromes
Finland	Approved CAT2 aerodromes
France	Approved CAT2 aerodromes
Germany	Approved CAT2 aerodromes
Greece	Approved CAT2 aerodromes
Hungary	Approved CAT2 aerodromes
Ireland	Approved CAT2 aerodromes
Italy	Approved CAT2 aerodromes
Netherlands	Approved CAT2 aerodromes
Norway	Approved CAT2 aerodromes
Poland	Approved CAT2 aerodromes
Romania	Approved CAT2 aerodromes
Russian Federation	Approved CAT2 aerodromes
Slovakia	Approved CAT2 aerodromes
Spain	Approved CAT2 aerodromes
Sweden	Approved CAT2 aerodromes
Switzerland	Approved CAT2 aerodromes
Ukraine	Approved CAT2 aerodromes
United Kingdom	Approved CAT2 aerodromes

NOTE: Refer to SAS Route Manual OPS INFO p. 8.11-14 for operational details.

NOTE: This authorization does not include the use of “Special ILS/DME Cat 2/3 Procedure” in certain aerodromes.

APPENDIX 2

CAT1/CAT 2 REQUIREMENTS

CAT 1	CAT 2	PARAMETER	M I N
200	100	MIN DH	
550	300	MIN TDZ RVR (m)	
125(c)	125(c)	Mid point RVR	
75(c)	75(c)	Stop end RVR	
E		CAT1 ILS	A E R O D R O M E
	X	CAT2 ILS	
30	45	RWY WIDTH (m)	
720	420	HIALS (m from THR)	
X	X	STBY PWR HIALS	
X	X	RWY EDGE LTS – NIGHT ONLY	
	X	RWY CL/ TDZ LTS - NIGHT ONLY	
	30	MAX CL SPACING (m)	
(b)	(b)	ALL ALS & RWY LTS	
	X	STBY PWR LTS	
	X	AUTOPILOT - YD	A E R O P L A N E
	1	FLIGHT DIRECTOR	
	X	AUTOPILOT AURAL WARNING	
	2	AP DISENGAGE SWITCH	
	X	ALL ENGINES	
	1	GENERATORS	
	2	WINDSHIELD WIPER	
2	2	ILS RECEIVER	
	X	STBY HORIZON	
	X	EFIS CROSS TALK FUNCTION	
1	2	EFIS SGU	
	2	FMA on PFD	
PF	2	ND	
	2	RADIO ALT + DISPLAY	
	1	DH SETTING + DISPLAY	
	X	STBY ALTI	W E A T H E R
	X	STBY ASI	
	X	MAX TOTAL WIND 20 kts	
	X	MAX CROSSWIND 15 kts	
	X	MAX TAILWIND 10 kts	
	X	BRAKING ACT ≥ 0.3	
	X	NO MOD/SEVERE TURBULENCE	
	X	NO WINDSHEAR	
	X	NO HEAVY PRECIPITATION	

X : Required, E : Either required

a) If TDZ RVR not available, MID RVR may substitute TDZ RVR

b) Max 1/3 may be INOP with pattern unaltered

c) If reported and relevant (used during high speed landing down to approx 60 Kts) JAR-OPS 1.405(f)

APPENDIX 3

CAT 2 PROCEDURE SUMMARY

PRIOR OR DURING DESCENT

- Weather & NOTAMS (Dest & Altern)
- Fuel (min for diversion)
- Cat 2 Approved Runways table (OM Part B)
- Aerodrome facility & aircraft status
- Flight Crew recent experience::
At least 3 approaches/landings must be conducted using CAT 2 procedures during the previous 6 month, at least one of which must be conducted in the aircraft;
- Cat 2 DH set on the RA ;
Cat 1 DH set on the pressure altimeter;
- Procedures/Failures during approach;
- Go-around procedure reviewed.

INITIAL APPROACH

Right pilot is PF, AP on right side, ATC advised.

BEFORE INTERCEPT HEADING

ILS frequency/final course check + identify

Phase	LP	RP
LOC alive G/S alive	“Localizer coming/ captured” “GS coming”	“Checked/Checked” “Checked”
1 Dot fly to GS	“Flaps 10, Speed 160”	“Flaps 10”
On GS.	“GS captured” “Gear is down”	“Gear down, Checklist”
1500’ RA	“1500 Radio” “Flaps 25”	“Flaps 25”
1000’ RA	“1000 Radio, Stabilized /Go around/”	“Checked”
500’ RA	“500 Radio, Stabilized, Minimum ... radio /Go around/”	“Checked”
DH +100	“Checked, Looking out”	“100 to Minimum”
DH	“Contact, My Controls /Go around/”	“Minimum”

2.5. FLIGHT OPERATIONS IN ADVERSE WEATHER CONDITIONS

2.5.1. Cold Weather

2.5.1.1. General

Cold Weather Operations are characterized with the following factors, relevant to flight:

- Low ambient temperature;
- Different kinds of precipitation;
- Aircraft and ground surfaces may be covered with ice, snow or slush;
- Icing conditions.

2.5.1.2. Pre-departure

Flight preparation

If according to MET information there could be encountered ground operations on slippery surfaces it is recommended to arrange forward CG, in order to increase controllability and to reduce possibility of nose wheel skidding.

The flight shall be planned to avoid areas with forecasted or reported severe icing.

After encountering icing conditions residual ice will remain on the airframe associated with slight speed reduction and some extra fuel consumption.

In case of engine failure, consider that single engine sealing will be reduced, as specified in para 2.10.3.2 below.

Exterior inspection

During cold weather operation in addition to normal pre-flight inspection the following items must be checked:

- All protective covers are removed.
- All surfaces are clear of ice and snow. Frost may be presented on fuselage to such extent that the paint scheme is still visible.
- Static port area to be clean.
- Wing, tail surfaces, and flight controls to be free of ice, snow, and frost.
A layer of maximum **3 mm** ice under wing tank area is acceptable.
- Propellers to be free from snow and ice.
- Landing gear and gear doors are free from impacted snow or slush and visible part of strut is clean of ice.

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- Engine intakes after overnight parking even with intake covers installed if the OAT is below +5°C for clear ice. (Use your hands to detect possible clear ice conditions)

Engine start

Before starting the engines, all engine inlet leading edges and inlets must be cleared of ice and snow.

The following limitations of oil temperatures shall be applied:

- For engine start without preheat –54OC;
- GND IDLE –54OC, except for engine running with power levers below FLIGHT IDLE 0OC;
- For operation above GND IDLE Min 0°C;

After engine start at extremely low temperatures the generators may initially not supply steady AC power. When this results in a generator fault wait approximately 2 min. before resetting the generator.

When the OAT is below +5°C and visible moisture is presented, switch the ENGINE ANTI-ICE ON after engine start.

Take-off

Operate engines on ground with Engine Anti-icing ON for 3 min. before TO. 3 min. shall be counted from the moment when the oil temperature on both engines reaches + 45°C.

2.5.1.3. Ground De/anti-icing

General

De/anti-icing procedure in general is presented in OM-Part A, Section 8.2.4.

a) Evaluation and Order

On the base of PFI results, approved exceptions (see PFI procedure above) and weather conditions the Commander shall order required de/anti-icing treatment by forwarding request in accordance to the local airport procedures (in RIX to MCC).

b) Treatment and Acceptance

Quality and extent of de/anti-icing treatment shall provide clean aerodynamic surfaces for the time when the take-off is to be performed. As a general rule, aeroplane shall be treated symmetrically and HOT shall be greater than the estimated time from the beginning of anti-icing to start of take-off based on existing weather conditions.

De-icing may be performed with engines running i.e. using a taxi-through de-icing facility.

During taxi-through de/anti-icing facility, the lowest possible power setting should be used.

The bleed air for air-conditioning should be selected OFF.

The acceptable methods for contaminant removal as well as recommendations / restrictions on applying de/anti-icing fluids are given in OM-Part A, Section 8.2.4.

When De/anti-icing treatment is complete, the Commander shall be notified of the type, quality and extent of treatment performed.

- All flight control surfaces, including flaps and trims, should then be checked for full and free movement. The flaps should be cycled full down and up prior to setting for take-off (external observer may be required/used for this purpose);
- Postpone selection of bleed air supply for air-conditioning PACKS until aeroplane is out of de/anti-icing area.

Immediately before departure (off chocks), the Commander shall ensure himself, or by receiving a verbal report from the release person, that aeroplane remains free from frost, ice and snow and no parts of the aircraft have been damaged.

c) Departure

To start taxi, make sure that tires are free from ice, and wheels are not frozen to surface and free to move.

Taxi out:

- To preserve hold over protection in precipitation or freezing fog conditions flaps to be selected in take-off position shortly before line-up.
- Cycle the airframe de-icing system MANUAL 1 and 2 positions during ground operations or select HEAVY during flight in dray air for 3 min. provided the TAT is not lower than -30°C .

d) Turn-around

If approach and landing have been performed in heavy icing conditions and/or there are doubts that flaps are free from freeze contaminants, flaps to be left in landing configuration. They to be retracted on parking stand after thorough inspection.

Where contamination has occurred on structure, due to aircraft landing on airfields where snow or ice has been dispersed with salt or chemical melting agents:

- They should be removed before next departure;
- When time or conditions prevent removal of contamination at outstations, this must be noted in aircraft technical log, so appropriate action can be taken for removal at main base.

Anti-icing precautions

- If meteorological reports predict heavy frost deposits or freezing rain – pitot and engine covers to be installed;
- Aeroplane may be treated with anti-icing fluid in advance if HOT is not critical;

Post-flight Procedure

Overnight Parking in Cold Weather (no ground personal available).

Before leaving the aircraft:

- If possible, position the aircraft to a heated enclosure
- If it is parked outside, position nose into wind, if possible
- To prevent frozen brakes release the parking brake as soon as chocks are in place.
- Drain the water from galley and toilet if no internal heating of the aircraft available.
- Install gear pins
- Install all protective covers.

2.5.2. Contaminated Runways

2.5.2.1. General

Various runway conditions, such as contamination, braking action, etc., can affect take-off and landing characteristics (max weights, wind restrictions, and runway length).

For planning purposes and during the flight RM section GWC shall be used.

NOTE: Contaminated RW shorter than 1500m shall not be used.

2.5.2.2. Taxi

When taxiing on slippery surfaces increase distance between aircrafts and obstacles. Be prepared to apply asymmetric engine power to support turning and use reverse if brakes have no effect. Apply steering smoothly to avoid nose wheel skidding.

One engine taxi shall not be applied on slippery taxiways in strong wind conditions.

Consider ENG ANTI ICE – ON, in cases of RW and TW contaminations when ambient temperature is below +5°C.

After overnight parking In order to check status of de-icing system and to dray out moisture possibly collected in the system cycle the AIRFRAME DE-ICING twice through the MANUAL 1 and 2.

NOTE: Window heating must be operated in LO for 3 min. before selecting to HI.

2.5.2.3. Take off

Take off is not permitted if depth of runway contamination exceeds the following values:

Water	12 mm
Slush	12 mm
Dry snow (specific gravity 0.3)	20 mm
Dry snow (specific gravity 0.1)	60 mm

- As take off and accelerate stop distance is increased select the longest runway whenever possible.
- Flaps 15 are recommended to enable use of lowest VR and consequently the shortest ground roll.
- Take off in icing conditions and from contaminated runways with ENGINE IGNITION ON is not permitted.

During take off in standing water or slush, a bow wave will form ahead of the nose and main gear wheels and grow in size with increase of aircraft speed. To eliminate part of this drag caused by the nose wheels, raise the nose wheel just clear of contamination layer as soon as the elevator becomes effective. Continue acceleration to VR.

If the take off has to be abandoned use the standard rejected take-off technique.

In event of directional control problem release the brakes, cancel reverse and use the rudder pedals to correct back to the centerline

In an emergency full reverse can be used until standstill.

NOTE: During take-off in icing conditions or from contaminated runways it is **NOT** permitted to have ENGINE IGNITION ON.

After take-off from slush covered runway leave the landing gear down for **1 min** in order to allow accumulated slush to be blown away from the wheels and brakes. Maintain normal climb attitude and do not exceed 170 kt.

When an engine failure occurs retract landing gear and follow standard procedures.

2.5.2.4. Landing

The recommended maximum wind components for landing on contaminated runways are similar to the figures for take-off and are presented as a table in SAS RM “Fuelling GWC”, page 11.2.

Under these circumstances when landing on slippery or contaminated runway are expected the following procedures are applicable:

- Use the longest runway compatible with crosswind limits and avoid tailwind landings.
- Consider using flaps 35 (if not restricted to flap 25 due icing conditions)
- Avoid a long landing and do not bleed off excess speed during the flare but land the aircraft in the touchdown zone.
- After touchdown lower the nose, select GROUND IDLE and REVERSE (if required) and apply brakes symmetrically. Be careful to apply reverse on a contaminated runway in combination with crosswind.
- If no brake pressure is felt, expect hydroplaning. Do not use alternate brakes under these circumstances. Apply steady brake pressure and rely on anti-skid system, as it will stop the aircraft in shortest distance.
- In an emergency reverse may be used until stand still.
- Reduce to taxi speed prior to turning off the runway.

If directional control is lost, release the brakes and reduce to reverse idle or even forward idle. Use rudder to re-align with the centerline, reapply reverse and use the brakes as required to stop the aircraft.

2.5.3. Icing Conditions

2.5.3.1. General

Icing can be expected to occur when the ambient temperature or TAT is below +5°C and visible moisture is presented or when standing water or slush is present on the ground.

- ENG ANTI-ICE must be switched on when icing conditions are encountered or anticipated.
- If the aircraft was parked overnight in sub-zero temperatures, the airframe de-icing system operation shall be checked. After engine start operate the system in MANUAL 1 and 2 visually check the wing leading edge boots outside the engine nacelle for inflation.
- All probe heaters should be switched on whenever the aircraft is moved by its own power.
- Airframe de-icing system must not be used for take-off and landing.

2.5.3.2. Climb, Cruise and Descent

Before line-up inspect from the cockpit visible parts of aircraft wings and engines for snow and ice. Do not assume freedom from contamination by observing other aircraft – they may have been treated more recently or more effectively.

Maintain standard speeds and flight techniques during take-off and climb.

| During single engine operation climb in icing conditions with $V_{\text{Clean}} + 15$ kt.

Single-engine ceiling in icing conditions will be reduced by following values:

20 820kg	4300ft
20 000kg	2250ft
19 000kg	2000ft

Severe icing conditions

Severe icing conditions can be determined by the following visual cues:

- Ice accretion on the heated part of the windshield.
- Ice accretion on the fuselage nose in areas not normally observed to collect ice.
- Accumulation of ice on the lower surface of the wing aft of the protected area.
- Accumulation of ice on the heated propeller spinner.

If any of these visual cues is observed, the following procedure is recommended:

Engine anti-icing	CHECK ON
Airframe de-icing	CHECK HEAVY
Window heat	CHECK HI
ERP	MCT

When in climb:

Use full MCT power.
Minimum IAS 160kt.
Monitor rate of climb.

Estimate time until on top. If more than 10 min. consider change of routing or cruise level in order to leave these extreme icing conditions.

When in cruise:

- Monitor speed, minimum 160kt
- If necessary use full MCT power
- If speed drops significantly, consider change of routing or cruise level in order to leave these extreme icing conditions.

When unusually extensive ice is observed in any area, or unusual control behavior or trim requirements are encountered immediately request priority handling from ATC to facilitate a route or altitude change to exit the extreme icing conditions.

In addition, adhere to following precautions:

- Avoid abrupt and excessive maneuvering that may worsen control difficulties.
- Do not engage the Autopilot.
- If the Autopilot is engaged, hold the control wheel firmly and disengage the Autopilot. A roll control force can be expected if the control wheel has a deflection.
- If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
- Do not extend flaps during extended operation in icing conditions (operation with flaps extended can result in a reduced angle-of-attack, with the possibility of ice forming on the upper surface further aft on wing than normal, possibly aft of the protected area).
- If the flaps are extended, do not retract them until the airframe is clear of ice.
- The stall can occur at lower than normal angle-of-attack, possibly before stick shaker operation.
- Report these weather conditions to ATC

Airframe

During climb monitor if there are any ice accumulation on aircraft surfaces, use wing inspection light in darkness.

Operate airframe de-icing system **MANUAL** in order to detect accumulation of clear ice.

When ice deposits are detected select airframe de-icing **HEAVY**.

The airframe de-icing system must be kept in operation as long as ice accumulation continues. When the ice has been removed, the system must be switched off. Some residual ice is normal especially with low TAT.

If due certain conditions a combination of rime ice and clear ice will cause the effect of "tunneling" apply the **AIRFRAME DE-ICING SYSTEM NOT EFFECTIVE PROCEDURE**.

Powerplant

Use the criteria of TAT and visible moisture for switching on the **ENGINE ANTI-ICING** system.

Irregular ice shedding or a partial propeller de-icing failure, which does not necessarily result in a system fault annunciation can result in propeller vibration.

If ice on propeller causes excessive vibration:

- | | |
|---------------|--|
| ERP | Select MCT rating for at least 3 min to allow for ice shedding with 100 % propeller RPM during a complete de-icing cycle. |
| TORQUE | Adjust according ERP INOPERATIVE tables. |

NOTE:In case of too late detection of icing conditions, operate **ENGINE ANTI-ICING** on one engine at a time with an interval of **2 min**.

2.5.3.3. Approach and Landing

Before commencing the approach at a TAT below +10°C, select the airframe de-icing system to HEAVY for approx. **3 min** to clear the airframe of any residual ice unless it is confirmed that the wing boots are clean.

During approach in icing conditions or when residual ice is supposed to be present on the airframe, normal flight techniques and speeds are applicable.

If flaps 35 is required for landing select flaps 35 below 300 ft AGL.

In case of a defective airframe de-icing system and ice being present on the protected parts of the wing, ice must be assumed to be present also on the tail section. An increase of stall speed and a degradation of elevator control capacity must be anticipated. Under those circumstances not more than flaps 25 for landing shall be used.

Increase the approach speed to $V_{REF} + 25\text{kt}$ for sufficient margin over the increased stall speed. Aim for $V_{REF} + 15\text{kt}$ over the runway threshold. Actual landing distance will increase with 35%.

2.5.4. Turbulence

Turbulence is graded by its intensity as light, moderate and severe. Flight through areas of known severe or moderate turbulence should be avoided. This may imply the delay of the take-off or approach if visual observation or radar checks indicate thunderstorm activity in departure or approach area.

1. During pre-flight or in-flight planning through the zone of known /expected turbulence the following precautions should be taken:
 - Cabin crew to be advised well in advance or as soon as possible to prepare the cabin/carry out appropriate services;
 - Passengers should be informed by the Commander.
 - FASTEN BELTS switched ON prior the entry turbulence zone.
2. If unexpected turbulence is experienced, the FASTEN BELTS sign shall be switched ON immediately and passengers informed by the Commander.

NOTE: As a back up, the cabin crew will inform passengers if after switching on the sign there will be no information from the cockpit within 10 sec.

In severe turbulence zone additionally:

- Set airspeed 165 knots.
- The autopilot should be regarded as primary means of aircraft control. Use AFCS in basic mode.
- Use AFCS pitch control to maintain attitude.
- If AP is inoperative maintain the desired pitch attitude and wing level. Correct attitude changes by making small control inputs.

2.5.5. Wind Shear

2.5.5.1. General

Windshear is very hazardous threat to aircraft during take-off, approach and landing.

It may be experienced in thunderstorm areas, when penetrating weather fronts, low level jet streams, temperature inversions, mountain waves and thermals. Other causes include terrain irregularities and man-made obstructions close to the runway. Windshear and / or vertical wind activity present a potential hazard when flying at low altitudes. If the aircraft is exposed to a diminishing headwind (or increasing tailwind) and / or downdrafts, corrective action must be taken promptly to avoid high rates of descent, speed loss. In severe weather conditions, maximum take-off power and pitch attitude well above the normal go-around attitude may be necessary to correct the flight path. For additional general information see AOM 7.09.01.

Lessons learned from windshear encounters:

- Recognition is difficult and is usually complicated by marginal weather.
- Time available for recognition and recovery is short (as little as 5 sec).
- Flight Crew co-ordination has a vital importance for prompt windshear recognition and recovery.
- Lower than normal airspeed may have to be accepted during Flight Crew actions.

2.5.5.2. Avoidance and Precautions

In case of reported severe windshear or weather conditions where severe windshear conditions are present, do not take-off, approach or land. If possible delay take-off, approach or landing until weather conditions improve.

Take-off Precautions

1. Use the most favourable runway and/or climb out direction.
2. During take-off roll, carefully monitor airspeed for earliest possible indication of windshear.
3. If obstacle clearance allows, consider using an initial climb speed of V_2+25 kt.

Approach Precautions

- 1) The aeroplane should be stabilized at 1000 Radio altitude.
- 2) Use the most favourable runway and approach sector.
- 3) Use flaps 25°.
- 4) Use approach speed not more than $V_{REF}+25$ knots do not make large power reductions until the beginning of the flare.
- 5) PNF should monitor speed, ROD, pitch attitude and power setting until of the flare.

2.5.5.3. Recovery**Take-off**

Prior to V_1 the take-off should be rejected if windshear is encountered and the decision made that sufficient runway is available to stop the aircraft. After V_1 the take-off shall be continued.

- 1) Select maximum take-off power (GA).
- 2) Increase pitch attitude and trade speed for improved climb capability in order to prevent altitude loss.
- 3) Do not accelerate back to normal climb speed, decrease pitch attitude only as necessary to avoid stick shaker.
- 4) Be prepared for penetration of additional areas of horizontal wind changes and vertical wind activities.

Approach and Landing

- 1) Simultaneously apply GA power and rotate the airplane to GA attitude or higher to control the ROD. Trade speed for improved climb capability in order to prevent altitude loss.
- 2) Do not accelerate back to final approach speed, decrease pitch attitude only as necessary to avoid stick shaker.
- 3) Be prepared for penetration of additional areas of horizontal wind changes and vertical wind activities.
- 4) Report to ATC.

2.5.6. EXTREME WIND CONDITIONS

2.5.6.1. Taxiing, Parking

There are recommendations for taxi and parking in extreme wind conditions:

- If the aeroplane has a tendency to turn into the wind during taxi, it may be necessary to use pedals with separate brakes applying to maintain taxi direction.
- Ailerons and elevator to be in neutral positions during taxi.
- Check parking brakes set “On”, chocks are positioned under all wheels (six in total), on the stand with strong crosswind, especially on slippery surfaces.
- When the aircraft has to be parked for a prolonged time in wind velocities close to or exceeding the limits for the flight control lock (52 kts.), park the aircraft such that the prevailing and expected wind direction is within 60 degrees from head on.

2.5.6.2. Limitations

The following wind limitations are applicable for take-off and landing:

Tailwind 10 knots

Crosswind

Statement of Braking Action	Friction coefficient (μ)	Max Crosswind (kt)
Poor	0.15 - 0.25	5
Medium Poor	0.26 - 0.29	15
Medium	0.30 - 0.35	20
Medium Good	0.36 - 0.39	25
Good	≥ 0.40	33

For crosswind component diagram see SAS RM GWC or Normal Checklist p. 11.

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3 ABNORMAL and EMERGENCY PROCEDURES

3.0 Preamble

3.0.1. General

The procedures contained in this section apply if abnormal or emergency situation observed. These procedures supplement and supersede the normal procedures.

Information is subdivided to provide possibility for pilots to review certain situations that may have a place during flight or to get quick reference for other related information / document. Additional summarized information is presented in a way of profile drawing where needed.

Where required references are made to different parts of Aircraft Operations Manual (AOM), airBaltic Operations Manual (OM), or other official publications to provide additional information for flight deck personnel.

3.0.2. Purpose

The purpose of the procedures is to give to the pilots necessary information in a way of guidelines and instructions, with aim to provide acceptable level of safety during and after recovery of an abnormal or emergency situation.

3.0.3. Scope

The procedures are applicable to Flight Crew during the flight, unless specifically stated otherwise.

3.0.4. Definitions

Emergency procedure. A procedure requiring immediate flight crew action to protect the aeroplane and its occupants from serious harm.

Abnormal procedure. A procedure requiring flight crew action, due to failure of a system or component, to maintain an acceptable level of airworthiness for continued safe flight and landing.

Memory Items. Minimal vital actions, which shall be done as soon as the situation permits without reference to the checklist.

Check List. Abnormal or Emergency procedures for which specific Check Lists are developed and could be applied directly upon warning has been received. All such check lists are published in Quick Reference Handbook (QRH) and must be easily accessible to flight crew during the flight.

Appropriate Procedure. In most cases it is Emergency Crew Co-ordination Procedure which shall be applied in case of warning has been received (GPWS, TCAS warning, Rejected Take-off, Go-around etc). Respective Check List may be incorporated when required by the procedure. All such procedures are published below.

3.0.5. Responsibility

The Commander is responsible to:

- Set / Change the priorities;
- Identify / confirm the applicable procedure;
- Co-ordinate the crew actions;
- Follow / direct the procedure.

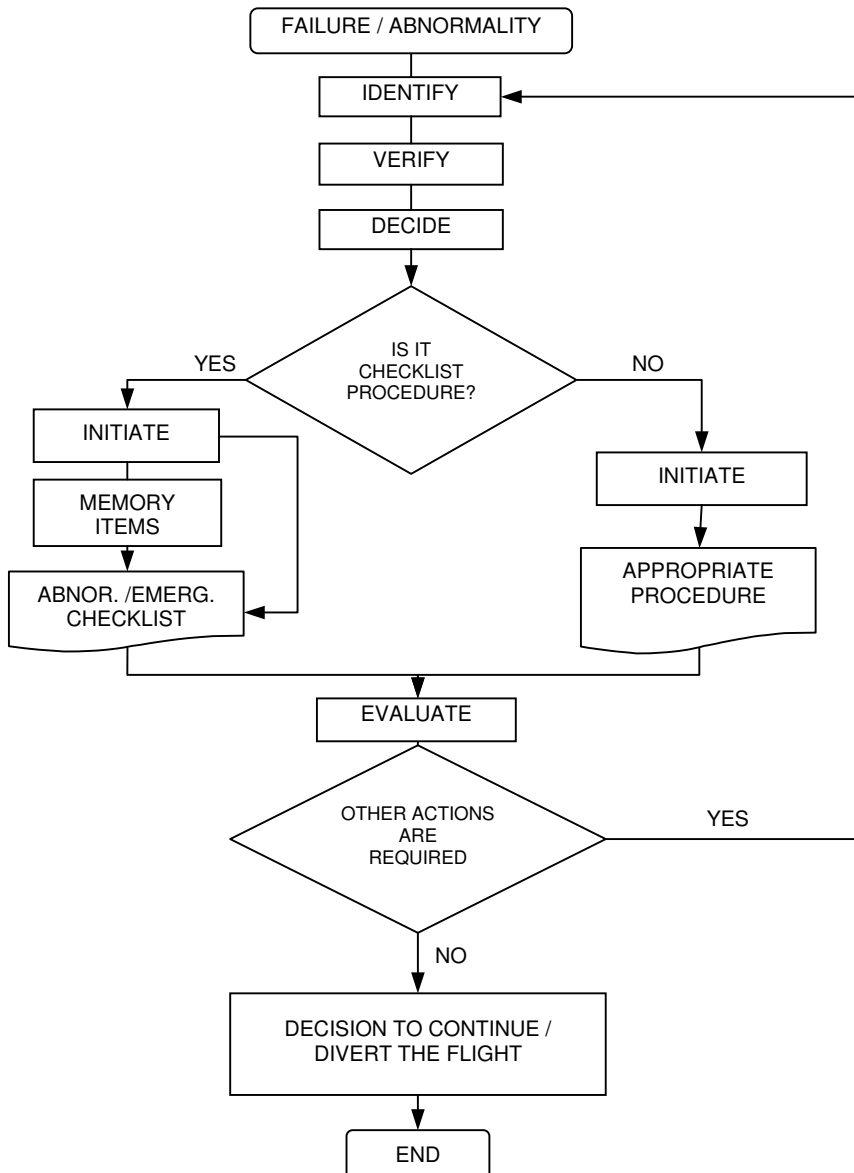
PF is responsible to:

- Control the aeroplane;
- Initiate identified procedure;
- Monitor PNF's actions.

PNF is responsible to carry out identified procedure / checklist.

3.0.6. Abnormal / Emergency Situation Handling

The following sequence of stages is typical for the situation handling.



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FAILURE /
ABNORMALITY

Any crewmember detecting an impending or existing abnormal condition shall immediately inform the other crewmember.

The PF continue to **fly the aeroplane**.

IDENTIFY

One of the pilots (normally PNF) shall state the problem.

NOTES: 1. MWS nuisance warning could be cancelled.
2. Cancelled warning shall be stated.

VERIFY

Stated problem shall be verified and confirmed by both pilots. Both pilots analyze the problem by checking indications and parameters, affected system set up, circuit breakers position.

DECIDE

Applicable procedure shall be identified by the PF and confirmed by the Commander.

NOTE: Distribution of duties (PF / PNF) may be changed by the Commander, if required.

INITIATE

The PF, when ready, shall initiate identified procedure, using proper call-out.

MEMORY ITEMS

Minimal vital actions, which shall be done as soon as the situation permits without reference to the checklist (see 3.1.9 below).

ABNORM/EMERG
CHECKLIST

Most of the procedures can be found in Abnormal / Emergency Checklist. They shall be accomplished following the principles described in Ch. 3.1.7 below.

APPROPRIATE
PROCEDURE

Abnormal / Emergency Procedure relevant to Situation that could be found in this chapter or other available official publications.

An abnormal procedure / checklist should be continued to its definite end.
At the end of a procedure PNF shall announce:

“Checklist / Procedure completed ”.

EVALUATE

Upon completing of the procedure, evaluation should be made to clarify:

- The aeroplane / affected system current status;
- Any additional limitation resulted by the procedure or situation;
- Any additional abnormal / emergency procedure or course of actions required for safe conduct of the flight.

DECISION TO
CONTINUE /
DIVERT THE

Commander shall analyze the situation and make a decision about possibility to continue the flight to destination (see Ch 3.11).

3.0.7. Crew Co-ordination

In abnormal / emergency situation crew co-ordination mainly is the same as in normal flight (see Part A Ch. 8.0).

Handling emergency situation the Commander may re-designate the PF, taking into account the following:

- The aeroplane / systems status;
- Experience of flight crewmembers;
- Crew workload, fatigue and stress level;
- Additional tasks / arrangements (re-examination of checklist, cabin crew co-ordination, PA announcement, etc).

However the Commander should refrain from taking over the controls during critical stages of the flight (take-off, landing, go-around) when aeroplane is below MSA.

3.0.8. Circuit breakers reset procedure

Tripped circuit breakers should not be reset in flight unless, in the judgment of the Commander, it is necessary for the safe completion of the flight. However, circuit breaker related to fuel pumps should never be reset in flight. No reset is allowed upon a second trip of any circuit breaker. Ground reset of a tripped circuit breaker should only be accomplished after Maintenance has ascertained both the reason for the circuit breaker trip and established that there is no airworthiness concern.

Cabin Crew shall not operate with circuit breakers located in cabin without clear concern of the Commander.

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3.1 FAILURE DURING TAKE-OFF and LANDING

3.1.1 Rejected Take-off

If continuation is unsafe, take-off could be aborted at any speed below V_1 calculated for particular runway and conditions. However, statistics show that take-off abortion from the speeds close to V_1 poses higher risk of overrun and aeroplane damage.

To minimize this risk and facilitate decision making during take-off run, two phases are established:

- Speeds below 80 Kts, and
- Speeds above 80 Kts and below V_1 .

1) Speeds **below 80 Kts** - Low Energy Abortion

A take-off should be rejected in case of any malfunction/failure or other problem noted by the flight crew. The aeroplane could be easily controlled and stopped without overriding brakes. Very short period may be required to clarify and fix the problem to re-initiate the flight.

2) Speeds above 80 Kts and **below V_1** - High Energy Abortion

A take-off shall be rejected only if there is:

- loss of thrust;
- loss of control;
- danger of impact, or
- major system failure that makes continuation unsafe (fire, loss of instruments, etc) normally recognized via RED MASTER WARNING (Level 3 alert).

Immediate and prompt actions are required from the flight crew to stop the aircraft within the distance available. Correct call-outs and crew co-ordination is vital.

NOTE: Most of the failure conditions will be inhibited automatically during Take-off, at the speed >80 Kts.

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Crew Co-ordination

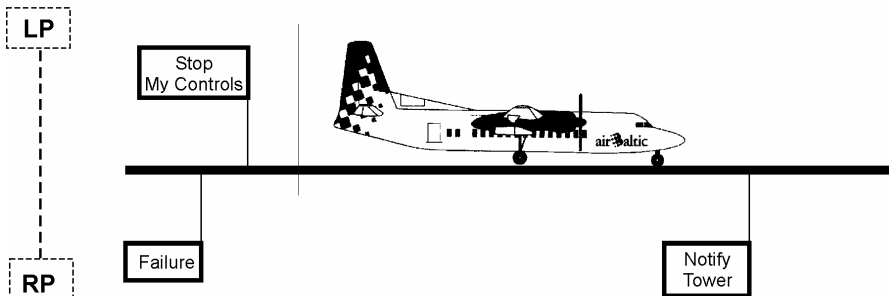
Any pilot may call “**Failure**” if he recognizes the conditions prescribed above.

Left Pilot shall take over the controls and stop the aircraft.

	Commander	Co-pilot
Failure recognition	Alert or conflicting situation. Either pilot, who recognize it first call: “ FAILURE ”	
	Evaluate situation and call: “ STOP ”	Hold control column
	LP	RP
Take-off abortion	Call: “ MY CONTROL ” Pull power levers to ground idle and apply full steady brakes. NOTE: Do not attempt to modulate the braking by releasing and applying the brakes as this has a detrimental effect on braking efficiency. Do not release the brake pedal pressure until the speed has been reduced so that stopping within the remaining runway is assured.	Hold control column
	Stop aircraft and evaluate the situation. Inform via PA “ Remain Seated ” or, when deemed necessary Commander shall initiate the emergency evacuation immediately, when the aircraft has come to a complete stop and parking brakes set.	Inform ATC

NOTE: If conditions permit, vacate the runway. A rejected take-off may cause hot brakes. If a subsequent take-off is considered feasible, a brake-cooling time of 30 to 60 minutes is required. Avoid the use of parking brake when brakes are hot.

- Power Levers to Ground Idle
- Apply Maximum Brakes
- After Full stop, if necessary, carry out evacuation drill.



3.1.2 CONTINUED TAKE-OFF WITH FAILURE

Take-off shall be continued in case of any problem at a speed **above** V_1 .

PF shall concentrate on flying the aircraft according to profile and Climb out Procedure. PNF shall, by monitoring flight instruments and using proper call outs, assist the PF to complete the initial climb out to a safe altitude.

Change of controls should not be made until the aircraft is cleaned up, unless required for safety reasons.

For maximum initial climb performance the gear must be retracted as soon as positive rate of climb is established.

Caution: Till the moment, when PF ask for failure identification (see Crew Co-ordination) PNF should refrain from the statement about the malfunction:

- not to distract PF's attention from normal sequence;
- not to deteriorate the situation with inadvertent mistake made in rush and stress.

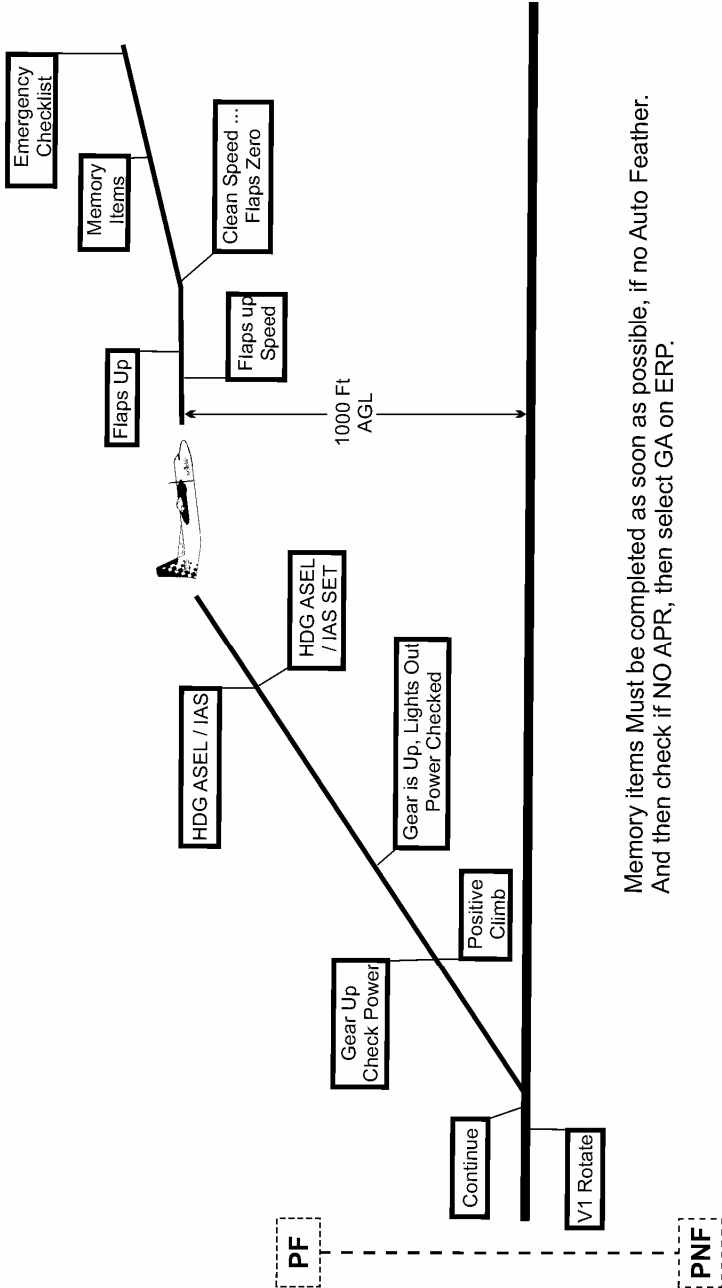
PF shall to fly the aircraft relying on his natural feelings and pilot's skill.

Crew Co-ordination

	PF	PM
V1		Check reaching and call: “V1”
	Call: “CONTINUE”	Call: “ROTATE” as per normal take-off sequence.
	Rotate the aircraft as in normal take-off so as to reach V_2 at 35 feet not later than above the runway end.	
Airborne	When airborne check speed minimum V_2 .	Monitor speed and attitude throughout initial climb. When positive rate of climb is established call: “Positive Climb”
	Command: “Gear Up”	Select gear up and check that gear is up and locked, then call: “Gear is Up, lights out” Audio alert, if any, now can be cancelled.
Initial climb	Call “IAS” Maintain speed V_2	Select IAS mode on FMP. Cross check aircraft attitude and speed indicators.
	Call: “IDENTIFY”	Check and announce kind of alert and suspected problem.
	1000' AGL (if not specified in RM, but never below 400' AGL)	

Acceleration altitude	Accelerating through the flaps up speed and call: “FLAPS UP”	Call: “FLAPS UP SPEED” “Clean Speed...” Select flaps up and when flaps have been checked to be up “Flaps Zero”
Clean configuration	When speed is V_{CLEAN} or more and altitude above acceleration altitude command : “Memory Items” or “Emergency Checklist” or “Abnormal Checklist”	Read and perform the ordered Checklist/Procedure items and simultaneously monitor flight instruments and report: “Checklist completed / End of procedure”
	Order “After TO checklist”	Complete the Checklist

Continued Take-off with Failure



Memory items Must be completed as soon as possible, if no Auto Feather.
And then check if NO APR, then select GA on ERP.

3.1.3 Failure during approach

When a failure occurs above 500 ft RH evaluate the failure. In most cases the relevant procedure can be completed and the approach continued. If applicable apply increased weather minima. If a failure occurs below 500 ft RH without visual reference initiate a go-around.

In case of smoke or fire it is at Commander's discretion either to continue the approach and landing or start a go-around.

Carry out the relevant procedure after the go-around.

NOTE: In case of a go-around with one ENG EC in MAN, anticipate power lever stagger and avoid over-torque.

NOTE: In case of CAT 2 approach this margin rises up to 1'000 ft RH.

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3.2 FIRE AND SMOKE DRILLS

3.2.1 Fire/Smoke in compartments

In case if the fire/smoke is detected in the Flight Deck, Cabin, Toilet, Cargo compartments follow the procedures in **Quick Reference Handbook**. Inform the Cabin Crew as soon as possible. Give further directions to Cabin Crew if subsequent actions are required (diversions from flight plan, rapid change of altitude, etc) and inform passengers.

If fire is detected in the cabin, Cabin Crew will initiate their procedures in fire fighting and will keep Flight Crew informed.

After landing with any kind of fire or smoke observed or suspected on the airplane the Emergency evacuation shall be immediately initiated as per QRH procedure. In case of fire LP should stop the aircraft in the direction, in which the wind will blow the flames away from the fuselage.

Commonly aircraft fires are categorized in the following order:

- Class A** Ordinary solid materials (paper, cloth, seat cushions, baggage etc);
- Class B** Flammable liquids (jet fuel, oil, grease, etc);
- Class C** Flammable gasses (butane);
- Class D** Combustible metals (sodium, magnesium, titanium, etc.);
- Class E** Electrical systems or installations.

Types of available Fire Extinguishers and their usage:

- **Halon 1211** - Used on **all** types of fires;
- **H₂O** - Used on class **A** fire only.

Reporting of Fires or Smoke

Report the incident in Flight Safety Report. Cabin Crew will write Cabin Report. If possible, write down contact addresses and phone numbers from some of the passengers, seated near the affected area. They may be required as witnesses for later investigation.

Captain shall make entries in the Airplane Technical Log, if cabin equipment is used.

3.2.2 Engine Fire

General

An engine fire during take-off does not necessarily result in an immediate and significant power loss resulting in auto-feather. Initially follow the normal take-off profile. It is recommended to delay engine shutdown until reaching acceleration altitude. If engine failure or severe damage results in an auto-feather, follow profile for engine failure.

During approach, in case of smoke or fire it is at Commander's discretion either to continue the approach and landing or start a go-around. In case of continuation of approach the Commander shall take a decision whether engine shutdown is necessary or could be postponed till landing. Especially for Cat 2 approach, when engine shutdown causes Cat 1 minimum to be applied for approach continuation.

NOTE: If affected engine is still producing thrust, expect big yaw moment during engine shut-down.

After landing with any kind of fire or smoke observed or suspected on the airplane or engines the Emergency evacuation shall be immediately initiated as per QRH procedure. In case of fire LP should stop the aircraft in the direction, in which the wind will blow the flames away from the fuselage.

Crew co-ordination

As soon as a decision to shutdown the engine is taken follow **QRH procedure for “Engine Fire/Severe Damage”**

	PF	PM
Engine shutdown	Order: “Memory Items” Check CAP, engine instruments and call: “Left/Right confirmed” Check PNF intentions and call: “Left/Right confirmed”	Call: “Confirm Engine” Place hand on respective Fuel Lever and call: “Confirm Lever” Set FL to the “SHUT” position.
Fire extinguishing	Check, that correct FH is pointed by PNF, and call: “Left/Right, Confirmed” Order emergency checklist.	Put his hand on appropriate Fire Handle and challenge: “Fire Handle” Pull the Fire Handle and turn to “DISCH 1” and start timing. (If after 45 sec the Fire warning persists, discharge another extinguisher). Report to PF: “Memory items complete” and “Fire extinguished/not extinguished” Continue as per QRH procedure.

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3.3 ENGINE FAILURE AND SINGLE ENGINE OPERATIONS

Engine could fail or may be intentionally shutdown by the crew. Failure may result in auto-feather, if auto-feather system was “armed” at the moment of failure. Manual shutdown will always results in propeller feathering. QRH procedures, which may include Memory items, shall be strictly followed.

Be sure to shut down the failed engine. All actions resulting in engine shutdown in flight should be carried out in close coordination, see crew co-ordination.

Upon the Commander’s consideration engine restart procedure can be performed.

3.3.1 Engine Failure Before V_1

An engine failure with auto-feather will cause a large yawing moment. Immediately apply the rudder for directional control. Retard both power levers and maintain directional control with rudder and nose-wheel steering. After coming to a stop, depending on circumstances, application of the ON GROUND EMERGENCY procedure may be required.

NOTE: Selection of ground idle will disarm the auto-feather circuit, which may result in a wind milling propeller on the failed engine.

Rejected take-off procedure and crew co-ordination shall be used, see 3.1.1.

3.3.2 Engine Failure After V_1

If an engine fails after V_1 the take-off should be continued. The first indications for loss of engine power is drop in torque followed by a level 3 alert. Automatically the propeller of the failed engine feathers and maximum power is selected on the operating engine. Immediately apply the rudder for directional control and use the ailerons to keep wings level. Maintain heading and follow FD pitch command.

The minimum speed in the initial climb segment is V_2 . If an engine fails at a higher speed, maintain that speed or gradually reduce by increasing pitch to a speed not lower than $V_2 + 10$. With low aircraft weight more pitch than GA attitude may be required. Operate TCS to adjust FD pitch command to the required attitude. Use rudder and aileron trim as required.

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After acceleration in the acceleration segment, maintain V_{CLEAN} in the final take-off segment and single-engine climb out.

Caution: Maximum bank angle at V_2 and V_{CLEAN} is 15° . For bank angles of $15-30^\circ$, increase respective speed by 10 KIAS.

If auto-feather and/or APR fails, the FUEL lever of the failed engine must be placed in SHUT on command of the PF and GA must be selected on ERP in order to obtain maximum power on the operating engine.

Crew Co-ordination

	PF	PNF
V ₁		Check reaching and call: “V1”
	Call: “CONTINUE”	Call: “ROTATE” as per normal take-off sequence.
	Rotate the aircraft as in normal take-off so as to reach V_2 at 35 feet not later than above the runway end.	
Airborne	When airborne check speed minimum V_2 .	Monitor speed and attitude throughout initial climb. When positive rate of climb is established call: “Positive Climb”
	Command: “Gear Up, Check Power”	Select gear up and check that gear is up and locked, then call: “Gear is Up, lights out” Immediately check APR and engine instruments for auto-feather and call: -If APR and auto-feather active calls: “Power Checked” Audio alert, if any, now can be cancelled.
		If no APR, calls: “No APR” Select GA on ERP.

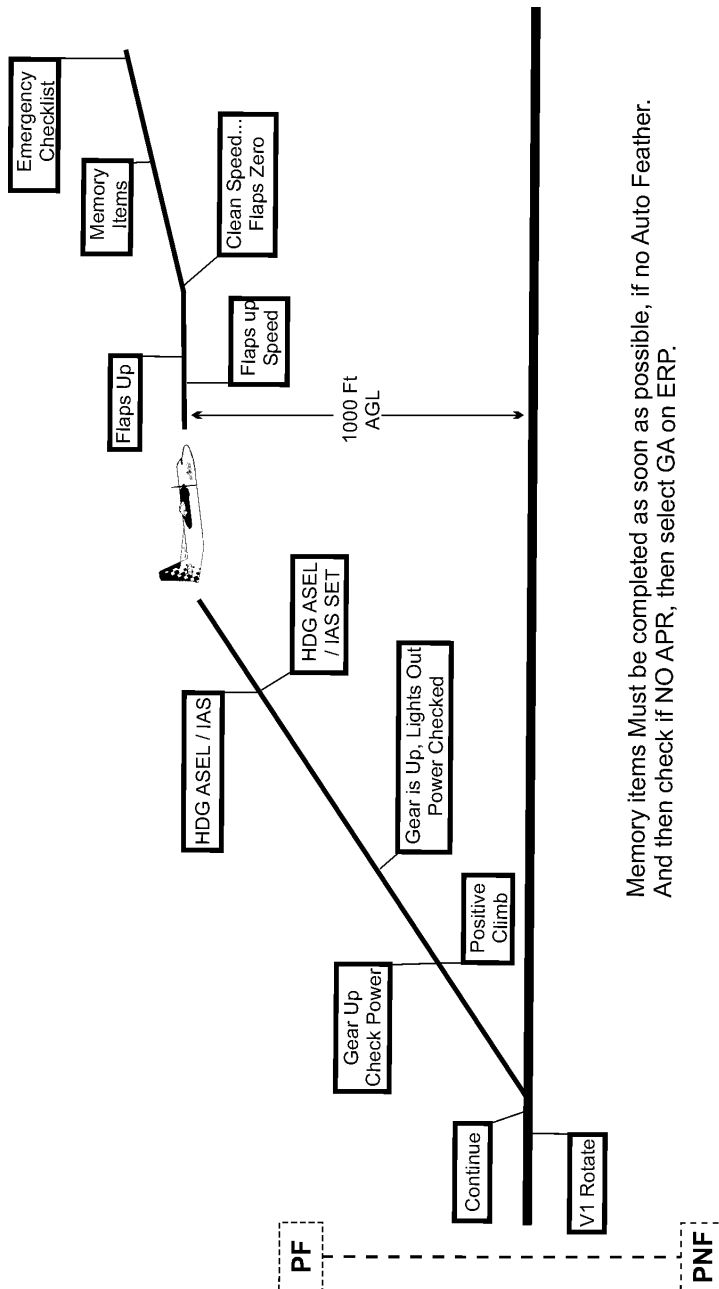
Airborne	Call: “Memory items” Check CAP, engine instruments and call: “Left/Right confirmed” Check PNF intentions and call: “Left/Right confirmed”	-If no auto-feather PNF call: “No Auto-feather” Call: “Confirm Engine” Place hand on respective Fuel Lever and call: “Confirm Lever” Set FL to the “SHUT” position.
Initial climb	Call “Heading, ASEL, IAS ” Continue the climb at V2 with a pitch attitude of 8-10°, and bank 3° towards the running engine.	Select Heading, ASEL, IAS mode on FMP. Cross check aircraft attitude and speed indicators, and call: “Heading, ASEL, IAS Set”
1000' AGL(if not specified in RM, but never below 400'AGL)		
Acceleration altitude	Reaching accelerating altitude call: “ALT Hold” Accelerating trough the flaps up speed and call: “FLAPS UP”	Select ALT HOLD on FMP. Check speed and call: “FLAPS UP SPEED” “Clean Speed...” Select flaps up and when flaps have been checked to be up call: “Flaps Zero”

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Clean configuration	When V_{CLEAN} is achieved – Call "IAS, ASEL" and climb at least to MSA. When speed is V_{clean} or more and altitude above acceleration altitude command : "Memory Items" or "Emergency Checklist" or "Abnormal Checklist"	Read and perform the ordered Checklist/Procedure items and simultaneously monitor flight instruments and report: "Checklist completed / End of procedure"
	Order "After TO checklist"	Complete the Checklist

Note: Engine shut down sequence presented above shall always be used for engine shut down during the flight and shall be ordered by PF using "Memory Items" challenge.

Continued Take-off with Failure



Memory items Must be completed as soon as possible, if no Auto Feather.
And then check if NO APR, then select GA on ERP.

3.3.3 Engine Failure During Approach and Go-Around

If an engine fails during approach the propeller will start wind-milling.

If above 500 ft or if visual reference is established:

- Select GA on ERP
- Increase power to maintain speed and glide slope
- Carry out the applicable procedures (Memory Items for failed engine shutdown) if time permits
- Continue single-engine approach and landing

If below 500 ft and visual reference has not been established:

- Initiate a go-around
- As soon as the aircraft attitude is stable, feather the propeller by placing the fuel lever in SHUT using Memory Items procedure for engine shutdown.
- At acceleration altitude (min 400 ft AGL) continue as for Engine Failure after V1

If an engine fails during a go-around the propeller of the failed engine will probably not feather automatically. As soon as the aircraft attitude is stable after completion of the initial go-around actions, feather the propeller by placing FUEL lever in SHUT using Memory Items procedure for engine shutdown.

CAUTION: THE FD ON THE CORRESPONDING SIDE WILL REVERT TO STBY. THE AP, WHEN CONNECTED TO THE RELEVANT FD, WILL REVERT TO BASIC MODE. IF DESIRED, RESELECT REQUIRED MODE(S) ON THE FMP AND ENGAGE AP OR DISENGAGE AP AND CONTINUE MANUAL APPROACH.

NOTE: During AP single-channel operation, the AP may disengage. Cancel disengagement alert, verify AFCS mode(s) on PFD and re-engage AP or continue manual approach.

3.3.4 Single Engine Operations

Emergency checklist “Single-engine procedure” or Abnormal checklist “Shutdown” shall be used for single engine operation as appropriate.

Turns after Take-off

The SID chart for the particular take-off runway may state a special single-engine instrument procedure to avoid obstacles. This procedure forms an integral part of the crew briefing before take-off. The degradation in climb performance due to turns is taken into account in the SID chart.

Single engine Climb, Cruise or Descent

When an engine fails during climb, cruise or descent take action according to the emergency checklist. Select MCT on the live engine. Single engine climb performance and single engine ceiling are based on the use of MCT and V_{CLEAN} .

When an engine fails in cruise, select MCT and let the speed decrease to V_{CLEAN} .

In case terrain clearance is no limiting factor, CRZ rating might be selected and higher indicated airspeeds at lower altitudes can be expected.

Single-engine Approach

Before starting a single-engine approach select ERP to GA.

Single-engine Circuit

The single engine circuit is similar to the two engine circuit. During level flight, require torque is approx 75 per cent more than the setting for two engines. During descent on a standard 3 degree glide slope the required torque is approx 50 per cent more than for two engines.

Single engine low circuit

A single engine low circuit or circling procedure should be avoided whenever possible. Level flight with flaps 10° , 130 kt and landing gear down may exceed the aircraft's performance.

Follow the procedure for two-engine low circuit. Do not extend landing gear abeam runway threshold. Select landing gear down and flaps 25 when intercepting the glide path on final approach.

NOTE: The GPWS may generate a “TOO LOW GEAR” warning when the landing gear is not down-locked below 500 ft RA.

Single engine Precision Approach

The single engine precision approach is similar to the two-engine approach. Crew coordination and AFCS operation is as described for the normal approach. CAT II approach is prohibited.

Single-engine Non-precision Approach

The single engine non-precision approach procedure is similar to the two-engine approach. Crew co-ordination and AFCS operation is described for the approach.

Level flight at MDA will require considerable power for the operating engine. If the required speed can not be maintained, retract the landing gear to reduce drag. In this case select landing gear down and flaps 25 when intercepting the glide path on the final approach.

NOTE: The GPWS may generate a "TOO LOW GEAR" warning when the landing gear is not down-locked below 500 ft RA. A LG warning may be generated when V/S exceeds 200 ft/min descent below 830 ft or with speed below 140 kt.

Single engine landing

For performance reasons the landing flap position should be 25. Aim for an early and well stabilized approach. Trim the aircraft when stabilized.

- On short final, after the decision to land, it is recommended to order the PNF to select the rudder trim to neutral
- Use standard approach and landing technique
- Upon selection of ground idle or reverse, anticipate a yaw toward the operating engine
- Use brakes as for normal landing

Single engine go-around

Follow procedure GO-AROUND, LANDING FLAP 25.

NOTE: Ensure both power levers are advanced to TO detent.

At acceleration altitude (min 400 ft) continue as for engine failure after V₁.

3.4 EGPWS/TAWS WARNING

If ground proximity warning is received, immediate corrective action is required unless it is obvious that the warning can be neglected (Part A 8.3.5.)

AURAL ALERT	ANNUNCIATOR	PILOT ACTION
"PULL UP, PULL UP"	GPWS	Disengage autopilot and immediately level wings. Apply full power, establish a climb attitude and climb out of the alert envelope. Continue manoeuvre until alert ceases or terrain clearance is assured. NOTE: Reconfigure the aircraft as necessary to establish climb. During daytime visual conditions, take immediate action as necessary until alert ceases.
"SINK RATE, SINK RATE"	TERR	Arrest sink rate and fly out of alert envelope.
"TERRAIN AHEAD, TERRAIN AHEAD"	TERR	Apply power, level wings, establish a climb attitude and climb out of the alert envelope.
TERRAIN AHEAD, PULL UP, TERRAIN AHEAD, PULL UP	GPWS	Disengage autopilot and immediately level wings. Apply full power, establish a climb attitude and climb out of the alert envelope. Continue manoeuvre until alert ceases or terrain clearance is assured. NOTE: Reconfigure the aircraft as necessary to establish climb. During daytime visual conditions, take immediate action as necessary until alert ceases.
"BANK ANGLE"	GPWS	Reduce bank angle.

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AURAL ALERT	ANNUNCIATOR	PILOT ACTION
"TERRAIN AHEAD, TERRAIN AHEAD"	TERR (60 second Terrain Caution Alert)	Caution alert. Followed by "Terrain Ahead, Terrain Ahead, Pull Up, Pull Up" if condition continues. a. If level, apply power, establish a climb attitude and climb out of the alert, check position on TAWS display. b. If descending, apply power and level off. If caution continues, apply power, establish a climb attitude and climb out of the alert, check position on TAWS display.
"TOO LOW TERRAIN, TOO LOW TERRAIN"	TERR	Immediately arrest sink rate and fly out of alert envelope.
"TOO LOW GEAR, TOO LOW GEAR"	TERR	If conditions permit, extend the landing gear; otherwise, execute go around.
"TOO LOW FLAPS, TOO LOW FLAPS"	TERR	Select landing full flaps or cancel with the FLAP OVRD switch.
"GLIDE SLOPE" (Loud Alert)	BELOW G/S	Arrest descent rate and rejoin the glide slope.
"GLIDE SLOPE"	BELOW G/S	Arrest descent rate and rejoin the glide slope, consider Loud Alert missed approach.
"DON'T SINK"	TERR	Immediately level wings. Apply full power, establish a climb attitude and climb out of the alert envelope.
"500, 100, 50,40,30,20,...", [For YL-BAS, BAT, BAW, BAZ, BAR, BAU]	NONE	Advisor callouts only.
"MINIMUMS", "MINIMUMS", "500, 100, 50,40,30,20,...", [For SE-LJI]	NONE	Advisor callouts only.

CAUTION: 1. Cases when Aural alert is comprised by "**Pull Up**" command the PF/Commander shall initiate the **Go-Around Procedure immediately**, items which are not obviously required (flaps in clean configuration - for example) shall be omitted.

2. **Go-Around Procedure** may be applied upon receiving any of the TAWS/GPWS warnings if PF/Commander consider it's necessary.

3.5 TCAS WARNING

In general TCAS procedure is introduced in Part A 8.3.6. The following notes shall be taken in account when using TCAS in flight:

- TCAS may command manoeuvres which, under conditions of low speed, high drag and low excess thrust, may significantly reduce the stall margin or may even result in a stall warning. However, a TCAS maneuver shall not be continued beyond the point of stick shaker activation. Conditions where this may occur include:
 - a. Bank angle in excess of 15 deg.
 - b. Operation at airports above 5300 MSL, temperature outside of ISA $\pm$ 10 deg C, airspeed below normal operating airspeeds, and buffet margins less than 0.25 g.
 - c. Engine out.
- Do not initiate evasive manoeuvres using information from the traffic display only or upon receiving a TA only without visual contact with the traffic. Traffic displays and advisories are intended for assistance in visually locating the traffic but lack the flight path trends necessary for use in evasive manoeuvring.
- Compliance with an RA is necessary unless it is considered not safe to do so, or unless the pilot has better information about the cause of the RA and can maintain safe separation (e.g. visual contact and safe separation from other traffic, obvious TCAS failure, etc.)

CAUTION: Once an RA has been issued, safe separation could be compromised if current vertical speed is changed, except as necessary to comply with RA. This is because TCAS II – to – TCAS II coordination may be in progress with the intruder aircraft, and any change in vertical speed that does not comply with the RA may negate the effectiveness of the other aircraft's compliance with the RA.

Note: The consequences of not following an RA may result in additional RA's in which aural alert and visual annunciations may not agree with each other.

- Evasive manoeuvre following a "Climb" RA while flying at FL250 will result in temporarily exceeding the maximum certified flight altitude.

- To assure safe separation, evasive manoeuvre of approximately 0.25 g must be initiated within approximately 5 sec after the initial RA and within approximately 2.5 sec if an additional, corrective RA is issued.
- In case of an RA, the search for the conflicting traffic should, if meteorological conditions permit, include a visual scan of the airspace into which the pilot's own aircraft might manoeuvre.
- Evasive manoeuvring must be limited to the minimum required to comply with the RA. Excessive responses to RA's are not desirable or appropriate because of the other potential traffic and ATC consequences. From level flight, proper response to an RA typically results in an overall altitude deviation of 300 to 500 ft in order to successfully resolve a traffic conflict.
- If a "Climb" RA is issued while in the landing configuration, initiate a normal go-around procedure.

Note: Initiating the go-around procedure for "Climb" RA does not mandate a missed approach. It is intended to assure the airplane is properly configured for the expected manoeuvre. In most cases, the TCAS event will be resolved with only minor deviation to the intended flight path and sufficient time and altitude will exist to recover to the desired flight path.

- The "TA only" mode should be used to prevent RA's when intentionally operating close to other aircraft such as to closely spaced parallel RWYs.
- The "TA/RA" mode should be selected just prior to take-off, and "STBY" mode should be selected after clearing runway following landing.

3.5.1 Crew co-ordination

Phase	PF	PNF
RA issued	If engaged, disconnect AP. Manually establish climb or descent at the rate indicated by the green area on the vertical speed scale.	Report to ATC: “TCAS climb / descent”
	Note: - Do not use AP or FD V/S mode to acquire the desired vertical speed, because AFCS response to V/S selection is too slow to provide adequate TCAS response. - Do not change the selected FMP altitude. - Altitude exit alert may come on.	
Recovery	Quickly manually return towards the applicable ATC clearance unless otherwise directed by ATC. Select AP on. The AP will engage in either the V/S mode, maintaining the vertical speed at engagement, or in ALT capture (this requires the ASEL mode to be armed), depending on the situation.	Perform selections needed for AP engagement and ordered by PF. Report to ATC: “Returning to ...ft / FL...”

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3.6 INCAPACITATION

3.6.1 General

Incapacitation can be classified into two categories:

- Obvious;
- Subtle.

Once the incapacitation is identified, follow these **general procedures**:

- 1) Keep the airplane from crashing (take over).
- 2) Take care of the incapacitated pilot (restrain and remove).
- 3) Prepare for the landing (reorganize the cockpit).

NOTE: Once pilot has suffered incapacitation and afterwards recovered, he may no longer take the controls nor act as the Commander for the rest of the flight.

a) Obvious Incapacitation

Obvious incapacitation could be sudden, prolonged, and usually results in a complete loss of operating function. By definition, they are immediately apparent to the remaining crewmembers, for example:

- Severe brain disorders (stroke, fits, and haemorrhage);
- Heart disorders (heart attack);
- Severe internal bleeding;
- Severe and sudden kidney or gallstone attacks.

b) Subtle Incapacitation

Subtle incapacitation could be partial in nature and usually transient. It is significant operational hazard because it is difficult for other crew members to detect. The affected pilot may look well and be conscious with only partially functioning brain. He may not be aware of or capable of rationally evaluating problem, if for example the following occurs:

- Minor brain seizures or tumours;
- Hypoglycaemia (low blood sugar).

Early recognition of incapacitation can be achieved by:

- Strict use of standard operating procedures (note deviations);
- Routine monitoring and cross-checking of flight instruments.

Subtle incapacitation is the most dangerous. It occurs most frequently and its effects range from partial loss of function to complete unconsciousness or death. Procedural deviation is the first sign of incapacitation and any inappropriate verbal response associated with it should be enough to raise suspicion.

3.6.2 Preliminary Actions

A flight deck crewmember, developing physical complaints during flight, should inform the other flight deck crewmember and should lock his shoulder harness as a precaution.

3.6.3 If an incapacitation occurs:

- (a) The remaining pilot should take over the controls and check the position of essential control and switches;
- (b) Use AFCS with AP engaged;
- (c) In nearly all cases an emergency should be declared;
- (d) Another cockpit occupant or Cabin Attendant should restrain the incapacitated pilot and slide the seat back;
- (e) Use the P.A. system to obtain help if necessary;
- (f) The incapacitated pilot should be removed from his seat and the cabin crew made responsible for his care (it should be realized that an unconscious pilot can regain consciousness very suddenly and become a violent and irrational);
- (g) Consider if Cabin Attendant should be requested to read out checklists or provide any other assistance.
- (h) No special landing limits are prescribed but Cat 2 approach is prohibited.

3.6.4 Cabin Crew

If an incapacitation occurs, the Cabin Crew may be called to the flight deck to restrain the incapacitated pilot and slide his seat back. The incapacitated pilot may be restrained in his seat by locking seat belt and shoulder harness.

If requested by the PF, remove incapacitated pilot to the cabin and administer first aid. Make an announcement requesting assistance for anyone with medical training onboard.

3.7 OTHER EMERGENCY and ABNORMAL SITUATIONS

3.7.1 Emergency Descent Procedure

General

After rapid decompression at high altitudes emergency descent must be initiated and continued to the altitude where passengers can breathe normally. ATC must be informed as soon as possible.

When executing emergency descent consider turning away from the airway or designated track to avoid traffic at lower levels. Exercise caution in order not to exceed the structural limitations of the aircraft during descent combined with rapid turns. Recommended initial level-off altitude is 14'000 ft to 10'000 ft, provided terrain permits.

As soon as possible brief Cabin Crew and inform passengers on incident and further deviations, if any. When safe, give a clearance to the Cabin Crew to move around the cabin.

Cabin Crew will follow their procedures and inform Flight Crew on cabin status.

Level flight must be maintained at 10'000 feet or at the lowest safe altitude, if higher.

Make an entry into Airplane Technical Log and complete Flight Safety Report. Request a report from Cabin Crew and few of the passengers.

Crew Co-ordination

In case of rapid or explosive decompression refer to Emergency Checklist in QRH. The procedure is initiated by the Commander with the command: Emergency descent.

PF	PM
- Call for Memory Items. - Put on Oxy mask and select "OXY" on audio panel. - Select IAS mode. - Power levers FLT IDLE. - Increase IAS to Vmo. - Inform Cabin Crew via PA: "Rapid Descent"	- Announce Memory Items for Emergency Descent Check List. - Put on Oxy mask and select "OXY" on audio panel. - Determine and select minimum safe altitude on APA and select ASEL. - Select "Seat-belt signs" on. - Transponder: 7700 - Inform ATC. - Complete Check List.

NOTE: Do not descent below MEA. If structural integrity is in doubt, limit speed as much as practicable and avoid high manoeuvring loads. Make a low speed emergency descent by selecting flaps and landing gear at the limit speeds and descend with flaps 25 and speed 160 kt. When in level flight, select gear and flaps up, review check list and assess the situation.

3.7.2 Distress Communications and Alerting ATC of Emergencies

For emergency communication procedures refer to **Route Manual**, section **Emergency, Security**.

Distress message

- 1) MAYDAY, MAYDAY, MAYDAY;
- 2) Name of station addressed (Stockholm Control);
- 3) Aircraft call-sign (airBaltic 101);
- 4) Nature of distress (Collision with foreign aircraft);
- 5) Intentions (We are flying towards the coastline);
- 6) Current position (FL or altitude, heading).

Public announcement

In English:

Ladies and Gentlemen, this is your captain speaking. May I have your attention, please.

Due to technical reason we are forced to make an emergency landing (on water) in about ... minutes. We are proceeding towards nearest airport (Ship, Coast) and have informed the rescue service.

We are carrying all the necessary survival equipment and we will tell you how to use it.

Please remain seated, keep calm and follow the instructions carefully.

Distress Transponder Codes

EMERGENCY..... 7700

COM FAILURE 7600

HI – JACKING 7500

3.7.3 Guidance for Diversion in Case of Serious Technical Failure

General

In case of serious technical failure the following shall be evaluated to make decision to continue or divert the flight:

- Technical status of the aircraft, actual gross weight, remaining fuel on board;
- En route weather (wind, temperature, icing, thunderstorms, landing forecasts, etc.);
- Available route and aerodrome facilities.

Discontinuation of Flight

The flight shall be returned to the airport of departure or to the nearest suitable airport, if:

- Vital parts of the engine/systems/aircraft are damaged;
- There was fire on board;
- The affected system is essential for continuation;
- QRH requires to do so.

Continuation of Flight with One Engine Inoperative

A flight may be continued at the Commanders discretion provided:

- The safe flight to the destination can be provided, using remaining equipment;
- In-flight re-planning has been performed;
- The distance to a suitable airport at all times during the continued flight is not greater than that which can be flown within 90 minutes at normal all-engine cruising speed;
- The remaining fuel at all times during the continued flight is sufficient to reach the nearest suitable airport, having 30 minutes holding at 1'500 ft available.

If two or more airports are at about the same flying time from current aircraft position, the following shall be chosen in prioritized order:

- Airports used for flight planning by airBaltic;
- Other airport presented in the RM;
- Military airfield;
- Other airfields.

3.7.4 Anti Skid INOP

When operating aircraft with a faulty Skid Control System:

- 1) TOW is limited by RWY length decrease.
Perform TOW calculation prior each flight. (see GWC table 3.1)
- 2) Perform take off with flaps 15⁰.
A larger TO flap setting results in a shorter RWY roll. The disadvantage of that is the deterioration in climb performance.
- 3) Check landing distance at the destination and alternates, as given in GWC table 4.1.
The values given in the table are valid for dry RWY. When the runway is wet or slippery (BA other than good) the required RWY length should be assumed to be 115% of the table value (see AFM 6.13.02).
- 4) Brake with caution to prevent tire skid.
Max speed to apply brakes is 40 kts.
- 5) If trapped by FLAP asymmetry alert.
When flaps stuck in position 0 deg the landing distance additionally increases by 1.86 times.

3.7.5 Lighting Strike

Lightning is normally related to thunderstorms. Avoiding lightning strikes is therefore related to the avoidance of turbulence, icing and hail. At night, switch on the storm lights to prevent temporary blinding from lightning, and keep eyes on the instruments.

If a lightning strike is experienced while the landing gear is down, test skid control system before landing.

Additional information could be found in Part A ch.8.3.8.1.

3.7.6 Overweight Landing

In case technical or operational reasons require overweight landing, fly a normal approach and landing. Overweight landing may only be performed in case of emergency. Any overweight landing should be reported to maintenance.

3.7.7 No Ground Idle After Landing

Premature attempt to select ground idle just before touchdown may block the automatic flight idle stop release mechanism. Therefore if ground idle can not be selected after touchdown, momentarily move the power levers slightly forward to enable the automatic flight idle stops to be released, and then select ground idle. If it is still not possible to select ground idle:

- Select TO rating on ERP as soon as possible
- Use brakes to slow down the aircraft
- Aim for the next exit available
- Clear the RWY and stop the aircraft
- Verify/reset the ground/flight control circuit breakers and select ground idle.

If after stopping ground idle cannot be selected:

- Shut down engines
- Wheels chocked and parking brake off.

If after shutdown the power levers still cannot be reset to ground idle and further taxiing is required (no towbar available):

- Allow brakes to cool for 30 minutes
- Start one engine with power lever in flight idle
- Taxi on one engine for a maximum of 5 minutes.

If crosswind conditions, if only one power lever cannot be selected to ground idle, keep both power levers at flight idle until nose wheel steering becomes effective. In addition differential braking can be used to maintain directional control.

Notes:

1. Landing distance will increase due to positive engine power during rollout (power is in TO rating). Actual landing distance is well within the normal RLD for flaps 25.
2. The brakes will become hotter than during normal landing. When taxiing is continued in this condition brakes will heat up very quickly and may cause flat tyres.
3. Apply standard engine start procedure when starting with power lever in flight idle. After stabilization engine torque and fuel flow will be higher than normal.

3.7.8 Landing with flaps less than 25

General

If a flap asymmetry alert comes on, the flaps are stuck in the indicated position. Do not operate alternate flap in this case. Follow QRH abnormal checklist.

For V_{REF} see QRH, use V_{REF} for the nearest smaller flap position.

The landing distance for flaps 0, the worst case, is 1,59 times the distance for flaps 25. So the actual (measured) landing distance with flap 0 is 0,95 times the required landing field length for flap 25.

See QRH tables for actual landing distance.

If the flaps are stuck in a position less than 25 use the procedure below:

Procedure

- Select the longest runway available, regarding wind and braking action, preferably with ILS or VASIS
- A straight-in approach using AFCS is recommended
- Aim to be established with 140 kt at glide slope interception
- Select landing gear down
- Complete BEFORE LANDING CHECK
- Fly a 3 deg or ILS glide slope
- Aim to be established at 1000 ft on final approach speed $V_{REF} + 10$ AND GLIDE SLOPE
- At approx. 200 ft disengage AP and reduce speed to cross threshold at V_{REF}
- Aim for a positive touchdown at the normal touchdown point
- Anticipate increased floating. Only a slight pitch increase is required for the flare

NOTE: In case flaps are less than 5, too long a flare may result in the tail skid touching the runway.

- Lower the nose on the runway and select ground idle without delay
- Apply reverse and brakes as required

3.7.9 UPSET RECOVERY

Flight Crew should be aware that various factors could disrupt normal flight and place an aircraft into abnormal attitude. This section will define aircraft upsets, list some of their potential causes, as well as suggest various techniques for safe upset recovery.

Definition: Aircraft upset is defined as aircraft attitude equal to or greater than any of the following:

- Pitch attitude more than 25 degrees nose up;
- Pitch attitude more than 15 degrees nose down;
- Bank angle more than 45 degrees;
- Flight within these parameters at airspeeds inappropriate for the conditions.

3.7.9.1 Causes of Aircraft Upsets

Most common causes of aircraft upsets are categorized as:

- a) Environmentally induced;
 - Turbulence, Wake turbulence
 - Mountain wave;
 - Windshear, Microbursts;
 - Airplane Icing.
- b) Systems anomalies induced;
 - Flight Instruments;
 - Autoflight systems;
 - Flight controls and other anomalies.
- c) Pilot induced;
 - Instrument misinterpretation or slow cross-check;
 - Inattention and distraction from primary duties;
 - Vertigo or spatial disorientation;
 - Improper use of airplane automation;
- d) A combination of all of the above.

3.7.9.2 Upset Recovery Techniques

Recovery from upset normally mean putting the aircraft into horizontal flight/wing level position within speed limits.

The recovery shall be done via shortest possible way, to prevent entering the aircraft into a hazard. The most hazardous in upset are:

- During nose-up situation – intensive loss of speed with possible stall;
- During nose-down situation – intensive loss of altitude and possibility of exceeding VMO.

These dictate different sequence/priorities of upset recovery.

Upset Recovery Techniques

Nose-up Attitude	Nose-down Attitude
1. Recognize and confirm the situation	
2. Disengage autopilot	
3. Reduce pitch angle (maintain the ball in center)	3. Roll to wing level
4. Roll to wing level	4. Reduce pitch angle
5. Adjust power	5. Adjust power
6. Check/adjust altitude, speed, heading	

3.7.9.3 Stall Recovery

Indications:

- air speed decreasing to be close to or below V_2 on take-off, and V_{REF} on approach;
- stick shaker activation;
- controllability problems in combination with loss of speed or unusual loads (G-loads).

Actions in general

In case of stall or airplane attitude close to stall is encountered the flight crew are expected to implement prompt actions to provide safe trajectory of flight. The main concern shall be given to air speed and vertical speed. To recover from stall or attitude close to stall the standard “Go-around” procedure shall be called out and used.

Depending on actual airplane configuration the items of “go-around” procedure that are obviously not necessary shall be omitted or by passed based on airmanship. Therefore stall recovery when airplane is in clean configuration will require GA power setting and acceleration control.

Crew co-ordination

Once initiated the procedure **shall be completed** by the PF.

Change of controls should not be made until recovery is completed, unless required for the safety reason.

Phs	PF	PM
	Both pilots are responsible for initiation of the recovery procedure by challenging: “Go - around” .	
	Complete Go-around according to Missed Approach Procedure and profile if applicable	Assist PF to complete recovery making requested selections and using proper call-outs
Initial	Immediately advance the power levers to TO detent, disconnect AP, press GA button and call: “Flaps 10” (if flaps are on 25 ⁰ ;) or “Flaps 20” (if flaps are on 35 ⁰ .)	check GA –power on ERP and call: “Flaps 10/20”
Positive Climb	“Gear up, Check Power” “Heading, ASEL, IAS”	“Positive climb” “Gear is up, lights out, Power Checked” “Heading, ASEL, IAS Set”
Accel.	If applicable perform further as for Standard Take-off till 1000' AGL (if not specified in RM, but never below 400')	
	Accelerate through the flap retraction schedule. Call “Flaps Up” “Climb Power” or “Cruise Power”	“V Flaps Up” “Clean Speed ...” “Flaps Zero”

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3.8 ABNORMAL and EMERGENCY CHECKLISTS

General

The checklist contain only those procedures where an action or sequence of actions or prohibition of incorrect action(s), which is not observed, could result in a significant adverse affect on the airworthiness of the aeroplane or the safety of the passengers and crew.

Checklists for Abnormal and Emergency situations are presented in Quick reference handbook (QRH). QRH shall be easily accessible for flight crew during the flight. Procedures shall be strictly followed.

These procedures supplement and supersede the normal procedure. Normal Checklist items are usually not contained in within these procedures and shall be used when applicable.

Action considered to be “Airmanship” may not be included in these procedures; however, in an emergency they should be considered:

- Cancelling Master alert;
- Circuit breakers check;
- Selection of emergency lighting;
- Establishing crew communication;
- R/T call;
- Use of oxygen;
- ATC Transponder;
- Advise and brief cabin crew;
- PA calls/announcement;
- Reducing landing weight;
- Normal checks, and

other items of airmanship the crew consider appropriate.

Presentation

Memory items are [boxed].

The procedures are presented in a form of checklist. If actions depend on a precondition, a black square indicates the precondition. A sequential precondition or a phase of flight is indicated by a black dot. All action lines are in capitals, other information is printed in lower case.

Execution

For Abnormal / Emergency Checklist **“Read and Do”** method shall be used, assuming that procedures are performed by PNF through reading the checklist.

In addition to basic rules for checklist execution prescribed in OM, A, 8.0.6.6 the following to be applied:

1. Checklist to be started with the procedure title;
2. Memory items, if exist, to be repeated;
3. Non-relevant information should be omitted;
4. Essential information should be read loudly and distinctly;
5. Selections of the systems / items which are vital and could lead to irreversible changes in aeroplane / system status shall be done with outmost care and PF's attention or confirmation, if required by procedure;
6. If checklist procedure is complicated or even can not be completed at the moment, PNF should make:
 - short de-briefing on actions completed and aeroplane/system status;
 - notes on actions/checklists to be completed later and final aeroplane/system status expected for landing.

Memory Items

For some procedures specific actions have been defined which shall be performed as soon as situation permits. The delay involved when referring to documents is not acceptable, therefore pilots shall be able to act by recall.

If not stated otherwise in applicable procedure, the following principles should be adhered to:

1. If simultaneous actions are required they should be done by PNF first. Then, after change of control, by the other pilot.
2. Vital items shall be confirmed by both pilots before execution;
3. Memory Items to be confirmed by subsequent checklist reading.

Procedures applicability

Abnormal and Emergency procedures are applicable during the flight unless specifically stated otherwise. When a system malfunction occurs during ground operation, the relevant procedure should be completed with omission of those items or bypassing those conditions which obviously are only applicable when airborne.

If the emergency situation is positively corrected before completion of the procedure, the Commander should evaluate the situation before proceeding with the next step.

Before take-off with certain systems inoperative, refer to the Minimum Equipment List and verify if dispatch is allowed.

Note: Some of the procedures, when deemed necessary, are followed by brief explanation for actions whenever the reason is not obvious, and other operationally relevant background information.

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3.8.1 Abnormal checklists

3.8.1.1 Air

PACK FAULT	
PACK	OFF THEN ON
■ If reset is unsuccessful:	
PACK	OFF

- Additional flight deck heating can be used if necessary.

DOUBLE PACK FAULT	
OXY MASK	AS REQD
CREW COMMUNICATION	ESTABLISH
LEFT AND RIGHT PACK	OFF THEN ON
■ If reset is unsuccessful:	
LEFT AND RIGHT PACK	OFF
DESCENT	AS REQD
ALTITUDE	MAX 10 000 ft or MEA
FRESH AIR SCOOPS	AS REQD
FLIGHT DECK DOOR	OPEN
SEAT BELT/NO SMKG	ON

- If oxygen masks are used, PNF should select speaker switch to OXY on both audio panels to establish crew communication.
- When cabin altitude exceeds aprox 10 000 ft the EXCESSIVE CABIN ALTITUDE warning will come on.

RECIRCULATION FAN FAULT	
RECIRC FAN	OFF THEN ON
■ If reset is unsuccessful:	
RECIRC FAN	OFF

PRESSURE CONTROL FAULT

PRESS CONTROL MAN THEN NORMAL

■ If reset is unsuccessful:

MANUAL RATE CONTROL MIN

PRESS CONTROL MAN

MANUAL PRESSURIZATION PROCEDURE APPLY

- MAX and MIN CAB PRESS DIFF protections are still available.

MANUAL PRESSURIZATION PROCEDURE

CRUISE LEVEL	120	140	160	180	200	220	250
TARGET CAB ALT (ft)	0	1000	2500	4000	5000	6500	8000

■ CLIMB:

MANUAL CONTROL LEVER UP

MANUAL RATE CONTROL AS REQD

- When reaching target CAB ALT:

MANUAL CONTROL LEVER MID POS

■ DESCENT:

MANUAL CONTROL LEVER DN

MANUAL RATE CONTROL AS REQD

- When reaching target CAB ALT:

MANUAL CONTROL LEVER MID POS

■ BEFORE LANDING:

MANUAL CONTROL LEVER UP

- The table of cruise level versus target CAB ALT gives the relationship required to obtain **max allowable** CAB PRESS DIFF.

CABIN DEPRESSURIZATION PROCEDURE

OXY MASK.....	AS REQD
CREW COMMUNICATION	ESTABLISH
LDG ALT	SET 10 000 FT or MEA
RATE LIMIT SELECTOR	MAX INCR
SEAT BELT/NO SMKG	ON
DESCENT	INITIATE
ALTITUDE	MAX 10 000 ft or MEA
For rapid depressurization:	
PRESS CONTROL	MAN
MANUAL CONTROL LEVER	UP
MANUAL RATE CONTROL	MAX INCR
SEAT BELT/NO SMKG	ON

- If oxygen masks are used, PNF should select speaker switch to OXY on both audio panels to establish crew communication.
- When cabin altitude exceeds aprox 10 000 ft the EXCESSIVE CABIN ALTITUDE warning will come on.

BLEED FAULT

BLEED.....	OFF THEN ON
■ If reset is unsuccessful:	
BLEED	OFF

1. Fault indication with Single Chime.
 - If a bleed fault is due to overheat or duct leakage, the VALVE CLOSED light will also come on.
2. Fault indication with Double Chime and MASTER CAUTION light.
 - If failing BLEED VALVE is switched OFF and its VALVE CLOSED light is on, other VALVE CLOSED light will extinguish.
 - If , after BLEED VALVE switching to OFF, its VALVE CLOSED light is not on and other VALVE CLOSED light does not extinguish, the failing BLEED VALVE is stuck in open position.

DOUBLE BLEED FAULT

OXY MASK AS REQD
CREW COMMUNICATION ESTABLISH
LEFT AND RIGHT BLEED OFF THEN ON

■ If reset is unsuccessful

LEFT AND RIGHT BLEED OFF
DESCENT AS REQD
ALTITUDE MAX 10 000 ft or MEA
FRESH AIR SCOOPS AS REQD
FLIGHT DECK DOOR OPEN
SEAT BELT/NO SMKG ON
AVOID ICING CONDITIONS

- If oxygen masks are used, PNF should select speaker switch to OXY on both audio panels to establish crew communication.
- If a bleed fault is due to overheat or duct leakage, the VALVE CLOSED light will also come on.
- If the AIRFRAME DE-ICING LOW PRESS light comes ON **avoid icing conditions.**
- For the procedure for landing with failed de-icing system see section ANTI-ICE of this chapter.

3.8.1.2 Automatic Flight Control System

AP AUTO DISENGAGEMENT

AP CUT OUT DEPRESS

Indication: Continuous cavalry charge plus ROLL 1 and 2 or PITCH 1 and 2 OFF p/b flashing on OVHD panel.

- Depress either ROLL (PITCH) OFF p/b to extinguish lights.
- Now the AP can be re-engaged for single channel operation.

YD AUTO DISENGAGEMENT

NO ACTION REQUIRED

AP OUT OF TRIM

Aircraft will be out of trim at AP disengagement

AP/YD SINGLE CHANNEL FAIL

NO ACTION REQUIRED

3.8.1.3 Electrical Power**ENGINE GENERATOR FAULT**

GEN..... OFF THEN ON

■ If reset is unsuccessful:

GEN..... OFF

- The GEN reset may be successful if the origin of the fault was an electrical transient.

ENGINE GENERATOR + AUTO AC X-FEED FAULT

DC X-FEED ON

GEN..... OFF

AUTO AC X-FEED OFF

AFFECTED BUS DETERMINE

BUS EQUIPMENT LIST CHECK

TRU FAULT

TRU OFF THEN ON

■ If reset is unsuccessful:

TRU OFF

DC X-FEED ON

BATTERY CHARGER FAULT
BAT CHARGER..... OFF THEN ON ■ If reset is unsuccessful: BAT CHARGER..... OFF

BUS FAULT
AFFECTED BUS BUS EQUIPMENT LIST

BUS EQUIPMENT LIST										
SYSTEM		BUS FAILURES								BAT ONLY SMOKE DRILL
		AC BUS		DC BUS		EMER AC		EMER DC		
		1	2	1	2	1	2	1	2	
NAV/FLIGHT INSTRUMENTS	EFIS		RH ¹ INOP		RH INOP	LH ¹ INOP		LH INOP		RH INOP
	RMI		LH INOP			RH INOP				LH INOP
	RADIO ALTIMETER	INOP								INOP
	ADC	INOP								INOP
	ATC XPDR			#1 INOP	#2 INOP					BOTH INOP
	VOR/ILS		#2 INOP		#2 INOP	#1 INOP		#1 INOP		#2 INOP
	DME			INOP						INOP
	ADF		#2 INOP		#2 INOP	#1 INOP		#1 INOP		#2 INOP
	WX RADAR	INOP		INOP						INOP
FLT/CTL	FD	#1 INOP	#2 INOP	#1 INOP	#2 INOP					BOTH INOP
	AP CHANNEL	#1 INOP	#2 INOP	#1 INOP	#2 INOP					BOTH INOP
	FLAPS								HYD INOP	
COM	VHF				#2 INOP			#1 INOP		#2 INOP
	PA								INOP	
LG/BRK	LANDING GEAR								HYD INOP	IND ² INOP
	SKID CONTROL							INOP	INOP	

NOTES: 1. TRANSFER to offside SG.

2. Second NLG indication still available.

BUS EQUIPMENT LIST										
SYSTEM	BUS FAILURES								BAT ONLY SMOKE DRILL	
	AC BUS		DC BUS		EMER AC		EMER DC			
	1	2	1	2	1	2	1	2		
POWER PLANT	ENG EC							#1 INOP	#2 INOP	
	PROP EC							#1 INOP	#2 INOP	
	ERP CHANNEL									① INOP
	ITT							#1 INOP	#2 INOP	
	NP			#1 INOP	#2 INOP					BOTH INOP
FUEL	X-FEED			INOP						INOP
	FIRE SHUTOFF							LH INOP	RH INOP	
AIRCO	PRESS CONTROL								③ INOP	
	TEMP CONTROL			F-DK INOP	CABIN INOP					BOTH INOP
ICE & RAIN PROT	ENG ANTI-ICING	#1 INOP	#2 INOP	#1 INOP	#2 INOP					BOTH INOP
	AIRFRAME DE-ICING			INOP						INOP
	PITOT HEAT		RH SYS INOP							RH SYS INOP
	WINDOW HEAT	LH INOP	RH INOP	LH INOP	RH INOP					BOTH INOP
	WIPERS			BOTH INOP						BOTH INOP
	VANE & SHAKER			INOP						INOP
LIGHTS	F/S - N/S SIGNS				INOP					INOP
	LAND LIGHTS	LH INOP	RH INOP							BOTH INOP

NOTE: ① ERP in GA mode.
② Apply MANUAL PRESSURIZATION PROCEDURE.

3.8.1.4 Fire Protection

LOOP FAULT	
LOOP	OFF

- After selection LOOP to OFF fire warning and extinguishing are not affected.

3.8.1.5 Flight Controls

FLAP ASYMMETRY	
DO NOT OPERATE ALTERNATE FLAP	
FLAP LIMIT SPEED	OBSERVE
NORMAL FLAP SEL	SELECT TO INDICATED FLAP POS
■ If applicable:	
LANDING WITH FLAPS LESS THAN 25 PROC	
APPLY	

- NORMAL FLAP operation is de-activated.

FLAP DISAGREEMENT	
FLAPS	RESELECT
■ If not successful:	
ALTERNATE FLAP	OPERATE
NORMAL FLAP SEL	SELECT TO INDICATED FLAP POS
● If alternate flap operation is not successful and if applicable:	
LANDING WITH FLAPS LESS THAN 25 PROC	
APPLY	

- The FLAP alert is activated when the flaps do not reach the selected position within approx 20 sec.

LANDING WITH FLAPS LESS THAN 25 PROCEDURE

GPWS FLAPS OVRD OPERATE
 V_{REF} CHECK
 LANDING DISTANCE CHECK
 When actual flap is less than 25 assume a flap 0 landing: multiply
 landing distance flap 25 by 1.59.

AUTO ELEVATOR FEEL CONTROL FAULT

AUTO EL FEEL CTL OFF

- Expect different elevator control forces during the landing flare.

TAKE-OFF CONFIGURATION

DO NOT TAKE-OFF
 AIRCRAFT CONFIGURATION CHECK

- A take-off configuration warning can not be cancelled by depressing the master WARNING light, but only by correcting the cause of the warning.
- The following possible causes have to be verified:
 - parking brakes not released
 - elevator trim not in the green band
 - rudder trim not in the green band
 - flaps not in take-off position
 - engine rating not n TO or GA
 - A/F APR not armed.

3.8.1.6 Fuel

PUMP FAULT

PUMP OFF THEN ON
 ■ If reset is unsuccessful:
 PUMP OFF

DOUBLE PUMP FAULT

PUMP 1 AND 2..... OFF THEN ON

■ If reset is unsuccessful:

PUMP 1 AND 2

● If JET B fuel is used and NH fluctuates:

FUEL X-FEED ON

DESCEND TO 8000 ft OR MEA WHICHEVER IS

HIGHER

FUEL X-FEED OFF

NOTE: If necessary the descent may be delayed until approaching max fuel asymmetry.**LEVEL LIGHT**

■ If low level:

LAND ASAP

■ If fuel asymmetry:

FUEL X-FEED ON

PUMPS TANK LOWER QTY OFF

TANK QUANTITIES MONITOR

NOTE: Below 40 kg no actual fuel quantity is indicated, but a flashing LO40 is shown.

- The LEVEL light indicates that either:
 - The fuel quantity in one wing has dropped below 200 kg, or
 - The fuel asymmetry between the wing tanks is more than 250 kg.

3.8.1.7 Hydraulics

ENGINE PUMP FAULT

ENG PUMP OFF THEN ON

■ If reset is unsuccessful:

ENG PUMP OFF

DOUBLE ENGINE PUMP FAULT

BOTH ENG PUMPS OFF THEN ON

■ If reset is unsuccessful:

BOTH ENG PUMP OFF

● Before approach

BOTH ENG PUMPS ON

● If hydr press is 2000 psi or more:

FLAPS, LG, NOSE.WHEEL STEERING AND BRAKES

OPERATE NORMALLY

● If hydr press is below 2000 psi:

BOTH ENG PUMPS OFF

● During approach:

ALTERNATE FLAP OPERATE

ALTERNATE LG SECTOR DOWN

NORMAL LG SECTOR DOWN

● After landing:

NOSE-WHEEL STEERING IS INOPERATIVE

NORMAL BRAKES APPLY

● If normal brakes pressure falls below 1000 psi:

ALTERNATE BRAKE APPLY

SKID CONTROL NOT AVAILABLE

LEAVE NORMAL AND ALTERNATE LANDING GEAR SELECTORS

DOWN

- Normal and alternate brake accumulators provide for approx six applications each
- Full brakes pressure requires 1300 psi from the accumulator
- No brake pressure available if accumulator pressure falls below 800 psi.

TANK LOW QUANTITY

BOTH ENG PUMPS OFF

■ During approach:

ALTERNATE FLAP OPERATE

ALTERNATE LG SELECTOR DOWN

NORMAL LG SELECTOR DOWN

● After landing:

NOSE.-WHEEL STEERING IS INOPERATIVE

NORMAL BRAKES APPLY

● If normal brakes pressure falls below 1000 psi:

ALTERNATE BRAKE APPLY

SKID CONTROL NOT AVAILABLE

LEAVE NORMAL AND ALTERNATE LANDING GEAR
SELECTORS DOWN

- Normal and alternate brake accumulators provide for approx six applications each
- Full brakes pressure requires 1300 psi from the accumulator
- No brake pressure available if accumulator pressure falls below 800 psi.

OVERHEAT

BOTH ENG PUMP OFF

■ Before approach:

BOTH ENG PUMP ON

LOW TANK PRESSURE

BOTH ENG PUMP OFF

■ Before approach:

BOTH ENG PUMP ON

3.8.1.8 Anti-Ice

PITOT HEAT FAILURE

PITOT HEATOFF THEN ON

- If reset is unsuccessful:

PITOT HEATOFF

- If L LO fault:

In icing conditions ADC 1 may be affected.

Crosscheck speed, altitude and vertical speed

- If R LO fault:

In icing conditions ADC 1 may be affected.

Crosscheck speed, altitude and vertical speed

- If on the ground with parking brakes off the pitot heaters are not selected on, the INOP lights on the OVHD panel will be ON.

VANE HEAT FAULT

VANE HEATOFF THEN ON

- If reset is unsuccessful:

VANE HEATOFF

- Expect malfunction of pre-stall warning in icing conditions.

AIRFRAME DE-ICING LOW PRESSURE

- If at low engine power:

POWER LEVERSADVANCE

LOW PRESS LT.....CHECK OUT

- If caution persists:

LEAVE ICING CONDITIONS

IF NECESSARY APPLY PROCEDURE FOR LANDING WITH A
FAILED AIRFRAME DE-ICING SYSTEM

- Engine torque required to assure sufficient bleed air pressure for full capacity airframe de-icing depends on altitude.

Altitude	Required torque (%)
FL 200	34
FL 100	20
Sea Level	10

AIRFRAME DE-ICING SYSTEM NOT EFFECTIVE

- If during flight ice cannot be shed from the wing leading edges and ice deposits continue to increase:
LEAVE ICING CONDITIONS AS SOON AS POSSIBLE
AIRFRAME DE-ICING VERIFY HEAVY SELECTED
SPEED MIN 160 kt
- If ice cannot be shed before approach:
APPLY PROCEDURE FOR LANDING WITH A FAILED
AIRFRAME DE-ICING SYSTEM

LANDING WITH A FAILED AIRFRAME DE-ICING SYSTEM

- If during approach ice is present on the protected parts of the wing or if there is possibility of ice on the tail
FLAPS NOT MORE THAN 25
 V_{APP} $V_{REF25} + 25$
SPEED OVER THRESHOLD $V_{REF25} + 15$
LANDING DISTANCE MULTIPLY BY 1.35

AIRFRAME DE-ICING TIMER FAULT

DE-ICING SELECTOR OFF
MANUAL DE-ICE PROCEDURE APPLY

MANUAL DE-ICE PROCEDURE

HOLD MANUAL SELECTOR ALTERNATELY IN EACH POSITION FOR APPROX 10 SEC.
REPEAT THIS PROCEDURE AFTER A DELAY
This delay depends on the amount of ice buildup.

ENGINE ANTI-ICING FAULT

ENG ANTI-ICING.....OFF THEN ON

■ If reset is unsuccessful:

LEAVE ICING CONDITIONS

- If ice on propeller causes excessive vibration:

ERP MCT

TORQUE ADJUST

Set torque according to tables ERP INOPERATIVE

- If impossible to keep propeller vibration within acceptable limits, or if normal engine

operation cannot be restored:

FUEL LEVER SHUT

- When out of icing conditions:

ENG ANTI-ICING OFF

AIR START PROCEDURE APPLY

- When out of icing conditions:

ERP CLB OR CRZ

TORQUE ADJUST

ENG ANTI-ICING OFF

- As long as icing conditions continue, keep anti-icing ON, because partial anti-icing may still be available.
- Depending on amount of ice build up, propeller vibration may be expected.

WINDOW HEAT FAULT

RELEVANT WINDOW HEAT.....OFF THEN ON

■ If reset is unsuccessful:

RELEVANT WINDOW HEAT OFF

- If below 10 000 ft and TAT below + 18 deg C:

DO NOT EXCEED 180 kt

- Window heat fault detection is only possible during a test phase. The test phase is only active with power-up and when the window heat is switch (any change in selector position).
- Fault detection in flight is by observing ice accretion on the normally heated parts of the window.

3.8.1.9 Instruments, Warnings and Monitors

ALERT SYST CHANNEL FAIL
REPORT TO MAINTENANCE

ALERT SYST FAULT ON CAP
ALERT SYST BACK UP

- FAULT light indicates that IAU has failed completely, the system reverts to BACK UP automatically
- In BACK UP mode only CAP lights are available. No aural alerts except AP disengagement and aircraft over-speed are given.

FLIGHT DATA REC FAULT
REPORT TO MAINTENANCE

3.8.1.10 Landing Gear

LANDING GEAR SELECTOR LOCKED IN DOWN POSITION
LOCK OVRD PUSH AND HOLD LANDING GEAR SELECTOR UP LOCK OVRD RELEASE

GEAR UNSAFE OFTER UP SELECTION

RECYCLE

- If successful:
No restrictions
- If unsuccessful:
DO NOT EXCEED 170 kt

NOTE: An unsafe condition may be caused by too high a pressure in the hydraulic return line.

Application of brakes will reduce this pressure and may cause the unsafe indication to disappear.

- Transit light in landing gear selector is ON.

NO GEAR EXTENSION AFTER DOWN SELECTION

LEAVE NORMAL LANDING GEAR SELECTOR DOWN
ALTERNATE DOWN PROCEDURE APPLY

ALTERNATE DOWN PROCEDURE

NORMAL LANDING GEAR SELECTOR CHECK DOWN
ALTERNATE LANDING GEAR SELECTORDOWN

- If successful:
LEAVE NORMAL AND ALTERNATE LANDING GEAR SELECTORS DOWN
AFTER LANDING CLEAR RUNWAY, DO NOT TAXI
NOSE-WHEEL STEERING IS INOPERATIVE
- If unsuccessful:
PERFORM A LEVEL '2 G' TURN (60 deg of bank) AT 170 kt
 - If successful:
LEAVE NORMAL AND ALTERNATE LANDING GEAR SELECTORS DOWN
AFTER LANDING CLEAR RUNWAY, DO NOT TAXI
NOSE-WHEEL STEERING IS INOPERATIVE
 - If unsuccessful:
ALTERNATE LANDING GEAR SELECTOR ...
DESELECT (SELECTOR DOWN POSITION)
APPLICABLE GEAR / UNSAFE PROCEDURE ...
APPLY.

This procedure has to be carried out in case of:

- Hydraulic failure
- Normal LG-down selection not possible
- An unsafe gear after down selection

The reset of the alternate LG selector after landing is a maintenance procedure.

MAIN GEAR UNSAFE AFTER DOWN SELECTION

RECYCLE

- If successful:
No restrictions
- If unsuccessful:
CHECK MAIN GEAR VISUALLY THROUGH CABIN WINDOW
 - If main gear is down and red marks are in line:
IT CAN BE ASSUMED THAT MAIN GEAR IS DOWN AND LOCKED
 - If are **NOT** in line:
ALTERNATE DOWN PROCEDURE..... APPLY

MAIN GEAR GREEN LIGHT NOT ON AFTER DOWN SELECTION

- If no master caution light and no blue transit light:
IT CAN BE ASSUMED THAT MAIN GEAR IS DOWN AND LOCKED
REPORT TO MAINTENANCE

- Suspect failure of bulbs in LG position indicator.

NOSE GEAR UNSAFE AFTER DOWN SELECTION

RECYCLE

- If successful:
No restrictions
- If unsuccessful:
ALTERNATE DOWN PROCEDURE..... APPLY

- Transit light in LG selector is ON
- If any of the nose-gear down lights indicates green, it may be assumed that the nose gear is safe for landing.

SKID CONTROL FAULT

SKID CONTROL NOT AVAILABLE

APPLY BRAKES CAREFULLY TO PREVENT BLOWN TIRES

Landing distance without skid control is 1.86 times the distance for flap 25.

NOTE: If a lightning strike has been experienced with the landing gear down, test the skid control system before landing

NORMAL BRAKE SYSTEM FAILURE

USE ALTN BRAKES

SKID CONTROL NOT AVAILABLE

APPLY BRAKES CAREFULLY TO PREVENT BLOWN TIRES

Landing distance without skid control is 1.86 times the distance for flap 25.

Normal and alternate brake accumulators provide for approx six applications each.

3.8.1.11 Navigation**SYMBOL GENERATOR FAULT**

SGALTN

MONITOR ATTITUDE AND HEADING WITH STANDBY INSTRUMENTS

- Navigation data display on the RMI's is not affected by SG switching.
- When one source is used for both PFDs and NDs monitor stby horizon and RMI for comparison.

PFD or ND FAILURE

FAILED DU OFF

COMPOSITE DISPLAY ON REMAINING DU

■ 1 case of composite display on lower DU:

WX SELECTOR BRIGHT

NOTE: DON NOT USE FD AND AP ON AFFECTED SIDE

GROUND PROXIMITY WARNING FAULT

GPWS OFF THEN ON

■ If reset is unsuccessful:

GPWS OFF

COMPARE ATTITUDE

Compare LH PFD and RH PFD with stby horizon.

For the incorrect PFD

SG ALTN

3.8.1.12 Doors and Windows**DOORS UNSAFE**

INSTRUCT THE CABIN CREW TO CHECK AND REPORT DOOR
LEVER POSITION

■ If door lever is **not** in the fully closed position:

LAND AS SOON AS PRACTICABLE

- If door lever is in the fully closed position (pointing in the direction of flight) a faulty micro switch is probably the cause of the alert.
- The cabin cannot be pressurized if the door lever is out of the closed position.

CRACKED FRONT WINDOW

RELEVANT WINDOW HEAT OFF

■ If below 10 000 ft and TAT below + 18 deg C:

DO NOT EXCEED 180 kt

CRACKED SLIDING WINDOW

REPORT TO MAINTENANCE

CRACKED CABIN WINDOW

DIFF PRESSURE REDUCE TO 4 psi

CABIN ALTITUDE WITH 4 psi

CRUISE LEVEL	120	140	160	180	200
CABIN ALTITUDE (ft)	2500	4000	5500	7000	8500

3.8.1.13 Power Plant**SHUTDOWN**

POWER LEVER FLT IDLE

FUEL LEVER SHUT

■ If required:

ERP MCT

LAND AS SOON AS PRACTICABLE

FUEL MANAGEMENT CHECK

BEFORE APPROACH

ENG ANTI-ICING AS REQ

SEAT BELT ON

LANDING LIGHTS ON

LANDING DATA/APPROACH BRIEFING COMPLETED

ALTIMETERS SET

ERP GA

BEFORE LANDING

LANDING GEAR DOWN

FLAPS 25

- Use cross feed as required.
- Operate both power levers to ensure normal operation of the auto elevator feel control.
- See flight procedures for Single engine operations.
- Use **Normal “Descent”, “Approach” and “Landing” check lists** for items, which are not mentioned in Abnormal Checklist, as appropriate.

AIR START

FUEL LEVER..... CHECK SHUT
 POWER LEVER CHECK FLT IDLE
 ERP MCT OR CLB OR CRZ
 IGNITION ON
 START P/B..... ON
 ENGINE SELECTOR IL OR R

■ On passing 20 per cent NH:

FUEL LEVER..... START
 ITT AND ENG ACCELERATION MONITOR

● If no light-up within 10 seconds:

FUEL LEVER SHUT
 START P/B OFF
 IGNITION..... OFF

● When NH in green band:

FUEL LEVER..... OPEN

● When engine has stabilised:

START P/B OFF
 IGNITION OFF
 ERP CLB OR CRZ

● If NH not in green band within approx 60 sec:

FUEL LEVER SHUT
 START P/B OFF
 IGNITION OFF

NOTE: If air start has been discontinued, wait 60 seconds, and repeat air start procedure.

- Observe starter cycle restrictions of 30 sec each, followed by a 15 min cooling period after three start attempts.
- Propeller unfeathering is not possible after an autofeather unless the ERP is in **MCT, CLB or CRZ**.

DISCONTINUED ENGINE START ON GROUND

- If no NH is observed:

START P/BOFF

DO NOT RESTART

- If no light-up is obtained within 10 sec after advancing the fuel lever to START:

FUEL LEVER SHUT

- 15 sec after shutting the fuel lever:

START P/BOFF

- To repeat starting procedure:

START P/BON

IGNITIONON

BLEEDOFF

REPEAT START PROCEDURE

- Two minutes after start:

IGNITIONOFF

BLEEDON

- If ITT rises rapidly and the start limit is likely to be exceeded:

FUEL LEVER SHUT

START P/BOFF

- If ITT start limit has been exceeded:

DO NOT RESTART

- If NH not in green band within approx 60 sec:

FUEL LEVER SHUT

START P/BOFF

- If for any reason a start is discontinued, allow the engine to come to a complete stop.
- Observe starter cycle restrictions of 30 sec each, followed by a 15 min cooling period after three start attempts. After ninth start attempt a cooling period of 4 hours is required.

RUNAWAY DURING ENGINE START

ENG EC.....	MAN
■ If engine behaviour is normal:	
ENG EC	RESET
● If NH becomes high again:	
ENG EC.....	MAN
DISPATCH MAY BE AFFECTED	
■ If NH remains high:	
FUEL LEVER	SHUT

- Engine runaways are generally caused by signal interruption to the ENG EC.
- If engine behaviour is normal in EEC MAN mode, use MEL for dispatch.

START FAULT

■ If fault occurs when depressing START P/B to ON, engine starting is not possible.	
START P/B.....	OFF
■ If fault occurs during engine starting:	
When NH in green band:	
START P/B.....	OFF THEN ON
● If fault light remains out:	
CONTINUE OPERATION	
● If fault repeats:	
START P/B	OFF
FUEL LEVER	SHUT

- To decide whether continued operation is possible when the START FAULT occurs after starting an engine, it is necessary to depress the START p/b again to ON. If the START FAULT occurs immediately again, this indicates that the engines cannot be started in flight or at next stop.

ENGINE TORQUE FLUCTUATIONS

POWER LEVER RETARD TO APPROX 30% TRQ
ENG EC MAN

■ If engine is stable:

POWER LEVER RE-ADJUST

● After landing:

ERP CHECK/SELECT TO

FUEL LEVER START

Taxi with other engine only.

■ If engine remains unstable:

ENG EC RESET

PROP EC OFF

● If NP stable at approx 104 per cent:

POWER LEVER RE-ADJUST

Restrict speed to 220 kt TAS.

In case of go-around check torque approx 4 per cent below bug.

● If NP is not stable:

SHUTDOWN PROCEDURE APPLY

CRUISE LEVEL	40	80	120	160	200	240
IAS at 220 kt TAS	208	194	183	172	161	150

ENGINE OIL PRESSURE NOT IN GREEN BAND

■ If pressure is low:

POWER LEVER FLT IDLE THEN TO DETENT

● If oil pressure varies more than 5 psi:

SHUT DOWN PROCEDURE APPLY

● If oil pressure varies less than 5 psi:

REPORT TO MAINTENANCE

■ If pressure is high:

REPORT TO MAINTENANCE

FUEL FILTER

REPORT TO MAINTENANCE

FUEL TEMPERATURE HIGH/LOW

REPORT TO MAINTENANCE

ENGINE RATING PANEL FAULT

ERP GA
 TRQ BUGS MAN AND RESET
 ACCORDING TO ERP INOP TABLES
 POWER LEVERS ADJUST

■ During climb:
 TRQ BUGS RESET EVERY 5000 ft
 POWER LEVERS ADJUST

■ Before approach:
 TRQ BUGS NORMAL

■ After landing:
 ERP TO

- If NP of one engine above ground idle (62.5 per cent):
 RELEVANT FUEL LEVER START
- If NP of both engines above ground idle:
 ONE FUEL LEVER START

AVOID COMING TO A STANDSTILL BEFORE REACHING THE PARKING POSITION

- NP will increase to 100 per cent.
- If ERP shows half green bar in p/b:
 - ERP selection to ENG EC is possible but PEC will go to 100 per cent NP.
- If ERP p/b are blank:
 - Torque bugs will show GA torque.
- Power control remains normal via ENG EC.
- Ground idle and reverse are available.
- With GA rating the autofeather system will be armed whenever torque is above 50 per cent.

ENGINE ELECTRONIC CONTROL FAULT

- ENG EC..... CHECK FAULT AND MAN
- If ENG EC shows FAULT only:
POWER LEVERRETARD UNTIL ENG EC MAN
ENG EC.....PUSH TWICE TO RESET
 - If reset is successful:
POWER LEVER RE-ADJUST
 - If reset is unsuccessful:
ENG EC..... MAN
POWER LEVER RE-ADJUST
 - After landing:
ERP.....CHECK/RESET TO
FUEL LEVERSTART
Taxi with other engine only.

- See more detailed information in MEL for EEC inoperative operations.

DEGRADED ENGINE ELECTRONIC CONTROL

- POWER LEVER RETARD TO APPROX 30%TRQ
ENG EC..... PUSH TWICE TO RESET
- If reset is successful:
POWER LEVER ADJUST
 - If reset is unsuccessful:
POWER LEVER ADJUST
REPORT TO MAINTENANCE

PROPELLER ELECTRONIC CONTROL FAULT

- PROP EC OFF THEN ON
- If reset is unsuccessful:
PROP EC..... OFF
NP will increase to 104 per cent.
Restrict speed to 220 kt TAS.
In case of go-around check torque approx 4 per cent below bug.
 - If NP is not stable:
SHUTDOWN PROCEDURE.....APPLY

CRUISE LEVEL	40	80	120	160	200	240
IAS at 220 kt TAS	208	194	183	172	161	150

JET PIPE FIRE	
FUEL LEVER.....	SHUT
FUEL PUMPS.....	OFF
START P/B.....	ON
ENGINE SELECTOR	L OR R
■ After fire has been extinguished:	
START P/B.....	OFF

BLOW-OUT RUN	
FUEL PUMPS.....	ON
FUEL LEVER.....	SHUT
START P/B.....	ON
ENGINE SELECTOR	L OR R
■ After 15 seconds:	
START P/B.....	OFF
FUEL PUMPS	OFF

INTENTIONALLY LEFT BLANK

3.8.2 Emergency Checklists

3.8.2.1 Engine

BOTH ENGINES FLAMEOUT

IGNITION BOTH ON

BOTH POWER LEVERS..... FLT IDLE

SPEED MIN 140 kt

- If neither engine relights within 10 sec.

RH FUEL LEVER..... SHUT

NOTE: A battery start must not be carried out above FL 200.

- After 30 sec ventilation:

START P/B ON

ENGINE SELECTOR..... R

- On passing 20 per cent NH:

RH FUEL LEVER START

ITT AND ENG ACCELERATION..... MONITOR

- When NH in green band:

RH FUEL LEVER OPEN

- If no light-up within 10 sec

RH FUEL LEVER SHUT

START P/B OFF

RH IGNITION OFF

LH FUEL LEVER SHUT

START P/B CHECK ON

ENGINE SELECTOR..... L

- On passing 20 per cent NH:

LH FUEL LEVER START

ITT AND ENG ACCELERATION MONITOR

- When NH in green band:

LH FUEL LEVER OPEN

- If no light-up within 10 sec:

LH FUEL LEVER SHUT

START P/B OFF

LH IGNITION OFF

- If one or both engines recovered:

- If no engine recovered:

Maintain approx 140 kt during descent

Prepare for FORCED LANDING or DITCHING
Use alternate systems for flaps and landing gear.

- While carrying out the air start procedure for RH engine, the LH generator will remain on-line and the AP is still available.
- If an air start of RH engine is not successful, try the LH engine; however, both generators will now be off-line. The LP should fly the airplane.

ENGINE FIRE/SEVERE DAMAGE

FUEL LEVER..... SHUT
FIRE HANDLE..... PULL AND DISCH 1

- If after 45 sec fire warning persists:

FIRE HANDLE DISCH 2
FUEL PUMPS OFF
SINGLE-ENGINE PROCEDURE APPLY

- Severe engine damage may be indicated by explosion or excessive vibration.

In Flight

- To pull the fire handle when there is no actual engine fire signal, depress the latch override button behind the handle.
- Do not attempt to restart engine.

On Ground

- Up to full reverse may be used to stop the airplane.
- Apply Evacuation/On ground emergency procedure.

ENGINE OUT

- If no light-up within 10 seconds:

FUEL LEVER SHUT
SINGLE ENGINE PROCEDURE APPLY

- The automatic ignition will try to relight when CLB or CRZ rating is active.

- Normally an automatic relight results in an ITT increase in approx 6 sec after warning. Recovery of engine takes approx 20 sec.
- After completion of the engine out procedure the Air Start procedure could be applied .

SINGLE-ENGINE PROCEDURE

■ If required:

ERP MCT

LAND AS SOON AS PRACTICABLE

FUEL MANAGEMENTCHECK

BEFORE APPROACH

GND IDLE STOPOFF

ENG ANTI-ICING.....AS REQ

SEAT BELTON

LANDING LIGHTSON

LANDING DATA/APPROACH BRIEFING COMPLETED

ALTIMETERS SET

ERP GA

BEFORE LANDING

LANDING GEAR.....DOWN

FLAPS 25

- Use cross feed as required.
- Operate both power levers to ensure normal operation of the auto elevator feel control.
- See flight procedures for Single engine operations.
- Use **Normal “Descent”, “Approach” and “Landing” check lists** for items, which are not mentioned in Emergency Checklist, as appropriate.

ENGINE ITT HIGH

POWER LEVER.....RETARD

ITT..... MONITOR

- If ITT within limits and minimum 12% torque can be maintained:

Continue engine operation

ITT..... MONITOR

- Before approach:

FUEL LEVERSHUT

SINGLE-ENGINE PROCEDUREAPPLY

- If ITT limit exceeded or minimum 12% torque cannot be maintained:

FUEL LEVERSHUT

SINGLE-ENGINE PROCEDUREAPPLY

OPERATING CONDITIONS	ITT LIMITS	TIME LIMIT
ENGINE START	Between 840 and 950 deg C	5 sec
TRANSIENT	Between 800 and 840 deg C	20 sec
MAX TO	MAX 800 deg C	10 min
MAX CONT	MAX 800 deg C	Unl

- 12 % torque is required to eliminate the extra drag from an engine in flight idle compared with a feathered propeller.
- Engine shutdown is recommended before approach to avoid non standard approach and go-around procedures.
- If an engine has been shutdown because the ITT limit has been exceeded – do not restart.

ENGINE OIL PRESSURE LOW

OIL PRESSURE INDICATOR CHECK

■ If pressure is within the green band:
Continue engine operation

OIL PRESSURE MONITOR

■ If pressure is below 40 psi

POWER LEVER FLT IDLE

FUEL LEVER SHUT

SINGLE-ENGINE PROCEDURE APPLY

- If oil pressure is not in green band, see chapter Abnormal Procedures, section Power Plant.

3.8.2.2 Electrical Power

LOSS OF AC SUPPLY

GEN 1 AND 2..... OFF THEN ON

- If no generator recovered:

AVOID ICING CONDITIONS

LAND AS SOON AS PRACTICABLE

NOTE: After loss of both engine generators only one engine air start is allowed.

After 30 min total loss of electrical power may occur.

SYSTEMS AVAILABLE

LH EFIS

RH RMI

VOR/ILS 1

ADF 1

VHF COM 1

PA

SYSTEMS AFFECTED:

ANTI-ICING RH PITOT INOP

AUTO PILOTINOP

FUEL PUMPS 1INOP

LG IND..... NOSE IND ONLY

ERPINOP

NOTE: For more detailed info see BUS EQUIPMENT LIST.

- ERP will default to GA, consequently NP will go up to 100 %.
- Generator reset may be successful if the origin of the fault is an electrical transient.
- The LP should take control of the airplane.

- See bus equipment list for operative services.

BATTERY OVERHEAT

BAT CHARGER..... CHCK OFF
 LAND AS SOON AS PRACTICABLE

3.8.2.3 Smoke

ELECTRICAL SMOKE

OXY MASK/GOGGLESAS REQD
 CREW COMMUNICATION ESTABLISH
 RECIRC FANS..... BOTH OFF
 ECONOMY OFF
 GEN 1 and 2 OFF
 AVOID ICING CONDITIONS
 LAND AS SOON AS PRACTICABLE
 SMOKE REMOVAL PROC (IF REQD).....APPLY
 ■ If unable to land within 30 min:
 AUTO AC X-FEED OFF
 GEN 1..... ON
 ■ If smoke re-appears:
 GEN 2 ON
 GEN 1 OFF

If on BAT PWR ONLY
 SYSTEMS AVAILABLE

LH EFIS
 RH RMI
 VOR/ILS 1
 ADF 1
 VHF COM 1
 PA

SYSTEM AFFECTED

ANTI-ICING RH PITOT INOP
 AUTO PILOT INOP
 FUEL PUMPS 1 INOP
 LG IND NOSE IND ONLY
 ERP INOP

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NOTE: For more detailed info see BUS EQUIPMENT LIST

- If smoke is serious, put on oxygen masks and smoke goggles.
- If oxygen masks are required, the PNF should establish crew communication by selecting the speaker switch to OXY on both audio panels.
- Recirculation fans are switched off to avoid recirculation of contaminated air.
- Smoke is effectively removed by the air conditioning flow.
- The LP should take control of the airplane.
- See Bus equipment list for operative services.

AIR CONDITION SMOKE

OXY MASK/GOGGLES..... AS REQD
 CREW COMMUNICATION ESTABLISHED
 RECIRC FANS BOTH OFF
 ECONOMY OFF
 LEFT BLEED and LEFT PACK OFF

■ If smoke persists:

LEFT BLEED and LEFT PACK..... ON
 RIGHT BLEED and RIGHT PACK..... OFF

● If smoke source cannot be isolated:

LEFT PACK and RIGHT PACK..... CHECK OFF
 DESCENT (10 000 ft/MEA) INITIATE
 FRESH AIR SCOOPS..... OPEN
 PRESS CONTROL MAN
 MANUAL CONTROL LEVER..... UP
 MANUAL RATE CONTROL MAX INCR
 SEAT BELT/NO SMGK..... ON
 LAND AS SOON AS PRACTICABLE

- If smoke is serious, put on oxygen masks and smoke goggles.
- If oxygen masks are required, the PNF should establish crew communication by selecting the speaker switch to OXY on both audio panels.
- Recirculation fans are switched off to avoid recirculation of contaminated air.

CABIN SMOKE/FIRE

FLIGHT DECK DOOR CLOSED
 OXY MASK/GOGGLES AS REQD
 CREW COMMUNICATION ESTABLISHED
 RECIRC FANS BOTH OFF
 ECONOMY OFF

■ If cabin crew is unable to locate and extinguish fire:

SMOKE REMOVAL PROC (IF REQD) APPLY

- If smoke is serious, put on oxygen masks and smoke goggles.
- If oxygen masks are required, the PNF should establish crew communication by selecting the speaker switch to OXY on both audio panels.
- Recirculation fans are switched off to avoid recirculation of contaminated air.
- Smoke is effectively removed by the air conditioning flow.

SMOKE TOILET

RECIRC FANS BOTH OFF
 ECONOMY OFF

Inform the cabin crew to inspect toilet and if necessary to extinguish the fire

SMOKE REMOVAL PROC (IF REQD) APPLY

- Recirculation fans are switched off to avoid recirculation of contaminated air.
- Smoke is effectively removed by the air conditioning flow.

SMOKE FORWARD/AFT CARGO

RECIRC FANS BOTH OFF
 ECONOMY OFF

DO NOT OPEN CARGO COMPT DOOR

Instruct the cabin crew to apply cargo compartment smoke procedure:

DISCHARGE FIRE EXTINGUISHER

After ten minutes:

DISCHARGE SECOND FIRE EXTINGUISHER**LAND AS SOON AS PRACTICABLE****SMOKE REMOVAL PROC (IF REQD).....APPLY**

- Recirculation fans are switched off to avoid recirculation of contaminated air.
- Smoke is effectively removed by the air conditioning flow.
- After landing, disembark pax before opening cargo compartment doors in presence of fire fighting services.

SMOKE REMOVAL

FLIGHT DECK DOOR.....CLOSED
 OXY MASK/GOGGLES.....ON
 CREW COMMUNICATIONESTABLISH
 SEAT BELT/NO SMKG.....ON
 RECIRC FANS.....BOTH OFF
 ECONOMY.....OFF
 DESCENT (10 000 ft/MEA)INITIATE
 PRESS CONTROLMAN
 MANUAL CONTROL LEVER.....UP
 MANUAL RATE CONTROL.....MAX INCR
 LAND AS SOON AS PRACICABLE

- Smoke removal procedure should be applied in case of serious smoke or toxic fumes.
- Smoke is most effectively removed by the highest possible air conditioning flow. Since the air conditioning flow increases by depressurization (which opens the outflow valves) select cabin altitude to 9000 ft and turn cabin rate of climb to increase.
- The cabin will depressurize, so start descending to meet the cabin.
- After depressurization select pressurization control to manual with rate at full increase to keep outflowvalves wide open.

3.8.2.4 Emergency Landing

NOSE GEAR UP or UNSAFE

The **PREPARATION** items must be carried out in addition to the normal BEFORE APPROACH CHECK

The **APPROACH** items replace the normal BEFORE LANDING CHECK.

PREPARATION

BEFORE APPROACH CHECK..... COMPLETED
 CABIN CREW/ATC..... NOTIFY
 SEAT BELT/NO SMKG..... ON
 WARN AUDIO..... OFF
 GPWS..... OFF
 CG location (if possible)..... AFT
 CABIN AND FLIGHT DECK..... PREPARE

APPROACH

LANDING GEAR SELECTOR CHECK DOWN
 FLAPS 35
 ERP GA
 SPEED..... $V_{REF} + 10$
 CABIN REPORT OBTAINED
 CABIN CREW EMERGENCY STATIONS

BEFORE LANDING

BRACE FOR IMPACT ORDER

AFTER TOUCHDOWN

BOTH FUEL LEVERS..... SHUT
 BOTH FIRE HANDLES..... PULL AND DISCH 1

■ When aircraft stopped:

EVACUATION..... INITIATE
 BATTERIES..... OFF

- Use **Normal “Descent”, “Approach” and “Landing” check lists** for items, which are not mentioned in Emergency Checklist, as appropriate.
- Brief cabin crew on type of emergency, attitude in case of gear collapse and exits to be used in case of evacuation.
- If possible, relocate pax to achieve an aft CG.
- Review landing and evacuation procedures.
- Use VHF 1 throughout the complete procedure.
- Lock shoulder harnesses.
- After touchdown:
- Do not select ground idle, but shut fuel levers.

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- Trim airplane nose up.
- Before elevator control is lost, lower the nose smoothly on the runway.
- To pull the fire handles when there is no engine fire signal, depress the latch override button behind the fire handles.
- Aft doors should preferably not be used for evacuation.

Note: If the landing was made with the nose gear extended but not locked down, and the gear did not collapse during the landing roll, do not taxi until measures have been taken to prevent gear collapse.

ONE MAIN GEAR UP or UNSAFE

The **PREPARATION** items must be carried out in addition to the normal BEFORE APPROACH CHECK

The **APPROACH** items replace the normal BEFORE LANDING CHECK

PREPARATION

BEFORE APPROACH CHECK COMPLETED
 CABIN CREW/ATC NOTIFY
 SEAT BELT/NO SMKG ON
 WARN AUDIO OFF
 CABIN AND FLIGHT DECK PREPARE

APPROACH

LANDING GEAR SELECTOR CHECK DOWN
 FLAPS 35
 ERP GA
 SPEED $V_{REF} + 10$
 CABIN REPORT OBTAINED
 CABIN CREW EMERGENCY STATIONS
 BOTH PACKS OFF

BEFORE LANDING

BRACE FOR IMPACT ORDER

AFTER TOUCHDOWN

FIRE HANDLE on side of filed LG PULL

■ When aircraft stopped:

BOTH FUEL LEVERS SHUT
 BOTH FIRE HANDLES PULL AND DISCH 1
 EVACUATION INITIATE
 BATTERIES OFF

- Use Normal “Descent”, “Approach” and “Landing” check lists for items, which are not mentioned in Emergency Checklist, as appropriate.

- Brief cabin crew on type of emergency, attitude in case of gear collapse and exits to be used in case of evacuation.
- Review landing and evacuation procedures.
- Use VHF 1 throughout the complete procedure.
- Lock shoulder harnesses.

After touchdown:

- Do not use reverse thrust.
- Keep unsupported wing up as long as possible.
- Keep straight with rudder, brakes and nose wheel steering.
- To pull the fire handles when there is no engine fire signal, depress the latch override button behind the fire handles.
- Doors at the high side should preferably not be used for evacuation.

Note: If the landing was made with the nose gear extended but not locked down, and the gear did not collapse during the landing roll, do not taxi until measures have been taken to prevent gear collapse.

BOTH MAIN GEARS / ALL GEARS UP or UNSAFE

The **PREPARATION** items must be carried out in addition to the normal BEFORE APPROACH CHECK

The **APPROACH** items replace the normal BEFORE LANDING CHECK

PREPARATION

BEFORE APPROACH CHECK COMPLETED
 CABIN CREW/ATC NOTIFY
 SEAT BELT/NO SMKG ON
 WARN AUDIO OFF
 GPWS OFF
 CABIN AND FLIGHT DECK PREPARE

APPROACH

LANDING GEAR SELECTOR CHECK DOWN
 FLAPS 35
 ERP GA
 SPEED $V_{REF} + 10$
 CABIN REPORT OBTAINED
 CABIN CREW EMERGENCY STATIONS
 BOTH PACKS OFF

BEFORE LANDING

BRACE FOR IMPACT ORDER

TOUCHDOWN

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BOTH FUEL LEVERS	SHUT
AFTER TOUCHDOWN	
BOTH FIRE HANDLES	PULL AND DISCH 1
■ When aircraft stopped:	
EVACUATION.....	INITIATE
BATTERIES	OFF

- Use **Normal “Descent”, “Approach” and “Landing” check lists** for items, which are not mentioned in Emergency Checklist, as appropriate.
- Brief cabin crew on type of emergency, attitude in case of gear collapse and exits to be used in case of evacuation.
- Review landing and evacuation procedures.
- Use VHF 1 throughout the complete procedure.
- Lock shoulder harnesses.
- To pull the fire handles when there is no engine fire signal, depress the latch override button behind the fire handles.

Landing:

- Due to the increase of ground effect the airplane tends to float.

FORCED LANDING

The **PREPARATION** items must be carried out in addition to the normal BEFORE APPROACH CHECK

The **APPROACH** items replace the normal BEFORE LANDING CHECK

PREPARATION

CABIN CREW.....	NOTIFY
ATC/TRANSPONDER.....	NOTIFY/7700
SEAT BELT/NO SMKG	ON
CABIN AND FLIGHT DECK	PREPARE
FUEL WEIGHT (if possible).....	REDUCE
LDG ALT	SET

APPROACH

LANDING GEAR SELECTOR	DOWN
FLAPS	35
SPEED	$V_{REF} + 10$
CABIN REPORT.....	OBTAINED
CABIN CREW.....	EMERGENCY STATIONS
BOTH PACKS	OFF

BEFORE LANDING

BRACE FOR IMPACT	ORDER
------------------------	-------

IMPACT

BOTH FUEL LEVERS	SHUT
------------------------	------

AFTER IMPACT

BOTH FIRE HANDLES	PULL AND DISCH 1
-------------------------	------------------

■ When aircraft stopped:

EVACUATION	INITIATE
BATTERIES.....	OFF

- Use **Normal “Descent”, “Approach” and “Landing” check lists** for items, which are not mentioned in Emergency Checklist, as appropriate.
- Brief cabin crew on type of emergency, attitude in case of gear collapse and exits to be used in case of evacuation.
- Review landing and evacuation procedures.
- Lock shoulder harnesses.
- An extended landing gear will absorb part of the initial impact force. It is so designed that its failure will cause a minimum of damage to the airplane. Landing with the gear down improves the survival chances and reduces the risk of severe structural damage and fire.

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- To pull the fire handles when there is no engine fire signal, depress the latch override button behind the fire handles.

Landing:

- If possible land into the wind.
- Hold off as long as possible but do not stall the airplane.

DITCHING

The **PREPARATION** items must be carried out in addition to the normal BEFORE APPROACH CHECK

The **APPROACH** items replace the normal BEFORE LANDING CHECK

PREPARATION

CABIN CREW NOTIFY
 ATC/TRANSPONDER NOTIFY/7700
 SEAT BELT/NO SMKG ON
 CG LOCATION (if possible) AFT
 FUEL WEIGHT (if possible) REDUCE
 WARN AUDIO OFF
 GPWS OFF
 CABIN and FLIGHT DECK PREPARE
 LDG ALT SET
 EXIT SILL RAISERS CHECK INSTALLED

APPROACH

LANDING GEAR SELECTOR UP
 FLAPS 35
 SPEED $V_{REF} + 10$
 CABIN REPORT OBTAINED
 CABIN CREW EMERGENCY STATIONS
 BOTH PACKS OFF

BEFORE DITCHING

BRACE FOR IMPACT ORDER

DITCHING

BOTH FUEL LEVERS SHUT
 BOTH FIRE HANDLES PULL AND DISCH 1

AFTER DITCHING

EVACUATION INITATE
 BATTERIES OFF

- Use Normal “Descent”, “Approach” and “Landing” check lists for items, which are not mentioned in Emergency Checklist, as appropriate.

- In calm conditions, landing direction is at pilot's discretion and should depend on light, position of ships etc. In heavy sea, land parallel to the swell. In heavy sea and strong wind, land into the wind.
- Brief cabin crew on type of emergency, attitude after ditching and exits to be used.
- Review landing and evacuation procedures.
- Lock shoulder harnesses.
- On final approach increase power to maintain a ROD of approx 100 ft/min at Vref + 10.
- Use radio altimeter for height guidance.

3.8.2.5 Miscellaneous

EXCESSIVE CABIN ALTITUDE

OXY MASK	ON
CREW COMMUNICATION	ESTABLISHED
DESCENT	AS REQD
ALTITUDE	MAX 10 000 ft or MEA
■ If cabin altitude is about 10 000 ft:	
PAX OXYGEN	ACTIVATE
Instruct the cabin crew to take appropriate action.	

- Check for cabin pressurization system fault. If system fault is obvious, take appropriate actions. If no abnormal indication, commence descent.
- In case of rapid decompression combined with high flight altitude, apply the Emergency Descent procedure.

3.8.2.6 Emergency Descent

EMERGENCY DESCENT

POWER LEVERS..... FLT IDLE
SPEED V_{MO}

CAUTION: If structural damage is suspected reduce speed and limit manoeuvring loads as appropriate.

SEAT BELT/NO SMKG..... ON
ATC/TRANSPONDER..... NOTIFY/7700
ALTITUDE..... MAX 10 000 ft or MEA

3.8.2.7 Evacuation / On ground Emergency

EVACUATION/ON GROUND EMERGENCY

PARK BRAKE ON
BOTH FUEL LEVERS SHUT

■ If the aircraft has sustained damage or if the Commander judges this advisable:

BOTH FIRE HANDLES..... PULL AND DISCH 1
ATC NOTIFY

■ If evacuation required:

Announce EVACUATE

EMER LIGHT ON
BATTERIES OFF

■ If evacuation not required:

Announce CABIN CREW and PASSENGERS

KEEP YOUR SEATS

Further actions depend on circumstances.

NOTE: The emergency lighting battery packs will supply the emergency lights for at least 10 minutes.

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4 PERFORMANCE

Currently all information related to aircraft performance has been included into airBaltic route manual, section “Fueling/GWC”, “GWC Fokker 50.”

Additional information can be found in the manufacturers airplane flight manual, section 6 “Performance.”

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Appendix 1

GROSS WEIGHT CHART PROCEDURE

1 General

1.1 Take-off

Max TOW evaluation shall be made before every flight. This evaluation is based on the Gross Weight Charts (GWC), which are presented in the chapter GWC of the Route Manual.

GWC FOKKER 50

Length ELE TKOF LDG V (ft) (m) (m)			Flaps 5 ⁰		3) Climb Limit Temp (C)	Flaps 15 ⁰		3) Climb Limit Temp (C)
			TOW at T _{REF}			TOW at T _{REF}		
			RWY 1) (T)	vs. Obst. 2) (T)		RWY 1) (T)	vs. Obst. 2) (T)	
EBBR	184	(BRU)	T _{REF} = 30°C					
02	2987	2941	25.3/27.8	21.1/22.9	39	25.9/28.4	21.0/22.7	33
20	2987	2767	22.8/25.4	20.6/22.3	39	22.9/25.5	19.3/21/1	33

There are three columns for each of the appropriate take-off flap settings 5⁰ and 15⁰:

1. MTOW limited by RWY length;
2. MTOW limited by obstacles clearance requirements;
3. Climb limit temperature.

Every MTOW in the columns 1 and 2 consists of two figures, calculated under the following conditions:

	First weight	Second weight
QNH, hPa	980	1013
Wind	Tail wind = 5kts	No wind
OAT, °C	T _{REF}	T _{REF}
RWY conditions	Wet	Dry
Engine anti-ice	On	Off

The **first weight** is calculated for the worst take-off situation in order to evaluate quickly the present conditions and take the correct decision. The second weight is used for precise calculation of MTOW.

To calculate MTOW exactly it is necessary to correct the second weight from the table for actual conditions:

- a. Weather (wind, temperature, QNH);
- b. RWY contamination (water, slush, snow on the runway or BA/FC);
- c. RWY shortening;
- d. Engine ice protection (ON or OFF)
- e. Status of the aircraft system (anti-skid inoperative).

To serve this purpose the correction tables (presented in GWC Para 3) are used.

Note: The **first weight** may be corrected for RWY shortening only.

GWCs allow to define max permissible TOW as the lowest of:

- a. MTOW limited by RWY length;
- b. MTOW limited by obstacles clearance requirements;
- c. MTOW limited by climb requirements;
- d. Max structural TOW 20 820 kg.

Note: Terrain in route, LW at destination and runway bearing strength must be taken into account when the final decision is made.

1.2 Landing

Max LW shall be evaluated before every landing for existing conditions. This evaluation is based on the tables of RWY length requirements vs LW, which are presented in the chapter GWC of the Route Manual.

RWY length requirements dependent on:

- Aircraft LW,
- RWY conditions (THR elevation, BA, friction coefficient),
- Weather (wind, OAT),
- Aircraft technical status (anti-skid inop.).

NOTE 1: In case of malfunctions happening en route landing distance shall be increased:

- Landing with flaps zero – by **1.59** times the distance for flaps 25 deg,
- Landing with a failed airframe de-icing system – by 1.35 times the distance for flaps 25 deg.

NOTE 2: During hot weather operation and/or flying to high altitude airfields LW may be limited by climb requirements (see AOM section Performance 8.04.01). But for day-to-day operation this factor **is not a limiting** one.

2 Purpose

To provide operation within AFM limitations. To simplify allowable weights calculations for day-to-day operations.

3 Scope

No flight operation can be performed unless take-off and landing requirements of Route Manual chapter “GWC” are observed by the flight crew.

4 Responsibility

Responsibility to ensure that TOW and LW are within the performance limitations for every particular flight is laid down on the Commander.

5 Procedure

Prior to flight:

- a) Use GWC and define MTOW for the existing take-off conditions.
In the following cases precise MTOW calculation must be completed using the second weight from the GWC and filling the form (see "Documentation"):
- 1) The expected take-off weight is close or above the first weight from the GWC (runway shortening taken into account as well).
 - 2) Weather conditions: - QNH below 980 MPa and/or
 - Tail wind more than 5 kts and/or
 - OAT above T_{REF} .
 - 3) Runway conditions: - contaminated runway and/or
 - BA worse than GOOD and/or
 - FC worse than 0.4.
 - 4) Aircraft technical status: anti-skid inoperative etc.
 - 5) The Commander considers that it is necessary.

In other cases only a spot check of MTOW is required.

Evaluate possibility of RWY shortening (line-up and/or lift-off end shortenings).

Take into account LW at destination, terrain in route and runway bearing strength to calculate MTOW.

Use the lowest figure as a result and compare it with the expected TOW.

- b) Calculate the expected LW overhead a destination:

$$\text{LW} = \text{TOW} - \text{Trip fuel}$$

Take into account max structural LW, runway bearing strength and define Max LW as the lowest one. Compare it with the expected LW. Define LDR for the following conditions:

LDR ₁	LDR ₂
Conditions (BA, friction coefficient, THR elevation) of the most suitable RWY at destination (the longest one, the best BA etc.), which may be used in zero wind .	Conditions (BA, friction coefficient, THR elevation) of any RWY at destination, which must be, used with regard to the expected wind conditions at the time of arrival.
Expected LW	
Zero wind	Forecasted wind
Aircraft technical status	
Apply temperature correction (if required)	

Compare the results with LDA for the above-mentioned RWYs.
Evaluate possibility of RWY shortening

NOTE: Apply the same procedure for alternates.

- c) If necessary, order actual take-off weight correction by means of fuel or payload reduction.

During the flight:

- a) Before approach check actual LW in respect to actual weather (wind, OAT), RWY conditions (LDA, THR elevation, BA, friction coefficient) and aircraft technical status (anti-skid inoperative, flap zero landing, failed airframe de-icing system).
- b) If LDR exceeds LDA for runway-in-use, crew actions may be as follows:
 - Request more suitable RWY (to increase LDA; to improve BA, friction coefficient);
 - Hold for RWY cleaning (to improve BA, friction coefficient);
 - Hold to burn out the fuel (actual LW reduction);
 - Divert to another airport with sufficient runway available etc.
- c) In case of diverting or in-flight re-planning, consequent departure limitation shall be kept in mind if variants exist.

6 Documentation

When necessary the Co-pilot shall fill the form "Calculation of Max Take-off Weight" and the Commander shall check the results. This calculation shall be attached and filed together with the rest flight documentation.

The form "Calculation of Max Take-off Weight" is presented below.

FOKKER 50 CALCULATION OF MAX TAKEOFF WEIGHT

Flaps	12	T _{REF}	13	TOW vs RWY		TOW vs OBST.	Flight/Date				1	ACFT	2
Gross Weight at T _{REF}				14		14	AD	3	RWY	4	OAT	5	
OAT Corr.	15	-	+	-	+		Wind	6	W _C	7	QNH	8	
Wind Corr.	16	-	+	-	+		Contamination		9		BA	10	
QNH Corr.	17	-		-			Inoperative Systems/Remarks						
Ice Protection.	18	-		-									
Wet RWY	19	-											
Water, Slush, Snow	20	-		-			11						
Braking Action	21	-					TOW vs Climb Req.						
System U/S	22	-					T _{CRIT}	24		NEW			
RWY-shortening	(Line-up end)	-	23	-	23	QNH Corr	25						
	(Lift-off end)	-	23	Σ			Corrected T _{CRIT}		26		Max permissible TOW		
SUM OF NEGATIVE CORR.				-	23	Σ	-	→ -		20 820		Lower of 1, 2 & 3	
TOW	Flaps	1)	29	2)	30	3)	Corr. for OAT above T _{CRIT}		- 27		32		
Corr. to flap	28			-									
TOW	Flaps	1)	33	2)	33	3)			33		33		
Never Exceed Weight 20 820													

Descriptions of the CALCULATION FORM sections

REF Nr.	Heading	Definition/description	Remarks
1	Flight/date	Number and date of flight	
2	ACFT	Aircraft type F50	
3	AD	ICAO or IATA aerodrome code	See Route Manual chapter ABBREVIATIONS 4.1-4.6
4	RWY	Runway-in-use	ATIS
5	OAT	Outside air temperature	METAR, ATIS, VOLMET
6	Wind	Wind direction and velocity	METAR, TAF, ATIS, VOLMET
7	W _C	Tail or headwind component	See Route Manual chapter GWC page 2.2
8	QNH		METAR, ATIS, VOLMET
9	Contamination	Type and depth of deposits	SNOWTAM, MONTE runway report, ATIS
10	BA	Braking action, friction coefficient	SNOWTAM, MONTE runway report, ATIS
11	Inoperative Systems	Aircraft technical status	Anti-skid inoperative etc.
12	Flaps	Take-off flap setting	5 ⁰ or 15 ⁰
13	T _{REF}	Reference temperature	See GWC for particular aerodrome
14	Gross Weight at T _{REF}	TOW vs RWY and TOW vs Obst at T _{REF} for appropriate flap setting (Ref Nr.12)	See GWC for particular aerodrome (second weight)
15	OAT Corr.	OAT correction	See Route Manual chapter GWC page 2.3
16	Wind Corr.	Wind correction	See Route Manual chapter GWC page 2.3
17	QNH Corr.	QNH correction	See Route Manual chapter GWC page 2.3

18	Ice Protection	Correction for engine ice protection usage	See Route Manual chapter GWC page 2.3 if ON
19	Wet RWY	Correction for wet runway	See Route Manual chapter GWC page 2.3
20	Water, Slush, Snow	Correction for contaminations on the runway	See Route Manual chapter GWC page 2.4. If the depth of deposits is less than shown in tables apply BA, FC correction only (see Ref Nr. 21).
21	Braking Action	Correction for braking action or friction coefficient	See Route Manual chapter GWC page 2.5. The friction coefficient is preferable to the braking action. Use the average value for the far two thirds of the RWY to calculate the correction. If there are deposits on the RWY no BA correction shall be made (see Ref Nr. 20)
22	System U/S	Correction for aircraft technical status	See Route Manual chapter GWC page 2.3
23	RWY-shortening	Correction for runway shortening	See Route Manual chapter GWC page 2.3
24	T_{CRIT}	Climb limit temperature for appropriate flap setting (Ref Nr. 12)	See GWC for particular aerodrome
25	QNH Corr.	Climb limit temperature correction for actual QNH	See Route Manual chapter GWC page 2.3
26	Corrected T_{CRIT}		Ref Nr. 24 minus ref Nr. 25
27	Corr. for OAT above T_{CRIT}	Correction of TOW for ($OAT - T_{CRIT}$)	See Route Manual chapter GWC page 2.3

28	Corr. for flaps	Correction for take-off flap setting of 15°	See Route Manual chapter GWC page 2.3
29	TOW vs RWY	Max TOW limited by RWY length for actual conditions	The sum of TOW vs RWY at T _{REF} (Ref Nr.14) and corrections (Ref Nr. 15, 16, 17, 18, 19, 20, 21, 22, 23)
30	TOW vs OBST	Max TOW limited by obstacles for appropriate flap setting and actual conditions	The sum of TOW vs Obst at T _{REF} (Ref Nr.14) and corrections (Ref Nr. 15, 16, 17, 18, 20, 23)
31	TOW vs Climb Req	Max TOW limited by climb requirements for appropriate flap setting and actual conditions	20 820 kg minus Ref Nr. 27
32	Max permissible TOW	Max permissible TOW for appropriate flap setting and actual conditions	The lowest of Ref Nr. 29, 30, 31
33	TOW	The same as noted in 29, 30, 31, 32 except that flap 15° correction (Ref Nr. 28) is applied.	

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5 FLIGHT PLANNING

5.1 CLIMB, CRUISE and DESCENT DATA for FLIGHT PLANNING

5.1.1 Selection of Cruise levels

Efficient **Cruise level selection** is performed by means of RODOS system, which presents the most suitable level of cruise as a function of weather conditions on route, distance and air temperature. For planning purposes the information in AOM Ch.9 - Flight Planning can be used.

Maximum initial level to climb vs TOW and temperature

TOW	MAX INITIAL CRUISE LEVEL			
	<= ISA	ISA+10	ISA+15	ISA+20
20'820	250	220	210	200
20'000	250	230	220	210
18'000	250	250	240	240
16'000	250	250	250	250
14'000	250	250	250	250

Recommended Flight Level vs Distance

Stage Length (NM)	50	100	150	200	250	300	350	>=400
CRUISE LEVEL	70	120	160	190	210	230	250	250

Table is based on 50/50 schedule, 50% in cruise and 50 % in climb (speed 160 kts) and descent.

5.1.2 Speed / Power Settings

The flight shall be planed and all possibilities done to be "On-checks" at Destination not later, than scheduled. There is one standard speed / power setting procedures for flight execution.

CLIMB - ERP set to "CLB"
Power Levers set to TO detent
Speed (normal climb) 160 kt. (140-180 kts depending from weather condition or schedule)

CRUISE - ERP set to "CRZ"
Power Levers set to TO detent for maximum cruise speed;
Speed not more then V_{MO} otherwise power levers should be adjusted.

DESCENT- ERP set to "CRZ"
Power Levers set to provide speed not more than V_{MO} with ROD - 1500 $\frac{ft}{min}$.

For actual fuel figures depended on the procedure see AOM Ch.9 - Flight Planning.

5.1.3 One engine inoperative schedule

See AOM Ch.9 – Flight Planning. For Single-Engine ceiling see Normal Checklist p. 8.

5.2 FUEL CALCULATION

5.2.1 General

Fuel for the flight is determined as an amount to fulfil the minimum requirements set in JAR-OPS and any extra fuel requested by the Commander.

The flight shall not be started with fuel on board below **Minimum Required**, which is calculated as sum of Taxi Fuel, Trip Fuel, Contingency Fuel, Alternate or Minimum Additional Fuel (depended on Flight Planning Rule used) and Final Reserve Fuel.

NOTE:

1. For explanation of fuel terms see OM Part A Chapter 8.1.7.2.
2. The crew in case of in-flight re-planning must apply the same system of minimum required fuel calculation.

Extra fuel, upon Commander's discretion, shall provide safety, punctuality and economical efficiency of the flight, taking into account weight limitations, weather, traffic situation, time available, etc.

NOTE: Economy tankage (if available) should be adhered to, but shall never be in conflict with the safety and punctuality of the flight.

Pre-flight precise fuel calculations for particular aircraft / weather conditions are presented in RODOS Operational Flight Plan.

5.2.2 Minimum Required Fuel and Trip Time Calculation for planning/re-planning purposes.

The following information is given to make Minimum Required fuel calculation easier for pilots on the planning/re-planning stage, the same procedure can be used when RODOS Flight Plan calculation is not available. For precise calculations see AOM ch. 9 – Flight Planning.

NOTE: The trip fuel / time data are given for standard conditions (see 5.1.2), zero wind and 20 000 kg of TOW.

Taxi Fuel - 50 kg, for prolonged taxi times use 6 kg/min.

Trip Fuel – obtained from trip time and fuel tables.

Contingency Fuel - 5% of Trip Fuel.

Alternate Fuel - obtained from trip time and fuel tables.

Final Reserve Fuel – 300 kg (30 minutes holding overhead an alternate, IAS - 160kts.)

Extra fuel – may be calculated on the basis of 10 kg/min.

Trip Time and Fuel table

(for extended version see AOM ch. 9 – Flight Planning.)

CRUISE ALT (ft)	5000		9000		13000		17000		21000	
GROUND DIST (nm)	TIME hr:min	FUEL kg	TIME hr:min	FUEL kg	TIME hr:min	FUEL kg	TIME hr:min	FUEL kg	TIME hr:min	FUEL kg
100	0:28	337	0:27	321	0:28	311	0:29	305	---	
150	0:40	487	0:39	460	0:39	440	0:40	423	0:42	410
200	0:52	637	0:50	599	0:50	569	0:51	542	0:53	516
250	1:04	787	1:02	738	1:01	698	1:01	661	1:04	622
300	1:17	937	1:13	877	1:12	827	1:12	779	1:15	727
350	1:29	1087	1:25	1016	1:23	956	1:23	897	1:26	833
400	1:41	1236	1:36	1154	1:34	1084	1:34	1015	1:37	938
CLB: TAS (kt)	169		174		180		188		197	
DIST: (nm)	7		15		26		41		66	
CRZ:TAS (kt)	244		260		271		277		271	
FF/one eng. (kg)	367		362		350		344		287	
DES:TAS (kt)	209		236		245		246		243	
DIST (nm)	10		22		34		40		55	

5.3 OPERATIONAL FLIGHT PLAN

Below is presented example of Operational Flight plan used for airBaltic flight operations:

```

*** RODOS FLIGHTPLAN ***

                                CRUISE NC
BT101                                FL 200      1
09NDV01  RIX-ARN  EVRA-ESSA-BTIAN  YLBAR/F5BT  SKED DEP.05:45
                                SKED LDB.07:10

PIC ...      F/O ...      A/H ...      ...      ...      OBS ...

TOW 17.588  LW 16.915  ZFW 16.000/.....  BURN 0.723  TRIP TIME 1:11

ACT TOW .....  INDEX .....  TRIM .....  APPROVED BY .....

FUEL      CORR      TIME      CORR

0.050      .....      TAXI

0.673      .....      1:11      .....      TRIP FUEL

0.723      .....      BURN OFF

0.100      .....      0:10      .....      5% ROUTE RESERVE

0.548      .....      0:58      .....      ALTERNATE TLL/EETN

0.267      .....      0:30      .....      HOLDING RESERVE

0.000      .....      EXTRA FUEL

1.638      .....      2:49      .....      MIN.BLOCK FUEL

.....      .....      .....      .....      ECONOMY TANKAGE

.....      .....      .....      .....      ACTUAL BLOCK FUEL

CORRECTION PARAMETERS          BURN / TIME          OBS      : 0812
LW  16T  FL180          +40 /+0:00          PROG      : 0906
LW  16T  FL220          -28 /+0:01          AVG WC      : +3
LW  18T                      +11          TEMPDEV      : -10
LW  16T                      -10          TTLDIST      : 276
WC  +20          -39 /-0:04
WC  -20          +39 /+0:04

ALTERNATES      FL      DIST      WC      FUEL/TIME      FUEL 30NM      MIN
TLL/EETN      FL180      220      +8      0.548/0:58      0.835/FL180      BLOCKFUEL/TIME
WAW/EPWA      FL240      500      -23      1.097/2:14      1.384/FL240      1.638/2:49
VST/ESOW/R      FL080      50      +13      0.180/0:19      0.467/FL080      2.187/4:05
NYD/ESKN/R      FL080      76      +28      0.235/0:25      0.522/FL080      1.270/2:10
NRK/ESSP/R      FL100      93      +24      0.282/0:29      0.569/FL100      1.325/2:16
RIX/EVRA      FL170      280      +0      0.711/1:12      0.998/FL170      1.372/2:20
TKU/EFTU      FL170      156      +7      0.418/0:45      0.705/FL170      1.801/3:03
JKG/ESBJ/R      FL180      178      +5      0.462/0:50      0.749/FL180      1.508/2:36
1.552/2:41

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*** RODOS FLIGHTPLAN ***

BT101 FL 200 2/2

ON CHOCKS..... LANDING..... PAX ... CARGO MAIL ...

OFF CHOCKS..... AIRBORNE..... DLY CODE ../.. TIME/..

BLOCK TIME..... FLT TIME.....

ATIS DEPARTURE.....

ATC CLEARANCE

ACTUAL BLOCK FUEL

AWY REPORTPOINT FREQ C/S TD DIST MT TIME ETO/RTD/ATO FUEL

OFF RIGA (30FT) 0.050/..

SID VALED -9 60 17 ../.../...

UN623 (ASRUN) -10 36 303 9 ../.../... .351/..
0:26/..UN623 NEKET -11 51 302 12 ../.../... .460/..
0:38/..

UY39 -(XILAN) -11 94 326 21 ../.../...

IAL STOCKHOLM/ARLAND (124FT) 35 12 ../.../... 0.723/..

REMAINING FUEL O/B

ATIS ARRIVAL

NOTES:

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6 MASS AND BALANCE / LOADING

6.1 Mass and Balance calculation system

System definition

The mass and balance calculation system provides the necessary information to load and operate aircraft within design weight and balance limitations. The basic principle of the system is that for each element of the load there is adequate value of Index Units assigned, taking into the account its mass and location.

Index Units reflect moments about the index arm reference datum plane.

Safe loading envelope has been developed to ensure manufacturers Limitations from section 1 are not exceeded.

Standard masses

The following standard mass apply to all scheduled flights unless otherwise stated for any specific flight.

CREW MEMBERS	
Flight Crew	85 kg
Cabin Crew	75 kg
NOTE: Crew weight incorporates hand baggage.	

PASSENGER	
Adult	84 kg
Child (2-12 years)	35 kg
Infant (>2 years)	0 kg
CHARTER	
Adult	76 kg
BAGGAGE	
Each piece	13 kg

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6.2 INSTRUCTION FOR COMPLETION of MASS and BALANCE DOCUMENTATION

6.2.1 General

Electronic and Manual mass and balance control systems are used to ensure mass and center of gravity location within approved operating limits. Either Manual or Electronic Loadsheets are used for all flights. The use of manual or electronic loadsheet in normal operations is designated for each station. Specifications of mass and balance procedures for each station are presented on Station Information sheets.

For detailed description of both Loadsheets see descriptions below.

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6.2.2 Example of computer generated loadsheet

1. LOAD SHEET		2. CHECKED		3. APPROVED		EDNO	
ALL WEIGHTS IN KILOS		RIXKK/BUJ				02	
4. FROM/TO FLIGHT		5. A/C REG		6. VERSION		7. CREW 8. DATE 9. TIME	
RIX HEL BT301/17		YLBAR		F50J		3/2 17MAR00 1219	
10. LOAD IN COMPARTMENTS		WEIGHT		DISTRIBUTION			
		381 4/381					
11. PASSENGER/CABIN BAG		1344 16/0/0		TTL		16	
		CM 14/2					
12. TOTAL TRAFFIC LOAD		1725					
13. DRY OPERATING WEIGHT		13590					
14. ZERO FUEL WEIGHT ACTUAL		15315 MAX		18600		ADJ	
15. TAKE OFF FUEL		1960					
16. TAKE OFF WEIGHT ACTUAL		17275 MAX		20820		ADJ	
17. TRIP FUEL		500					
18. LANDING WEIGHT ACTUAL		16775 MAX		19730 L		ADJ	
19. BALANCE AND SEATING CONDITIONS				20. LAST MINUTE CHANGES			
DOI 32.29		DEST SPEC		CL/CPT + - WEIGHT			
DLI 57.66							
LIZFW 63.04							
LITOW 63.04							
21. TRIM BY CABIN AREA - SECTION							
FWD 01-05		6					
AFT 06-14		10					
22. UNDERLOAD BEFORE LMC		2955		LMC TOTAL			
23. LOADMESSAGE AND CAPTAINS INFORMATION BEFORE LMC							
--HEL.16/0/0.T381.4/381.FAX/14/2							
24. BALANCE LIMITS FWD/AFT 57.29/86.58 AT ZFW BEFORE LMC							
25. SI							
HEL C 70 M 65 B 11/ 146 O 100 T 0							
BOARDING FAX WEIGHTS USED:							
--HEL ADULT 84 CHILD 35 INF 00							
BOARDING BAG WEIGHTS USED:							
--HEL 13/PIECE							

6.2.3 Description of the computer generated Loadsheet

Ref No.	Printed Heading	Definition / Description	Remarks
1	Loadsheet	Document identifier, weight units	Kilogram, Kilo, etc.
2	Checked	Loadsheet agent's signature	
3	Approved	Signature of authorized person (Commander)	
4	From/To/Flight Nr./Date	Three-letter IATA codes of departure & landing airports, flight number / date	
5	A/C reg.	Aircraft registration	
6	Version	A/c version & divider position	Distribution of C & M class
7	Crew	Number of crew, excluding crew travelling as passengers	Cockpit crew / cabin crew
8	Date	Date of flight	
9	Time	Four-digit value of local time when this edition was produced	
10	Loads in compartments	Total weight in baggage compartments and distribution	Compartments no.1 and 4
11	Passenger / cabin bag	Total weight of passengers and number of passengers divided into specified groups and categories	
12	Total traffic load	The total weight of passengers, baggage, cargo and mail	
13	Dry Operating Weight	The "Basic Weight" plus "Operational Items", e.g. crew, crew baggage, flight equipment and pantry	
14	Zero Fuel Weight Actual	Sum of Dry Operating Weight and Total Traffic Load	Maximum Design ZFW is presented
15	Take Off Fuel	The amount of fuel on board less the fuel consumed before take-off	
16	Take Off Weight Actual	Sum of Ref. 14, 15.	Maximum Design or Operational TOW is presented
17	Trip Fuel	The amount of fuel planned to be consumed from take-off to landing	
18	Landing Weight Actual	Ref No.16 minus No.17	Maximum Design or Operational LW is presented. Indicator 'L' showing which of the max weights is limiting the allowed traffic load.

Ref No.	Printed Heading	Definition / Description	Remarks
19	Balance and Seating Conditions	Section contains balance information for dry and loaded aircraft. Standard abbreviation are used	
20	Last Minute Changes	Destination of LMC / Kind f LMC / Class or Compartment / on or off load indicator / weight of LMC. At the bottom of this section the Total LMC weight is presented.	
21	Trim by Cabin Area	Changes of DOI due to passengers' position. All specified cabin sections are resented.	Depends on aircraft version.
22	Underload before LMC	Difference between maximum and actual weight indicated by 'L'	
23	Loadmessage and Captains information before LMC	Summarized loading information	
24	Balance limits	Forward and Aft balance limitation for actual loading and configuration	
25	SI	Supplementary Information. Loading description and standard masses used	'O' indicator – ballast weight

6.2.4 Example of Manual Loadsheet

airBaltic **LOADSHEET FOKKER 50**

Flight: **B T** / **1** / **2** / **5 0** / **3** / **4** / DATE: **5** / **1** / **1**

A/C Reg: **2** Version: **5 0** Crew: **4**

ALTN 1: **6** ALTN 2: **6a** EET: **7**

DOW	8	9	9a	Maximum Structural Weights	1	8	6	0	0	2	0	8	2	0	1	9	7	3	0
Extra Crew	8a	9b	9c	Performance Limited Weight	10					12					13				
DOW Corrected	8b	9d	9e	Allowed Take-off Weight	11					15					16				
Take-off Fuel (Planned)	10			Allowed Traffic Load	11					15					16				
Operating Weight	11			Trip Fuel	11					15					16				

Passengers				Deadload	
PAX distribution	Class distribution	Number	Weight	Weight	Distribution Weight
FWD (OA)	19	24	25	34	35
FWD (OB)	20	23	26	35	36
AFT (OC)	21	27	28	36	37
AFT (OD)	22	28	29	37	39
TOTAL	29	30	31	32	40

Weights Calculation			
TOTAL Passengers	33		
TOTAL Deadload	37		
Cabin Baggage	33a		
TOTAL Traffic Load	41		
Dry Operating Weight	9		
ZERO FUEL WEIGHT	42		
Take-off Fuel (actual)	43		
TAKE-OFF WEIGHT	44		
MAX = 18 kg (lowest of a,b,c)	45		
Trip Fuel	46		
LANDING WEIGHT	48		

Last Minute Changes			
Specification	Cpt	+/-	Weight
52	53	54	55
56	57		

Balance Sheet		Correction	
-	+	-	+
DOI	61		
Extra Crew	62		
C1	63		
C4	64		
FWD (OA)	65		
FWD (OB)	66		
AFT (OC)	67		
AFT (OD)	68		
SUM	69	70	
LIZFW	71		

Prepared by:	59
Approved by:	60

Balance Check at Zero Fuel Weight

ZFW(kg) vs LIZFW

① - Regular passenger flights (cabin in four sections).
 ② - All passenger seats occupied; OR
 - Empty flight with crew only.

*: Version: 5046 - YL-BAS, BAT; 5050 - SE-LJI; 5052 - YL-BAR, BAW, BAZ, BAU

All weights in Kilograms

LOAD MESSAGE

DEST: **80** Adults: **81** Children: **82** Infants: **83** Cabin Bag: **84** Total Wt. **85** C1 **86** C4 **87**

PAX C: **88** PAX M/Y: **89** PAD C: **90** PAD M/Y: **91**

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Weight and Balance Data

Passenger Weights												
Children				Adults								
CHD	PAX	KG	PAX	KG	PAX	KG	PAX	KG	PAX	KG	PAX	KG
1	35	1	84	21	1764	41	3444					
2	70	2	168	22	1848	42	3528					
3	105	3	252	23	1932	43	3612					
4	140	4	336	24	1936	44	3696					
5	175	5	420	25	2100	45	3780					
6	210	6	504	26	2184	46	3864					
7	245	7	588	27	2268	47	3948					
8	280	8	672	28	2352	48	4032					
9	315	9	756	29	2436	49	4116					
10	350	10	840	30	2520	50	4200					
11	385	11	924	31	2604							
12	420	12	1008	32	2688							
13	455	13	1092	33	2772							
14	490	14	1176	34	2856							
15	525	15	1260	35	2940							
16	560	16	1344	36	3024							
			17	1428	37	3108						
			18	1512	38	3192						
			19	1596	39	3276						
			20	1680	40	3360						

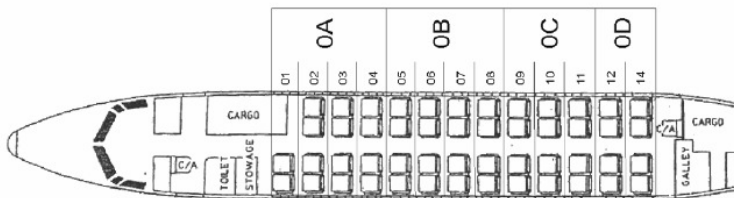
adult	84
child	35
baggage	13

All other load categories shall be clearly specified in plain language, e.g. CABIN CREW, BALLAST.

	Cargo Compartments limitation			
YL-BAS, -BAT	C1	Max 870 kg	SELJI	C1 Max 1100 kg
	C4	Max 660 kg		C4 Max 715 kg
YL-BAR, -BAU,	C1	Max 385 kg	YL-BAO,	C1 Max 1070 kg
-BAW, -BAZ	C4	Max 875 kg	-BAV	C4 Max 690 kg

ASM 11.2005

Fokker 50 cabin in general
(not version specified)



Cargo compartments			
C1 (FWD)		C4 (AFT)	
Load	Index	Load	Index
30	-1	30	2
60	-3	60	4
90	-4	90	6
120	-5	120	8
150	-7	150	10
180	-8	180	12
210	-9	210	14
240	-11	240	16
270	-12	270	18
300	-14	300	20
330	-15	330	22
360	-16	360	24
390	-18	390	26
420	-19	420	28
450	-20	450	30
480	-22	480	32
510	-23	510	34
540	-24	540	36
570	-26	570	38
600	-27	600	40
630	-28	630	42
660	-30	660	44
690	-31	690	46
720	-32	720	48
750	-34	750	50
780	-35	780	52
810	-36	810	54
840	-38	840	56
870	-39		
900	-41		
930	-42		
960	-43		
990	-45		
1020	-46		
1050	-47		
1080	-49		
1110	-50		

6.2.6 Description of MANUAL LOADSHEET

Each Loadsheets consists of 3 pages: White - original, Yellow and Pink - copies.

Loadsheets pages are designated according to the following:

- Original** shall be kept onboard during flight.
- Yellow Copy** shall be left in the departing airport, and be filed there for 3 months.
- Pink Copy** shall be kept on board in the case if a/c is forced to use an alternate airfield and be filed there for 3 months.

Manual Loadsheets shall only be used together with Weigh and Balance Data sheet, representing balance moments for passenger seating and cargo loading reflected in Index Units.

For all airBaltic configurations of Fokker 50 there is established an unified index system. Weight and balance limitations are reflected on standardized Loadsheets form, whereas aircraft configuration specific information is provided on the Weight and Balance Data Sheet, reflecting influence of different load values on the a/c balance.

As in Computer Generated Loadsheets, passenger cabin on Manual Loadsheets is presented in four sections:

- OA** Forward part of the cabin until **row 4**.
- OB** Middle part of cabin from **row 5 to 8**.
- OC** After part of cabin from **row 9 to 11**.
- OD** After part of cabin from **row 12**

Manual Loadsheets shall be filed in accordance to the following description:

Field	Description
1	Flight number and date of origin (GMT) of flight.
2	Registration of aircraft (e.g. YLBAS).
3	Version of aircraft, it may be found in the field (79).
4	Number of Flight and Cabin crew. Figures shall be segregated by slash in Flight crew seated on flight deck and Cabin crew in cabin.
5	Date (e.g. dd.MM.yy).
6	Stipulate the Alternate 1.
6a	Alternate 2 – not mandatory to be filled.
7	EET (Estimated En-route Time).

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Field	Description
8	Number of crew for which Dry operating weight (DOW) is indicated. If there is an extra crew, indicate the standard composition of crew here, but the number of extra crew – in field (8a).
9	Respective DOW for crew composition indicated in field (8). DOW may be obtained from: OM B Ch 6.4
8a	Extra crew (applicable if extra crew exists only) – No of crew members that are additional regarding standard crew compositions (e.g. in case 3/3 crew exists, indicate in field (8) “3/2” and in field (8a) “0/1”)
9a	Respective weight for crew complement indicated in field 8a (applicable if extra crew exists only). Standard wt. shall be used from: OM A Ch 8.1.8.4.
8b	The total number of Crew – the same as in field (4) or the sum of fields (8) and (8a).
9b	The corrected DOW (applicable if extra crew exists only). It is the sum of fields (9) and (9a).
10	The planned quantity of Take-off fuel (in KG).
10a	The actual quantity of Take-off fuel (in KG). Actual fuel on board is defined as indicated by instruments, minus taxi fuel.
11	Operating weight: ▪ If no extra crew – the sum of fields (9) and (10). ▪ If extra crew exists – The sum of fields (9b) and (10).
12	Performance limited Take-off weight. <i>Refer to OM B F50 Ch. 4 and Route Manual (RM) for details.</i>
13	Performance limited Landing weight. <i>Refer to OM B F50 Ch. 4 and RM for details.</i>
14	Trip Fuel - fuel required for take-off, climb, cruise, approach and landing at the destination airport. Cruise fuel shall be calculated for the cruise method used. The fuel shall be based on the least favourable climb out and landing procedure.
15	Allowed Take-Off weight calculated as the sum of MZFW (Maximum Zero Fuel Weight) and Take-Off fuel planned.
16	Allowed Take-Off weight is MTOW (Maximum Take-Off Weight) or Performance limited wt., if lower.
17	Allowed Take-Off weight is calculated as the sum of MLW (Maximum Landing Weight) or Performance limited wt., if lower and Trip fuel.
18	The maximum Take-off wt. – it is the lowest of fields (15), (16), and (17).

Field	Description
18a	Allowed Traffic load is Allowed Take of wt. (15) minus Operating wt. (11). NOTE: This field must be filled, if (15) is the lowest among (15), (16), and (17).
18b	Allowed Traffic load is Allowed Take of wt. (16) minus Operating wt. (11). NOTE: This field must be filled, if (16) is the lowest among (15), (16), and (17).
18c	Allowed Traffic load is Allowed Take of wt. (17) minus Operating wt. (11). NOTE: This field must be filled, if (17) is the lowest among (15), (16), and (17).
19	Indicate the number of PAX in Forward (OA).
20	Indicate the number of PAX in Forward (OB).
21	Indicate the number of PAX in Aft (OC).
22	Indicate the number of PAX in Aft (OD).
23	Indicate the Last Minute Changes for number of PAX in all sections.
24	Indicate the number of PAX in Business Class - C.
25	Indicate the number of PAX in Economy Class – M/Y.
26	Indicate the number of Adults in total.
27	Indicate the number of Children in total.
28	Indicate the number of Infants in total.
29	Calculate the sum of fields (26), (27), and (28).
30	Indicate the respective weight of Adults for field (26) in total. Standard wt. shall be obtained from: OM A Ch 8.1.8.4.
31	Indicate the respective weight of Children (2-12 years old) for field (27) in total. Standard wt. may be obtained from: OM A Ch 8.1.8.4.
32	Indicate the respective weight (OM A Ch 8.1.8.4.) of Infants (0-2 years old) for field (28): ▪ standard wt. 0 KG; ▪ if sitting in their own baby chair – 35 KG each.
33	Calculate the sum of fields (30), (31), and (32).
33a	Indicate the total mass of cabin baggage, if exists (e.g. cellos).
34	Indicate the wt. of Baggage.
35	Indicate the wt. of Cargo.
36	Indicate the wt. of Mail.
37	Calculate the sum of fields (34), (35), and (36).
38	Indicate the distribution of wt. in Dead load compartments (C1 and C4).

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Field	Description
39	Total weight of load in compartment C1.
40	Total weight of load in compartment C4.
41	Calculate the total traffic load as a sum of fields (33), (37), and (33a).
42	Calculate Zero Fuel wt. As the sum of fields (41) and (9) or (9b – if DOW is corrected).
43	Last Minute Changes for Zero Fuel wt.
44	Calculate the Take-off wt. as the sum of fields (42) and (10a).
45	Calculate Last Minute changes for the Take-off wt. as the sum of fields (43) and (10a).
46	Indicate the trip fuel – it is the same as in field (14).
47	Calculate the Landing wt. – (44) minus (46).
48	Calculate Last Minute changes for Landing wt. – (45) minus (46).
49	Indicate the Allowed Traffic Load – it is one of the fields (18a), (18b), or (18c) that is filled – refer to description of respective fields (18a), (18b), and (18c).
50	Indicate the Total Traffic load as it is in field (41).
51	Calculate the Under load before LMC – (49) minus (50).
52	Indicate the name of LMC specification: ▪ PAX: AD – Adults, CHD – Children, INF – Infants ▪ B – Baggage ▪ C – Cargo ▪ M – Mail ▪ Other categories to be specified in plain language.
53	Indicate the compartment/seating section for respective LMC specification.
54	Indicate whether the wt. is augmented (+) or decreased (-) for respective LMC specification or item.
55	Indicate the wt. of respective LMC specification or item.
56	Indicate the sign for total change (+) or (-).
57	Calculate the sum of all records in field (55).
58	All notes shall be written there (e.g. calculations; etc.).
59	This field is filled by performer. Write the 3-letter code and signature there.
60	This field is filled by commander. Write the 3-letter code and signature.
61	DOI as obtained from: OM B Ch 6.

Field	Description
62	Indicate the index for extra crew (if exists) acc to PAX compartment in which he/she is seated. NOTE: The data can be obtained from "Weight & Balance Data" sheet.
63	Indicate the index for Dead load in C1. NOTE: The data can be obtained from "Weight & Balance Data" sheet.
64	Indicate the index for Dead load in C4. NOTE: The data can be obtained from "Weight & Balance Data" sheet.
65	Indicate the index for PAX in FWD (OA). NOTE: The data can be obtained from "Weight & Balance Data" sheet.
66	Indicate the index for PAX in FWD (OB). NOTE: The data can be obtained from "Weight & Balance Data" sheet.
67	Indicate the index for PAX in AFT (OC). NOTE: The data can be obtained from "Weight & Balance Data" sheet.
68	Indicate the index for PAX in AFT (OD). NOTE: The data can be obtained from "Weight & Balance Data" sheet.
69	Calculate the sum of fields (62), (63), and (65).
70	Calculate the sum of fields (61), (62), (64), (66), (67) and (68).
71	Calculate LIZFW (Load Index for Zero Fuel Wt.) – (70) minus (69).
72	Use this table for Index LMC.
73	CG (Centre of Gravity) limits for regular passenger flights (cabin in four sections). It is indicated as a cross point of two lines: LIZFW and ZFW (Zero Fuel Wt.) <i>Refer to Ch 1.3.</i>
74	CG (Centre of Gravity) limits for: • Flights with all passenger seats occupied, or • Empty flights with crew only
75	Area outside CG limits. Please, make adjustments or corrections.
76	Fields having yellow fill colour shall be filled mandatory.
77	Fields having striped yellow fill pattern shall be filled if applicable.
78	Fields having light blue fill colour are devoted for LMC corrections.
79	All possible versions of A/C may be found there.
80	Load Message field. It is filled by Ground Staff.

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6.2.7 LAST MINUTE CHANGES (LMC)

General

General explanations for LMC are given in OM Part A chapter 8.1.8.6.

- Only one LMC calculation is permitted for traffic load items (passengers, cargo, mail).
- For the Take-off fuel differences the same procedure as for traffic load items LMC to be applied.

New Loadsheets is required whenever DOW/DOI have to be changed.

Limitations

- LMC weight shall not exceed the UNDERLOAD before LMC.
- Cargo Compartment load limitations shall be checked accordingly.

6.2.7.1 Electronic Loadsheets

Depending on the LMC weight and traffic load items number there are two options of the Loadsheets correction.

1) **Only Gross weight to be corrected** whenever the LMC are limited to:

- Max **3 items** of traffic load (pax, baggage, cargo, or mail) or its distribution between the cabin sections/baggage compartments are changed; and
- Max total **LMC weight** = +/- **100kg**.

After completion of the LMC calculation, changed Gross Weight figures shall be recorded next to the ADJ fields.

2) **Gross weight and/or Index to be corrected** whenever the LMC are exceeding the LMC limitations given above. The Balance graphs (from Manual Loadsheets) shall be used in this case.

After completion of the LMC calculation, changed Gross Weight figures shall be recorded next to the ADJ fields. Changed Take-off Index/Trim(Stab) setting be recorded next to appropriate figures accordingly.

6.2.7.2 Manual Loadsheets

For manual Loadsheets there are no limitations on LMC weight and traffic load items number, provided operational limitations (Ref. Section 1 of this manual) are not exceeded and center of gravity is located within approved area.

Filling of LMC fields is mandatory, whenever LMC procedure is applied.

6.3 LIMITING MASSES and CENTRE OF GRAVITY

Fokker 50 weight limitations

Description	Abbreviation	Limit*	Limit**
Max taxi weight	MTW	20 865 kg	
Max take-off weight	MTOW	20 820 kg	
Max landing weight	MLW	19 730 kg	20 030 kg
Max zero fuel weight	MZFW	18 600 kg	18 900 kg

* - YL- BAR, BAS, BAT, BAU, BAW, BAZ, SE-LJI

** - YL-BAO, BAV

Load limitations for cargo compartments

	C1	C4
YL-BAR, BAU, BAW, BAZ	Max 385 kg	Max 875 kg
YL-BAS, BAT	Max 870 kg	Max 660 kg
YL-BAO, BAV	Max 1070 kg	Max 690 kg
SE-LJI	Max 1100 kg	Max 715 kg

Limits of the Center of gravity

The aircraft balance index limits are presented in the balance graph of Manual Loadsheets as AFT and FWD index lines.

6.4 DRY OPERATING MASS AND INDEX

DOW / DOI for corresponding aircraft are published on Weight and Balance Report and stored in the Aircraft Document Binder. If any deviations from standard configuration are required, DOW/DOI must be corrected using applicable weight and index changes.

Registration	Crew	Weight Adjustment	Index Adjustment
YL-BAO	2/0	13281.64	40.13
	3/0	13366.64	34.72
	2/1	13524.94	54.00
	2/2	13599.94	49.70
	3/2	13684.94	44.30
YL-BAS	2/0	13288.31	42.24
	3/0	13373.31	36.83
	2/1	13535.31	53.93
	2/2	13610.31	49.63
	3/2	13695.31	44.23
YL-BAT	2/0	13237.28	40.62
	3/0	13322.28	35.21
	2/1	13482.28	52.19
	2/2	13557.28	47.89
	3/2	13642.28	42.49
YL-BAR	2/0	13081.91	35.34
	3/0	13166.91	29.94
	2/1	13368.71	44.92
	2/2	13443.71	40.62
	3/2	13528.71	35.21
YL-BAU	2/0	12995.40	35.71
	3/0	13080.40	30.31
	2/1	13282.20	45.29
	2/2	13357.20	40.99
	3/2	13442.20	35.58
YL-BAV	2/0	13377.16	40.81
	3/0	13462.16	35.40
	2/1	13620.46	54.69
	2/2	13695.46	50.39
	3/2	13780.46	44.98
YL-BAW	2/0	13068.14	33.95
	3/0	13153.14	28.54
	2/1	13354.94	43.52
	2/2	13429.94	39.22
	3/2	13514.94	33.81
YL-BAZ	2/0	13108.10	35.90
	3/0	13193.10	30.49
	2/1	13394.90	45.47
	2/2	13469.90	41.17
	3/2	13554.90	35.77
SE-LJI	2/0	13047.00	33.75
	3/0	13132.00	28.34
	2/1	13333.80	43.33
	2/2	13408.80	39.03
	3/2	13493.80	33.62

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7 LOADING

7.1 LOADING INSTRUCTIONS

Loading instruction apply to loadmasters and handling agents who control the weight and distribution of the traffic load (e.g., passengers, cargo, baggage and mail) on all airBaltic Fokker 50 aircraft.

However, the Commander has the final authority concerning acceptance and placement of the traffic load.

Normal Loading Instruction

Normally the ground handling personnel will decide how to distribute the cargo between the compartments according to their instructions.

Designation of Cargo Compartments

The cargo compartment in the FWD (forward) part of the cabin is called C1, and the compartment in the AFT part of the cabin is called C4.

Distribution of Cargo

If the weight of the cargo is below and up to 100 kg everything should be placed in C4. Weights exceeding 100kg and up to 200 kg should be placed in C1. Weights exceeding 200 kg should be divided and distributed with 2/3 in C1 and 1/3 in C4. If the flight has two destinations the cargo to the last destination must be placed in C4 to avoid reloading.

Limitations

The following limitations are valid for the different compartments.

Aircraft	Compartment	Cargo
YL-BAR, BAU, BAW, BAZ	C1	385 kg
	C4	875 kg
YL-BAS, BAT	C1	870 kg
	C4	660 kg
SE-LJI	C1	1100 kg
	C4	715 kg

7.2 DISTRIBUTION OF PASSENGERS IN THE CABIN

Normal distribution

The cabin is divided into 4 sections:

0A	rows 1-4
0B	rows 5-8
0C	rows 9-11
0D	rows 12-15

7.3 TRANSPORTATION OF LIVE ANIMALS

Only tropical fish, birds, cats and dogs are acceptable on F-50 aircraft.
Maximum load per compartment shall not exceed:

Animal	Total maximum quantity in compartment
Cats and Dogs	Max. one animal per compartment
Birds	Max. 100 kg per compartment
Lobsters	Max. 100 kg per compartment
Tropical fish	Unlimited

7.4 TRANSPORTATION OF CHILDREN AND DISABLED PERSONS

Transportation requirements for children and disabled persons are given in Cabin Crew Handbook.

7.5 TRANSPORTATION OF ELECTRICALLY DRIVEN WHEELCHAIRS

For transportation of electrically driven wheelchairs refer to Operations Manual Part A, Section 9.

7.6 TRANSPORTATION OF WEAPONS

For transportation of weapons refer to Operations Manual Part A, Section 9.

7.7 TRANSPORTATION OF RADIOACTIVE MATERIALS

Transportation of Radioactive materials is prohibited.

7.8 TRANSPORTATION OF MAGNETIC MATERIALS

Magnetic material shall be loaded in the aft compartment (C4).

7.9 TRANSPORTATION OF DRY ICE

A maximum of 5 kg of Dry Ice may be loaded in each cargo compartment.

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8 CONFIGURATION DEVIATION LIST

General Limitations

This Configuration Deviation List (CDL) is also found in Manufacturers AFM. This section contains additional certificate limitations for operation of the Fokker F27 Mk050 aircraft without certain secondary airframe and engine cowl parts as listed herein. The certificate limitations in the AFM are applicable except as amended herein. The parts not included in this CDL may not be missing.

If an additional part is lost in flight, the airplane may not depart the airport at which it landed following this event until it again complies with the limitations of this section. This, of course, does not preclude the issuance of a special permit to allow the aircraft to be flown to a point where necessary repairs or replacements can be made. Reference to Operational Manual Part A Section 8.

Replacement of missing items must be carried out at the first station where the appropriate repair facilities are available. The decision of the Commander to have allowable missing items corrected prior to the flight will take precedence over the provisions contained in the CDL. The Commander may request requirements above the minimum listed, whenever in his judgement such added equipment is essential to the safety of a particular flight under special conditions prevailing at the time. However, he shall never accept lower requirements.

The numbering and designation of system in this section is based on ATA spec. 100. The parts within each system are identified by functional description and, when necessary, by panel numbers.

Limitations

The associated limitation(s) must be listed on a briefing card in the Aeroplane Technical Log.

The pilot in command will be notified of each operation with (a) missing part(s) by listing the missing part(s) in the flight or dispatch release.

The Aeroplane Technical Log must show appropriate notation covering the missing part(s) on each flight.

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No more than one part of any one system in this section may be missing unless specifically designated combinations are indicated herein. Unless otherwise specified herein, parts from different systems may be missing.

No more than a total of **three** such parts may be missing before takeoff.

Take-off performance penalties are applicable to take-off gross weights which are limited by field length, first segment climb, second segment climb, final segment climb or take-off flight path. En route performance penalties are applicable to operations, which are limited by en route, flight path performance requirements. Landing performance penalties are applicable to landing gross weights, which are limited by landing field length, landing climb or approach climb.

Performance Effects

Where a missing item results in a performance effect on the aircraft, the effect is given in the Remarks and/or Exceptions column of the appropriate item.

Aircraft Release

The action text should be in the action field as an answer to a missing item that is deferred in accordance to Air Baltic CDL as follows:

- Short description of missing item,
- Reference: see limitations (if any) in briefing card.

MAINTENANCE ACTION

Normal Procedure, Technician available

When informed by the maintenance representative that the repairs can not be made in time for departure, but that the aircraft may be dispatched according to the CDL, it is the responsibility of the Commander to:

1. Check the CDL for an entry related to the missing item.
2. Check that the dispatch is permitted according to "Minimum Required" and "Remarks and/or Exceptions".
3. Check that the suspected cause of the fault and a CDL reference has been entered in the Technical Log and that CRS (Certificate of Release to Service) is signed by the technician.
4. If associated limitation(s) is (are) listed in the "Remarks and Exceptions" column, check that it is noted in the briefing card in the Aeroplane Technical Log.
5. Ensure that all technical and operational aspects are fully understood by involved Crew Members.

Abnormal Procedure, NO Technician available

It is the responsibility of the Commander to:

1. Check the CDL for an entry related to the missing item.
2. Check that the dispatch is permitted according to “Minimum Required” and “Remarks and Exceptions”.
3. Contact technical operations department for an advice:

Telex: RIXTKBT

Phone: +371 7207 306, +371 7207 206

Fax: +371 7207 867, +371 7207 069
4. Receive a written or telephoned “CDL Message” from the Technical Department stating that there is “No Technical Objection” for dispatch according to CDL.
5. Make required entries in the Complaint/Action Log regarding missing item. If an “CDL Advice Message” in written is available place it in the Tech Log. If the message is received by phone, write it down and place it in the Tech Log.
6. If associated limitations(s) is (are) listed in “Remarks and Exceptions” column, check that it is noted on briefing card in the Aeroplane Technical Log.
7. Ensure that all technical and operational aspects are fully understood by involved Crew Members.

SYSTEM: CHAPTER 23 COMMUNICATIONS		NUMBER INSTALLED	
ATA	PART DESCRIPTION		REMARKS AND/OR EXCEPTIONS
23-01	Static dischargers (4 on each aileron outer tab, and 2 on each elevator, and 2 on the rudder).	14	The following static dischargers may be missing or damaged: 1 on each aileron outer tab, and 1 on each elevator, and 1 on the rudder.
23-02	Main landing gear static discharge cables.	2	One or both may be missing or damaged.

SYSTEM: CHAPTER 53 FUSELAGE		NUMBER INSTALLED	
ATA	PART DESCRIPTION		REMARKS AND/OR EXCEPTIONS
53-01	Access panel to nose landing gear front door release mechanism, 114 AR.	1	May be missing provided: - it is determined by visual inspection that the nose landing gear front door release mechanism is in the flight operational position, and - the cavity is blanked off with high speed tape with a minimum of 50mm (2") overlap all around the opening and furnished with a vent hole of 3mm (0.125"). NOTE: The tape is not allowed to become damaged, frayed or partly detached because this will result in negative influence on the pitot system.
53-02	Wash-water servicing panel, 141 AB.	1	May be missing.
53-03	Toilet servicing panel, 131 AB.	1	May be missing.
53-04	Galley water servicing panel, 171 AB.	1	May be missing.
53-05	External power receptacle panel, 122AR.	1	May be missing.
53-06	Airconditioning ground air supply cover, 312 AR.	1	May be missing.
53-07	Tail skid.	1	May be missing.
53-08	Nose Radome (111 AT) Lightning strips	8	A strip may be cracked/fractured provided: - The length of the crack/fracture may be not more than 50 per cent of the width on the strip. - not more than one crack/fracture per strip. - not more than than two strips may be affected - flight in thunder clouds with active lightning are avoided. Per strip 3 diamond segments per foot striplenght may be missing, provided not more than 3 missing diamond segments are adjacent

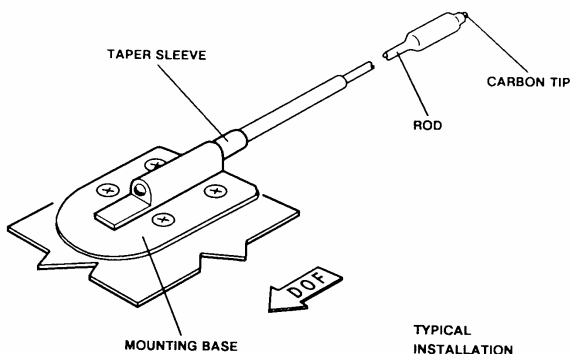
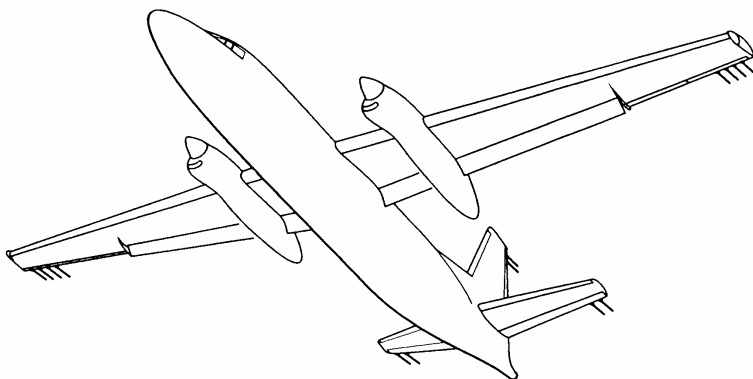
SYSTEM: CHAPTER 54 NACELLES		NUMBER INSTALLED													
ATA	PART DESCRIPTION		REMARKS AND/OR EXCEPTIONS												
54-01	Rear part of tail cone (part of 451 AT - 461 AT)	2	Both may be missing. In case an APU is installed in the RH tail cone (461 AT) and the rear part is missing operation of the APU is prohibited. Aircraft weight penalty in kg (lb) with rear part on one or both sides missing: AIRCRAFT CONFIGURATION <table border="1"> <tr> <td></td><td>TAKE-OFF</td><td>EN ROUTE</td><td>LANDING</td></tr> <tr> <td>one side</td><td>35 (77)</td><td>30 (66)</td><td>25 (55)</td></tr> <tr> <td>both</td><td>70(154)</td><td>60(132)</td><td>50(110)</td></tr> </table>		TAKE-OFF	EN ROUTE	LANDING	one side	35 (77)	30 (66)	25 (55)	both	70(154)	60(132)	50(110)
	TAKE-OFF	EN ROUTE	LANDING												
one side	35 (77)	30 (66)	25 (55)												
both	70(154)	60(132)	50(110)												
54-02	Collector tank booster pump and drain access panels, 432 GR - 442 GL.	2	Both may be missing.												
54-03	Tail cone access panels 451 BB - 461 BB (if installed).	2	Both may be missing.												
54-04	Accessory bay access panels, 491 AT - 492 AT.	2	Both may be missing provided the airspeed is limited to 180 kt IAS.												

SYSTEM: CHAPTER 54 STABILIZERS		NUMBER INSTALLED	
ATA	PART DESCRIPTION		REMARKS AND/OR EXCEPTIONS
55-01	Rudder trim and balance tab control fairings, 325 BL - 325 EL.	2	One or both may be missing provided: a. fairings 326 CL and/or 327 CL are removed, and b. flight is not conducted into known or forecast icing conditions.
55-02	Elevator trim tab control fairing, 344 FB.	1	May be missing provided: a. fairing 345 FB is removed, and b. flight is not conducted into known or forecast icing conditions.
55-03	Horizontal stabilizer tips, 332 AL - 342 AR.	2	One or both may be missing.
55-04	Rudder hinge bracket and shroud inspection panels 324 AC - 324 BC - 324 CC.	3	One may be missing.
55-05	Elevator hinge bracket and shroud inspection panels, 333 AC - 333 BC - 333 CC 333 DC - 343 AC - 343 BC 343 CC - 343 DC.	8	One on each side may be missing.
55-06	Rudder hinge access panels 325 CL - 325 DL - 325 FL 325 GL.	4	One may be missing.
55-07	Elevator hinge access panels 334 AB - 334 BB - 334 CB 334 DB - 344 AB - 344 BB 344 CB - 344 DB.	8	One on each elevator may be missing.
55-08	Rudder tab fairings, 326 CL - 327 CL.	2	One or both may be missing.
55-09	Elevator tab fairing, 345 FB.	1	May be missing.

SYSTEM: CHAPTER 54 WINGS		NUMBER INSTALLED	
ATA	PART DESCRIPTION		REMARKS AND/OR EXCEPTIONS
57-01	Outer flap hinge fairings, 522 CB - 522 DB - 622 CB 622 DB.	4	One or both parts of each fairing may be missing provided flight is not conducted into known or forecast icing conditions
57-02	Aileron spring and trim tab control fairings 532 CT - 535 BB - 535 FB 632 CT - 635 BB - 635 FB.	6	Each fairing may be missing provided: a. fairing 535 HT and/or 536GB and/or 537 JB and/or 635 HT and/or 636 GB and/or 637 JB are removed, and b. flight is not conducted into known or forecast icing conditions.
57-03	Aileron hinge bracket and shroud inspection panels, 532 AC 532 BC - 632 AC - 632 BC 632 FC.	5	One or each side may be missing.
57-04	Aileron hinge access panels, 535 CB - 535 DB - 535 EB 635 CB - 635 DB - 635 EB.	6	One on each side may be missing.
57-05	Fuel tank vent outlet fairings, 534 BB - 634 BB.	2	One or both may be missing provided flight is not conducted into known or forecast icing conditions.
57-06	Aerodynamic flap seals.		One or more parts may be missing. Loose parts should be removed.
57-07	Pressure re/defuelling connection cover, 621 GB.	1	May be missing provided valve is not leaking.
57-08	Aileron and tab fairings, 535 HT - 536 GB - 537 JB 635 HT - 636 GB - 637 JB.	6	Each fairing may be missing.

SYSTEM: CHAPTER 54 WINGS		NUMBER INSTALLED			
ATA	PART DESCRIPTION		REMARKS AND/OR EXCEPTIONS		
57-09	Wingshroud panels, 531 AC 531 BC - 531 CC - 531 DC 531 FC - 531 GC - 531 HC 531 JC - 631 AC - 631 BC 631 CC - 631 DC - 631 FC 631 GC - 631 HC - 631 JC 931 AC - 931 BC - 931 CC 932 AC - 932 BC – 932CC.	22	One panel may be missing provided: a. the opposite panel is removed, and b. flap extension is limited to 25°. Aircraft weight penalty in kg (lb) with shroud panels missing: AIRCRAFT CONFIGURATION		
			TAKE-OFF	EN ROUTE	LANDING
			35 (77)	30 (66)	25 (55)

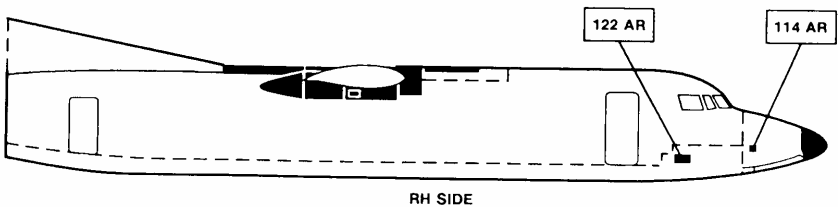
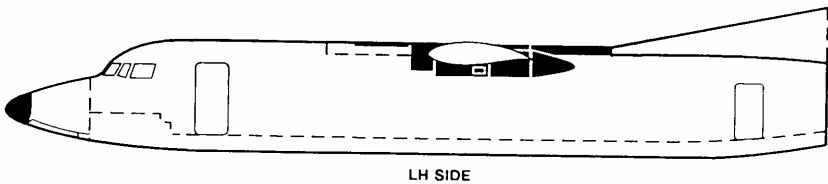
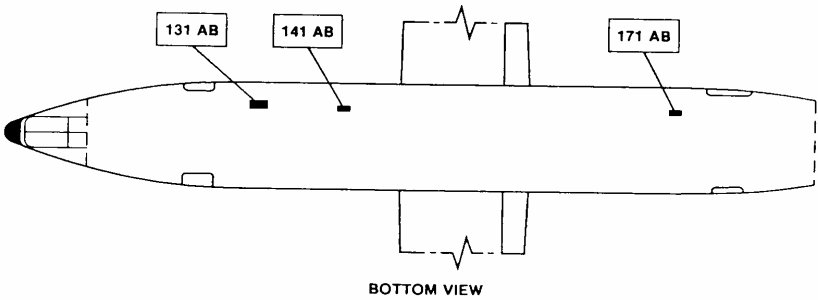
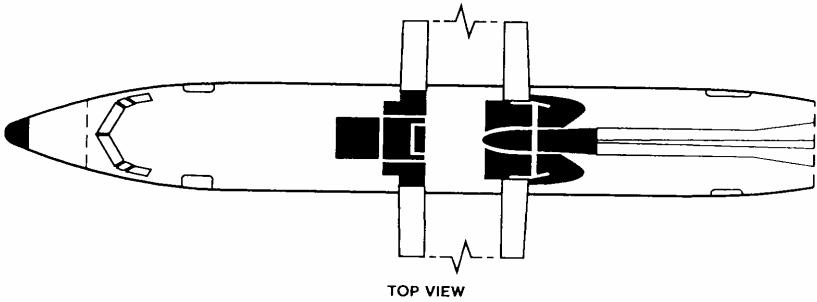
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STATIC DISCHARGERS

RECOGNITION OF STATIC DISCHARGERS

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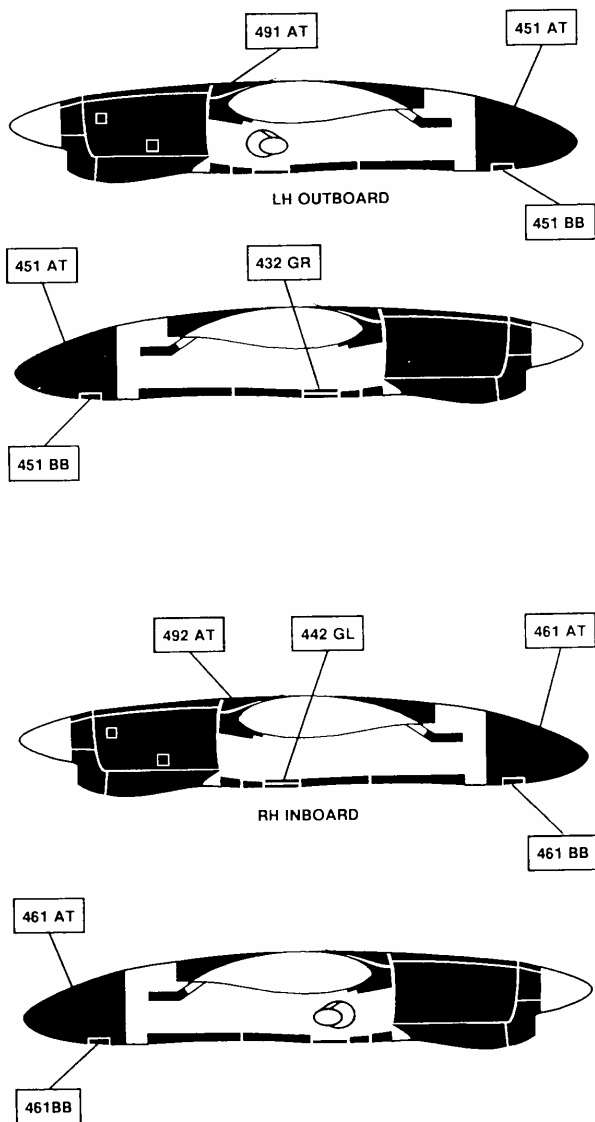
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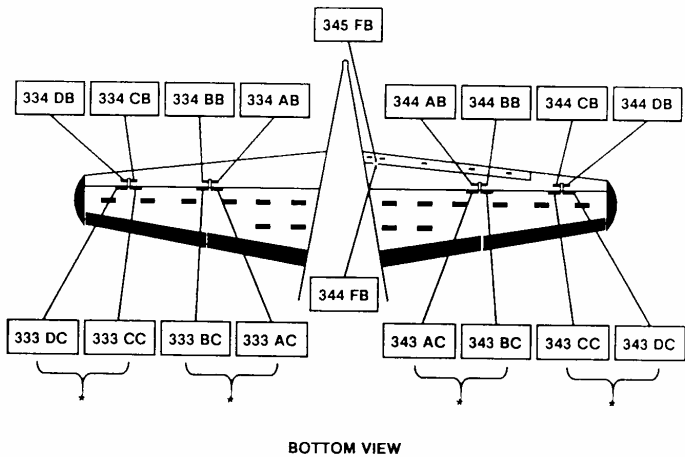
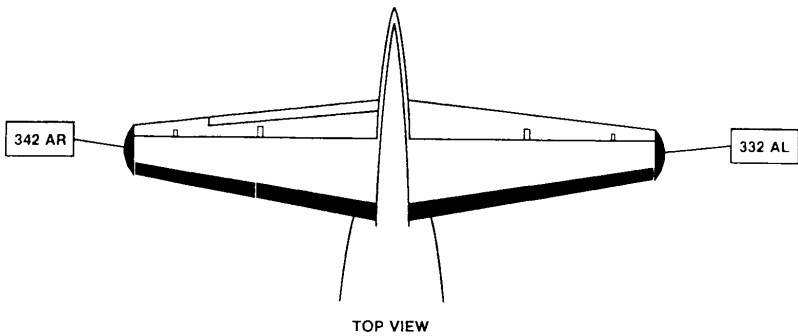
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POWER PLANTS AND NACELLES



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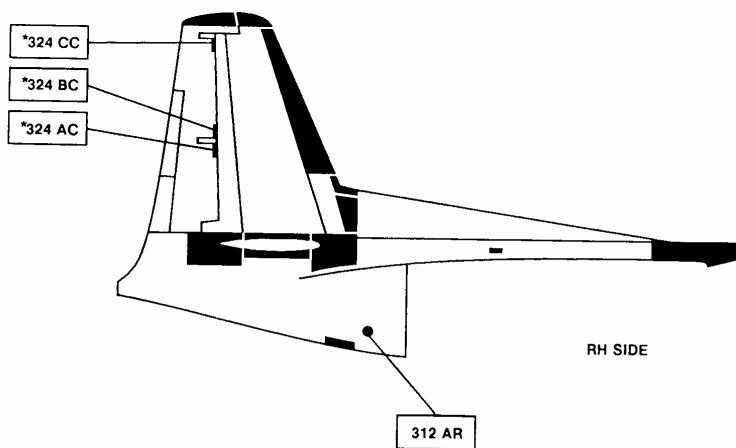
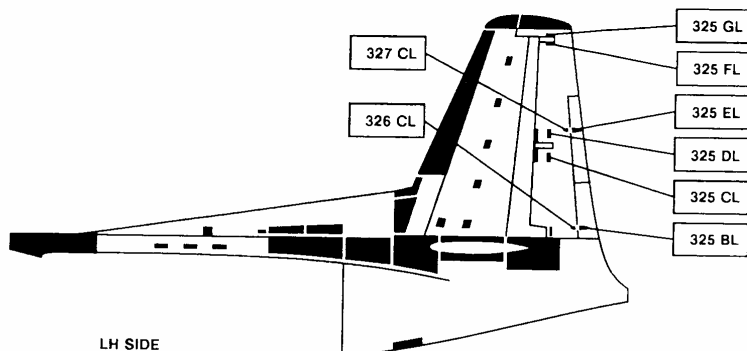
HORIZONTAL STABILIZER



*On horizontal stabilizer trailing edge shroud

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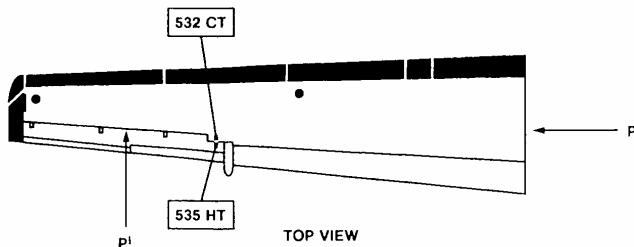
VERTICAL STABILIZER



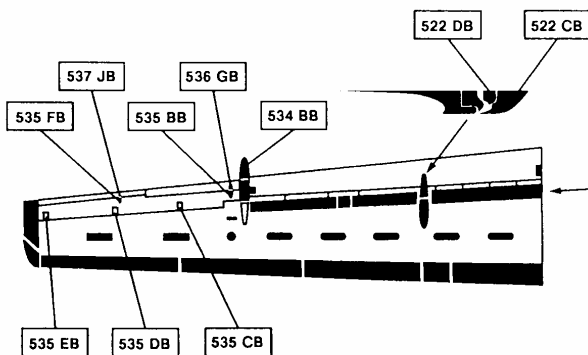
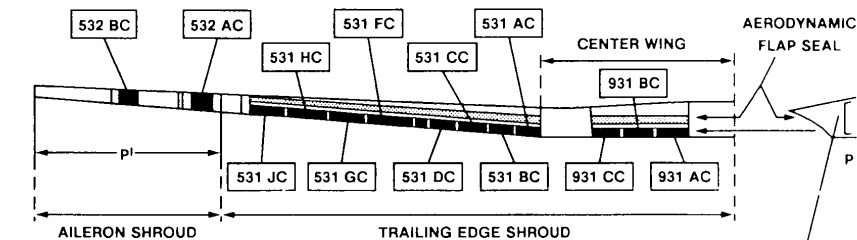
*On vertical stabilizer trailing edge shroud

VD/OP-2.10-404

LH WING



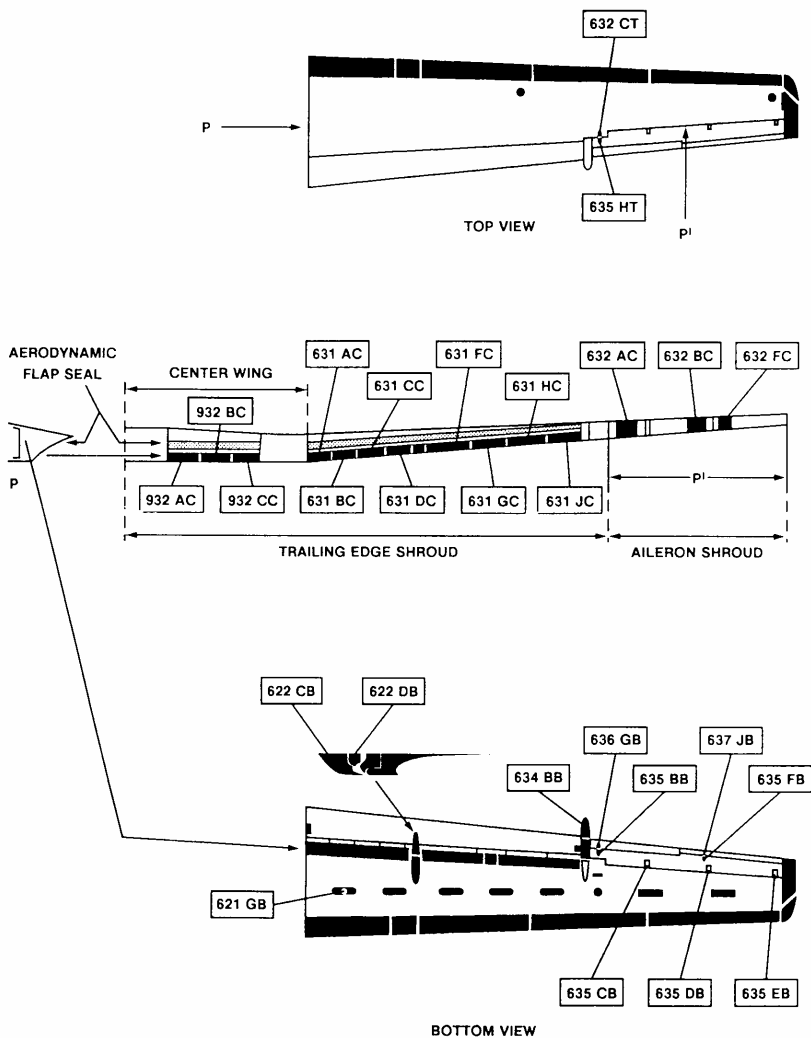
TOP VIEW



BOTTOM VIEW

VD/OP-2.10-405

RH WING



VD/OP-2.10-406

GENERAL DISCUSSION ON APPLIED METHOD

The determination of the performance restrictions on CDL items is based on the procedure defined in the Engineering flight test guide for transport category airplanes (FAA order 8110.8) paragraph 219: Accountability of performance degradation relative to both minor design changes (external exposure) and CDL items.

The procedure consists of the following method:

1. An analytical assessment of the performance degradation due to the missing item, expressed in a drag increment ΔC_D , is multiplied by a conservative confidence factor of 2.
2. Determination of weight reduction ΔW in a way that the climb performance in the second segment of the take-off flight path equals the climb performance of the standard aircraft at limited take-off weight W .

The relation between ΔW and ΔC_D is approximated by:

$$\Delta W/W = (\Delta C_D/C_L) / (T/W) \quad (A-1)$$

with

C_L = lift coefficient in the appropriate configuration.

T/W = thrust-to-weight ratio at max. take-off weight of the standard aircraft.

Relation (A-1) shows that the largest weight reduction at constant gradient occurs at small flap deflections with a low C_L and $(T/W)_{\min}$

3. The performance degradation may be considered as being negligible if ΔW from 2. is less than 0.05% of the allowable take-off weight. A restriction has been made that not more than 3 of the items identified as being negligible, may be missing before take-off.
4. If the weight reduction ΔW from 2. is more than 0.05% of the take-off weight, performance limitations must be included for the most unfavorable conditions during take-off, en route and landing, viz.:
 - take-off: final take-off climb (4th segment).
 - en route: T/W at the start of a "drift-down" flight path in the en route climb condition.
 - landing: approach-climb condition at climb limited maximum landing weight.

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9 MINIMUM EQUIPMENT LIST

9.0 REVISION STATUS OF MINIMUM EQUIPMENT LIST

9.0.1 List of Effective Pages

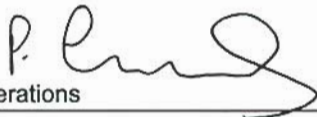
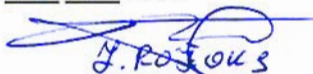
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9-TOC	1-2	25.07.2005	9.1.73	1-4	01.07.2002
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Approved by airBaltic

Date: 12. 01.2006Pauls Cālītis
SVP Flight operationsApproved by Civil Aviation
Administration of LatviaDate: 23. 01.2006
J. Rožuks

9.0.2 Revision Index

REVISION	DATE OF REVISION	DATE OF INCORPORATION	SIGNATURE
NEW	-	-	-
006	-	-	-
007	01.07.2002	-	-
008	01.01.2003	-	-
009	01.08.2003	-	-
010	01.02.2004	-	-
011	15.08.2004	-	-
012	15.02.2005	-	-
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9.0.3 Highlights of Revision

014 from 30.01.2006

Effective from 30.01.2006, the MEL (Fokker 50) has been revised according to the 9.0.1 “List of Effective Pages”.

This MEL is based on the manufacturer’s “FOKKER 50 MASTER MINIMUM EQUIPMENT LIST”, issued on **Oct 17/02** and “JAA Administrative & Guidance Material TGL-26” – “Guidance Document for MEL Policy”.

The main reason for revision: the incorporation of SE-LJI, YL-BAO, and YL-BAV A/C information.

Below are listed highlights of the introduced changes:

Chapter	SEQ NO	Remarks
9.1.21	-42-1	Supplemented Cabin Heater with SE-LJI A/C.
	-51-2	Supplemented Fresh Air Valves with SE-LJI A/C.
	-51-3	Supplemented Fresh Air Valves ON Light with SE-LJI A/C.
9.1.22	-11-6	Inserted YL-BAO, BAV, and SE-LJI.
9.1.23	-31-1	Inserted SE-LJI, stipulating that SELCAL is deactivated.
	-51-5	Inserted information about all F50 A/C.
9.1.24	-21-3	Inserted APU generator system description for YL-BAO, BAV.
	-21-4	Inserted APU GEN AVAIL light description for YL-BAO, BAV.
	-21-5	Inserted APU GEN ON light description for YL-BAO, BAV.
9.1.25	-20-3	Inserted SE-LJI, YL-BAO, BAV (50 passenger seat belts). Changed: Riga → Home Base.
	-21	Indicated the number of seats for each F50 A/C. Deleted the indication (M).
	-60-1	Inserted SE-LJI, YL-BAO, BAV (50 passenger life vests).
	-60-2	Reworked acc to SE-LJI, YL-BAO, and BAV insertion.
9.1.26	-12-1	Inserted AP,U fire detection system description for YL-BAO, BAV.
	-12-2	Inserted APU FIRE light description for YL-BAO, BAV.

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Chapter	SEQ NO	Remarks
	-22-1	Inserted APU FIRE extinguishing system description for YL-BAO, BAV.
	-23-2	Inserted APU FIRE extinguisher AGENT light description for YL-BAO, BAV.
9.1.28	-22-1	Revised remarks for Fuel Pump.
9.1.33	-42-1	Inserted YL-BAO, BAV, and SE-LJI.
	-47-1	Indicated the Strobe Lights for each A/C.
9.1.34	-46-1-1)	Revised the allowed flying with INOP equipment (10 → 5 days).
	-46-1-2)	Deleted the indication (O). Terminological change: PNF → PM.
	-59-1	Inserted Navigation database description.
	-62-1	Inserted information regarding YL-BAO and BAV. Inserted Navigation database description.
9.1.35	-30-1	Revised the conditions for Portable oxygen.
9.1.36	-14-1	Inserted APU pressure regulating and shutoff valve description for YL-BAO, BAV.
	-14-2	Inserted APU BLEED AVAIL indication description for YL-BAO, BAV.
	-14-3	Inserted APU BLEED ON indication description for YL-BAO, BAV.
9.1.49		Inserted a new chapter devoted for APU description.
9.2.26	-23-2	Inserted the APU fire extinguisher AGENT light maintenance procedure description.

9.1 MINIMUM EQUIPMENT LIST

9.1.1 Minimum Equipment List Procedure

9.1.1.1 General

Objectives:

As an airplane is being type-certificated, all required equipment must be in operating condition. If deviation from this type-certificated configuration were not permitted, the aircraft could not be flown unless all such equipment and systems were in operating condition. Experience has proven that under specific conditions and during limited periods of time, operational performance of each system or every piece of equipment is not essential for safe operation of aircraft, as long as remaining systems, instruments and equipment ensure an acceptable level of safety. Therefore, certain conditional deviations from the original requirement can be authorised, to permit continued or uninterrupted operation of the aircraft. These deviations are published in MINIMUM EQUIPMENT LIST (MEL), related to applicable (local) regulations and the individual operator's specific operations and particular definitions.

This Minimum Equipment List (MEL) is developed taking into consideration airBaltic particular aircraft equipment, configuration and operational conditions, kinds of operation and requirements set by the LVCAA.

This Minimum Equipment List (MEL):

Based on the manufacturers Master Minimum Equipment List (CAA). It incorporates all current revisions and will not deviate from the Aeroplane Flight Manual limitations or Emergency Procedures or from any applicable Airworthiness Directive.

NOTE: An operator will have 90 days from the date of receipt of the revision to revise the MEL.
Reduced time scales for implementations of safety information related revisions might be required.

Contains only those items, which may be inoperative prior to dispatch, provided limitations and appropriate procedures are observed. If inoperative item is not covered by MEL- see "Procedure" below.

By authorisation of this MEL the LV CAA permits dispatch of the Aeroplane with certain INOP item(s), provided an acceptable level of safety is maintained.

Principles:

For the sake of brevity, the MEL does not include obviously required items such as wings, control surfaces, engines, landing gear etc. nor does the list include items that do not affect the airworthiness of aircraft, such as galley equipment, entertainment system and passenger convenience items, equipment for military mission (ATA 90 and up), etc... However, it is important to note that ALL ITEMS WHICH ARE RELATED TO THE AIRWORTHINESS OF AIRCRAFT AND NOT INCLUDED ON THIS LIST ARE AUTOMATICALLY REQUIRED TO BE OPERATIVE EACH FLIGHT. Thus the failure or absence of any items, in excess of those allowed to be inoperative by MEL, cause the aircraft is not airworthy.

For the items where it is stated that a performance correction shall be applied in accordance with the Airplane Flight Manual, operation of the aircraft with the inoperative equipment is only allowed if the performance correction is presented in the Airplane Flight Manual of the particular aircraft.

9.1.1.2 Purpose

The purpose of this MEL is to establish acceptable balance between safety and punctuality by permitting continued or uninterrupted operation of the aeroplane with INOP item(s) during Rectification Period.

9.1.1.3 Scope

The provisions of the MEL apply to Certifying Technical staff and flight crew (Commander) until the Aeroplane begins to move under its own power.

NOTE: If a failure occurs during the taxi phase before the start of the take-off roll, Commander shall refer to the MEL before decision is taken whether to continue the flight or return to parking stand.

9.1.1.4 Responsibility

Certifying Technical staff is responsible to:

- make every effort to have the aircraft fully serviceable prior to the scheduled departure;
- inform the MCC duty manager about the defect and expected operations under the MEL procedures as soon as possible;
- inform the Commander on possible consequences the defect may have on other related systems, if requested;
- issue MEL advice message, if requested;
- ensure that the defect is positively identified and/or isolated;
- complete MEL Procedure;
- issue the Certificate of Release to Service (CRS)

Commander is responsible to:

- evaluate if aeroplane technical status is adequate for the intended flight / operations;
- report all known or suspected defects;
- complete MEL procedure, if certifying technician is not available;
- accept an aeroplane with known defect(s) for intended flight conditions;
- ensure that all technical and operational consequences are fully understood by all involved crewmembers.

9.1.1.5 Definitions

For the purpose of this MEL the following definitions shall apply:

"(M)" symbol indicates a requirement for a specific maintenance procedure, which must be accomplished prior to departure with the listed INOP item and is published in the DDG. These procedures are accomplished by LVCAA or JAR-145 approved personnel.

NOTE: In exceptional cases (M) item(s) which do not require special knowledge, skill, use of tools or test equipment may be accomplished by not certifying personnel (pilot or maintenance staff) provided:

- a) An acceptance is granted by certifying technician to conduct required actions; and

- b) The result of these actions is discussed with and accepted by certifying technician by phone or by other means of communication.

The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the airBaltic.

"(O)" symbol indicates a requirement for a specific operational procedure, which must be accomplished in planning for and/or operating with the listed item INOP. Normally the flight crew accomplishes these procedures. These appropriate procedures are published in the DDG.

"AIRWORTHINESS Related item(s)" required for safe operation of the aeroplane

"CDL item(s)". Secondary airframe or engine parts missing, without which operation could be authorised according to Configuration Deviation List (CDL) Procedure.

"DAY" operation is any flight conducted from the point of take-off to landing between 30 minutes before sunrise and 30 minutes after sunset.

"DDG" (Dispatch Deviation Guide) describes necessary actions that must be taken by pilots or maintenance staff when a MEL is open up.

"Deactivated" and **"Secured"** means that the specified component must be put into an acceptable condition for safe flight.

"Defect" any confirmed abnormal condition of an item whether or not this could eventually result in a failure.

"Dispatch Note" is only mentioned in the DDG and is added to clarify the MEL item for dispatch purpose if needed.

"Flight Day" - a 24-hour period (from midnight to midnight) during which at least one flight is scheduled for the affected aeroplane.

"Icing Condition" – outside air temperature (OAT) on the ground and for take-off, or total air temperature on ground, or total air temperature (TAT) in flight, is 10 deg. C or below and visible moisture in any form is present (such as clouds, fog with visibility of 1.6 km or less, rain, snow, sleet and ice crystals).

"INOP" any time a system and/or component malfunctions to the extent that it does not accomplish its intended purpose and/or is not consistently functioning within its designed operating limit(s) or tolerances.

"Item" the equipment, system, components or function.

"MEL advice message" Written or telephoned message from the airBaltic Technical Operation Department stating that there is "No Technical Objections" for dispatch according to MEL..

NOTE: to receive a written "MEL advice message", Commander to provide also written detailed complaint to Certifying technician.

"Notes" in column 4 provides additional information for crew member or maintenance consideration. Notes are used to identify applicable material which is intended to assist with compliance, but do not relieve the operator of the responsibility for compliance with all applicable requirements. Notes are not a part of the provisos. Different possibilities may be considered for an item. They will be identified by a),b),c). Within one possibility, different conditions may be required. They will be identified by 1),2),3).... .

"Passenger Convenience Items" means those items related to passenger comfort or entertainment such as, but not limited to, galley equipment, ashtrays, overhead reading lamps, toilets, water, waste etc.

(*) "Placarded" each INOP item must be placarded to inform and remind the crewmembers and maintenance personnel of the equipment condition. To the extent practicable, placard should be located adjacent to the control or indicator for the item affected such that it is clear to operating crew that the associated system is inoperative.

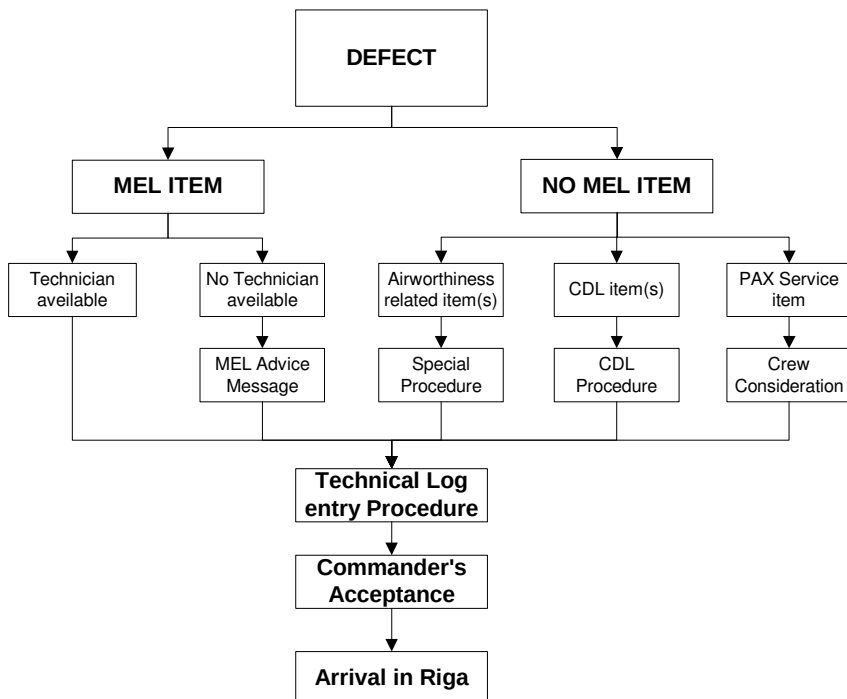
"Visible Moisture" means an atmospheric environment containing water in any form that can be seen in natural or artificial light; for example, clouds, fog, rain, sleet, hail or snow.

"VMC" (Visual Meteorological Conditions) means the atmospheric environment is such that would allow a flight to proceed under the Visual Flight Rules applicable to the flight. This does not preclude operating under Instrument Flight Rules.

(-) (Dash) in column 2 or 3 indicates a variable quantity.

9.1.1.6 Procedure

9.1.1.6.1 Flowchart



9.1.1.6.2 Procedure description

DEFECT	All reasonable efforts shall be performed to repair it. If it is impossible to restore the equipment before departure due to lack of spares, facility, qualified personal or time available further assessment to be completed.
MEL ITEM	Check that dispatch is permitted according to “Number required” and “Remarks or Exceptions”. NOTE: See example in Appendix 1.
TECHNICIAN AVAILABLE	Call technician. Only certifying technicians may open MEL item, complete MEL procedure and issue airworthiness release.
NO TECHNICIAN AVAILABLE	The Commander may open MEL item and complete MEL procedure.
MEL advice message	Call MCC duty manager / Technical Operations Department and receive a written or telephoned “MEL Advice Message” from them stating that there is “No Technical Objections” for dispatch according to MEL. NOTE: To receive a written “MEL advice message”, Commander shall provide a written detailed complaint to Certifying technician. Telex: RIXTKBT; Phone:+ (371) 7207 306(268) Fax:+ (371) 7207 867(186)
DDG	Complete all actions required by DDG for relative INOP item.
PAX CONVENIENCE ITEM(S)	Items related to passenger comfort or entertainment such as, but not limited to, galley equipment, ashtrays, overhead reading lamps, toilets, water, waste etc. (In flow chart presented as PAX Service Item)
CDL item	Secondary airframe or engine parts missing. Refer to the (CDL) Configuration Deviation List (OM Part B, Section 8).
Airworthiness Related item	Call MCC duty manager on phone: + (371) 7 207 206, + (371) 7 207 306
Crew consideration	Possible delay and/or impact on service as well as any alternative to be considered together with the Cabin crew.
CDL Procedure	Refer to the OM Part B - 8. Configuration Deviation List.

Rev.: 013

**Special
Procedure**

Is described in OM Part A – 8.6.

**Technical
Log entry
Procedure**

Complaint to be entered into Complaint/Action card and following to be written in Action field as an answer and

a) **signed by Certifying Technician:**

- Short description what is suspected to be faulty;
- A/C RELEASED ACC MEL XX XX;
- DDG XX-XX COMPLIED WITH;
- CAT A / B / C DEFECT

b) **signed by Commander** (Technician not available):

- FLIGHT ACC MEL XX XX, - LACK OF XX XX;
- “MEL Advice Message” FROM XX XX RECEIVED;
- DDG XX-XX COMPLIED WITH.

NOTE: See example in Appendix 2

Second (yellow) **copy of the Complaint/Action card** shall be given to handling agent before departure.

**Commander's
acceptance**

Commander has final authority to accept an a/c with known defect(s) for intended flight by signing Pre Flight Inspection completion and/or Complaint/Action card. Commander has to brief all involved crewmembers about all technical and operational consequences.

NOTE: For multiple inoperative items see 6.3 below.

**Arrival in
Riga**

If the MEL item has been opened by the Commander (no Technician available) in outstation and can not be cleared in RIX, whole MEL Procedure to be initiated by airBaltic TD and airworthiness Release to be issued.

9.1.1.6.3 Rectification periods

Repairs are to be accomplished at the earliest opportunity and not later than the Repair Period established by the following letter designators given in the "CATEGORY" column of the MEL.

NOTE: Where a time period is specified it shall start at 00:01 **UTC** on the calendar day following the day of an opening relative MEL INOP item.

Category	Rectification periods
A	Either before next flight or within the time interval specified in the Remarks column (5) of the MEL.
B	Within three (3) consecutive calendar days - 72 hours .
C	Within ten (10) consecutive calendar days - 240 hours .
D	Within one hundred and twenty (120) consecutive calendar days .

MEL Interval Extension

One time extension of the applicable interval B, C, or D, for the same duration as specified in MEL is permitted, providing that:

- MEL Interval Extension Application is issued by Technical Manager (RIXTS, TJ, or JN);
- Application is approved by the DT Quality Assurance Manager;
- The Original MEL Interval Extension Application remains with DT.

9.1.1.6.4 Multiple INOP items

Dispatch of an aeroplane with more than one open MEL INOP item is permitted if emergency procedures related to one of the MEL item shall not affect emergency procedures for another one and vice versa.

Not more than five (5) Cat A, B, C items may be inoperative.

Following to be thoroughly considered by Commander before final decision to accept the aircraft is made:

- interrelationships between those INOP items and the effect on aeroplane operation;
- crew workload;
- flight conditions.

APPENDIX 1

EXAMPLE of Minimum Equipment List item and its description:

1. Systems & Sequence Number Item	2. Category			
	3. Number Installed			
	4. Number Required For Despatch			
	5. Remarks or Exceptions			
31 INDICATING/ RECORDING SYSTEMS 20-1 Clocks	C	2	1	(M) (O) One may be inoperative at either pilot or co-pilot station.

Column 1. "ATA SYSTEM AND SEQUENCE NUMBER- ITEM".

The System Numbers are based on the Air Transport Association (ATA) Specification Number 100 and the items are numbered sequentially. The ATA 100 system numbering differs from the AOM system arrangement.

Column 2. "CATEGORY".

Repair category A, B or C, stating when at the latest the item must be repaired (See: Rectification Intervals)

Column 3. "NUMBER INSTALLED"

The number (quantity) of items normally installed in the aircraft.

Column 4. "NUMBER REQUIRED FOR DISPATCH".

The minimum number (quantity) of items required for dispatch, provided the conditions (if any) specified in column 4 are met.

Column 5. "REMARKS AND EXCEPTIONS".

This column includes statements either prohibiting or permitting operation with the subject items inoperative as well as limitations and conditions for such operation, and appropriate notes.

APPENDIX 2

Example of Complaint / Action Card:

Flight N°	DEP STA	A/C REG	D	O	M	M	Y	Y	SEQ N°	ATA SYSTEM (Item N°)	POS	COMP IDENT N°	SERIAL N° IN	SERIAL N° OUT				
120	CPH	BAN	19	06	00				0004									
Complaints Subject: 52 DOORS LOWER DOOR INDICATION SYSTEM IMPERATIVE (FAULTY INDICATION OF LWR DOOR NOT SHUT ") Sign: <i>[Signature]</i> AAS										Action FLIGHT ACC MEL 52-70-2 MEL ADVISE MESSAGE FROM B IGLIA RECEIVED DDG 50-702 COMPLIED WITH <i>[Signature]</i> AAS Signing of airworthiness release in the "Action STA" line implies the following "Certifies that the work specified except as otherwise specified was carried out in accordance with LAN-145 and in respect to that work the aircraft is considered ready for release to service". JAR 145 Approval								
Complaint (MM Code)										RP	Fail Class	Action STA	D	D	M	M	Time	Sign

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AIR CONDITIONING

ATA 21

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-23-1	Recirculation system	D	2	0	*
-23-2	Recirc FAULT light	D	2	0	*
-26-1	Avionics rack cooling	C	1	0	* (M) May be inoperative during ground operation provided conditioned air is available
		C	1	0	* (O) May be inoperative provided equipment is switched off if no conditioned air is available and ambient temperature exceeds 40°C.
-26-2	AHRS cooling	C	1	0	* May be inoperative during ground operation provided conditioned air is available
		C	1	0	* (O) May be inoperative provided during ground operation AHRS is switched off if no conditioned air is available and ambient temperature exceeds 40°C
-26-3	Instrument cooling	C	1	0	* May be inoperative during ground operation provided conditioned air is available
		C	1	0	EFIS must be switched off if no conditioned air is available and ambient temperature exceeds 25°C.

ATA 21

AIR CONDITIONING

-26-4	Cool fan INOP light	D	1	0	* (M)	May be inoperative provided all three fans are operating normally.
-30-1	Pressurization system	D	1	0	*(O)(M)	May be inoperative for un-pressurized flight provided the vacuum relief valve is removed or secured in the open position.
-31-1	Automatic pressurization control	C	1	0	*	May be inoperative provided: - manual control is operating normally, AND - operations are conducted in accordance with the AFM Abnormal Procedure "Air Pressure Control Fault"

AIR CONDITIONING

ATA 21

-31-2	Manual pressurization control	D	1	0	* (O)(M) May be inoperative for unpressurized flight provided the vacuum relief valve is removed or secured in the open position.
-33-1	Cabin rate of climb indication	C	1	0	*
-33-2	Cabin altitude indication	C	1	0	* (O) May be inoperative provided the cabin differential pressure indication is operating normally.
-33-3	Cabin differential pressure indication	C	1	0	* (O) May be inoperative provided the cabin altitude indication is operating normally.
-33-4	Press control FAULT light	C	1	0	* (O)
-33-5	CABIN ALT light	C	1	0	* May be inoperative provided the cabin altitude indication is operating normally.
-41-1	Flight deck heater	D	1	0	*

ATA 21

AIR CONDITIONING

-41-2	Flight deck heater ON light	D	1	0	*
-42-1	Cabin heater (YL-BAS, BAT, and SE-LJI)	D	1	0	*
-51-1	Air conditioning pack	C	2	0	* (O)Both may be inoperative provided: - the flight is conducted non-pressurized, and - ram-air ventilation is operating normally, and - during ground operation AHRS is switched off if ambient temperature exceeds ISA + 10°C.
		B	2	1	* One may be inoperative provided: - inoperative pack is switched off, - operations are conducted in accordance with AFM Abnormal Procedure "Pack Fault".

AIR CONDITIONING**ATA 21**

-51-2	Fresh air valves (YL-BAS, BAT, and SE-LJI)	D	2	0	*	
-51-3	Fresh air valves ON light (YL-BAS, BAT, and SE-LJI)	D	1	0	*	
-52-1	Pack FAULT light	C	2	0	*	
-60-1	Cabin and flight deck temperature control	D	2	1	* (O)	One manual or auto- matic temperature control may be inop- erative for each oper- ating air conditioning pack.
-63-1	Temperature indication	D	1	0	*	

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AUTO FLIGHT

ATA 22

SEQ NO ITEM		CATEGORY			
				NUMBER INSTALLED	
				NUMBER REQUIRED FOR DISPATCH	
					REMARKS AND/OR EXCEPTIONS
-11-1	Autopilot	D	1	0	* CAT II operations are not permitted.
-11-2	Autopilot/yaw damper manual disconnect (control wheel)	C	2	1	* One may be inoperative provided the AP/YD is not used below 1500 feet and the aircraft is operated from the non-affected side. CAT II ops. are not permitted.
		C	2	0	* OR Both may be inoperative provided the AP/YD is not used. CAT II ops. are not permitted.
-11-3	Yaw Damper	C	1	0	*
-11-4	AP/YD status indication (if installed)	C	1	0	* May be inoperative provided the autopilot is not used.
-11-5	AP COMMAND switching (FD source switching)	C	2	0	May be inoperative provided the Aircraft is flown from the FD in command side (illuminated side). CAT II ops. are not permitted if Right Hand Side is inoperative. NOTE: For other Flight Mode Panel selections, refer to item 34-25-2

ATA 22

AUTOFLIGHT

-11-6 AP ENGAGE Indication	C	1	0	*	May be inoperative provided: the autopilot is not used. (YL-BAS, BAO, BAT, BAV and SE-LJI refer to item 22-11-1)
	C	1	0	*	
-11-7 Autopilot controller					
1) Pitch and turn control	C	1	0	*	
2) YD ENGAGE selection and indication	C	1	0	*	
-11-8 Touch control steering	D	2	0	*	

COMMUNICATIONS

ATA 23

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-12-1	VHF COM	B	2	1	When flying VFR over routes navigated by visual reference to landmarks: Any in excess of one, and not powered by an emergency bus, may be inoperative.
-21-1	SELCAL (YL-BAS, - BAT and SE-LJI)	D	-	0	* SELCAL on SE-LJI is deactivated.
-31-1	Passenger address	B	1	0	*(O) May be inoperative, provided: - cabin interphone is operative, and - flight attendant call system is operative, and - alternate normal and emergency operating procedures are established and utilised.
-32-1	Pax Entertainment & pre-recorded announcement system	C	1	0	* May be inoperative provided alternate normal and emergency procedures are established and utilised.
-41-1	Cabin interphone	B	1	0	*(O) May be inoperative provided: - the PA system is operative, and - alternate normal and emergency procedures are established and utilized.
-42-1	Flight attendant call	C	1	0	* Both visual and aural signals may be inoperative in the cabin provided the PA is operative.
-42-2	Flight crew call	C	1	1	* The visual part of the call annunciation on the flight deck may be inoperative.

ATA 23

COMMUNICATIONS

-51-1	Flight deck interphone	D	1	1	Must be operative for Left and Right Pilot.
-51-2	Oxygen mask microphone	D	3	2	Must be operative for Left and Right Pilot.
-51-3	Hand-held microphones	C	2	0	* May be inoperative provided headset mikes are operative and available for Left and Right Pilot.
-51-4	Headsets (boom type)	B	3	1	* Left or Right Pilot's headphones may be inoperative provided at least one flight deck speaker is operative.
		B	3	0	All microphones may be inop provided: both hand-held microphones are available.
-51-5	Audio panels:				Either NORM or ALT amplifiers may be inoperative in each panel.
	YL-BAZ, -BAW, -BAR, -BAU	D	3	2	
	YL-BAO, -BAS, -BAT, -BAV, SE-LJI	D	2	2	
-51-6	Flight deck speakers	C	2	1	One may be inoperative provided at least one headphone is operative and used.
		B	2	0	Both may be inoperative provided at least two headphones are operative and used.
-51-7	RT/IC selection	B	4	2	* One must be operative on each pilot's position
-61-1	Static dischargers(4 each wing, 2 fin & 2 each horiz. tail)	D	14	9	No more than one may be missing or damaged in each of the five groups of dischargers.

COMMUNICATIONS

ATA 23

-61-2	Main landing gear static dischargers	D	2	0	
-71-1	Cockpit voice Recorder(CVR)	A	1	0	May be INOP provided: a) It is not reasonably practical to repair or replace before commencement of the flight, b) The a/c shall not exceed six (6) consecutive flights with the CVR unserviceable (including the flight during which the failure happen), c) Not more than 48 hours have elapsed since the CVR became INOP, d) The flight data recorder is operative, e) The a/c will not depart from its maintenance base with CVR inoperative.

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ELECTRICAL POWER

ATA 24

SEQ NO	ITEM	CATEGORY				
			NUMBER INSTALLED			REMARKS AND/OR EXCEPTIONS
				NUMBER REQUIRED FOR DISPATCH		
-21-1	Generator system	A	2	1	One may be inoperative in day VMC provided: - a suitable landing field is available within 30 min of any point along the route, and - Repair is performed within 10 flight hours.	
-21-2	Generator FAULT light	C	2	0	* Voltage and frequency of related generator should be checked after engine start.	
-21-3	APU generator system (YL-BAO, BAV)	D	1	0	*	
-21-4	APU GEN AVAIL light (YL-BAO, BAV)	D	1	0	* May be inoperative provided the bleed AVAIL light is on before the generator is switched on.	
-21-5	APU GEN ON light (YL-BAO, BAV)	D	1	0	*	
-22-1	AUTO AC X-FEED	B	1	0	*(O) May be inoperative provided the aircraft is not operated into known or forecast icing conditions.	
-22-2	Auto AC X-FEED FAULT light	C	1	0	*	
-25-1	AC & DC indication system	C	1	0	*	
-25-2	BUS FAULT light	C	1	0	* May be inoperative provided the GEN and TRU FAULT lights are operative.	
-26-1	Static (emergency) inverter	B	1	0	* May be inoperative in day VMC provided both generator systems are operative.	

SEQ NO	ITEM	CATEGORY				
			NUMBER INSTALLED			
				NUMBER REQUIRED FOR DISPATCH		
				REMARKS AND/OR EXCEPTIONS		
-31-1	Transformer Rectifier Units (TRU's)	A	2	1	One may be inoperative in day VMC provided: - a suitable landing field is available within 30 min of any point along the route, <u>and</u> - repair is performed within 10 flight hours.	
-31-2	TRU FAULT light	C	2	0	* May be inoperative provided AC & DC indication system and the BUS FAULT light are operative.	
-32-1	DC X-FEED	B	1	0	*(O) May be inoperative provided the aircraft is not operated into known or forecast icing conditions.	
-32-2	DC X-FEED ON light	C	1	0	*	
-33-1	Battery charger	A	2	1	(O) One may be inoperative provided: - ground handling including engine starting is performed on external power only, <u>and</u> - a check is performed before each flight to make sure that the batteries come online, <u>and</u> - repair is performed within 10 flight hours.	
-33-2	BAT PWR ONLY light	C	1	0	*	
-33-3	Battery charger FAULT light	C	2	0	*(O) May be inoperative provided BAT LOAD is checked for normal indication after engine start.	
-41-1	EXT PWR AVAIL/ON light	C	1	0	*	

EQUIPMENT/FURNISHINGS

ATA 25

SEQ NO	ITEM	CATEGORY			
				NUMBER INSTALLED	
				NUMBER REQUIRED FOR DISPATCH	
				REMARKS AND/OR EXCEPTIONS	
-10-1	Crew member seat shoulder harness	A	3	1	* If a harness at any occupied seat becomes inoperative, the aircraft may continue the flight or series of flights, but shall not depart an airport where repairs or replacements can be made. If two shoulder harnesses become inoperative, at least one pilot's harness must be operative for return flight to repair/maintenance base.
-10-2	Observer's seat	D	1	0	* May be inoperative provided the seat is secured in the normal stowed position.
-10-5	Sun Visors	C	2	1	May be inoperative provided: a) A sun visor is available for the pilot flying, b) Acceptable to flight crew, and c) Affected Sun Visor is removed or stowed.
-11-1	Flight Crew Seats A) Vertical and Recline Adjustment	B			(O) The associated seat is secured or locked in a position acceptable to the flight crewmember. One or more may be inop. Provided the associated seat is secured in a position acceptable to flight crewmember. Note: If an inop. Armrest will hinder an emergency evacuation or any other or any other flight duties it should be removed.
	B) Other Adjustment	C			
-20-1	Flight attendant seat shoulder harness in passenger compartment	A	2	1	* If a harness at any occupied seat becomes inoperative, the aircraft may continue the flight or series of flights, but shall not depart an airport where repairs or replacements can be made. OR

SEQ NO	ITEM	CATEGORY			
					NUMBER INSTALLED
					NUMBER REQUIRED FOR DISPATCH
					REMARKS AND/OR EXCEPTIONS
		B	2	1	* If a harness at any occupied seat becomes inoperative, the seat should not be used and exceptions apply as for item -20-2 below.
-20-2	Flight attendant seat	B	2	1	* (O) One seat or seat assembly may be inoperative provided: (a) Inoperative seat or seat assembly is not occupied, (b) Cabin crew displaced by inoperative seat occupies the passenger seat most accessible to his or her assigned exits, (c) Alternate procedures are established/approved and used for displaced cabin crew, (d) Folding type seat is stowed or secured in the retracted position, and (e) Passenger seat assigned to cabin crew is placarded "FOR CABIN CREW USE ONLY". Note: A seat with an inoperative or missing seat belt or harness is considered inoperative.
-20-3	Passenger seat belts [YL-BAT, BAS]	D	46	-	* May be inoperative or missing provided the seat is not used and blocked. Well in advance of the departure notify: – In Home Base: MCC; – In outstations: handling agent, on number and location of INOP pax seats.
	[SE-LJI, YL-BAO, BAV]	D	50		
	[YL-BAR, BAU, BAW, BAZ]	D	52		
-20-4	Window shades	D	-	0	
-20-5	Overhead stowage bin	D	-	-	(M) Bin-closed latch may be inoperative provided bin is not used for stowage and lid is secured in the closed position or removed.

SEQ NO	ITEM	CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-21	Passenger Seat(s):				One or more may be INOP. Secured in the upright position AND inoperative seat(s): - Does not block an emergency exit - Does not restrict any passenger from access to the main aeroplane aisle. - Is blocked and placarded "DO NOT OCCUPY" Note: A seat with an inoperative or missing seat belt or harness is considered inoperative.
	[YL-BAT, BAS]	D	46		
	[SE-LJI, YL-BAO, BAV]	D	50		
	[YL-BAR, BAU, BAW, BAZ]	D	52		
-60-1	Passenger Life Vests			-	One for each person is required to be on board. A passenger's seat with missing Life Vest is considered INOP.
	[YL-BAT, BAS]	B	46		
	[SE-LJI, YL-BAO, BAV]	B	50		
	[YL-BAR, BAU, BAW, BAZ]	B	52		
-60-2	Emergency loca- tor transmitter				* May be INOP, provided repairs are made within 6 further flights or 25 flying hours, whichever occurs first May be INOP, provided repairs are made within 6 further flights or 25 flying hours, whichever occurs first May be inoperative provided repairs are made within 6 further flights or 25 flying hours, whichever occurs first.
	1) Portable auto- matic ELT (121.5/406 Mhz) - [all Fokker a/c except SE-LJI, YL-BAO, BAV]	A	1	0	
	2) Stationary ELT (121.5/243 MHZ), [SE-LJI]	A	1	0	
	3) Portable ELT [YL-BAO, BAV]	A	1	0	

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FIRE PROTECTION

ATA 26

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-11-1	Engine fire detection system	C	2	2	* One detection loop on each engine may be inoperative provided: - inoperative loop is switched off, OFF light must be illuminated, <u>and</u> - an engine fire test is performed prior to engine start.
-11-2	Fuel lever light	C	2	0	* Both fuel lever lights may be inoperative provided the corresponding fire handle lights are operative.
-11-3	Fire handle light	B	2	0	* The fire handle lights may be inoperative provided the corresponding fuel lever lights are operative.
-12-1	APU fire detection system (YL-BAO, BAV)	D	1	0	* May be inoperative provided the APU is not used.
		C	1	0	* May be inoperative provided or ▪ the APU is used for engine start only, <u>and</u> ▪ the APU is continuously monitored by the ground crew, <u>and</u> ▪ the ground crew is in contact with the flight deck crew.
-12-2	APU FIRE light (YL-BAO, BAV)	C	1	0	* May be inoperative provided corresponding light at the CAP is operative.
-13-1	Cargo compartment smoke detection system	D	-	0	* May be inoperative provided the affected cargo compartment is not used.
-13-2	Toilet smoke detection system	B	-	0	* Smoke detection system may be inoperative provided toilet fire extinguishing system is operative.
		C	-	0	* (M) <u>OR</u> Smoke detection system may be inoperative provided toilet is not used for any purpose.
-22-1	APU fire extinguishing system (YL-BAO, BAV)	D	1	0	* May be inoperative provided the APU is not used.

or

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SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
		C	1	0	* May be inoperative provided: ▪ the APU is used for engine start only, <u>and</u> ▪ the APU is continuously monitored by the ground crew, and ▪ the ground crew is in contact with the flight deck crew, and ▪ fire extinguishing equipment is standing by, and ▪ no passengers are permitted in the aircraft during APU operation.
-23-1	Engine fire extinguisher agent LOW PRESS light	C	2	0	* (M) May be inoperative provided the bottle is checked to be serviceable.
-23-2	APU fire extinguisher AGENT light (YL-BAO, BAV)	C	1	0	* (M) May be inoperative provided bottle is checked to be serviceable. or
		C	1	0	* May be inoperative provided the APU fire extinguishing system considered inoperative.
-24-2	Toilet fire extinguishing system	C	-	0	Waste bin fire extinguishing system may be inoperative provided toilet smoke detection system is operative. OR
		C	-	0	* (M) Waste bin fire extinguishing system may be inoperative provided the is not used for any purpose.
-25-1	Cargo compartment fire extinguishing system (access hole, pipe-line)	D	2	0	* May be inoperative provided the associated cargo compartment is not used.

FLIGHT CONTROLS

ATA 27

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-01-1	T/O CONF warning	B	1	0	* May be inoperative provided crew confirms safe configuration before take-off.
-14-1	Aileron trim position indication system	C	1	0	* (O) May be inoperative provided: - aileron trim control system is checked to be operative, <u>and</u> - aileron trim is checked to be in the neutral position prior to each take-off.
-21-1	Rudder pedals adjustment	C	2	0	* May be inoperative provided flight crew individual requirements are met and full rudder and brake pedal deflections to either side are possible on both pilot stations.
-31-1	Elevator feel control System	C	1	0	* (O) (M) Clear fault according to established procedure, if unsuccessful: - system is secured in the dispatch position, <u>and</u> - aircraft is not operated with the centre of gravity forward of 30% MAC line, <u>and</u> Handling agent and MCC (RIX only) should be notified well in advance of the departure on location of the LIZFW : not less than 75 ;
-56-1	Wing flap position indication	C	1	0	* (O) May be inoperative provided flap disagree alert is checked to be operative. NOTE: The elevator feel control system could be affected (refer to item 27-31-1).

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FLIGHT CONTROLS

-71-1	Flight control lock system	B	1	0	* (O) (M) May be inoperative provided: a) the flight control lock is secured in the unlocked position <u>and</u> b) the inoperative locking devices are checked to be in the not-engaged position and no obstruction of flight controls and power controls can occur <u>and</u> c) the flight control surfaces are adequately protected against wind gust when the aircraft is parked <u>and</u> d) The flight control lock system is not used.
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FUEL

ATA 28

SEQ NO ITEM		CATEGORY				
		NUMBER INSTALLED				REMARKS AND/OR EXCEPTIONS
		NUMBER REQUIRED FOR DISPATCH				
-21-1	Single point pressure refuelling	D	1	0	*	May be inoperative.
-22-1	Fuel pump	C	4	2	* (O)	One fuel pump may be inoperative on each side provided: - the crossfeed system is checked to be operative, and - last 8260 KG uplift did not contain an alternative fuel type (refer to OMA 8.2.1.4). NOTE: Call MCC, in order to clarify uplifted fuel types during previous refuellings.
-22-2	Fuel pump FAULT light	C	4	2	* (M)	One light at each side may be inoperative provided both fuel pumps are operative and switched ON.
-22-3	System shutoff SHUT light	C	2	0	* (M)	May be inoperative provided flowbar indication is operative.
-22-4	System shutoff flowbar indicator	C	2	0	* (M)	May be inoperative provided SHUT light is operative.
-23-1	Crossfeed valve	C	2	1	(M)	One may be inoperative provided the inoperative valve is deactivated in the open position.
-23-2	Crossfeed ON light	C	1	0	*	May be inoperative provided it is checked that flowbar indication is operative prior to each flight.
-23-3	Crossfeed flowbar indication	C	1	0	* (M)	May be inoperative provided crossfeed valves are operative.

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FUEL

-41-1	Fuel quantity indication	C	2	1	* (O)	Either LH or RH indication may be inoperative provided the fuel quantity is determined by magnetic level indicators prior to each flight, <u>and</u> - the pointer indication on totalizer is operative, <u>or</u> - the fuel used/aircraft weight indication is operative.
-41-3	Fuel quantity totalizer indication	C	1	0	* (O)	May be inoperative provided: - tank contents are determined by magnetic fuel level indicators prior to dispatch, <u>and</u> - the fuel used/aircraft weight indication is operative.
	1) Pointer	D	1	0	*	
	2) Numeric display	D	1	0	*	
-42-1	Magnetic fuel level indicator	D	2	0		May be inoperative provided the fuel quantity indication system is operative.

HYDRAULIC POWER

ATA 29

SEQ NO	ITEM	CATEGORY				
				NUMBER INSTALLED		
				NUMBER REQUIRED FOR DISPATCH		
				REMARKS AND/OR EXCEPTIONS		
-11-1	Engine-driven hydraulic pump	C	2	2		Must be operative, however, depressurisation function may be unserviceable for one pump provided affected pump and all hydraulic system indications are normal.
-11-2	System accumulator (incl. indicator on hydraulic ground service panel)	D	1	0	*	May be unserviceable provided all other indications of the hydraulic system are normal.
-11-3	Electric pump	D	1	0	*	
-11-4	Electric pump ON light	D	1	0	*	
-31-1	Fluid quantity indicating system	C	1	0		* (M) May be inoperative provided the quantity of the reservoir is checked prior to departure on the ground service panel quantity indicator or on reservoir sight glass.
-31-2	LO QTY light	C	1	0	*	May be inoperative provided quantity indication system functions normally.
-32-1	Hydraulic reservoir pressurisation	C	1	0		* (O) May be inoperative provided other hydraulic system functions are normal.
-32-2	TANK PR light	C	1	0		* (O) May be inoperative provided other hydraulic system functions are normal.

ATA 29**HYDRAULIC POWER**

-33-1	System pressure indicator	C	1	0	*
-34-1	Engine pump FAULT light	C	2	1	* (O) May be unserviceable provided the output of the related pump is checked after start of both engines, and all other system indications are normal.
-35-1	Reservoir OVHT light	C	1	0	* May be inoperative provided all other hydraulic system indications are normal.

ICE AND RAIN PROTECTION

ATA 30

SEQ NO ITEM		CATEGORY				
		NUMBER INSTALLED				
		NUMBER REQUIRED FOR DISPATCH				
		REMARKS AND/OR EXCEPTIONS				
-11-1	Airframe de-icing system	B	1	0	*	May be inoperative provided the aircraft is not operated into known or forecast icing conditions.
	Inner wing de-icing boots	C	2	0	(O)	One or both de-icing boots of the inner wing may be inoperative provided prolonged flight in light icing conditions and flight in icing conditions other than light is avoided.
-11-2	Airframe de-icing automatic mode	C	1	0	*	May be inoperative provided satisfactory operation of the manual de-icing mode is visually verified if the flight is conducted into known or forecast icing conditions.
-11-3	TIMER FAULT light	C	1	0	*	May be inoperative provided satisfactory operation of the automatic de-icing mode is visually verified if the flight is conducted into known or forecast icing conditions.
-11-4	Airframe de-icing manual mode	C	1	0	*	May be inoperative provided satisfactory operation of the automatic de-icing mode is visually verified if the flight is conducted into known or forecast icing conditions.
-11-5	Tail de-icing distributor valve heater muffs	D	2	0	*(M)	May be inoperative provided: Heater(s) are electrically disconnected.

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ICE AND RAIN PROTECTION

-13-1	LOW PRESS light	C	1	0	*(O) May be inoperative or may be continuously ON after activation of the system provided: - satisfactory operation of the automatic and manual de-icing mode is visually verified if the flight is conducted into known or forecast icing conditions, and - procedure for landing with a failed airframe de-icing system is applied in accordance with the AFM.
-21-1	Engine anti-icing (including propeller anti-icing)	B	2	1	* (O) Dispatch with <u>one</u> engine anti-icing FAULT light illuminated is allowed provided the aircraft is not operated into known or forecast icing conditions.
-21-2	Engine anti-icing FAULT light	C	2	0	*
-21-3	Propeller blade de-icing boot	A	12	10	*(O)(M) One propeller blade de-icing boot may be inoperative for each propeller for a maximum of 100 FH.
-31-1	Pitot heating a) pneumatic air data instruments	B	4	1	* Day VMC: Both upper and one lower pitot heater may be inoperative provided the aircraft is not operated into known or forecast icing conditions.
		B	4	2	* (M) IMC: One or both upper pitot heaters may be inoperative provided the affected static ports are capped. NOTE: Inoperative LH upper pitot heater will, in icing conditions, affect the ADC (see item 34-12-1)

ICE AND RAIN PROTECTION

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	b) ADC-driven air data instruments	B	4	2	*	Day VMC: RH upper and one lower pitot heater may be inoperative provided the aircraft is not operated into known or forecast icing conditions.
		B	4	2	*(M)	IMC: One or both upper pitot heaters may be inoperative provided the affected static ports are capped. NOTE: Inoperative LH up-per pitot heater will, in icing conditions, affect the standby ASI (see item 34-13-5).
-31-2	Pitot INOP light	C	4	3	*(M)	May be inoperative provided the corresponding pitot head heating function is checked prior to each flight.
-32-1	Vane heating	B	1	0	*	May be inoperative provided the aircraft is not operated into known or forecast icing conditions. Day VMC only. NOTE: The FAULT light comes on when the heating of the affected side is switched on.
-32-2	Vane FAULT light	B	1	0	*(M)	May be inoperative provided the heating function is checked prior to each flight into known or forecast icing conditions.
-41-1	Window heating	C	2	1	*	May be inoperative provided: - the aircraft is not operated into known or forecast icing conditions, and - IAS is limited to 180 kt when operating below 10 000 ft and the TAT is below +18°C.

ATA 30**ICE AND RAIN PROTECTION**

-42-1	Wipers	C	2	0	*	May be inoperative provided no precipitation is anticipated within terminal areas. Note: Check minimum required equipment for Cat II approach and LVTOS's.
42-2	Wipers Park Position	C	1	0	*	May be inoperative provided wiper selector is placed in the OFF position.
-43-1	Front window and direct vision window demisting	B	2	0	*	

INDICATING AND RECORDING

ATA 31

SEQ NO	ITEM	CATEGORY				
						NUMBER INSTALLED
						NUMBER REQUIRED FOR DISPATCH
						REMARKS AND/OR EXCEPTIONS
-13-1	Maintenance test panel indications	A	-	-		Any indicator may be physically broken. Repair or replacement may be deferred to the next scheduled maintenance check.
	1) Orange marked	A	-	-		Any indicator may be set. The aircraft may continue the flight or series of flights of that day.
	2) Non-marked indicators (yellow or white)	A	-	-		Any indicator may be set provided the related flight deck indication is not activated. Repair or replacement may be deferred to the next scheduled maintenance check.
	3) Status indicators white	D	-	-		
-21-1	Digital clock	C	-	1	*	Captain's clock failure may affect FDR (see item -31-1).
-21-2	Elapsed time clock	D	-	0	*	

ATA 31

INDICATING AND RECORDING

-31-1	Flight data recording				
1)	Flight Data Recorder (FDR)	A	1	0	May be INOP provided: a) It is not reasonably practicable to repair or replace the unit before the commencement of the flight. b) The aeroplane does not exceed 8 consecutive flights with the unit unserviceable. c) Not more than 72 hours have elapsed since the unit was found to be unserviceable and d) The Cockpit Voice Recorder is operative.
2)	Flight Data Acquisition Unit (FDAU)	A	1	0	See requirements of 31-31-1-1 above.
3)	Accelerometer	A	1	0	See requirements of 31-31-1-1 above.
4)	FLT REC FAULT light	B	1	0	(M) May be inoperative provided the flight data recorder test on the MTP has been performed and passed at the first flight of the day
-34-2	Quick Access Data recorder (YL-BAS, BAT)	D	1	0	
-51-1	Integrated Alerting system	C	1	1	One channel may be inoperative provided the automatic backup switching is operative and the ALERT SYS TEST is performed before dispatch. NOTE: Do not pull circuitbreaker of failed IAU channel.

INDICATING AND RECORDING

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-51-2	ALERT SYS CHAN FAIL light	C	1	0	May be inoperative provided one IAU channel and the automatic backup switching are both operative and the ALERT SYS TEST is performed before dispatch, <u>or</u>
		C	1	0	(M) May be inoperative provided both IAU channels are operative
-51-3	CAP (Central Annunciator Panel)	C	1	1	* One lamp in each annunciator may be inoperative. NOTE: For white door lights refer to item 52-70-2
-51-4	INHIBIT function	B	1	0	(O) May be inoperative provided INHIBIT /CANCEL is selected and indicated.
-51-5	INHIBIT/CANCEL Function	C	1	0	* (O)
-51-6	INHIBIT/CANCEL Light	C	1	0	* The CANCEL light may be inoperative.
		C	1	0	(O) The INHIBIT light may be inoperative provided INHIBIT/CANCEL is selected and indicated.
-51-7	Automatic backup Switching	B	1	0	(O) May be inoperative provided the CAP FAULT light and the manual backup function are both operative
-51-8	Manual backup Function	C	1	0	*
-51-9	FAULT/BACKUP Light	C	1	0	* May be inoperative provided the automatic backup switching and both IAU channels are operative.
-51-10	Master WARNING Lights	C	2	1	* One may be inoperative provided the master warning aural alert is checked to be operative.
-51-11	Master warning Resets	C	2	1	*

ATA 31**INDICATING AND RECORDING**

-51-12	Master CAUTION Lights	C	2	1	*	One may be inoperative provided the master caution aural alert is checked to be operative.
-51-13	Master caution resets	C	2	1	*	

ATA 32

LANDING GEAR

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-31-1	Landing gear selector handle downlock solenoid	C	1	0	* May be inoperative in the locked position provided the override mechanism is operating normally.
-31-2	Nose gear door isolating valve	D	1	0	(M) May be inoperative provided valve is in the de-activated position.
-33-1	Alternate landing gear selector handle anti-reset solenoid	C	1	0	May be inoperative provided the alternate landing gear handle is the normal position Note: Landing gear selector handle downlock solenoid (32-31-1) may be affected
-42-1	Nose-wheel braking pads	D	2	0	(M) May be inoperative provided inoperative condition does not affect normal nose gear functioning.
-45-1	Anti-skid system	C	1	0	* (M) May be inoperative provided: - There is no GR/FL circuit failure, and (O) - Operations are conducted in accordance with the AFM procedure. (MAX speed for braking is 40 kts).
-45-2	A-SKID light on flight compartment test panel	C	1	0	*(M) May be INOP provided the skid control system is checked to be operative.
-46-1	Normal brake pressure indicating system	C	1	0	* (O) May be inoperative provided hydraulic system pressure indicator is operating normally.
-46-2	Alternate brake pressure indicating system	C	1	0	* May be inoperative provided hydraulic system pressure indicator is operating normally.

LANDING GEAR

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-61-1	Nose gear position indication (green) lights	B	2	1	*
-61-2	Main gear position indicator green light	C	2	0	* Both main gear downlock lights may be inoperative provided lock strut alignment (red lines) are sufficiently visible for an observer in the cabin.
		B	2	0	or (O) Both main gear downlock lights may be inoperative provided - Master CAUTION/ WARNING light, and - LG CAP light, and - Blue transit light function normally.
-61-3	Gear transit light (blue)	C	1	0	*
-61-4	Main Landing gear unlock light (amber)	A	2	1	One of the (amber) unlock lights may be continuous ON after up selection of the gear provided: a) the blue transit light is out , and b) no level 2 alert The a/c may continue the flight or series of flights of that day.

ATA 33

LIGHTS

SEQ NO	ITEM	CATEGORY				
				NUMBER INSTALLED		
				NUMBER REQUIRED FOR DISPATCH		
				REMARKS AND/OR EXCEPTIONS		
-10-1	Flight deck and instrument lighting	C	1	-		Lights sufficient to clearly illuminate all instruments and controls must be provided.
-10-2	Storm lights incl ON light	C	1	0	*	
-15-1	Annunciator & warning light BRT/DIM control	B	1	0	*	
-20-1	Passenger compartment lighting	D	1	-		Lighting must be sufficient for cabin attendants to perform their duties.
-24-1	Passenger NO SMOKING/ FASTEN SEAT BELT signs	C	1	0	*	System may be inoperative provided the passenger address is operative and is used to alert passengers and cabin attendants when seat belts should be fastened and smoking is prohibited.
		C	1	1		One or more signs may be inoperative provided that seats from which a readily legible NO SMOKING/ FASTEN SEAT BELT sign cannot be seen are blocked.
-31-1	Cargo compartment lighting	D	-	0		

LIGHTS

ATA 33

-32-1	Maintenance area and service panel lighting	D	-	0	
-41-1	Navigation lights	C	3	0	* May be inoperative for day light operation.
-42-1	Anti-collision lights				
a)	Aircraft equipped with two (2) white strobe lights (on both wingtips) YL-BAR (BAU, BAZ, BAW)	C	3	1	* Both top and bottom fuselage anti-collision lights may be inoperative provided both strobe lights are operative.
b)	Aircraft equipped with three (3) white strobe lights (on tail and both wing-tips) YL-BAO, -BAS, -BAT, -BAV, SE-LJI	C	2	0	* Both anti-collision lights may be inoperative provided all strobe lights are operative.
-42-2	Anti-collision lights OFF light	C	1	0	*
-43-1	Wing inspection Lights	C	2	0	* A portable lamp shall be available for night operation in icing conditions.
-43-2	Wing inspection Lights ON light	D	1	0	*
-44-1	Landing lights	C	2	0	* Both may be inoperative for day operation.
		B	2	1	For night operations one may be inoperative provided taxi light is operative.
-45-1	Taxi light	C	1	0	*

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LIGHTS

-46-1	Logo lights	D	2	0	
-47-1	Strobe lights:				
	YL-BAR, BAU, BAZ, BAW	C	2	0	* For daylight operation both wing strobe lights may be inoperative provided the anti-collision lights are operative.
	YL-BAO, BAS, BAT, BAV, SE-LJI	C	3	1	
	YL-BAR, BAU, BAZ, BAW	C	2	1	* For night operation one-wing strobe lights may be inoperative provided the anti-collision lights are operative.
	YL-BAO, BAS, BAT, BAV, SE-LJI	C	3	2	
-51-1	Standby lighting	C	1	0	*
-52-1	Emergency lighting system (interior)	B	1	1	* Two lamps and two EXIT signs may be inoperative provided the floor proximity escape path marking in the affected area is operative.
-52-2	Floor proximity escape path marking system	C	1	1	* A maximum of two elements (lamps or EXIT signs) may be inoperative.
-52-3	Emergency lighting system (exterior)	C	1	0	* May be inoperative for daylight operations.
-52-4	Emergency lights NOT ARMED light	C	1	0	*

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NAVIGATION

ATA 34

SEQ NO		ITEM	CATEGORY			REMARKS AND/OR EXCEPTIONS
				NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH	
-11-1	Pitot-static heads (ADC driven primary instruments)	B	4	2	* (M)	One or both upper pitot-static heads may be inoperative provided each affected head is capped. Loss of LH upper pitot-static head will affect standby ASI (refer to item 34-13-5).
		B	4	3	* (M)	For day-VMC, one lower pitot-static head may be inoperative provided the affected head is capped. Loss of LH lower pitot-static head will affect the captain's primary ASI (refer to item 34-13-5) and the cabin differential pressure indication (refer to item 21-33-3). Loss of RH lower pitot-static head will affect the first officer's primary ASI (refer to item 34-13-5). For pitot-static heating refer to item 30-31-1.
-12-1	Air Data Computer (ADC-driven primary instruments)	B	2	1	*	If Left Pilot's ADC is inoperative day VMC flights may be conducted, provided standby ASI and standby altimeter are operative. The following systems are affected: GPWS (refer to item 34-43-1) FDR (refer to item 31-31-1) ATC 1 (refer to item 34-54-1) WX (refer to item 34-41-1) FMS (refer to item 34-62-1)

ATA 34

NAVIGATION

					FD modes ALT, VS and IAS are not available (refer to item 34-25-2) Captain's instruments (ALT, VS and IAS) are affected (refer to items 34-13-1,-2,-3). The take-off inhibit function is affected (refer to item 31-51-4).
-12-2	Overspeed warning	B	1	0	* May be inoperative provided indicated airspeed will not exceed a value of 10 knots below the max allowable airspeed pointer.
-13-1	Altimeters (primary) ADC-driven altimeter	B	2	1	Captain's altimeter may be inoperative for day VMC provided: - standby altimeter is operative, and - RH FD is selected, and - aircraft is flown from the FD in command side (RH).
-13-2	Vertical speed Indicators	B	2	1	Either may be INOP for day VMC
-13-3	Airspeed indicators (ASI) ADC driven ASI	B	2	1	Captain's ASI may be inoperative for day VMC provided the standby ASI is operative.
-13-4	Standby altimeter	B	1	0	*
-13-5	Standby airspeed Indicator	B	1	0	*
-14-1	TAT indication	C	1	0	* The TAT indication may be inoperative provided the engine anti-icing system and the ignition are operative and switched on in visible moisture

NAVIGATION

ATA 34

-15-1	Altitude alerting	B	1	0	May be INOP, provided an AP with ALT HOLD is operative.
-21-1	Attitude and Heading Reference Systems (AHRS)	B	2	1 (O)	One may be inoperative for day VMC provided that the standby horizon, standby compass and SG ALTN switching are operative. AHRS failures will affect: AP (refer to item 22-11-1), FD (refer to item 34-25-1), EFIS (refer to item 34-26-1), VOR (refer to item 34-51-1), RMI (refer to item 34-51-2). Failure of Captain's AHRS will also affect FDR (refer to item 31-31-1) and WX (refer to item 34-41-1).
-22-1	Standby horizon	B	1	0 *	May be inoperative for day VMC provided that both pilot positions have attitude information on EFIS from independent sources.
-22-2	Standby horizon power pack	C	1	0	May be inoperative for day-VMC.
-24-1	Standby compass	C	1	0 *	May be inoperative provided that both pilot positions have attitude information on EFIS from independent sources.
-25-1	Flight directors	C	2	0	CAT II ops. are not permitted.
-25-2	Flight mode panel selections	B	-	-	For altitude alerting function refer to item 34-15-1. For AP selections refer to items 22-11-1, 22-11-5, 22-11-6. FD mode selections are still available when the applicable Flight Mode Annunciation (FMA) is displayed on EFIS. Light in selected button may not be illuminated. Modes that are available may be used, refer also to item 34-25-1. CAT II ops. are not permitted

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NAVIGATION

-26-1	EFIS display units a) system with DU-XFR	B	4	3	One may be inoperative provided: - the associated PFD/ND transfer mode (DU XFR) is functioning, and - pilot flying has both DU's operative.
	b) system with composite mode	B	4	3	One may be inoperative provided: - the automatic transfer function to Composite Mode is operative, and - pilot flying has both DU's operative, and - pilot on affected side may not use AP and FD CAT II ops. are not permitted for both (a) and (b).
-26-2	Display indications: Individual indications on PFD's: 1) attitude indications (incl. SKY/GROUND)	B	2	1	One may be inoperative for day VMC provided the standby horizon is operative.
	2) FD command displays	B	2	0	At least one is required for CAT II operations.
	3) radio altitude				
	without analog radio altimeter indicators	B	2	0	Both are required for Cat II operations.
	4) DH displays	B	2	0	At least one is required for CAT II operations.
	5) AFCS mode AFCS mode annunciators	B	2	0	Both are required for CAT II operations.

NAVIGATION

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6) air data command displays	C	2	0	*
7) MB annunciators	C	2	0	*
8) ILS deviation	B	4	2	When approach utilizing ILS are planned (one on each side), otherwise zero. All are required for CAT II operations.
9) excess deviation cautions	C	2	0	Both must be operative for CAT II operations.
Individual indications on ND's:				
1) heading	B	2	0	Both may be inoperative for flight in day VMC provided that one RMI and the standby compass are operative.
	C	2	1	For IMC, one may be inoperative provided that both RMI's and the standby compass are operative.
2) compass SYNC annunciations	C	-	0	
3) CRS pointers and readouts	B	2	-	Both must be operative for CAT II operations. Refer to flight mode panel 34-25-2.
4) BRG pointer and source	C	4	0	
5) distance indications	C	2	0	
6) Time-To-Go readout	D	-	0	
7) GND speed read-outs	D	2	0	

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NAVIGATION

	8) WX radar displays	B	2	0	Ref to item 34-41-1
		C	2	1	
	9) ILS deviation	B	4	-	When approach utilizing ILS are planned, otherwise zero. Both must be operative for CAT II operations.
	10) excess deviation	C	2	0	Both must be operative for CAT II operations.
-26-3	PFD/ND transfer mode (DU XFR)	C	2	0	*
-26-4	EFIS symbol Generator function	B	2	1	One may be inoperative for day VMC provided the following items are operative: - standby horizon; - standby compass; - one RMI; - SG ALTN switching.
-26-5	Symbol generator SG ALTN switching	C	2	0	Both may be inoperative for day VMC provided two symbol generators are operative and selected.
		C	2	0	<u>or</u> Both may be inoperative for IMC provided: - two symbol generators are operative and selected, <u>and</u> - standby horizon is operative, <u>and</u> - one RMI and the standby compass are operative.
-26-6	EFIS control panel SPZ600	C	2	1	(O)
-26-8	SG FAULT lights	C	2	0	

NAVIGATION

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-26-9	Individual EFIS control panel selections					
	a) PFD/ND brightness controls	C	4	0		May be inoperative. If the failure causes unusable display, turn off the affected DU (refer to item 34-26-1).
	b) Weather radar brightness controls	C	2	-		May be inoperative. If the failure causes unusable display (refer to item 34-26-1).
-31-1	Marker beacon	B	1	0	*	One or more may be inoperative for IFR operations provided approach procedures do not require marker fixes.
-31-2	MB Hi/Lo switch	D	-	0	*	
-32-1	LOC/GS	B	2	0	*	Approaches to be planned without use of LOC/GS.
-41-1	Weather radar	C	1	0	*	One or more system(s) may be inoperative provided the weather reports of forecasts available to the commander indicate that cumulo-nimbus clouds or other potentially hazardous weather conditions, which could be detected by the system(s) when in working order, are unlikely to be encountered on the intended route or any planned diversion therefrom.
-42-1	Radio altimeter	B	1	0	*	May be inoperative provided that dispatch deviation for GPWS is observed. CAT II ops. are not permitted.

ATA 34

NAVIGATION

-43-	TAWS				
-43-1	Terrain Awareness Function	A	1	0	(M)(O)* May be inoperative provided: a) GPWS Basic function is operational (or operative) b) Repairs or replacements are carried out within 10calendar days. c) "GPWS FAIL" light is off.
-43-2	Basic GPWS Function	A	1	0	May be inoperative provided: a) ILS and FMS(GPS) are operative, and b) Repairs are made within 6 further flights or 25 flying hours or 2 calendar days, whichever occurs first.
	1) Test Mode	A	1	0	May be inoperative provided: a) The GPWS is considered INOP, and b) Repairs are made within 6 further flights or 25 flying hours or 2 calendar days, whichever occurs first.
	2)Glideslope Deviation Mode	B	1	0	May be inoperative.
	3) Advisory Callouts	C	1	0	May be inoperative provided additional briefing is carried out prior initiating approach.

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-46-1	Traffic Collision Avoidance system (TCAS) 1) TCAS system	A	1	0	* (M)	May be inoperative provided the system is deactivated and secured and it may not fly for more than 5 calendar days with the equipment completely inoperative.
	2) Combined TA and RA Dual Displays	C	2	1		May be inoperative on the PM side provided: a) TA and RA elements and audio functions are operative on flying pilot side, and b) TA and RA display indications are visible to the PM.
-51-1	VOR	C	2	1	*	Any in excess one may be inoperative provided: a) Both ADF (where required) and DME are operative, and b) The aeroplane is equipped with operative GPS or FMS equipment. NOTE: Operators should consider if the in-flight failure of any FMS sensor allows safe navigation with the remaining serviceable sensors and equipment.
-51-2	RMI's	C	2	0	*	Both may be inoperative for day VMC provided that both EFIS ND's are able to display heading information.
		C	2	1	*	One may be inoperative for IMC provided both EFIS ND's are able to display heading information plus ADF and VOR indications.

NAVIGATION

ATA 34

-51-3	RMI pointer selection	C	8	0	*	See item 34-51-2.
-52-1	DME	B	2	1	*	One may be inoperative provided the other DME is operative, and the total navigation and approach requirements are not based on use of DME.
-53-1	ADF	C	2	1	*	One may be inoperative provided the other ADF is operative, and the total navigation and approach requirements are not based on use of ADF.
-54-1	ATC transponder/ Auto altitude reporting system	B	2	1	*	One may be inoperative provided the other XPDR is operative.
-59-1	GPS, Stand alone (BAU, BAW, BAZ)	A	1	0	*(O)	May be inoperative provided:
					a)	The aeroplane can make one flight to proceed to a place where repairs can be accomplished,
					b)	Routing is planned via ground based navigational aids taking account of promulgated range, and
					c)	Permission has been granted from all ATC authorities along the route or any planned diversion.
	1) Navigation database	C	1	1		Dispatch with an outdated Navigation database is allowed provided flight crew verify each selected waypoint for accuracy by reference to other current approved data (VOR, DME, ADF). See Limitations OM B 1.9.
-59-2	CDI (YL-BAU, BAW, BAZ)	C	2	0	*	Both may be inoperative provided Receiver / Display Unit (RDU) is operative and no failure messages are observed.

-62-1	Navigation Management System (FMS) (YL-BAO, BAS; BAR; BAT, BAV, and SE-LJI)	B	1	0	(O) May be inoperative provided: (a) The aeroplane can make one flight to proceed to a place where repairs can be accomplished, (b) Routing is planned via ground based navigational aids taking account of promulgated range, and (c) Permission has been granted from all ATC authorities along the route or any planned diversion.
	1) Navigation database	C	1	1	Dispatch with an outdated Navigation database is allowed provided flight crew verify each selected waypoint for accuracy by reference to other current approved data (VOR, DME, ADF). See Limitations OM B 1.9.`
	2) FMS CDU (YL-BAO, BAV)	C	2	1	*If required brightness level can be adjusted to minimum level.

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ATA 35

OXYGEN

SEQ NO	ITEM	CATEGORY			
					NUMBER INSTALLED
					NUMBER REQUIRED FOR DISPATCH
					REMARKS AND/OR EXCEPTIONS
-10-1	Crew oxygen	D	3	2	Must be operative for captain and first officer. Oxygen system for observer seat may be inoperative provided seat is not occupied.
-30-1	Portable oxygen: YL-BAS, BAT, BAR	B	4	2	Two may be inoperative provided the operating are located in the aft of the cabin.
	YL-BAZ, BAW, BAU, BAO, BAV, SE-LJI	B	3	2	

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PNEUMATIC

ATA 36

SEQ NO	ITEM	CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-11-1	Bleed-air supply and control system	B	2	0	*(O)(M) May be inoperative provided: - both pressure regulating and shutoff valves are closed, <u>and</u> - the flight is conducted unpressurized <u>and</u> - in known or forecast icing conditions a minimum engine power setting of 10% torque is maintained on both engines. - the emergency ventilation is operating normally.
		C	2	1	* (O) May be inoperative provided: - the inoperative system is switched off, <u>and</u> - the pressure regulating and shutoff valve is closed, <u>and</u> - a minimum engine power setting of 20 per cent torque is maintained on both engines above 10 000 ft, <u>and</u> - in known or forecast icing conditions a minimum engine power setting of 10 % torque is maintained on both engines below 10 000 ft, <u>OR</u>

SEQ NO	ITEM	CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
		A	2	1	* (O) May be inoperative (the pressure regulating and shutoff valve is not closed) provided: - the inoperative system is switched off, <u>and</u> - a minimum engine power setting of 20 % torque is maintained on both engines above 10 000 ft, <u>and</u> - in known or forecast icing conditions a minimum engine power setting of 10 % torque is maintained on both engines below 10 000 ft. The aircraft may continue the flight or series of flights, but shall not depart an airport where repairs or replacement can be made
-11-2	High pressure bleed valve	B	2	0	(O)(M) One or both may be inoperative provided: - the inoperative valve(s) is (are) closed, <u>and</u> - a minimum engine power setting of 20% torque is maintained on both engines above 10 000 ft. - in known or forecast icing conditions a minimum engine power setting of 10 % torque is maintained on both engines below 10 000 ft, <u>OR</u>

SEQ NO	ITEM	CATEGORY			
				NUMBER INSTALLED	
				NUMBER REQUIRED FOR DISPATCH	
				REMARKS AND/OR EXCEPTIONS	
		B	2	1	(O)(M) One may be inoperative in open position provided: - bleed air ducting at inlet high pressure bleed valve is blocked with a blanking plate, and - a minimum engine power setting of 20% torque is maintained on both engines above 10 000 ft. - in known or forecast icing conditions a minimum engine power setting of 10 % torque is maintained on both engines below 10 000 ft.
-14-1	APU pressure regulating and shutoff valve (YL-BAO, BAV)	D	1	0	* May be inoperative provided: ▪ the pressure regulating and shutoff valve is in the closed position, and ▪ the APU bleed system is not used.
-14-2	APU BLEED AVAIL indication (YL-BAO, BAV)	D	1	0	* May be inoperative provided the APU GEN AVAIL indication illuminates for two minutes before APU BLEED is selected ON.
-14-3	APU BLEED ON indication (YL-BAO, BAV)	D	1	0	*
-20-1	Bleed FAULT light	C	2	0	*
-20-2	Bleed valve CLOSED light	C	2	0	*
-20-3	Economy ON light	D	1	0	*

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AUXILIARY POWER UNIT ATA 49

SEQ NO	ITEM	CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-00-1	Auxiliary Power Unit (APU) (YL-BAO, BAV)	D	1	0	* NOTE: The aircraft may be operated with the APU removed (refer to AMM).
-40-1	APU start selector (YL-BAO, BAV)	D	1	0	* May be inoperative provided the APU is not used.
-60-1	APU Monitor and Interface unit (YL-BAO, BAV)	D	1	0	* Any indication on this panel may be inoperative.
-70-1	APU FAULT light (YL-BAO, BAV)	C	1	0	*
-73-1	Hour meter/start counter	C	1	0	*

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DOORS

ATA 52

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-10-1	Passenger door actuator	C	1	0	* (M) May be inoperative provided the door can be raised manually using the cranking handle.
-70-1	Door warning light system (red and amber DOORS light on CAP)	A	1	0	* (O) May be inoperative provided it is determined by visual inspection that the doors are closed and locked. The aircraft may continue the flight or series of flights, but shall not depart an airport where replacements can be made.
-70-2	Door status indication lights (white door lights on CAP)	C	3	0	* May be inoperative provided before engine start the applicable door is visually checked to be closed.

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WINDOWS

ATA 56

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-10-1	Front windows	A	2	2	* The outer glass pane of both front windows may be cracked provided vision is not unacceptably impaired. If cracks extend into heated area window heating must be switched off. See 30-41-1 for inoperative heating restrictions. The aircraft may continue the flight or series of flights of that day.
	A.) outer glass pane				
	B.) inner glass panel				
	C.) delamination	D	2	2	* Delamination is acceptable for both windows provided vision is not unacceptably impaired.
-10-2	Sliding windows	A	2	2	* As item 56-10-1, except the limitations associated with window heating. (M) When vision is impaired as a result of damage of the demisting shield, the demisting shield may be removed.
		C			

WINDOWS**ATA 56**

-10-3	Direct vision windows	A	2	2	*	As item 56-10-2.
-20-1	Passenger compartment windows	D	-	-	* (O)	Outer panes may be cracked provided flights are conducted non-pressurized.
		D	-	-		Inner and outer panes may be crazed without limitations.
		D	-	-		Soundproofing panes may be cracked, scratched and/or crazed without limitations.

PROPELLER ATA 61

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-21-1	Low pitch indication	C	2	1	* (O) One may be inoperative provided propeller control system is functioning normally.
-22-1	Propeller electronic control	A	2	2	Must be operative NOTE: Despatch with a PEC CHANNEL FAULT indicator set on the MTP is allowed.
-22-2	Prop EC FAULT light	C	2	0	* Both may be inoperative provided the corresponding light(s) on the CAP is (are) operative.
-22-3	Speed phase synchronization	D	2	0	*
-23-1	Feathering pump	B	2	1	(O)(M) One feathering pump may be inoperative provided the auto-feather system is tested prior to each flight.
-23-2	Feather pump ON Indication	C	2	0	* (M) May be inoperative provided pump operation is checked prior to the first flight of the day.

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POWER PLANT

ATA 71

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-63-1	Oil cooler door actuating system	C	2	0	* (M) May be inoperative provided the door is secured in open position.

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ENGINE FUEL AND CONTROL

ATA 73

SEQ NO	ITEM	CATEGORY			
				NUMBER INSTALLED	
				NUMBER REQUIRED FOR DISPATCH	
				REMARKS AND/OR EXCEPTIONS	
-11-1	Fuel heater	C	2	1	* (O) May be inoperative in heating position provided both fuel pumps are operative and switched on.
		B	2	1	<u>or</u> * One may be inoperative in non-heating position provided flight is not conducted when OAT is below 5°C.
-22-1	Engine electronic control	B	2	1	* (O) Dispatch with one ENG EC DEGRADED light illuminated is allowed provided: - actual torque indication is operative, <u>and</u> - an autofeather test is performed prior to each flight, <u>and</u> - no overtorque was reported in the previous flight, <u>and</u> - flexible take-off is not performed <u>OR</u>
		B	2	1	* (O) Dispatch with one ENG EC in manual mode (MAN light illuminated) is allowed provided: - actual torque indication is operative, <u>and</u> - ambient temperature on the ground during departure and at destination is 1 deg C or above, <u>and</u> - other ENG EC is fully operative, <u>and</u> - no NH overspeed was reported on affected side in the previous flight.

ATA 73

ENGINE FUEL AND CONTROL

-22-2	ENG EC FAULT light	C	2	0	* May be inoperative provided corresponding light on CAP is operative.
-22-3	ENG EC DEGRADED indication	C	2	1	* One may be inoperative provided: - actual torque indication is operative, and - an autofeather test is performed prior to each flight, and - no overtorque was reported in the previous flight and - flexible take-off is not performed.
-22-4	Engine Rating Panel (Power Management Panel)	B	1	1	* (O) Dispatch with ERP (FAULT) light on CAP illuminated is allowed provided following checks are performed with satisfactory result: - verify green bar in ERP "TO" button is at least partially illuminated, and - propeller speed of both engines is below 65 % during ground operation. NOTE: NP will remain 100 % throughout the flight.
-22-5	ERP FLX TEMP indication and control	D	1	0	* May be inoperative provided flexible take off mode is not selected.
-31-1	Fuel flow indication	C	2	1	* One may be inoperative provided related NH, TRQ and ITT indications are operative. NOTE: Fuel used/weight indication may be affected (refer to item 73-31-2).
		A	2	0	* Both may be inoperative provided related NH, TRQ and ITT indications are operative. NOTE: The aircraft may continue the flight or series of flights of that day. NOTE: Fuel used/weight indication may be affected (refer to item 73-31-2).

ENGINE FUEL AND CONTROL

ATA 73

-31-2	Fuel used/aircraft weight indication	C	1	0	*	May be inoperative provided the fuel quantity indication is operative. NOTE: Reference speed based upon flaps 25 may be affected. Use tables in QRH to establish the required VREF based on calculated landing weight.
-32-1	FUEL TEMP LOW light	C	2	1	*	May be inoperative provided FUEL FILTER light is operative.
-32-2	FUEL TEMP HIGH light	C	2	0	*	May be inoperative provided both fuel pumps are operative and switched on.
-32-3	FUEL FILTER light	C	2	1	*	May be inoperative provided all other system components are operative and functioning normally.

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IGNITION ATA 74

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-00-1	Ignition	C	4	2	* (M) System 2 may be inoperative on one or both engine(s)
		C	4	2	* (O) System 1 or system 2 may be inoperative on one or both engine(s) provided automatic ignition and/or a dual continuous ignition system is installed.
-00-2	IGNITION ON Indication	C	2	0	*
-00-3	ENG IGN indication	C	2	0	*

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ENGINE INDICATING

ATA 77

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-11-1	NH indication	D	2	2	* On either NH indicator the numeric display may be inoperative.
-11-2	NL indication	C	2	1	* One NL indicator may be inoperative provided Engine EC, torque bug, and bleed system for both engines are operative.
-12-1	NP indication	C	2	2	* On either NP indicator the pointer <u>or</u> numeric display may be inoperative.
		A	2	1	* (O) May be inoperative provided: - both channels of the PROP EC on affected side are operative, <u>and</u> - Engine Rating panel is fully operational. NOTE: The aircraft may continue the flight or series of flights of that day.
-13-1	Torque indication	C	2	2	* On either TRQ indicator the pointer <u>or</u> numeric display may be inoperative.
-13-3	Torque bug	B	2	0	* (O) On one or both TRQ indicators the torque bug may be inoperative. NOTE: If ENG EC DEGRADED or ENG EC FAULT light(s) is (are) illuminated refer to MEL item 73-22-1 instead.
-21-1	ITT indication	C	2	2	* (O) On either ITT indicator the pointer <u>or</u> numeric display may be inoperative. The ITT overheat function must be operative.

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OIL

ATA 79

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-31-1	Oil pressure indication	C	2	1	* (O) May be inoperative provided the corresponding low oil pressure light on the CAP is operative.
-32-1	Low oil pressure indication	C	2	1	* May be inoperative provided oil pressure indication is operative and monitored throughout the flight.

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STARTING

ATA 80

SEQ NO ITEM		CATEGORY			
		NUMBER INSTALLED			
		NUMBER REQUIRED FOR DISPATCH			
		REMARKS AND/OR EXCEPTIONS			
-12-1	Start push button FAULT light	C	1	0	* (O)
-12-2	Start push button ON light	C	1	0	* (O)

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AIR CONDITIONING**ATA 21****-26-1 Avionics rack cooling**

If the ambient temperature on the ground exceeds 40°C:

Trip the CB of:

- Passenger address amplifier (panel 2)
- Symbol Generator 1 (panel 1)
- Symbol Generator 2 (panel 2)
- Flight Director 1 (panel 1)
- Flight Director 2 (panel 2)
- Autopilot control channel 1 (panel 1)
- AC PWR SAC channel 1 (panel 1)
- Autopilot control channel 2 (panel 2)
- AC PWR SAC channel 2 (panel 2)

Switch the NAV receiver at the VHF NAV control panel OFF.

Before engine start, reset the CB of the mentioned systems and switch the NAV receiver ON.

After parking, pull the CB of the mentioned systems and switch the NAV receiver OFF.

-26-2 AHRS cooling

If the ambient temperature on the ground exceeds 40 deg C:

Trip the CB of:

- AHRS unit 1 (panel 1)
- AHRS unit 2 (panel 2)

Before engine start, reset the CB of AHRS 1 and 2.

After parking, pull the CB of AHRS 1 and 2.

-30-1 Pressurization system

Check the maximum allowed altitude and time for non-pressurised flight.

Check the minimum en route altitude.

Check the fuel quantity required for a probably lower-than-scheduled flight altitude.

Limit the rate of descent to avoid passenger discomfort.

ATA 21 AIR CONDITIONING

-31-2 Manual pressurization control

Check maximum allowed altitude/ time for unpressurized flight.

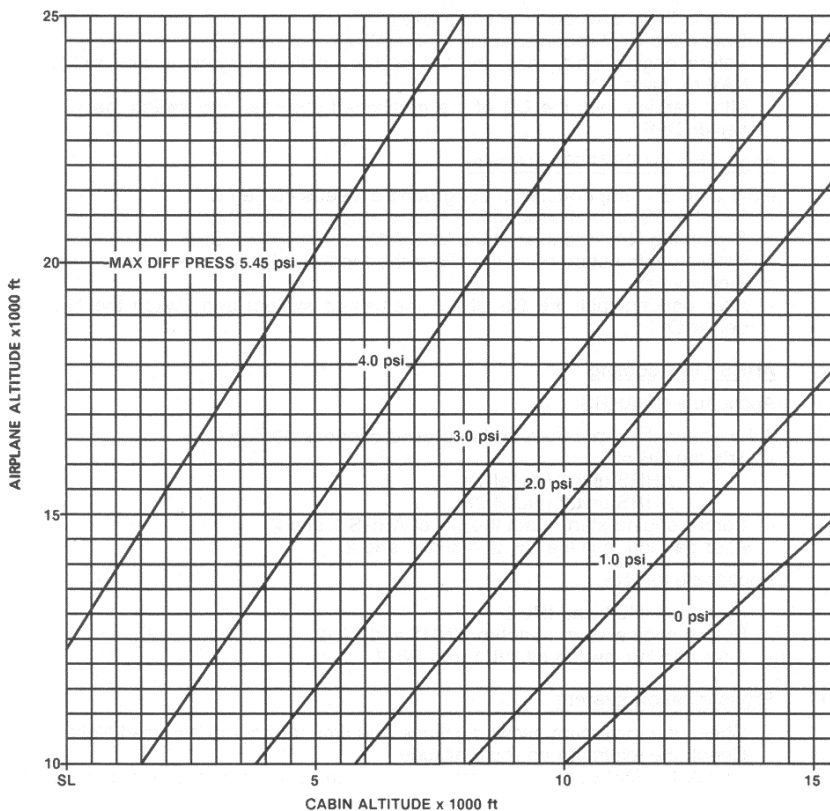
Check minimum en route altitude.

Check fuel quantity required for probably lower than scheduled flight altitude.

Limit rate of descent for passenger comfort.

-33-2 Cabin altitude indication

The cabin altitude can be found in the following graph using the indicated differential pressure and the aircraft pressure altitude.



AIR CONDITIONING**ATA 21****-33-3 Cabin differential pressure indication**

Can be found in the graph under –33-2 above.

33-4 Press control FAULT light

In case a CAUTION occurs in flight without a further system failure indication, suspect the pressurization control. Check the system operation and refer to the AFM Abnormal Procedures, "Pressure Control Fault" when required. Check the pressure during climb, cruise and descent.

-51-1 Air conditioning pack

If both packs are inoperative and the ambient temperature on the ground exceeds ISA + 10°C:

Trip the CB of:

- AHRS unit 1 (panel 1)
- AHRS unit 2 (panel 2)
- Before engine start, reset the CB of AHRS 1 and 2.
- After parking, pull the CB of AHRS 1 and 2.

Before flight:

- Check the maximum allowed altitude and time for a non-pressurised flight.
- Check the minimum en route altitude.
- Check the fuel quantity required for a probably lower-than-scheduled flight altitude.
- Refer to the AFM Abnormal Procedures, "Double Pack Fault".

PRESS CONTROL MAN

MANUAL CONTROL LEVER UP

MANUAL RATE CONTROL MAX. INCR

During flight:

- Limit the rate of descent to avoid passenger discomfort.
- Operate the fresh air scoops as required.

If one pack is inoperative, refer to the AFM Abnormal Procedures, "Pack Fault".

-60-1 Cabin and flight deck temperature control

In case of an automatic temperature control failure, operate the relevant system in the manual mode.

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COMMUNICATIONS**ATA 23****-31-1 Passenger address****Normal procedures:**

- Inform the Cabin Attendant that the Passenger Address system is unserviceable.
- Instruct the Cabin Attendant to inform passengers orally.
- Instruct the Cabin Attendant on the emergency procedures following below.

Emergency procedures:

- Three (3) chimes on the C/A-call system shall be used to call the Cabin Attendant to the flight deck to be instructed on the emergency.
- Two (2) chimes on the C/A-call system shall be instruction to take the emergency stations and establish interphone with the flight deck.
- Flashing with cabin signs: "Brace for impact".

-41-1 Cabin interphone

Inform the Cabin Attendant to come to the flight deck or listen to PA announcement for communication.

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ELECTRICAL POWER**ATA 24****-22-1 AUTO AC XFEED**

The possible worst system failure is the loss of either generator 1 or 2. This condition needs the following considerations:

- It must be possible to continue the flight outside icing conditions, if required.
- Consider the possibility of extra fuel required for a flight outside icing conditions.
- Refer to the AFM Abnormal Procedures, "Engine Generator + Auto AC Xfeed Fault".

-32-1 DC XFEED

The possible worst system failure is the loss of either TRU 1 or 2. This results in the loss of either DC bus 1 or 2.

The loss of certain ice and rain protection needs the following considerations:

- It must be possible to continue the flight outside icing conditions if required.
- Consider the possibility of extra fuel required for a flight outside icing conditions.

In case of subsequent TRU 1 or 2 failure:

Failed TRU.....

..... OFF

Bus Equipment List..... CHECK

-33-1 Battery charger

If a battery charger is inoperative:

BATTERIES ON

TRU 1OFF

TRU 2OFF

- Select "BAT VOLT" on the Electrical Power Control Panel (EPCP).

Check: Both displays read 23 Volts or more.

- Select "BAT LOAD" on the EPCP.

Check: Within 5 minutes both batteries are discharging (indicated by a negative load current).

NOTE: If after 5 minutes one of the battery loads still reads 0 (zero) (no load), then that battery is not connected to the MAIN DC BUS or that battery is unserviceable. In both cases dispatch is not allowed.

-33-3 Battery charger FAULT light

After engine start or with electrical power connected:

- Select BAT LOAD on Electrical Power Control Panel
- Check that battery charger is charging (positive load current > 10 Amps).

FIRE PROTECTION ATA 26

-23-2 APU fire extinguisher AGENT light

APU fire extinguisher bottle weight check.

Location: RH wheel bay.

Do this check if the AGENT light will not come on or is on continuously:

- Trip and tag the circuit breaker for the applicable APU fire extinguisher bottle.
 - Gain access to the applicable bottle in the wheel bay.
 - Perform a continuity check of the bottle TCPS.
 - If there is no continuity:
 - Tape and stow the connector and close up.
 - Install a placard at the affected light.
 - If there is continuity:
 - Remove the fire extinguisher bottle for a weight check and re-install a serviceable bottle.
 - Tape and stow the connector.
 - Install a placard at the affected light.
- NOTE:** The weight is indicated on the unit.
- Perform a continuity check of the bottle squib after replacement of the bottle using the test points on the MTP.
 - Close the applicable circuit breaker.
 - Install a placard.

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FLIGHT CONTROLS**ATA 27****-14-1 Aileron trim position indication system**

- Operate the aileron trim from full up to full down and check visually that the aileron trim surface is functioning properly over the full range.

Before each take-off:

- Make sure (visually) that the aileron trim surface is in the neutral position.

NOTE: Battery power can be used.

-31-1 Elevator feel control system

- With the elevator feel control system fixed in the dispatch position, the centre of gravity must be **aft** of 30% MAC line, or

LIZFW: not less than **75**;

- If required, shift load from the forward to the rear cargo compartment or re-arrange passenger seating.

- Differences in elevator forces during flight are negligible.

- CAT II operations are not affected.

- During flare for landing, more elevator force is required, in particular when

engine power is reduced quickly to flight idle.

- During take-off, elevator forces are lighter than normal, in particular during small flap deflections.

-56-1 Wing flap position indication

- Before starting the engines, check the flap disagreement alerting system to be operative by selecting flap 5 without hydraulic pressure.

Check that the FLAP light on the CAP comes on. Reselect flaps 0.

- During flight, check the normal trim change following flap selection. In case of doubt, the actual flap position can be checked on the nacelle markings.

-71-1 Flight control lock system

- Prior to the flight check visually that the wind gust protection devices have been removed from the main flight control surfaces.

- Check free movement of the flight controls and power controls.

- Do not use the flight control lock system.

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FUEL SYSTEM

ATA 28

-22-1 Fuel Pump

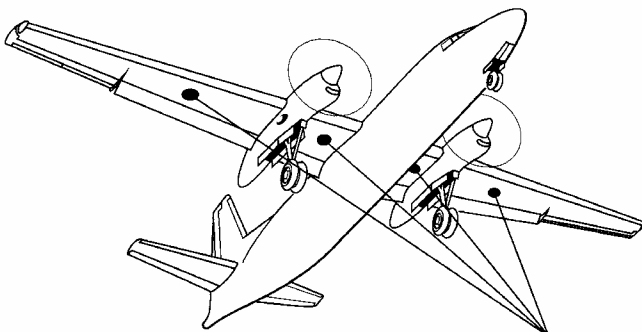
- Before engine start verify correct operation of the crossfeed system as follows:

XFEED ON

FLOW BAR IN LINE

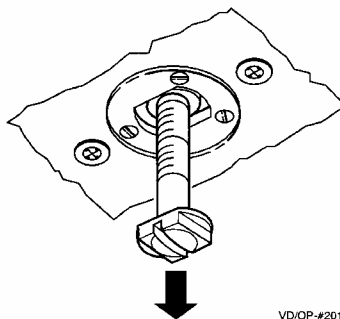
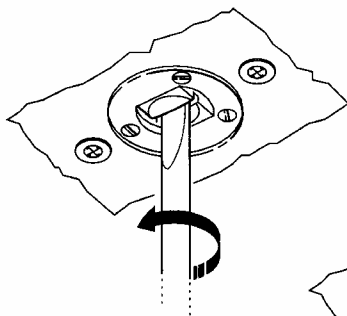
XFEED NORMAL

-41-1 Fuel quantity indication

**MAGNETIC FUEL-LEVEL INDICATORS**

Turn 90 degrees to unlock indicator.
Lower the indicator until built-in magnet is felt to float.
Read indicator calibration.

NOTE: The (two) indicators located below the inboard wings are installed only if the aircraft is equipped with inboard tanks.



VD/OP-#201/A

FUEL SYSTEM**ATA 28****41-1 Fuel quantity indication (cont'd)**

- Check the fuel quantity by reading the magnetic level indicators.
- Convert liters into kg or lb.

FUEL VOLUME VERSUS WEIGHT

(up to 5 pounds variation per 100 gallons due to fuel grade and temperature)

US Gal	lb	US Gal	lb	liter	lb	liter	lb	liter	kg	liter	kg
0.15	1	6.7	0.57	1	1.8	1.25	1	0.8			
0.3	2	13	1.1	2	3.6	2.5	2	1.6			
0.45	3	20	1.7	3	5.4	3.8	3	2.4			
0.6	4	27	2.3	4	7.2	5.0	4	3.2			
0.75	5	33	2.8	5	9.0	6.2	5	4.0			
0.9	6	40	3.4	6	11	7.5	6	4.8			
1.05	7	47	4	7	13	8.8	7	5.6			
1.2	8	53	4.5	8	14	10	8	6.4			
1.35	9	60	5.1	9	16	11	9	7.2			
1.5	10	67	5.7	10	18	12	10	8			
3	20	130	11	20	36	25	20	16			
4.5	30	200	17	30	54	38	30	24			
6	40	270	23	40	72	50	40	32			
7.5	50	330	28	50	90	62	50	40			
9	60	400	34	60	110	75	60	48			
10.5	70	470	40	70	130	88	70	56			
12	80	530	45	80	140	100	80	64			
13.5	90	600	51	90	160	110	90	72			
15	100	670	57	100	180	120	100	80			
30	200	1300	110	200	360	250	200	160			
45	300	2000	170	300	540	380	300	240			
60	400	2700	230	400	720	500	400	320			
75	500	3300	280	500	900	620	500	400			
90	600	4000	340	600	1100	750	600	480			
105	700	4700	400	700	1300	880	700	560			
120	800	5300	450	800	1400	1000	800	640			
135	900	6000	510	900	1600	1100	900	720			
150	1000	6700	570	1000	1800	1200	1000	800			

- Check that the quantity is in accordance with the pointer indication or the totalizer, or
- Note the fuel quantity and check the fuel-consumed indication on the FUEL FLOW / AIRCRAFT WEIGHT indicator to be operative (to be checked after engine start).

-41-3 Fuel quantity totalizer indication

Refer to "O" procedure, item 28-41-1, "Fuel quantity indication".

OPERATIONAL PROCEDURES ATA 29

-32-1 Hydraulic reservoir pressurisation

- At low ambient temperature condition or after a prolonged engine shutdown, check for normal system performance. After engine start, operate the flaps and check that the system pressure recovers to approx. 3000 psi.
- During climb, cruise, and descent when no hydraulic services are required, off-load the system.

-32-2 TANK PR light

- Upon illumination of the Master Caution Light without a further fault indication or in case of an abnormal hydraulic system indication, suspect tank pressure.
Refer to the Abnormal Procedures in the AFM .

-34-1 Eng. pump FAULT light

- After starting the engines, switch the non-affected pump OFF. Check that the hydraulic system pressure remains normal after three brake application.
Switch the pump on.

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ICE AND RAIN PROTECTION

ATA 30

-11-1 Airframe de-icing system (inner wing de-icing boots)

Light icing is defined as icing of which the rate of accumulation may create a problem if the flight is prolonged under those circumstances for a period of over one hour.

Asymmetrical ice build-up on the inner wing can occur as a result of propeller airflow. Aileron trim can be used for compensation until flight diversion is possible.

-13-1 LO PRESS light

If the “LOW PRESS” light is continuously ON after system is activated:

- A level 2 alert will be generated each time the system is activated;
- The MCL can be depressed to cancel the CAUTION light. The “LOW PRESS” light will remain ON.

-21-1 Engine anti-icing (including propeller anti-icing)

If unexpected icing conditions are encountered, select engine anti-icing of both engines to ON, because partial anti-icing of the affected engine may still be available.

-21-3 Propeller blade de-icing boot

General:

A de-icing boot failure will not be indicated. It may be noticed by propeller vibrations during flight in icing conditions, or become evident from a scorch mark during inspections on the ground. If available, application of ICEX to propeller de-icing boots is recommended.

- Select the engine anti-icing to ON in conditions requiring engine anti-ice.

- If ice on propeller causes excessive vibration:

ERP SELECT.....SELECT MCT

TORQUE.....ADJUST

Set torque according to tables ERP INOPERATIVE.

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INDICATING AND REPORTING**ATA 31****-51-4 INHIBIT function**

- When a warning light shows before V_1 reject the take-off.

-51-5 INHIBIT / CANCEL function

- After engine start and after take-off, check that the INHIBIT light extinguishes approx. 40 seconds after lift-off.
- In case of an inadvertent INHIBIT indication, select ALERT SYST BACKUP.

-51-6 INHIBIT/CANCEL light

- Refer to item 31-51-4.

-51-7 Automatic backup switching

- Operate the ALERT SYS TEST button to check the ALERT SYST FAULT light on the CAP.
- Operate the ALERT SYST push button on the CAP to check the backup mode.
- Switch the backup mode off.

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LANDING GEAR**ATA 32****-45-1 Anti-skid system**

- Refer to the AFM Chapter Performance to find increased distances for take-off and landing.

If required reduce the MTOW and/or the MLW and inform the dispatch department.

- Brake with caution to prevent tyre skid.

-46-1 Normal brake pressure indicating system

- Keep the chocks in place during engine start. Check the hydraulic system pressure.

Or

- Switch the ELEC PUMP ON and check the hydraulic system pressure.

If during flight the HYDR SYST amber light on the CAP comes on, follow the applicable Abnormal Procedures. When, after landing, the brakes are applied and there is no response, assume that the accumulator pressure is below 1600 psi.

-61-2 Main gear position indicator green light

- a) If EXPANDED NORMAL CHECKLIST is used: no action.

If ABRIDGED NORMAL CHECKLIST is used: before first flight of the day:

- ALERT SYS TEST with EXT PWR only.
- Depress TEST button.
- Check TEST light on.
- At single chime check CMPL (complete) light on.
- Depress TEST button to acknowledge.

When the TEST light remains on: No dispatch allowed.

- b) The Blue Transit light has to be confirmed operating normally:

- During the previous flight, or
- After maintenance action.

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NAVIGATION**ATA 34****-21-1 Attitude and Heading Reference Systems**

- AHRS 1 failure:
 - Press the left-hand SG push button on the AVIONICS panel to ALTN to feed SG 2 information to PFD 1 and ND 1.

NOTE: Compare the EFIS attitude frequently with the standby horizon attitude.

- EFIS 1 is a copy of EFIS 2.
- No NAV 1 and ADF 1.
- DME 1 is only on the DME indicator.
- No FD 1.
- No weather radar stabilization.
- No RMI 2.
- AHRS 2 failure:
 - Press the right-hand SG push button on the AVIONICS panel to ALTN to feed SG 1 information to PFD 2 and ND 2.

NOTE: Compare the EFIS attitude frequently with the standby horizon attitude.

- EFIS 2 is a copy of EFIS 1.
- No NAV 2 and ADF 2.
- DME 2 is only on the DME indicator.
- No FD 2.
- No RMI 1.
- No VLF.

-26-6**EFIS Control Panels****Dispatch with one EFIS Control Panel inoperative**

1. If the standard Sperry/Honeywell EFIS is installed, the following procedure is applicable:

Upon an EFIS control panel failure the EFIS defaults to:

- for LH EFIS CP failure:
 - FULL compass rose mode.
 - MAP and ARC mode not available.
 - WXR information not available.
 - bearing pointer 1 is VOR 1.
 - bearing pointer 2 is OFF.
 - ADF information not available.
 - Navigation source is NAV 1.
 - GSPD/TTG is last selected prior to failure.
 - FD CMD (ON or OFF) is last selected prior to failure.
 - Display brightness is set to full bright.
 - ADC slew not available.
 - EFIS test not available .
- for RH EFIS CP failure:
 - FULL compass rose mode.
 - MAP and ARC mode not available.
 - WXR information not available.
 - bearing pointer 1 is OFF.
 - bearing pointer 2 is VOR 2
 - ADF information not available.
 - Navigation source is NAV 2.
 - GSPD/TTG is last selected prior to failure.
 - FD CMD (ON or OFF) is last selected prior to failure.
 - Display brightness is set to full bright.
 - ADC slew not available.
 - EFIS test not available.

Since the DH selection could be operative, check DH selection by making different selections. If the EFIS display follows the selections, the DH selection is operative.

2. If the optional Bendix EFIS is installed (YL-BAR, BAU, BAW, BAZ), the following procedure is applicable:

Upon an EFIS control panel failure (indicated by 'CP' flag on EFIS display), switch OFF the applicable control panel. In this situation the other control panel controls both LH and RH EFIS displays. Consequently both LH and RH EFIS displays show the same information. The onside ADC slew and EFIS test functions are not available.

-43-1 TAWS Terrain Awareness Function

Terrain Awareness function failure:

- Perform operational GPWS test, check PASSED.
- Deactivate Terrain Awareness Function, by pushing amber "TERR" switch to "Terrain INHIB" position.

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PNEUMATIC & BLEED AIRATA 36

-11-1 Bleed-air supply and control system

If **both** bleed-air supply and control systems are inoperative:

- Both BLEED push buttons to OFF.
- Check the indications OFF and CLOSED after engine start.
- Check the maximum allowed altitude and time for non-pressurized flight.
- Check the minimum en route (MEA) altitude.
- Check the fuel quantity required for a probably lower than scheduled flight altitude.
- Limit the rate of descent for passenger comfort.
- Operate the fresh-air scoops as required.
- In known or forecast icing conditions maintain a minimum engine power setting of 10 per cent torque on both engines.
- See the AFM Abnormal Procedure, "Double Pack Fault".

If one bleed-air supply and control system is inoperative:

- BLEED push button of failed system to OFF.
- Maintain a minimum engine power setting of 20 per cent torque on both engines above 10 000 ft.
- In known or forecast icing conditions maintain a minimum engine power setting of 10 per cent torque on both engines below 10 000 ft.
- Check the indications OFF and CLOSED on the affected side after engine start.

-11-2 High pressure bleed valve

- Maintain a minimum engine power setting of 20 per cent torque on both engines above 10 000 ft.
- In known or forecast icing conditions maintain a minimum engine power setting of 10 per cent torque on both engines below 10 000 ft.

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DOORS**ATA 52****-70-1 Door warning light system**

- Inform the flight attendant(s) to check and report that the doors are closed and locked before taxiing out.

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WINDOWS

ATA 56

-20-1

Passenger compartment windows

- Before flight:
- Check the maximum allowed altitude and time for a non-pressurized flight.
 - Check the minimum en route altitude.
 - Check the fuel quantity required for a probably lower than scheduled flight altitude.
- PRESS CONTROL

MAN
- MANUAL CONTROL LEVER

UP
- MANUAL RATE CONTROL.....

MAX INCR
- During flight:
- Limit the rate of descent to avoid passenger discomfort.

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PROPELLERS**ATA 61****-21-1 Low pitch indication system**

START THE ENGINES.

ERP TO

POWER LEVERS..... BOTH GROUND IDLE

Verify on both engines rpm and TRQ indications are normal

(NP 62.5 %; TRQ approx. 4%)

POWER LEVERS..... BOTH FLIGHT IDLE

Verify on both engines rpm and TRQ indications are normal

(NP 65% ; TRQ approx. 16%)

ERP GA

Verify on both engines rpm and TRQ indications are normal

(NP 80%; TRQ approx. 23%)

Perform an autofeather test on affected engine.

-23-1 Feathering pump

In case of an inoperative feathering pump, the autofeather system has to be tested prior to each flight with the engines running, as follows:

START THE ENGINES.

POWER LEVERS..... GND IDLE

FUEL LEVERS OPEN

ERP TO

AUTOFEATHER TEST buttons DEPRESS

- A/F APR ARMED and STBY lights are on.

AUTOFEATHER TEST button of affected engine..... RELEASE

- A/F APR ARMED and STBY lights go out.

- ENG OUT alert of affected engine comes on.

- propeller of affected engine feathers; NP decreases to 14 to 18%.

- engine torque bug of other engine increases with 10%.

- NP of other engine increases to 80%.

AUTOFEATHER TEST button of other engine RELEASE

- engine torque bug of non-affected engine decreases with 10%.

- NP of the non-affected engine decreases to 62.5%.

- propeller of affected engine goes to ground idle pitch; NP increases to 62.5%.

- STBY light comes on.

- ENG OUT alert of affected engine goes out.

NOTE: 1. ON light of affected feathering pump does not illuminate during test.

2. An electrical transfer will occur on the affected side. Verify navigation (DME hold) and EFIS when test is completed.

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ENGINE & FUEL CONTROL**ATA 73****-11-1 Fuel heater**

If the fuel heater has failed in a heating position with the FUEL TEMP HIGH light on, check that both fuel pumps are ON.

NOTE: The FUEL TEMP HIGH light may be on during flight.

If the fuel heater has failed in the non-heating position with the FUEL TEMP LOW light on, schedule the flight to avoid an OAT below 5°C.

NOTE: If a FUEL TEMP LOW light comes on during flight, refer to the AFM, Chapter Abnormal Procedures.

**-22-1 Engine Electronic Control (ENG EC DEGRADED)
Dispatch with one ENG EC DEGRADED light
illuminated:**

NOTE:

1. Perform autofeather test prior to each flight.
2. Actual torque indication must be available.
3. Flexible take-off (FLEX mode) if installed, is not allowed.
4. Economy level selection (ECON mode) if installed, is not allowed.

- If EEC on affected side has defaulted to GA rating (NP on ground is 80%) apply Procedure 1.
- If torque bug on affected side is inoperative apply Procedure 2.
- If torque bug is available and EEC did not default to GA power, normal flight techniques and system procedures are applicable.

Procedure 1: (Affected ENG EC defaults to Go-Around rating)

As affected engine electronic control has defaulted to GA rating, take-off is made with GA selected on the ERP.

In flight the torque of the affected engine is matched with the torque of the ENG EC normal engine.

Rev.: 007

Before engine start:

- Placard above TRQ indicator.
- Determine and note take-off torque from QRH power setting tables.
(Table: Rating: Go Around / NP: 100 per cent / IAS: Approx. 60 kt)

To be prepared for loss of torque bug information for both engines in flight after

which torque bugs must be set manually, refer to the tables below.

Placard above TRQ indicator.

- Determine and note initial CLB torque and CLB torque in steps of 5000 ft up to planned cruise altitude from QRH power setting tables.
(Table: Rating: Climb / NP: 85 per cent / IAS: 160 kt.)
- Determine and note planned CRZ torque from QRH power setting tables.
(Table: Rating: Cruise / NP: 85 per cent.)
- Determine and note GA torque from QRH power setting tables.
(Table: Rating: Go Around / number of operating engines: 2 / IAS: Approx. 110 kt / NP 100% / Air conditioning: ON .)
- Determine and note MCT torque from QRH power setting tables.
(Table: Rating: Max Continuous / number of operating engines: 1 / IAS: Approx. 120 kt / Air conditioning: ON (not below 10 000 ft).)

Engine start:

Carry out normal engine start but leave fuel lever of ENG EC DEGRADED engine in start position during ground operation (propeller feathered).

- Fuel lever ENG EC DEGRADED engine START
- Taxi..... on ENG EC normal engine only

Take-off:

- Fuel lever ENG EC DEGRADED engine OPEN (unfeather)
- ERP.....GA
- NP of ENG EC DEGRADED engine Check matched with other engine
- Generator OFF light.....Check out

- FD modes GA, HDG, ASEL Check / Select
- Brakes RELEASE
- Power levers Advance to detent / Check torque
- Autofeather, APR light ARMED

Engine failure during take-off:

In case of ENG EC normal engine failure after V₁:

At acceleration altitude (min 400 ft) when reaching V_{CLEAN}:

- Carry out memory items.
- Select MCT.
- Adjust power lever of operating ENG EC DEGRADED engine to match the torque bug of ENG EC normal engine.

Climb:

Before selecting climb power, reduce torque of ENG EC DEGRADED engine by approx. 15 per cent.

- ERP CLB
 - Torque ENG EC DEGRADED engine Match with ENG EC normal climb.
- Monitor and re-adjust torque of ENG EC DEGRADED engine during climb.

CRZ/GA/MCT:

- ERP As required
- Torque ENG EC DEGRADED engine Match with ENG EC normal engine.

Monitor and re-adjust torque of ENG EC DEGRADED engine during cruise, descent and approach.

After landing:

- ERP TO
- Fuel lever ENG EC DEGRADED engine START or SHUT

Use ENG EC normal engine to taxi.

Rev.: 007

Procedure 2: (Torque bug on affected side is not available)

As the torque bug is not available on affected side, the torque bug of the other engine may be used to set the required torque.

Before engine start:

To be prepared for loss of torque bug information for both engines in flight after

which torque bugs must be set manually, refer to the tables below:

Placard above TRQ indicator.

- Determine and note TO torque from QRH power setting tables.
(Table: Rating: Take-off / IAS: Approx. 60 kt / Air conditioning: ON.)
- Determine and note initial CLB torque and CLB torque in steps of 5000 ft up to planned cruise altitude from QRH power setting tables.
(Table: Rating: Climb / NP: 85 per cent / IAS: 160 kt.)
- Determine and note planned CRZ torque from QRH power setting tables.
(Table: Rating: Cruise / NP: 85 per cent.)
- Determine and note GA torque from QRH power setting tables.
(Table: Rating Go Around / number of operating engines: 2/ IAS: Approx. 110kt / NP 100 per cent / Air conditioning: ON.)
- Determine and note MCT torque from QRH power setting tables.
(Table: Rating: Max Continuous / number of operating engines: 1 / IAS: Approx. 120 kt / Air conditioning: ON (not below 10 000 ft).)

TO/CLB/CRZ/GA/MCT:

The torque of the affected engine may be set using the torque bug of the other engine:

- Torque affected engine Match with working bug

Engine Electronic Control

Dispatch with one ENG EC in manual mode (MAN light illuminated)

Apply procedure below.

Procedure:

The torque bug of the affected EEC may be off.

The torque of the affected engine may in that case be set using the torque bug of the other engine.

In case of an "EEC normal" engine failure during TO, the automatic uptrim of the MFC engine (APR) is inoperative. To obtain maximum take-off performance the GA rating (MTO) should be used for take-off.

Once take-off power (GA) is set, the torque of the electronic controlled engine will

follow any change of the bug during take-off and climb.

The torque of the MFC engine may vary due to power lapse rate and/or bleed shutoff in case of engine failure.

The resulting difference in take-off power requires calculation of a possibly reduced performance limited take-off weight.

Before starting:

Calculate performance limited take-off weight as follows:

- Enter Individual or Quick Reference TL table with OAT (Maximum operating temperature is ISA + 26).
- Find climb or runway length limited take-off weight.
- Apply correction: subtract 1000 kg from performance limited take-off weight.
- Take-off and landing with TAILWIND prohibited.
- No correction for HEADWIND.

NOTE: When available refer to Individual TL table for EEC MAN instead.

- Determine take-off torque from power setting table in QRH.
(Table: Rating: Go Around / NP: 100% / IAS: Approx. 60 kt.)
(Placard above TRQ indicator)

In case torque bug of the affected ENG EC is inoperative:

To be prepared for loss of torque bug information for both engines in flight after

which torque bugs must be set manually, determine and note CLB, CRZ, GA and MCT torques prior to the flight.

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Placard above TRQ indicator.

- Determine and note initial CLB torque and CLB torque in steps of 5000 ft up to planned cruise altitude from QRH power setting tables.
(Table: Rating Climb / NP: 85 per cent / IAS: 160 kt.)
- Determine and note planned CRZ torque from QRH power setting tables.
(Table rating: Cruise / NP: 85 per cent.)
- Determine and note GA torque from QRH power setting tables.
(Table: Rating: Go Around / number of operating engines: 2/ IAS: Approx. 110kt / NP 100% /.)
- Determine and note MCT torque from QRH power setting tables.
(Table: rating: Max Continuous / number of operating engines: 1/IAS: Approx.120 kt).

Engine start:

Carry out normal engine start but leave fuel lever of MFC engine in START position during ground operation (propeller feathered).

- Fuel lever MFC engine START
TRQ, NP, NH and NL of MFC engine varies with ambient temperature and differs from EEC engine.
- Taxion electronically controlled engine only

Take-off:

Line up on runway centreline and hold on brakes to set take-off power.

- Fuel lever MFC engine OPEN (unfeather)
 - ERPGA
NP of MFC Engine Check approx matched with other engine
 - NP of MFC
engine Check approx. matched with other engine
 - Generator OFF LIGHT Check OUT
 - FD modes GA, HDG, ASEL Check / Select
 - Brakes Release
 - Torque SET, match torque with bug(s)
- Power lever position of MFC engine varies with ambient temperature and may be beyond the take-off detent position.
- Autofeather, APR A/F light ARMED

Engine failure during take-off:

In case of "EEC normal" engine failure after V1:

At acceleration altitude (min 400 ft) when reaching V_{CLEAN} :

- Carry out memory items;
- Select MCT;
- Adjust power lever of operating MFC engine to match the torque bug of EEC normal engine.

Climb:

Before selecting climb power, reduce torque of MFC engine by approx. 15 per cent.

- ERP CLB

- Torque MFC engine Match with electronically controlled engine

Monitor and re-adjust torque of MFC engine during climb, cruise descent and approach.

Go-Around:

Pilot not flying:

- Torque MFC engine Match with electronically controlled engine.

Taxi:

- ERP TO

- Fuel lever MFC engine START or SHUT

Use electronically controlled engine to modulate taxi power.

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-22-4 Engine Rating Panel**Before engine start:**

- Verify AC power available and switched on.
- Verify green bar in TO rating push button on ERP is at least partly illuminated.

Placard above TRQ indicator.

- Determine and note take-off torque from QRH power setting tables.
(Table: Rating: Go Around/NP: 100 per cent/IAS: approx. 60 kt.)
- Determine and note initial CLB torque and CLB torque in steps of 5000 feet up to planned cruise altitude from QRH power setting tables.
(Table: Climb/160 kt IAS/NP 100 per cent/ERP inoperative.)

After engine start:

- Verify NP of both engines is below 65 per cent with TO rating selected.

Taxi:

- ERP TO

When commencing take-off:

- ERP GA

Climb:

- Retard power levers to obtain required climb torque.
- TRQ indicators both MAN
- Torque bugs SET

NOTE: Autofeather ARM light may remain ON during part of climb (depends on power lever position).

Continue flight applying the AFM Abnormal Procedure for "Engine Rating Panel Fault".

NOTE: NP will remain 100 per cent throughout the flight.
Autofeather standby light will remain ON throughout the flight.

IGNITION**ATA 74****-00-1 Ignition**

In case ignition system 1 is inoperative, the following start procedure must be applied:

- Complete the BEFORE STARTING CHECK

IGNITION RELEVANT ENGINE(S) ON

- Start the engine(s)

IGNITION RELEVANT ENGINE(S)OFF

- Complete the AFTER STARTING CHECK.

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ENGINE INDICATING**ATA 77****12-1 NP indication**

- Check that the PEC CHANNEL FAULT latched indicators on the MTP are in the normal position (black).

13-3 Torque bug**When torque bug is inoperative on one side:**

TO/CLB/CRZ/GA/MCT:

The torque of the affected engine may be set using the torque bug of the other engine:

- Torque affected engine..... Match with working bug

- NOTE:**
1. Flexible take-off (FLEX mode), if installed, is not allowed.
 2. To be prepared for loss of torque bug information for both engines in flight after which torque bugs must be set manually, determine and note TO, CLB, CRZ, GA and MCT torques prior to the flight (refer to the tables below).

Placard above TRQ indicator.

- Determine and note TO torque from QRH power setting tables.
(Table: Rating: Take-off / IAS: Approx 60 kt / Air conditioning: ON.)
- Determine and note initial CLB torque and CLB torque in steps of 5000 ft up to planned cruise altitude from QRH power setting tables.
(Table: Rating Climb / NP: 85 per cent / IAS: 160 kt.)
- Determine and note planned CRZ torque from QRH power setting tables.
(Table: Rating: Cruise / NP: 85 per cent.)
- Determine and note GA torque from QRH power setting tables.
(Table: Rating: Go Around / number of operating engines: 2/ IAS: Approx. 110 kt / NP 100 per cent / Air conditioning: ON.)
- Determine and note MCT torque from QRH power setting tables.
(Table: Rating: Max Continuous / number of operating engines: 1 / IAS: Approx. 120 kt / Air conditioning: ON (not below 10 000 ft).)

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When torque bug is inoperative on both sides:

Before engine start:

- Determine and note TO torque from QRH power setting tables.
(Table: Rating: Take-off / IAS: Approx. 60 kt / Air conditioning: ON.)
- Determine and note initial CLB torque and CLB torque in steps of 5000 ft up to planned cruise altitude from QRH power setting tables.
(Table: Rating Climb / NP: 85 per cent / IAS: 160 kt.)
- Determine and note planned CRZ torque from QRH power setting tables.
(Table: Rating: Cruise / NP: 85 per cent.)
- Determine and note GA torque from QRH power setting tables.
(Table: Rating: Go Around / number of operating engines: 2 / IAS: Approx. 110 kt / NP 100 per cent / Air conditioning: ON.)
- Determine and note MCT torque from QRH power setting tables.
(Table: Rating: Max Continuous / number of operating engines: 1 / IAS: Approx. 120 kt / Air conditioning: ON (not below 10 000 ft).)

Prior to take-off:

TRQ BUGS BOTH MAN

NOTE: Flexible take-off (FLEX MODE), if installed, is not allowed.

TO/CLB/GA/MCT:

ERP AS REQUIRED

TRQ BUGS SET ACCORDING TO TABLES ABOVE

POWER LEVERS ADJUST

During climb:

TRQ BUGS RESET EVERY 5000 ft.

21-1 ITT indication

- The ITT indicator must switch a signal to the Intergrated Alerting System at 800 deg C.

This results in a "L (R) ENG ITT" light on the CAP.

Before each flight, this function must be tested as follows:

- EXT PWR ON or carry out the test after engine start.
- On Maintenance Test Panel operate PANEL PWR switch.
- Push ENGINE INSTRUMENT SELF TEST button.
- Check the "L ENG ITT" and the "R ENG ITT" lights on the CAP illuminate.

OIL

ATA 79

-31-1 Oil pressure indication

Prior to engine start:

- CAP back-up
- Verify both engines oil low pressure lights on CAP are illuminated
- CAP normal

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STARTING**ATA 80****-12-1 Start push button FAULT light**

Each time after the engines have been started with a known inoperative FAULT light:

- Open the Maintenance Test Panel;
- Check the START SYSTEM latched indicators (three per engine);
 - If the RELAY FAULT indicator shows: correct the problem before dispatch.
 - If the CLUTCH FAULT indicator shows: correct the problem before dispatch.
 - If the ISOLATE FAULT indicator shows: dispatch is permitted, report the fault finding to the maintenance department.
- Close the Maintenance Test Panel.

When during engine start no acceleration is observed:

START pbOFF

- Open the Maintenance Test Panel;
- Check START SYSTEM latched indicators (three per engine);
 - If the RELAY FAULT indicator shows: correct the problem before dispatch.
 - If the CLUTCH FAULT indicator shows: correct the problem before dispatch.
 - If the ISOLATE FAULT indicator shows: dispatch is permitted, report the fault finding to the maintenance department.
- Press RELAY/IND reset button;
- Start the engines;
- Check that the START SYSTEM latched indicators (three per engine) are blank;
- Close the Maintenance Test Panel.

-12-2 Start push button ON light

Before engine start:

START pbPRESS

DC XFEEDCHECK ON

Start the engines.

After engine start:

START pbPRESS

DC XFEEDCHECK OFF

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AIR CONDITIONING**ATA 21****-26-1 Avionics rack cooling**

Location: Forward cargo compartment.

- Remove the avionics rack panels.
- Stow the panels in the fwd cargo compartment.

-26-4 Cooling fan INOP light

Location: MTP, flight deck.

- Select the aircraft electrical DC and AC power ON.
- Select the MTP power switch ON.
- Observe that the magnetic indicators for the AVIONICS FAN and AHRS FAN show no fault (black).
- Check under the instrument panel that a cooling airflow is directed at the CRT's.
- Install a placard.

-30-1 Pressurization system

Vacuum relief valve de-activation procedure:

Location: Rear pressure bulkhead.

Access: 311 AB.

- Open the rear fuselage compartment door 311 AB.
- Remove the vacuum relief valve:
- Remove the coupling which attaches the vacuum relief valve to the bulkhead flange.
- Remove the ring and the vacuum relief valve from the bulkhead flange.
- Check that the opening is not obstructed.

NOTE: As an alternative, it is also allowed to secure the valve in the open position by suitable means.

- Install a placard.

-31-2 Manual pressurization control

The same as – 30-1 above.

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EQUIPMENT / FURNISHINGS**ATA 25****-20-2 Flight attendant seat**

Seat securing procedure.

Location: Cabin.

- Connect both lap belt straps to each other underneath the seat cushion.
- Connect the shoulder straps to the lap belt buckle with the seat cushion in the upright position.
- Install a placard on the passenger seat assigned to the flight attendant.

-20-5 Overhead stowage bin

Stowage bin securing procedure.

Location: Cabin.

- Apply a piece of suitable self-adhesive tape vertically over the latch with an overlap of at least four inches above and below the lid.

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FIRE PROTECTION**ATA 26****-13-2 Toilet smoke detection system**

Toilet de-activation procedure.

Location: Cabin

- Empty the toilet waste bin.
- Lock the toilet from the outside.
- Install a sign: INOPERATIVE - DO NOT USE or equivalent on the toilet door.

NOTE: The toilet may not be used for any purpose.

-23-1 Engine fire extinguisher AGENT LOW PRESS indication

Fire extinguisher bottle weight check.

Location: Front spar.

Access: Panel 291 CL or panel 291 DR

Do this check if the LOW PRESS light will not come on or is on continuously:

- Trip and tag the circuit breaker for the applicable fire extinguisher bottle
- Gain access to the applicable bottle on the wing front spar.
- Perform a continuity check of the bottle TCPS.
- If there is no continuity:
 - Tape and stow the connector and close up
 - Install a placard at the affected light.
- If there is continuity:
 - Remove the fire extinguisher bottle for a weight check and re-install a serviceable bottle.
 - Tape and stow the connector.
 - Install a placard at the affected light.

NOTE: The weight is indicated on the unit.

- Perform a continuity check of the bottle squib after replacement of the bottle using the test points on the MTP.
- Close the applicable circuit breaker.
- Install a placard.

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-24-2 Toilet fire extinguishing system

Toilet de-activation procedure.

Location: Cabin

- Empty the toilet waste bin.
- Lock the toilet from the outside.
- Install a sign: INOPERATIVE - DO NOT USE or equivalent on the toilet door.

NOTE: The toilet may not be used for any purpose.

FLIGHT CONTROLS**ATA 27****-31-1 Elevator feel control system**

Fault clear-up procedure of the elevator feel control system.

Location: General switching panel, MTP.

If an elevator feel control failure has occurred during the power-up of the system, first proceed as follows:

- Make sure electrical power is available.
- Flight control lock lever is set to ON.
- Check the AUTO EL FEEL CTL push button on the general switching panel is pushed in and the OFF light is not on.
- Switch MTP panel power to ON.
- Set the ELEVATOR FEEL CONTROL toggle switch on the MTP to TEST and release.
- Check TIP magnetic indicator shows white.
- Wait at least 40 seconds and check TIP magnetic indicator shows black.
- Switch MTP power OFF.

If the fault cannot be reset, the following has to be accomplished:

Elevator feel control system de-activation procedure.

Location: Rear fuselage; general switching panel.

Access: 311 AB.

- Select the AUTO EL FEEL CTL push button on the general switching panel to OFF and check that the OFF light illuminates.
- Pull and tag the applicable circuit breaker.
- Remove the actuator of the elevator feel control assembly in the rear fuselage.
- Ensure that the cable and connectors are suitably restrained (e.g. by Tiewraps), and that they cannot interfere with the mechanism.
- Rig the lever assembly in the dispatch position with a bolt.
- Install a placard.

-71-1 Flight Control Lock System

Mechanical interface check.

Location: Rear fuselage, centre wing and ailerons.

Access: 311 AB, 931 AC, 535 AB, 635 AB.

- Set the flight control lock lever in the flight deck in the UNLOCKED position (down).
- Make sure that the power levers can travel unobstructed over their complete range.
- Make sure that the flight controls are disengaged:

Rudder and elevator

- Open access panel 311 AB
- Visually check that the rudder and elevator flight control locks are fully retracted, i.e. fully disengaged from the respective tension regulators.
- Inspect the retraction mechanisms of the lock pins for irregularities.
- Close access panel.

Ailerons

- Open access panel 931 AC.
- Visually check that the aileron flight control lock is fully retracted, i.e. fully disengaged from the aileron cross wheel.
- Inspect the retraction mechanism of the lock pin for irregularities.
- Close access panel.

Aileron spring tabs

- Open access panel 535 AB and 635 AB.
- Visually check that the two rollers of the pulley and roller assembly in the spring tab balance levers are held vertically.
- Inspect the pulley and roller assembly for irregularities.
- Close access panel.

FUEL SYSTEM**ATA 28****-22-2 Fuel pump FAULT indication**

Fuel pump operation check.

Location: Collector tank; nacelle.

- Switch no. 1 fuel pump on the affected side on.
- Listen at the pump location if the pump is running.
- Switch no. 1 fuel pump OFF
- Switch no.2 fuel pump on the affected side on.
- Listen at the pump location if the pump is running.
- Switch no. 2 fuel pump OFF.
- Install a placard.

-22-3 System shutoff SHUT indication

System shutoff valve operation check.

Location: Flight deck; wheel bay.

- Open and tag the circuit breakers for the engine fire extinguishing system.
- Pull fire handle on the affected side, using override.

CAUTION: DO NOT TURN THE FIRE HANDLE

- Check at the applicable fire shutoff valve installation that the valve is closed.
- Reset the fire handle.
- Close the circuit breakers.
- Install a placard.

-22-4 System shutoff flowbar indication

System shutoff valve operation check.

Location: Flight deck

- Open and tag the circuit breakers for the engine fire extinguishing system.
- - Pull fire handle on the affected side, using override.

CAUTION: DO NOT TURN THE FIRE HANDLE

- - Check whether the system shutoff SHUT light on the fuel panel comes on.
- - Reset the fire handle
- - Close the circuit breakers.
- - Install a placard.

-23-1 Crossfeed valve

Fuel crossfeed valve de-activation procedure.

Location: Nacelle.

Access: 431 BB or 441 BB

- Open and tag the appropriate circuit breaker.
- Observe that the position indicator indicates the open position of the valve. If the valve is in another than the open position, open the valve manually.
- Remove the electrical connector from the valve.
- Install an appropriate test connector to the electrical connector. Tape and stow the wiring.
- Close the circuit breaker.
- Verify that the operative valve moves to the open (O) position if the X-FEED push button is depressed to ON and to the shut (S) position if X-FEED is switched off.
- Install a placard.

-23-3 Crossfeed flowbar indication

Fuel crossfeed valve operation check.

Location: Nacelle

Access: 431 BB or 441 BB.

- Observe that the position indicators on the crossfeed valves indicate the proper position as crossfeed is switched on and off.
- Install a placard.

HYDRAULIC POWER**ATA 29****-31-1 Fluid quantity indicating system**

Hydraulic oil level check.

Location: LH engine nacelle

Access: Panel 451 BB and/or 451 AT

- Check that the system is depressurized.
- Operate the check switch on the ground service panel (access 451 BB).
- Check the fluid quantity on the hydraulic fluid quantity indicator on the ground service panel. The indications must be between FULL and REFILL.
- Release the check switch.
- In case of doubt or if no indication is available, check the fluid level on the sight glass of the hydraulic reservoir (access 451 AT).
- Placard the affected quantity indicator.

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ICE & RAIN PROTECTION**ATA 30****-11-5 Tail de-icing distributor valve heater muffs**

Location: Rear fuselage

Access: 391 AL, 392 AR

- Trip the appropriate circuit breaker;
- Interrupt the wiring at the splices between the heater(s) and the thermo switch and between the heater(s) and the ground stud.
- End cap the power supply wire coming from the thermo switch.
- Reset a placard in flight deck.
Install a placard in the flight deck.

-21-3 Propeller blade de-icing boot

Inspection/deactivation of propeller blade de-icing boot.

Location: Propeller

- Check if the primary blade structure is damaged at the position of the scorch mark.
- Small nicks in the blade surface can remain untreated until a convenient opportunity occurs for an Araldite fill.

When the surface damage is 1,0 cm² (0,155 in²) in size or greater, it is recommended that on wing repair is carried out at the earliest opportunity.

- At the first suitable maintenance opportunity:
 - 1) Remove spinner.
 - 2) Disconnect the three applicable blade de-icer boot wires from the terminal block on the backplate.
 - 3) Make use of the cable clamp close to the terminal block to stow the three wires.
 - 4) Close up.

-31-1 Pitot heating

Isolation of unheated static ports.

Location: Flight deck; aircraft nose.

- Cap the affected static ports by wrapping with high speed tape to ensure that the ports are completely covered.
- Add placard(s) as required.

NOTE: Make sure that the drain hole is not covered with high speed tape.

-31-2 Pitot INOP light

Pitot head heating operating check.

Location: Flight deck; aircraft nose.

- Switch the applicable pitot heat on.
- Check at the pitot installation that the pitot tube is warming up.

CAUTION: DO NOT LEAVE THE PITOT HEATING ON LONGER THAN NECESSARY TO PREVENT OVERHEATING

- Switch the Pitot heat off.
- Install a placard.

-32-2 Vane FAULT light

Vane heating operating check.

Location: Flight deck; aircraft nose.

- At MTP set STALL TEST switch to TEST and hold switch.
- Push VANE heating switch.
 - Check VANE OFF light goes off.
 - Check vane is warming up.
- Release STALL TEST switch.

CAUTION: VANE SHELL BECOME EXTREMELY HOT IF THE VANE HEATING IS SELECTED ON FOR A LONG PERIOD OF TIME.

- Push VANE heating switch.
 - Check VANE OFF light comes on.

INDICATING & RECORDING**ATA 31****-31-1 Flight data recording**

FLT REC FAULT light.

Check to ensure that the Flight Data Recorder is operative.

Location: MTP and flight deck.

On the pedestal:

- set the LH fuel lever to OPEN.

On the MTP:

- make sure the DFDR FAULT OFF annunciator, and the DFDAU FAULT OFF annunciator are BLACK.

-51-2 ALERT SYS CHAN FAIL light

Check to ensure that both IAU channels are operative.

Location: Front fuselage.

Access: Radio rack.

Examine CHAN STATUS A B led display on the IAU front panel. If both are operating normally, the display will show alternating 0 and 8 for each channel.

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LANDING GEAR

ATA 32

-31-2 Nose gear isolating valve

Isolating valve de-activation procedure.

Location: Front fuselage

Access: Panel 114 AR

- Put the handle for unlocking the forward nose landing gear doors in the LOCK position (access 114 AR) and close the doors by hand.
- Pressurize the hydraulic system by using the electric pump.
- Check that the green light on the landing gear position indicator in the flight deck comes on and that the nose landing gear forward doors are flush.
- Close access panel 114 AR.

-42-1 Nose-wheel braking pads

Nose-wheel brake check.

Location: Nose-wheel bay.

- Install the landing gear ground safety pins and open the forward nose landing gear doors (if applicable).
- Check the nose-wheel braking pads for damage.
- Perform the following tasks if an incorrect interference with the wheels can be expected:
 1. Remove and retain the attaching bolts (8) of the two nose-wheel braking pads.
 2. Remove the nose-wheel braking pads.
 3. Re-install and secure the bolts in the nose-wheel bay upper panel.

For aircraft equipped with a wheel stop assy mounted with the same bolts as the LH braking pad:

1. Remove and retain the attaching bolts (4) of the RH nose-wheel braking pad.
 2. Remove the RH nose-wheel braking pad.
 3. Reinstall and secure bolts in nose-wheel bay upper panel.
 4. Remove the damaged part of the LH nose-wheel braking pad by sawing preferably close to its mounting.
- Close the forward nose landing gear doors.

-45-1 Anti-skid system

Electrical isolation of the anti-skid system.

Location: flight deck.

Trip and tag the circuit breakers for Anti-skid inboard and Anti-skid Outboard.

-45-2 A-SKID light on overhead test panel

Skid control test from the skid control box.

Location: RH radio rack.

Access: zone 241.

Perform the system test by operating the test button on the skid control box in the RH radio rack (access zone 241).

- If the light response is correct, no system failure is detected and the skid control system is still operative. Placard the skid control test light on the test panel in the flight deck.
- If the light response is incorrect, refer to item 32-45-1.

NAVIGATION**ATA 34****-11-1 Pitot-static heads**

Isolation of inoperative pitot-static heads.

Location: Front fuselage.

Access: Aircraft nose, flight deck.

- Cap the affected pitot-static head(s) by wrapping with high speed tape to ensure that all pressure ports are covered.
- Switch the heater of the affected pitot head OFF and trip the circuit breaker.
- Placard as required.

-43-1 TAWS Terrain Awareness Function

Terrain Awareness function failure:

- Perform operational GPWS test, check PASSED.
- Deactivate Terrain Awareness Function, by pushing amber "TERR" switch to "Terrain INHIB" position.

-46-1 Traffic Collision Avoidance System (TCAS)

Deactivation of Traffic Collision Avoidance System.

Location: Panel P1

Access: N/A

Open, tag and safety the following circuit breaker:

TCAS COMP EPC1 CB 6072A

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PNEUMATIC & BLEED AIR**ATA 36****-11-1 Bleed-air supply and control system**

Operational check of fresh-air scoops.

Location: Flight deck.

- Pull the handle to release the handle lock pressure.
- Push the button to unlock the handle and move it forward.
- Check that the fresh-air scoops open.
- Install a placard on the air conditioning panel to remind the flight crew that the bleed-air supply is inoperative.

-11-2 High pressure bleed valve**One or both valve(s) inoperative and closed:**

High pressure bleed valve de-activation procedure.

Location: Flight deck; MTP.

Access: -

- Trip the circuit breaker of the affected HP bleed valve.
- Start affected engine(s).
- Set a minimum of 30% TRQ on the affected engine(s).
- Open MTP and switch the panel power on.
- Check if the affected HP bleed valve indicator(s) (row 11) is (are) black (i.e. valves are closed)
- Shut down the engine(s) and close up.

One valve inoperative (failed in open position)

Blocking procedure high pressure valve ducting.

Location: MTP; engine

Access: Hinged cowl door 415AL (425AL)

- Start affected engine(s).
- Set a minimum of 30 per cent TRQ on the affected engine(s).
- Open MTP and switch panel power to ON.
- Check if the affected HP bleed valve indicator(s) (row 11) is (are) black (i.e. valve is closed)

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- If the affected HP bleed valve indicator is black, continue with the maintenance procedure for "one or both valve(s) inoperative and closed".
 - If the affected HP bleed valve indicator is white, continue with the blocking procedure of bleed air ducting.
 - Shut down the engine(s) and close up.
 - Switch the panel power to OFF and close MTP.
1. Open, tag and safety these circuit breakers:
CONTROL START POWER LH EPC2 CB0332A
(CONTROL START POWER RH) (EPC2)
(CB0333A)
 2. Put the access platform in position.
 3. Open the hinged cowl door 415AL (425AL).
 4. Remove and keep the -V- clamp which attaches the bleed air ducting to the inlet of the high pressure valve.
 5. Remove and keep the -E- seal.
 6. Use or manufacture a plate of corrosion resistant steel with a thickness of 2 mm and a diameter of 48.5 mm. (Corrosion resistant steel Fokker material code TH 5.141)
 7. Position this plate together with the -E- seal you kept at step 5 between the inlet of the high pressure bleed valve and the bleed air ducting.
 8. Install the -V- clamp you kept at step 14 and torque the nuts of the -V- clamp 7.8 to 9.5 Nm (70 to 85 lbs.in).
 9. Remove all tools, materials and equipment from the area. Make sure the area is clean.
 10. Close the hinged cowl door 415AL (425AL).
 11. Remove the access platform.
 12. Remove the safety tags and close these circuit breakers:
CONTROL START POWER LH EPC2 CB0332A
(CONTROL START POWER LH) (EPC2) (CB0333A)

DOORS**ATA 52****-10-1 Passenger door actuator**

- Remove and keep panel 812BL.
- Put special tool p/n F5106-308-401, together with a 3/8" cranking handle, in place on the door actuator.
- Slowly lift the door with two persons while simultaneously the cables will be kept tight by turning the door actuator.
- After the door is closed, lock the door.
- Remove the special tool and temporarily stow in the landing gear ground lock box.
- Fit panel 812 BL.

After the door actuator system is repaired and working satisfactory again put the special tool in its original place (refer to Service Bulletin F50-52-010).

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WINDOWS**ATA 56****-10-2 Sliding Windows**

Demisting shield removal Procedure.

Location: Flight deck.

- Carefully pull away the demisting shield along the edges.
- Remove the remaining glue stains with a suitable cleaning agent.

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PROPELLERS**ATA 61****-23-1 Feathering pump**

Trip and tag the 50 Amp circuit breaker of the affected feathering pump; the circuit breaker is located on the left-hand side of the flight deck entrance. This is CB 0162A if the LH feathering pump is inoperative, and CB 0171 A if the RH feathering pump is inoperative.

-23-2 Feather pump ON light

Feather pump operation check.

Location: flight deck.

- Move the applicable fuel lever to OPEN.
- Activate the FEATHER PUMP TEST switch on the MTP.
- Check that the propeller blades are moving.
- Close the fuel lever.

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POWER PLANT**ATA 71****-63-1 Oil cooler door actuating system**

Securing of door.

Access: Bottom cowling.

- **If door failed in fully open position:**
 - Open and tag appropriate circuit breaker.
- **If door failed in intermediate or closed position:**

A. For aircraft having 2 connecting rod assemblies:

- Open and tag appropriate circuit breaker.
- Remove the actuator.
- Tape and stow connector.
- Open oil cooler door.
- Lock wire door in open position.
- Check that door is properly secured.

B. For aircraft having one door actuating lever.

- Open and tag appropriate circuit breaker.
- Remove the actuator.
- Tape and stow connector.
- Open oil cooler door.
- Install a retaining bar/rod (distance between centre of attachment holes 170 mm) in place of the actuator.

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IGNITION

ATA 74

-00-1 Ignition

Ignition system 1 operation check.

Location: Flight deck; engine.

If an engine will not start following a normal start procedure and the ignition system is suspected:

1. Do an operational check of ignition system 1 as follows:
 - Trip and tag the circuit breaker for the starting power control 0331 A (EPC2 D16).
 - Open the cowling door on the RH side of the applicable engine.
 - Set the applicable fuel lever in the START position.
 - Depress the ignition push button to ON.
 - Listen at igniter 1 (RH side of the engine) if ignition system 1 functions.
 - Check the igniter lead to be sure that sparks do not originate from the lead.
 - If no sound is heard, system 1 is inoperative.
 - Set the applicable fuel lever in the SHUT position.
 - Depress the IGNITION push button to OFF.

WARNINGS:

- 1. DO NOT TOUCH THE HIGH-TENSION LEADS OR THE IGNITER PLUGS FOR AT LEAST ONE MINUTE AFTER THE APPLICABLE CIRCUIT BREAKERS HAVE BEEN OPENED. THE ELECTRICAL DISCHARGE OF THE HIGH-ENERGY UNIT IS DANGEROUS AND CAN KILL.**
 - 2. DO NOT TOUCH THE OUTPUT CONNECTORS OR COUPLING UNITS WITH BARE HANDS. USE INSULATED TOOLS TO REMOVE THE CABLE COUPLING NUTS.**
2. Prior to the following steps trip and tag the circuit breakers for power ignition 1 and power ignition 2 of the affected engine and wait for at least one minute before continuing the work.
 - a. If igniter unit 1 (installed most rearward) is suspected:
 - Interchange igniter units 1 and 2.
 - b. If igniter 1 is suspected:
 - Interchange igniters 1 and 2.

- c. If igniter lead 1 is suspected:
 - Losen the clamps which support igniter leads 1 and 2.
 - Interchange the igniter lead connections to the igniter units
(i.e. install igniter lead 1 to igniter unit 2 and igniter lead 2 to igniter unit 1).
 - Re-arrange igniter leads 1 and 2 in such a way that they do not interfere with their surroundings and fasten the clamps which support them.
3. After step 2a, 2b, or 2c, reset the circuit breakers for power ignition 1 and power ignition 2 of the affected engine.
4. Do an operational check of ignition system 1 (refer to step 2).
5. If ignition system 1 is operative: close up. If ignition system 1 does not function:
Try another step 2a, 2b, or 2c.
6. Install a placard on the flight deck that ignition system 2 of applicable engine is inoperative.
7. Reset the circuit breaker for the starting power control 0331A (EPC2 D16).

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10.1 EMERGENCY EQUIPMENT LOCATION AND QUANTITY

10.1.1 YL-BAR

LOCATION	EQUIPMENT	QUANTITY
FLIGHT DECK	Smoke hood	1
	Life Vests	3
	Smoke Goggles	3
	Oxygen Masks	3
	Emergency Flashlights	2
	Fire Extinguisher	1
	Fire Protection Gloves	1
	Crash Axe	1
FWD VESTIBULE EXIT FRONT R/H C/C FRONT SEAT	Crew Jacket	3
	Sill Raisers Exit Front R/H	2
	Life Vest	1
	Emergency Flashlight	1
	Flashlight	1
	BCF Fire Extinguisher	1
	Crew Jacket	1
	Protection Gloves	1
FWD PASSENGER CABIN	Smoke hood	1
	Adult Life Vest	3
	Infant Life Vest	3
	Portable Oxygen Bottle	2
	Oxygen Mask	2
	Child Belt	3
	Extension Belt	3
UNDER PAX SEATS	Life Vests	46
AFT PASSENGER CABIN	BCF Fire Extinguisher	1
	Smoke hood	1
	First Aid Kit	1
	Fire Protection Gloves	1
	Water Fire Extinguisher	1
	Portable Oxygen Bottle	2
	Oxygen Mask	2
LH LAST ROW	Hazardous Infection Kit	1
REAR VESTIBULE AFT C/C SEAT	Life Vest	1
	Emergency Flashlight	1
	Flashlight	1
	Crew Jacket	1
	Sill Raisers L/H Exit AFT	2

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10.1.2 YL-BAS, -BAT

LOCATION	EQUIPMENT	QUANTITY
FLIGHT DECK	Smoke hood	1
	Life Vests	3
	Smoke Goggles	3
	Oxygen Masks	3
	Emergency Flashlights	2
	Fire Extinguisher	1
	Fire Protection Gloves	1
	Crash Axe	1
FWD VESTIBULE EXIT FRONT R/H C/C FRONT SEAT	Crew Jacket	3
	Sill Raisers Exit Front R/H	2
	Life Vest	1
	Emergency Flashlight	1
	Flashlight	1
	BCF Fire Extinguisher	1
	Crew Jacket	1
	Protection Gloves	1
FWD PASSENGER CABIN	Smoke hood	1
	Adult Life Vest	3
	Infant Life Vest	3
	First Aid Kit	1
	Portable Oxygen Bottle	2
	Oxygen Mask	4
	Child Belt	3
	Extension Belt	3
UNDER PAX SEATS	Life Vests	46
AFT PASSENGER CABIN	Sill Raisers	2
	BCF Fire Extinguisher	1
	Smoke hood	1
	Fire Protection Gloves	1
	Water Fire Extinguisher	1
	Portable Oxygen Bottle	2
	Oxygen Mask	4
LH LAST ROW	Hazardous Infection Kit	1
REAR VESTIBULE AFT C/C SEAT	Life Vest	1
	Emergency Flashlight	1
	Flashlight	1
	Crew Jacket	1

10.1.3 YL-BAU, BAW, BAZ

LOCATION	EQUIPMENT	QUANTITY
FLIGHT DECK	Smoke hood	1
	Life Vests	3
	Smoke Goggles	3
	Oxygen Masks	3
	Emergency Flashlights	2
	BCF Fire Extinguisher	1
	Fire Protection Gloves	1
	Crash Axe	1
	Crew Jacket	3
FWD VESTIBULE EXIT FRONT R/H C/C FRONT SEAT	Sill Raisers Exit Front R/H	2
	Life Vest	1
	Emergency Flashlight	1
	Flashlight	1
	BCF Fire Extinguisher	1
	Crew Jacket	1
	Protection Gloves	1
	Smoke hood	1
FWD PASSENGER CABIN	Adult Life Vest	3
	Infant Life Vest	3
	First Aid Kit	1
	Portable Oxygen Bottle (120L)	1
	Portable Oxygen Bottle (310L)	1
	Oxygen Mask	4
	Child Belt	3
	Extension Belt	3
UNDER PAX SEATS	Life Vests	52
AFT OVERHEAD BIN	BCF Fire Extinguisher	1
	Smoke hood	1
	First Aid Kit	1
BEHIND SEAT 15AB	Portable Oxygen Bottle	2
	Oxygen Masks	2
SEAT POCKET 12C	Protective Gloves	1
AFT LH FLOOR-LEVEL BIN	Hazardous Infection Kit	1
REAR VESTIBULE AFT C/C SEAT	Life Vest	1
	Emergency Flashlight	1
	Flashlight	1
	Crew Jacket	1
	Sill Raisers L/H Exit AFT	2

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10.1.4 SE-LJI

LOCATION	EQUIPMENT	QUANTITY
FLIGHT DECK	Crew Life Vest	3
	Crew Jacket	3
	Oxygen Mask	3
	Smoke Goggles	3
	Emergency Rope	2
	Emergency Flashlight	2
	Halon Fire Extinguisher	1
	Smoke Hood	1
	Fire Proof Gloves	1
	Crash Axe	1
	Observer Safety Card	1
C/C SEAT FWD	Crew Life Vest	1
	Emergency Flashlight	1
	Smoke Hood	1
	Fire Proof Gloves	1
	Crew Jacket	1
	Cockpit Door Lock Key	1
	Emergency Checklist	1
	Headset Microphone	1
LH PAX STAIRS	Halon Fire Extinguisher	1
RH ENTRANCE FWD	Sill Raisers	2
LH SMALL LOCKER FWD	Lavatory Door Lock Key	1
	PAX Warning Card Set	1
	Cabin Log	1
	CCH (C/C Handbook)	1
LH OVERHEAD BIN FWD	Infant Life Vest	3
	Adult life Vest	3
	Infant Belt	6
	Portable Oxygen 120L	2
	Oxygen Mask	4
	Dangerous Goods Kit	1
	Demo Bag	1
RH BEHIND LAST ROW AFT	Halon Fire Extinguishers	1
	Smoke Hood	1
	Fire Proof Gloves	1
	Fire Bag	1
	Portable Oxygen 310L	1
	Oxygen Mask	2
LH PAX CABIN AFT	Sill Raisers	2
	Hazardous Infection Kit	1
C/C SEAT AFT	Crew Life Vest	1
	Emergency Flashlight	1
	Crew Jacket	1
	First Aid Kit	1
	Emergency Light Switch	1
	Emergency Checklist	1
	Announcement Set	2

10.1.5 YL-BAO, BAV

LOCATION	EQUIPMENT	QUANTITY
FLIGHT DECK	CREW LIFE VEST	3
	CREW JACKET	3
	OXYGEN MASK	3
	SMOKE GOGGLES	3
	EMERGENCY ROPE	2
	EM. FLASHLIGHT	2
	HALON FIRE EXTINGUISHER	1
	SMOKE HOOD	1
	FIRE PROOF GLOVES	1
	CRASH AXE	1
	OBSERVER SAFETY CARD	1
C/C SEAT FWD	CREW LIFE VEST	1
	EM. FLASHLIGHT	1
	FLASHLIGHT	1
	SMOKE HOOD	1
	CREW JACKET	1
	PERSONAL LOC. BEACON	1
LH PAX STAIRS	HALON FIRE EXTINGUISHER	1
RH ENTRANCE FWD	SILL RAISERS	2
LH SMALL LOCKER FWD	LAVATORY DOOR LOCK KEY	1
	FIRE PROOF GLOVES	1
	EMERGENCY CHECKLIST	1
LH OVERHEAD BIN FWD	INFANT LIFE VEST	3
	ADULT LIFE VEST	3
	INFANT BELT	6
	PORTABLE OXYGEN 120L	1
	PORTABLE OXYGEN 310L	1
	OXYGEN MASK	4
	DANGEROUS GOODS KIT	1
	DEMO BAG	1
LH OVERHEAD BIN AFT	SMOKE HOOD	1
	C/C HANDBOOK	1
	PAX WARNING CARDS	1
	EMERGENCY CHECKLIST	1
	CABIN LOG	1
	ANNOUNCEMENT BOOK	2
RH BEHIND LAST ROW AFT	HALON FIRE EXTINGUISHER	1
	FIRE PROOF GLOVES	1
	FIRE BAG	1
LH PAX CABIN AFT	SILL RAISERS	2
	PORTABLE OXYGEN 310L	1
	OXYGEN MASK	2
	HAZARDOUS INFECTION KIT	1
C/C SEAT AFT	CREW LIFE VEST	1
	EMERGENCY FLASHLIGHT	1
	FLASHLIGHT	1
	CREW JACKET	1
	FIRST AID KIT	1

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LOCATION	EQUIPMENT	QUANTITY
	EM. LIGHT SWITCH	1
ALL PASSENGER SEATS	LIFE VEST	50
	SAFETY CARD	50

10.2 EMERGENCY EXITS

Description and operation

1. Flight Deck Sliding Windows

The sliding windows serve as emergency exits for the pilots. Two escape ropes are stowed in the flight deck ceiling; one above each sliding window.

2. Flight Deck Door

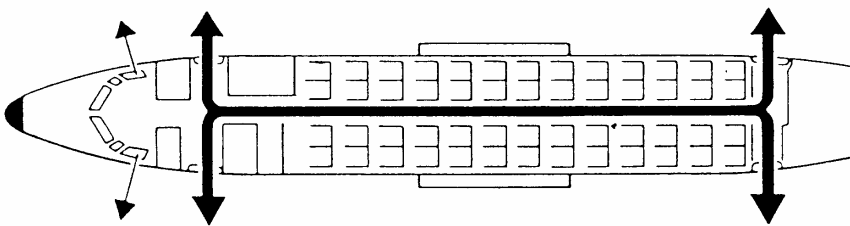
The flight deck door has a combined latch lock; the door can be locked from the cabin side with a key and from the flight deck side with a locking knob. If jammed, the door can be kicked open from the flight deck side. A red, hatched placard indicates the aiming point.

If the observer seat obstructs the passage in an emergency, the seat-back can be reclined flat and the whole assembly folded down.

3. Cabin Doors

The aircraft is fitted with four doors which serve as emergency exits:

- A passenger door on the forward LH side.
- A cargo door on the forward RH side.
- A cargo door on the aft RH side.
- A galley service door on the aft LH side.



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10.3 EMERGENCY LIGHTING

General

The emergency lights consist of 7 emergency lights, 4 in the cabin ceiling, 1 in the entrance, 1 in the toilet and 1 in the flight deck.

6 exit signs are installed in the front and the rear of the cabin and near each exit door.

Floor proximity emergency lights are incorporated in the cabin floor. 4 exterior lights are positioned on the outside near the exits.

The emergency lighting comes on automatically when normal electrical power supply fails, provided the emergency light switch in the flight deck is in the armed position.

The emergency lights can also be manually switched on from the flight deck or by the guarded emergency light switch at the aft attendant panel

Cabin Light Selection

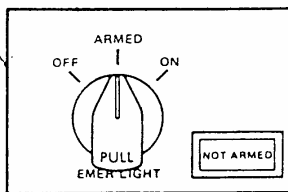
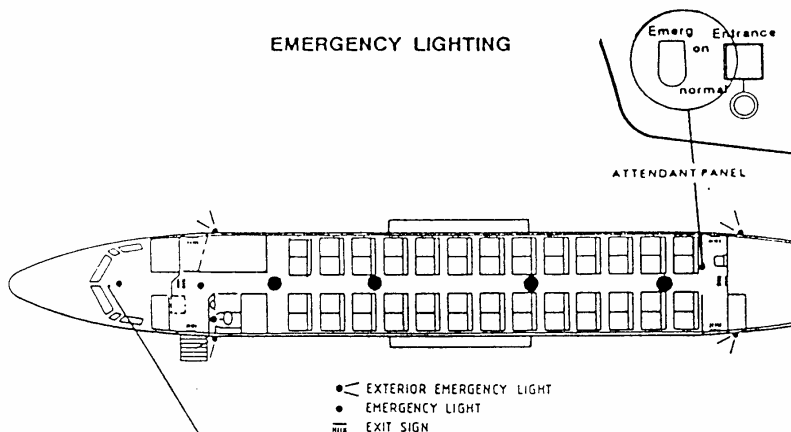
To improve vision during take-off and landing in dark conditions:

Ceiling light..... OFF

Side panel light..... ON

Entrance light, Pantry light and luggage compartment Front light must be selected OFF.

EMERGENCY LIGHTING



EMERGENCY LIGHTS SELECTOR

OFF

- Emergency lighting system off.

ARMED

- Emergency lighting system armed.

NOTE: Pull to select ON or OFF.

ON

- Emergency lights on.

EMERG LIGHTS NOT ARMED LIGHT

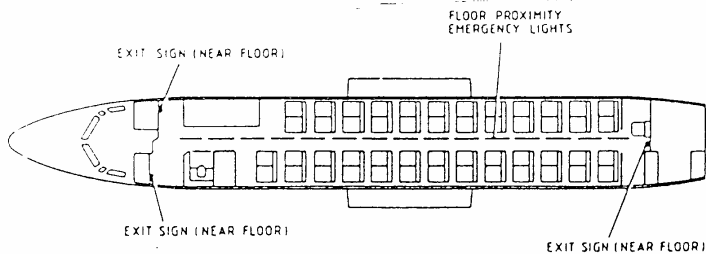
Normal (blank)

- Emergency lighting system armed.

NOT ARMED (amber)

- EMER LIGHT selector ON or OFF.

FLOOR PROXIMITY EMERGENCY LIGHTING

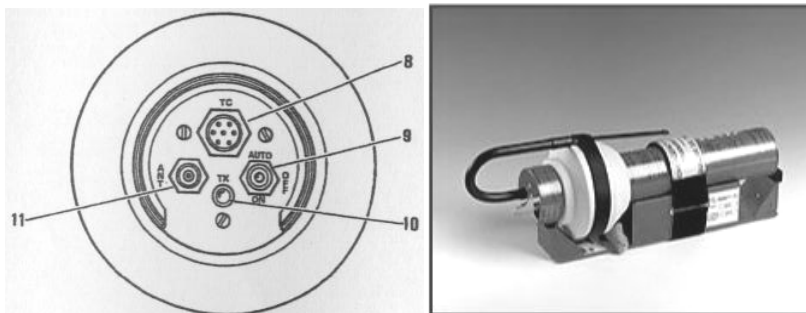


10.4 EMERGENCY LOCATOR TRANSMITTERS (ELT)

10.4.1 A/C: YL-BAR, BAS, BAT, BAU, BAW, and BAZ

General

Fokker's build-in ELT is deactivated (see A/C tech log's briefing card) due to lack of 406MHz signal and the following ELT is installed (see picture).



The ELT facilitates search and rescue in case of a crash landing. Working independent of the aircraft batteries it can be activated manually or automatically on impact, transmitting a distress signal on 121.5 and 243 MHz aeronautical distress frequencies and transmitting a digital 406 MHz signal to COSPAS/SARSAT system's satellites.

It is located in the forward right hand overhead bin in cabin and can be removed from the aircraft, if the case dictates so.

The self-contained battery has a minimum capacity of 48 hours transmission.

If the decision is taken to activate ELT, then follow **Manual activation** procedure, see bellow.

Automatic activation

The acceleration sensor has detected an impact. The beacon starts to transmit automatically. The indicator light (10) is flashing and the aural sound is present.

Manual activation

- Remove the beacon from its bracket assy.
- Check that antenna is connected to ANT (11) fitting.
- Place the AUTO/OFF/ON switch (9) to ON.

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The beacon starts to transmit in 150 seconds. The indicator light is flashing and the aural sound is present.

- On ground, place the beacon upright in an obstacle free area
- On water, allow the beacon to float attached by the lanyard.

CAUTION: To prevent unnecessary search and rescue actions, shut down the beacon (place the AUTO/OFF/ON switch (9) to OFF) immediately and inform ATC, if the ELT has been switched on inadvertently.

10.4.2 A/C: SE-LJI

General

Waterproof, crash resistant, operating independent of the aircraft batteries (min 48 hours), the ELT facilitates search and rescue in case of a crash landing. It activates automatically on impact (+5 or -7G), transmitting on 121.5 / 243 MHz and on 406 MHz to COSPAS/SARSAT satellites. It is located in the dorsal fin, and it is NOT removable from the aircraft. Remote control of the ELT is possible by a guarded ON-AUTO pushbutton and TEST/RESET switch on the overhead panel in cockpit.

Automatic activation

For normal operation, the ELT switch in cockpit shall be guarded in AUTO position. The ELT will then activate automatically upon impact.

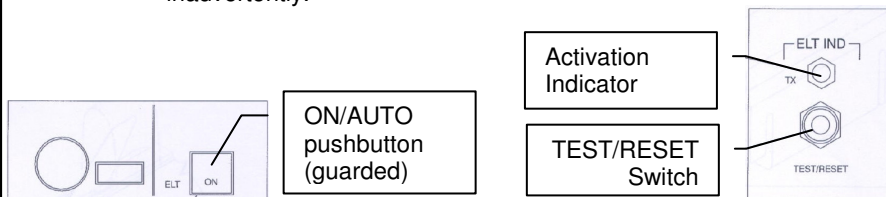
Manual activation

The ELT can be purposely activated by setting the ELT pushbutton in cockpit to ON.

Deactivation

Set the ELT pushbutton to AUTO position. Push momentarily the ELT's spring-loaded TEST/RESET switch.

NOTE: To prevent unnecessary search and rescue actions, inform ATC immediately if the ELT has been switched on inadvertently.



10.4.3 A/C: YL-BAO, BAV

Portable multi function Personal Locator Beacon (PLB)

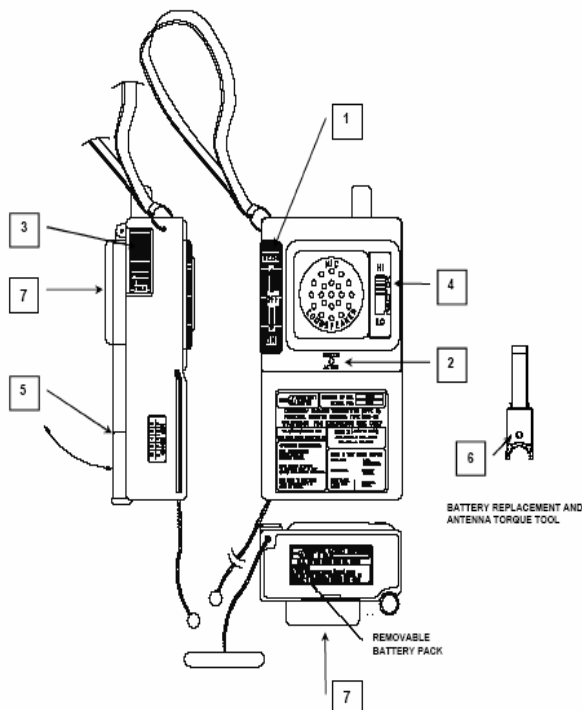
PLB is attached to panel next to forward CA's seat and it has its own power supply. The PLB transmits on 121,5/243/406 MHz.

Automatic operation

No means of automatic activation provided

Manual operation

It is necessary to slide the power switch to ON or pull the lanyard to activate the PBL. In addition 121.5/243 MHz transceiver provided to communicate with rescuers (range 3-5 miles).



1. Power switch. Place ON to activate the PLB.
2. Beacon Active indicator flashes to indicate transmitting.
3. PRESS TO TALK key. Allows responding to rescuers once the signal is received by built in transceiver.
4. HI/LO volume switch.
5. Telescopic antenna. Used to ensure best propagation.
7. Microphone, loudspeaker.

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10.5 INSTRUCTION FOR USE OF EMERGENCY EQUIPMENT

10.5.1 General

The aircraft is equipped with fire-fighting, oxygen, first aid, emergency evacuation and emergency lightning equipment. All these items are placed throughout the cabin, readily available for use in case of emergency.

The emergency lightning system provides aircraft illumination, when all other electrical power sources have failed.

10.5.2 Flight deck

Each flight crew member's station is provided with a Life Vest, smoke goggles, torch, and quick-donning oxygen mask supplied with gaseous oxygen from the main oxygen system storage bottle.

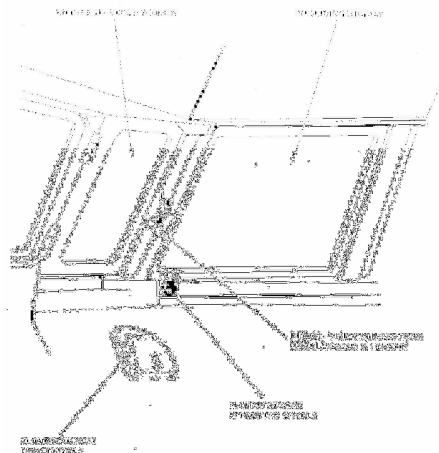
A smoke hood is stowed behind the Captain's seat.

A fire axe is stowed on the RH side of Flight deck entrance.

Sliding Window

There are two sliding windows located in the flight deck each side of the aircraft. Each window is equipped with escape rope located above the window.

Cockpit sliding windows can be used as a secondary evacuation routes from aircraft in emergency situation. The primary exits are emergency exits located in cabin.



10.5.3 Life Vests

Crew Life Vests

The Crew Life Vest is two chamber configuration Life Vest equipped with: Two (2) CO₂ inflation cylinders, inflation/deflation tubes (2), battery powered water activated light (duration: 12 hours), and easy, single strap donning, quick fit buckle.

To inflate the jacket, pull the red knob or beads hanging from the operating head of the CO₂ bottle sharply down; if the bottle fails to fully inflate the Life Vest, use the mouth inflation tube.

When the tapes are pulled firmly around the body, plastic plugs are removed from survival light battery: when the battery is immersed in water it will commence producing an electrical current, and the light will come on.



Crew Life Vest



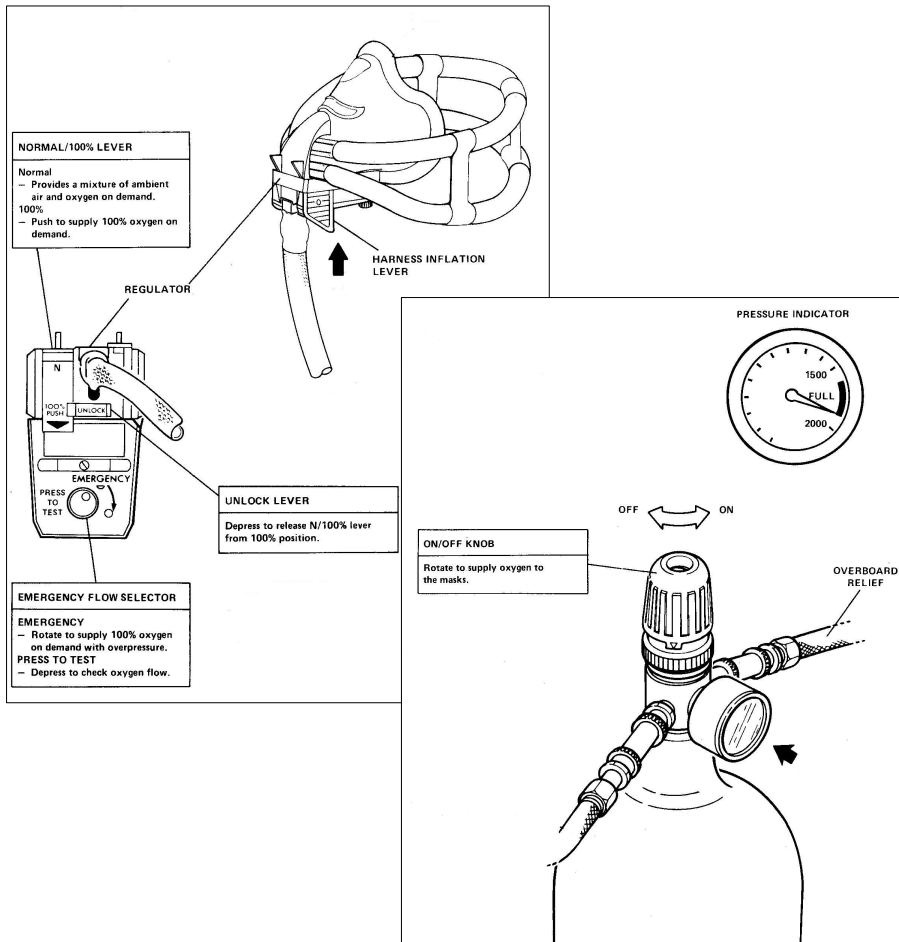
Adult life vest

10.5.4 Flight Crew Oxygen System

The flight deck oxygen system is a gaseous, diluter demand system with individual masks and regulators for each flight deck crewmember. Next to each mask is a pair of smoke goggles to prevent intrusion of smoke.

The oxygen bottle is located next to the first officer's seat, and it is equipped with

ON-OFF valve located on the top of the bottle.



Cabin oxygen system

The Fokker-50 aircraft is not equipped with drop out oxygen masks. There are 4 portable 120L oxygen bottles with masks located in cabin. A portable oxygen unit comprises a portable oxygen bottle and one or Two oxygen masks are attached/connected to the bottle.

Portable oxygen bottles with 120l oxygen capacity are used.

Each bottle is equipped with:
Pressure reducers (Red and Blue)
A pressure indicator
An ON-OFF valve
Two outlets for oxygen mask connection

The bottles outlets are marked as- 4-LPM and- 2-LPM,or HI and LO.

Portable oxygen bottles with masks (POBs)

The 120 l bottle is intended for dispensing first aid oxygen. The bottle has two constant flow outlets, 4L/min and 2L/min; also called HI and LO.

The 4L/min outlet is used for first aid, and the 2L/min outlet to give supplemental oxygen.

Operation:

- Check bottle pressure;
- Connect mask;
- Turn valve fully open;
- Check flow by squeezing reservoir bag and secure bottle;
- Put mask on;
- Ask the passenger to breathe normally.

Min. pressure for take off: 1500 psi

Min. pressure for use: 50 psi

Normal: 1800 psi

Smoke Hoods (PBE)

▪ Puritan-Bennet Aero Systems Co. (PBE)

Description

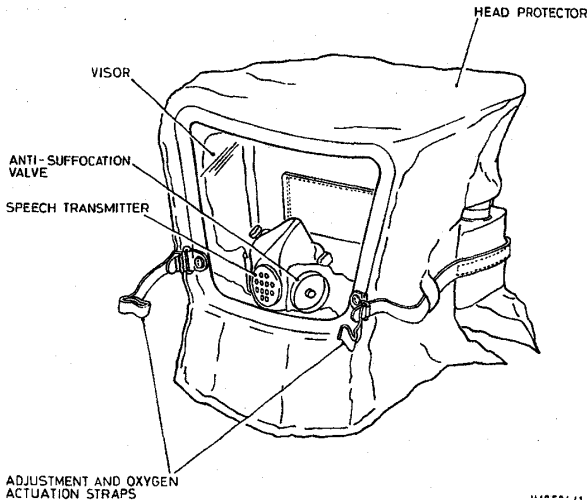
Protective breathing smoke hoods are provided for use by the flight crew and cabin attendants in a flame or smoke laden atmosphere. The smoke hood is constructed from flame and heat retardant material. It has an integral speech transmitter and a manually activated self-generating oxygen supply, adequate for approximately 15 minutes breathing.

Operating Instructions

Fit smoke hood

- (a) Remove container from stowage position.
- (b) Break container seal, open container and remove vacuum foil.
- (c) Remove hood container and pull hood harness over the head. The head harness is not adjusted.
- (d) Operate the chemical oxygen generator by pulling the lanyard.
- (e) If required secure tapes around the waist.

NOTE: The duration of the breathing system is a minimum of 15 minutes.



Smoke Hood (PBE)

▪ Dräger Smoke Hood (PBE)

General information:

Smoke Hood OXYCREW is a self-contained Protective Breathing Equipment (PBE) for use on aircraft board by the flight and cabin crew in the scenario of smoke, in-flight fire. The independence of a portable (chemical oxygen) breathing system offers maximum freedom to combat smaller fires on board.

The smoke hood (OXYCREW) consist of heat protecting hood with a closed-circuit breathing system which compromises a chemical oxygen generator and an oral-nasal mask with integrated speech transmitter. All of which are stored in a vacuum package and box.

Start-up:

The smoke hood is equipped with a starter cartridge, which supplies oxygen for about 1 min immediately and independent of respiration as soon as the user activates the starter cartridge. During the commencement of respiration the carbon dioxide used with the smoke hood is a highly reactive substance for producing oxygen through the duration of use within few exhalations into mask.

Communication:

The wearer of the smoke hood can communicate with an unprotected person at a distance of 4 m. Intercom and megaphone also can be used. This is made possible by a speech transmitter, which is fitted to the mask.

Vision:

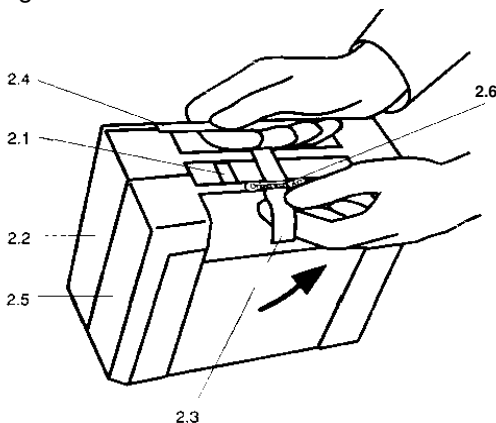
To provide a large field of vision to the user the design of the hood includes a large visor. Additional ventilation tube prevents the visor and glasses from fogging. The hood ventilation provides a small over-pressure in the hood to avoid harmful smoke entering the hood.

Duration:

The duration is a minimum of 20 min, according to the workload profile. If necessary, it is possible to restart an already doffed unit. 2-3 exhalations into the breathing mask commence the re-activation.

End of use:

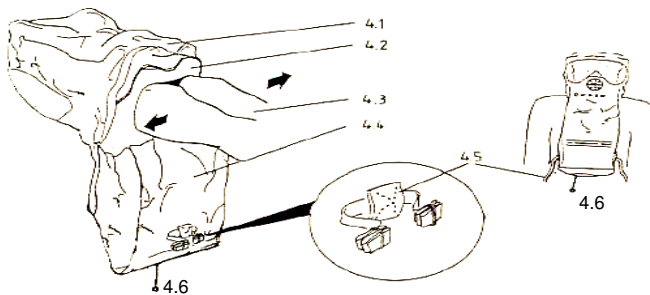
The use of the smoke hood can be terminated any time within duration time by doffing the hood. After doffing the generation of oxygen will slow down rapidly. The end of duration is recognizable by increasing breathing



resistance, visor misting and hood collapsing.

CHECK:

- Presence.
- Seal at the locking clamp without damages.
- Box is closed not damaged and the indicator is yellow and not broken.



2.1 Serviceability
indicator

2.4 Handle

4.1 Hood

4.4 Breathing bag
protection

2.2 Box

2.5 Box

4.2 Neck seal

4.5 Belt

2.3 Locking clamp

2.6 Seal

4.3 Opening for
the neck

4.6 Lanyard for
activation

OPERATION:

- Open the locking clamp.
- Open the box.
- Take the OXYCREW out of its box.

The OXYCREW is stowed in a sealed bag, which has to be opened by the red tear strap of the bag. After opening the bag, the folded OXYCREW has to be pulled out, unfolded and donned.

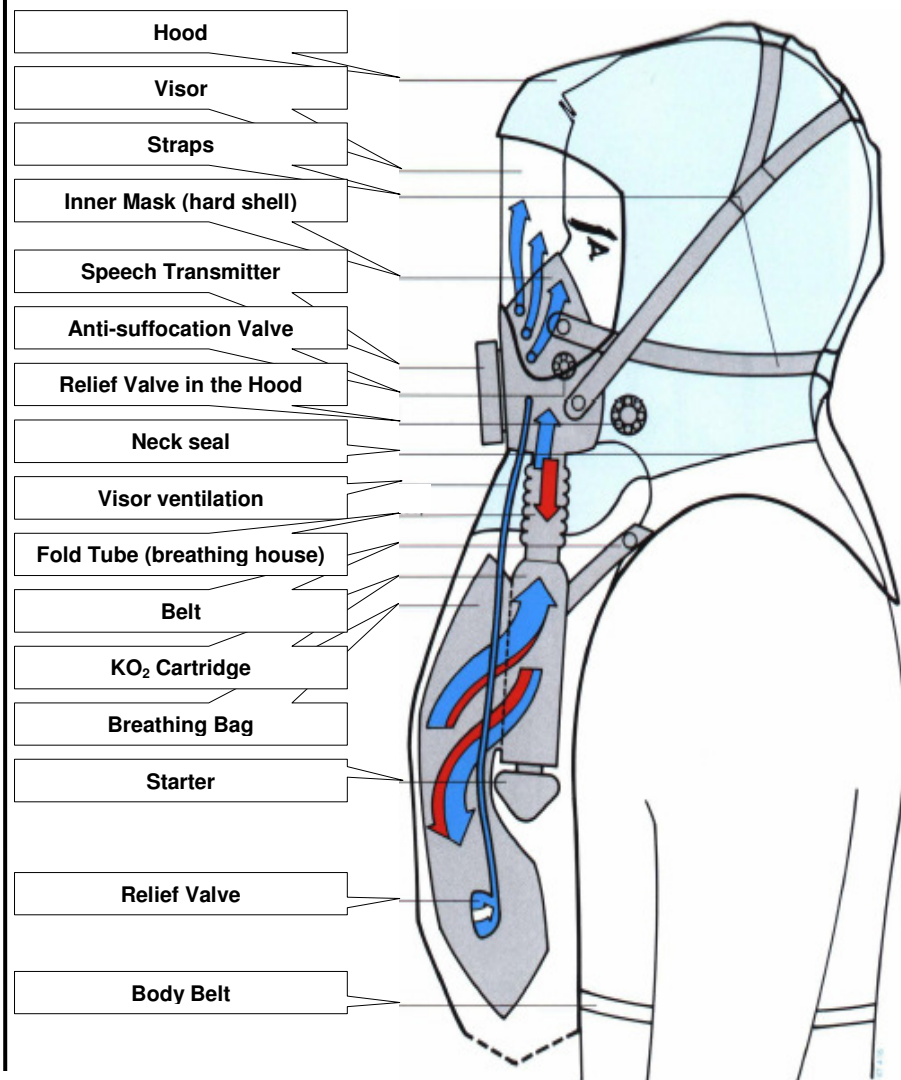
- Don the OXYCREW.
 - Put both hands into the hood and widen the elastic bands and the neck seal with the back of your hands.
 - Pull the hood over your head from behind. Keep your hands between head and elastic straps until the mask covers your mouth and nose.
 - Pull down the lanyard to activate the starter candle.
 - Fasten the equipment around your hip with the belt that has been attached to the breathing bag protection.
- Check the fit of the inner mask.

Move the mask until a suitable position has been found.

- End of the operating time.

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- Increased inspiration resistance.
- The anti-suffocation valve opens and the user inhales the air from hood.
- Go to safe place and take off the equipment.



CAUTION:

- The neck seal must not be damaged when putting on the mask. Be careful with sharp objects.
- Plait-like hairstyles and neck-places must not be placed in the sealing area they have to be positioned above the neck seal.
- Avoid physical effort. With a lower respiration frequency the OXYCREW protection will last longer.
- During the operation the air will be warmed up. This is due to chemical reaction.
- A slightly salty or dusty taste may occur which may derive from particles in the cartridge and which will not impair the performance of the OXYCREW.

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10.5.5 Portable Fire Extinguishers

A portable fire extinguisher is attached to the wall behind the Captain's seat.

Operation - remove the extinguisher from its mounting, release safety catch and press (squeeze) the handle.

HALON Fire extinguisher (RED)
Contains bromochlorodifluoromethane chemical liquid.
Used for all classes of fire.
Fire fighting distance- **1-3 m**.



WATER – Glycol Extinguisher
Contains 1,3l water with antifreeze
For “A” class type fires only
Fire fighting distance **1-2 m**.



10.5.6 Escape Ropes

Two escape ropes are installed to assist flight crew emergency evacuation. Each is located in an ESCAPE ROPE – PULL stowage installed in the flight deck, immediately above each window-exit.

Each rope is anchored to the airframe. Hand hold knots are located along the rope to facilitate climbing down the fuselage side.

Operation

Before deployment, ensure that the appropriate window-exit is fully open and latched back. Open the stowage and deploy the escape rope.



Escape rope storage

10.5.7 Sill Raisers

Sill raisers should be installed during planned ditching only to prevent from rapid water entrance.

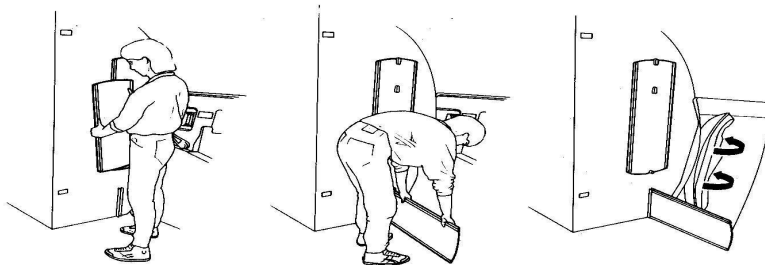


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11 EMERGENCY EVACUATION PROCEDURES

11.1 GENERAL

This section outlines both general and specified emergency procedures for Flight crews on all aircraft operated by airBaltic.

The procedures are of vital importance and were developed as a result of valuable knowledge obtained from actual emergencies. They minimise motion, reduce injuries, and save lives.

No one set of procedures can be written to cover all emergencies, and emergency landings are never the same. Each crewmember is trained in emergency procedures and should be responsible for assessing conditions and acting accordingly. Swift and intelligent action is based on the Flight crews knowledge of cabin safety procedures and use of emergency equipment. The ability to think clearly and operate calmly requires knowledge of what to do. There is no substitute for good judgement and common sense.

Emergency situations are relatively infrequent but since they happen quickly there is no time for reading directions on equipment or reviewing the manual. If the Flight crews know procedures and apply them with intelligent thought and quick action in a calm, authoritative manner, chances for survival for all passengers onboard are greatly increased. Your appearance, attitude, and degree of outward composure before, during, and after an emergency is of extreme importance in averting passenger anxiety and/or panic.

11.1.1 Types of Emergency Situations

Emergency situations that may necessitate evacuations have been divided into two categories:

Planned: Commander tells the crew the nature of the emergency. The crew has time to clearly and positively brief passengers on the situation and what the passengers are expected to do for their own safety and that of their fellow travellers.

Unplanned: Situation happens during taxi, take-off, or landing. The crew has no time to co-ordinate a course of action with the Commander. Cabin Crew Members cannot count on the pilots for instructions and assistance in passenger evacuation. Remember: 80 % of emergency landings are unplanned!

11.1.2 Preferred Use of Exits

Availability of various exits will differ from one situation to another. Crewmembers on the scene must make the decision as to which exits will be the most preferable under the prevailing circumstances. If ditching, use rear exits only on crew command.

11.2 DUTIES OF ALL CREW MEMBERS

Emergency evacuation procedures (Duties of all crewmembers and the Handling of the passengers in the event of forced landing, ditching or other emergency):

11.2.1 General

This emergency evacuation instruction explains the vital actions which have to be taken in connection with take-off, landing, emergency landing on land or on water (ditching), taxiing or when stationary on the apron, e.g. during refuelling, as well as unprepared evacuation and whenever a situation with risk of fire occurs.

Since it is a well-established fact that it is the unexpected emergencies that cause most of the injuries to passengers and crew, it is of utmost importance that the crewmembers know the evacuation duties by heart.

The Commander shall give a clear order when he wants the aircraft evacuated and should always order such an evacuation if doubts exist regarding the presence of a fire.

However, if no order is received from the flight deck (pilots might be injured) and the necessity of an immediate evacuation is evident, the Cabin Crew shall initiate the evacuation and proceed in accordance with the instruction in the CAH.

The safety of the occupants depends on crash protection, evacuation and, in the case of ditching or landing in remote areas on survival. The most important duties of the crew will therefore be:

- To provide the best possible crash protection for all passengers.
- To have the passengers well prepared for a quick evacuation.
- To execute a quick evacuation of the passengers.
- To assist the passengers as required after the evacuation.

NOTE. Whenever smoke, fire or other abnormal conditions are observed, the Commander must be informed immediately.

- (a) Initiate Evacuation (in an emergency) - The Commander must be consulted prior to executing any evacuation; however, an evacuation may be initiated by a Cabin Crew Member if his/her judgement so dictates (i.e., in case of fire, serious structural damage, or no response from cockpit, ditching).

- (b) Assess Conditions - Try to ascertain what type of emergency you are having and what exits may or may not be usable. It is important to consider the possibility that the aircraft will shift after landing.

Continue to assess conditions throughout the evacuation, both inside and outside the aircraft. It may be necessary to temporarily halt an evacuation, if passengers are piling up outside, to give assistants time to get these people away. Also, an exit that is initially usable may become unusable as the evacuation proceeds (i.e., shift in wind direction with fire evacuation or shifting of aircraft after landing due to gravity).

- (c) Activate Exit - Check for fire/obstructions before opening exit. activate the exit, and call passengers in your direction.
- (d) Evacuation Commands - Try to use positive commands. These are easier to understand and - easier to accept, psychologically.

It is advantageous to use a cadenced voice to shout commands. This will prevent the otherwise natural tendency of the voice to rise and thereby connote panic. Do not touch passengers during an evacuation. Touching passengers as they leave causes each passenger to pause for your "permission to go" and delays the evacuation.

GET PASSENGERS OUT ANY WAY YOU CAN! If a passenger should freeze in the doorway, get passengers behind to help by buckling knees of first passenger, etc.

- (e) Incapacitated Passengers - Passengers who would difficulty evacuating an A/C in an emergency should be seated as near as possible to floor level exists but not in an emergency exit row.
- (f) Unusable Exits - You must do two things in case of unusable exit:
- (g) Redirect, and tell why you are redirecting. This will avoid confusion and facilitate the evacuation. FOR EXAMPLE; "GO BACK, FIRE!", "EXIT BLOCCE!".
- (h) Redirect Passengers - When only a few passengers are left at your exit, look around to determine if you should redirect passengers from another exit to your exit. When making this judgement, take into consideration the time it takes to get their attention and to tell them what you want them to do and the time it takes for them to move to your exit. It may be quicker for them to remain at their exit.

(i) Crew Evacuation.

For obvious reasons, pilots should also know the other members duties. Normally, but not necessarily, the Commander will initiate the evacuation. Stop the aircraft if not already stopped by itself, and set parking brakes. When aircraft is parked Commander calls '-SHUT DOWN ENGINES', '-EVACUATION CHECKLIST', then both pilots should perform their check items, independent of each other. It is essential to have the engines shut down prior the evacuation starts, therefore that vital item should be included in call. In windy conditions and if fire outside the fuselage consider aliening the aircraft into the wind to keep flames away from both the fuselage and fuel vents.

11.2.2 After Landing/Ditching

Commander:

Perform duties according to emergency checklist.

EMERGENCY EVACUATION:

- (a) If emergency evacuation is not necessary, inform through the PA system:
"REMAIN SEATED".
- (b) Order evacuation of the aircraft.
- (c) Proceed to the cabin area, bring the axe if necessary.
- (d) Assume command.
- (e) Direct and assist the passengers in evacuation as condition dictates.
- (f) Check that all passengers have been evacuated.
- (g) Provide first aid, arrange for passenger comfort.

Co-pilot:

Perform duties according to emergency checklist. **EMERGENCY EVACUATION** • Bring the fire extinguisher if necessary and evacuate through forward Emergency exit if possible. If suitable, evacuate through the windows using escape rope and assist the passenger evacuation on the light side of the aircraft and direct the passengers away from the aircraft.

11.2.3 After evacuation

Duties:

- (a) Assemble passengers a safe distance away from aircraft. (Allow no smoking)
- (b) Make a head count of all passengers and crew members.
- (c) Render all possible first aid.
- (d) Post a guard to make sure no mail, baggage, or parts of the aircraft are disturbed.
- (e) Make sure airBaltic authorities are notified and remain available to answer questions.
- (f) Make no comment to the press. Refer them to the staff of Public and Governmental Affairs Department.
- (g) Report of Emergency - The crew must file a report within 24 hours of the emergency.

The report should include, as a minimum:

- Time crew boarded aircraft.
- Equipment checked.
- Narrative report of every leg flown.
- Time when Cabin Crew Member first noticed emergency.
- Steps taken by Cabin Crew Member to prepare for emergency.
- Actual evacuation.
- Passenger reaction.
- Everything done for passengers by Cabin Crew Member until released by the CAA or the Company.
- In general, everything should be included from the time the crew boarded the aircraft until the time they were released. The report must be given to the Chief pilot.

11.2.4 Authority of Commander

Chain of Command:

- Commander
- First Officer
- Cabin Crew Member #1
- Cabin Crew Member #2
- Cabin Crew Member #3

During all phases of flight, the Commander is ultimately responsible for the entire conduct of the flight, the passengers, the crew, and the ground personnel. In the event that the Commander becomes incapacitated or is absent, the First Officer will succeed in command.

1. The Commander of an aircraft is directly responsible for, and is the final authority as to the operation of that aircraft.
2. In an emergency requiring immediate action, the Commander has the authority as to the operation of that aircraft.
3. Any potential or actual emergency situation should be immediately brought to the attention of the Commander.

NOTE: If your Commander instructs you to perform your duties by what you believe to be in conflict with Company Policies/Procedures, you may respectfully bring this to his attention but must abide by his instructions. If his instructions remain unchanged, you shall submit the incident in writing to your Chief -Pilot and Chief Cabin Attendant.

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11.3 ORDERS AT EMERGENCY

FROM	TO	PERFORMED THROUGH	ORDER
Cockpit	Cabin Crew	P/A System or 3 HI/LOW chimes	“CABIN ATTENDANT TO COCKPIT ”
Cockpit	Cabin Crew	Flashing with “ Fasten Seat Belt” sign repeatedly	“BRACE,BRACE”
Cabin Crew	Cabin	Shouting	“BEND OVER , HEAD DOWN”
Cockpit	Cabin Crew	P/A System	“EVACUATE, EVACUATE ” or “REMAIN SEATED, REMAIN SEATED”
Cabin Crew	Cabin	Shouting	“ OPEN SEAT BELTS” If unplanned ditching- “PUT ON YOUR LIFE VEST” “OPEN EXITS” “ COME THIS WAY” “ GET OUT”, “ JUMP” (when exit unusable - “ EXIT BLOCKED” “ GO THAT WAY”)

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11.4 CABIN PREPARATION FOR EMERGENCY SITUATION

11.4.1 Passenger Behaviour

It is difficult to predict how passengers will respond to an emergency situation. The following are a few guidelines:

Two types of behaviour problems in emergency situation:

Panic - Passengers run about with no direction, literally stampeding to find a way out

Shock - Passangers are traumatised by what is happening: they refuse to believe it and just sit quietly in their seats.

NOTE: The Cabin Crew Member can halt both these behaviour patterns, or prevent them in the first place, with immediate and direct leadership.

Passenger will follow good direction. They're waiting to be told what to do and will usually follow instructions they can understand. Your instructions must be simple and clear.

Passengers who have responsibilities beyond themselves usually cope better than those with only themselves to worry about. You function because you have work to do, and it is with passengers. Involve them. Have them look after each other and other passengers who need more help.

11.4.2 Emergency Exit Seating

During boarding, and throughout your flight, do not allow the following to be seated in the Emergency Exit:

- Passengers with handicaps that would interfere with the ability to open the exit quickly or move through the exit quickly.
- Women / men with infants or children
- Prisoners
- Deportees
- Seat baggage

11.4.3 Brace Positions

Brace positions are intended to give passengers some protection against neck and spinal injuries during sudden deceleration. Brace positions should be used any time there is the remotest possibility of sudden stops, or loss of directional control during an emergency landing.

Cabin Crew

Check to be sure all passengers can get in a brace position. Cabin Crew should demonstrate the brace position so passengers can see him/her. Passengers will assume the brace position approximately one minute before Impact, upon hearing the brace signal and the command from the Cabin Crew to "brace.1' The brace signal will be initiated by the Commander

Passengers should remain in the "brace" position during and after landing

a. Forward Facing Passenger Seat With a Seat Immediately in Front

Instruct passengers to:

- Place feet flat on floor;
- Cross your wrists and place them on the seat back in front of you;
- Lean forward, rest your forehead on your wrists.

b. Forward Facing Passenger Seat With No Seat in Front

Instruct passengers to

- Place feet flat on floor;
- Bend over with your face in your lap;
- Clasp your elbows under your knees.

c. Small Children

A child large enough to be securely belted in a seat can use the standard brace position with an adult seated next to them. Have the parent put one hand on the child's back, to be sure the child does not sit up at the time of impact, and the other arm on the seat back in front with the head resting on arm. Coats or other soft items can be padded behind them to take up the slack of the seat belt

d. Infants

The safest place for an infant to be is in an approved child restraint. If this is not possible, give instructions as follows

- Instruct the passenger to wrap the infant in padding
- Hold the infant with arm bracing its back and head
- Place horizontally across your body
- Lean forward

e. Pregnant Women

Have pregnant women fasten seat belt tight and as low as possible across their hips.

f. Aft Cabin Crew Jump Seat

- Sit well back in seat, rest head back and firmly against headrest
- Sit on hands, palms up, feet flat on floor

g. Forward Cabin Crew Jump Seat

- Place feet flat on floor
- Blend over with your face in your lap
- Clasp your elbows under you knees

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11.5 EMERGENCY LANDING

11.5.1 Planned emergency landing

The Cabin Crew co-ordinates with the Commander to determine the details of the emergency and any special instructions, such as signal for when to assume impact position. If time is limited, condense your activities as necessary to accomplish the more important items first and quickly. If more extensive time is available, it is advisable to accomplish the briefing and preparations in steps. This will enable you to make more frequent contact with each passenger and to give them something to do periodically. Verbal contacts exert a great influence during emergencies. However, you must keep yourself under complete control and act and speak decisively in a clear, calm tone of voice.

In providing initial information to passengers, they should be given general information, such as the nature of the emergency, the system you will use in issuing further instructions, the possibility of rearrangement of passengers in order to properly seat assistants, and the type of landing expected. Speak to passengers in calm, reassuring tone.

In a planned emergency the nine steps to remember are:

1. Crew Co-ordination.

During or immediately after the declaration of an emergency the Commander or selected Cockpit Crew Member will inform C/C. Urgent call from cockpit to C/C by 3 Hi/Low chimes or by using the P/A system "CABIN CREWMEMBER TO COCKPIT" means:

Cabin Crew Member to call the Flight Deck immediately for instructions.

The Commander advises Cabin Crew Member of an emergency:

T - Type of emergency

E - Exits to be used

S - Signal to brace/Signal to evacuate

T - Time to prepare

- Synchronise watches
- Repeat information back

2. Passenger briefing.
3. Passenger relocation.
4. Able-body person briefing.
5. Describe 'Brace position'.

6. Inform ' Brace signal'.
7. Secure cabin and galley.
8. Report to Commander.
9. Cabin Crew preparation.

11.5.2 Planned Ditching

Prepare as for other emergency landings.

Have the Cabin Crew instruct each passenger on use of life vest.

Life vests are located under each passenger seat.

Cabin Crew life vests are located at the Cabin Crew station.

Extra life vests can be used if necessary.

CAUTION: DO NOT INFLATE LIFE VEST UNTIL CLEAR OF AIRCRAFT. DO NOT open any exits or leave seat until aircraft has come to a **COMPLETE STOP.**

NOTE: When the aircraft contacts the water, there will be two or more distinct shocks felt. The second shock is usually the most severe. Caution the passengers not to get up or release their seat belts after the first shock is felt. They may be easily fooled into thinking that the aircraft has stopped when it is actually still moving at great speed and the most severe impact is yet to be felt.

PREPARE YOURSELF - ALSO REMEMBER: The passengers will be depending on you to help them to safety after the aircraft is stopped. You must see to it that you are available when needed.

11.5.3 Before Landing/Ditching

Commander:

- (a) Give command for crew to prepare for emergency landing/ditching: "Emergency Station", and order distress message to be sent.
- (b) Set course for most logical point of landing under existing circumstances.
- (c) Put on the life vest if ditching.
- (d) Emergency light - ON.
- (e) Give signal "BRACE BRACE BRACE" 60 seconds before touchdown or by flashing the SEAT BELT sign. if PA is inoperative.

Co-pilot:

- (a) Send distress message (MAY DAY) and send Position, Course, Type of trouble, Intentions and assistance need.

- (b) Activate the ELT by moving the remote switch to on.
- (c) Activate Transponder code 7700.
- (d) Put on the life vest if ditching.
- (e) Secure and stow loose objects in the cockpit, check the cockpit to cabin door position as directed by Commander.
- (f) Prepare to take over the Commanders duties.

Observer:

- (a) Perform duties assigned by the Commander.
- (b) Put on the life vest if ditching.
- (c) Take seat in the cabin prior to landing, if possible.

Cabin Crew:

Perform duties according to CCH.

11.5.4 Unprepared Landing/Ditching

Commander:

Advise Cabin Crew and issue necessary orders.

Direct qualified deadheading crewmembers and /or observers as you deem necessary to occupy available seat in cabin and assist in later action.

Determine with Cabin Crew signal for the following if necessary:

Signal indicating that a landing is imminent and the passengers and Cabin Crew should assume the BRACE position. **(Flashing cabin signs 1min before impact if PA is inoperative.)**

Signal that the evacuation should begin or not, and possible what Cabin Crew do if this signal cannot be given.

If possible, avoid landing until emergency equipment and crew are standing by.

Advise cabin to brace for impact 1min before impact.

In case of fire, position of aircraft to provide the greatest number of fire free exits if possible

NOTE: Cockpit crew should be alert to signal Cabin Crew and passengers by PA system, voice or other means to commence evacuation or remain seated after landing when these preparations have been made. If evacuation has been started, shut down all engines.

Cabin Crew:

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Upon impact (if you are faced with an unplanned emergency and have not had an opportunity to brief passengers):

- Remain in your jump seat; take appropriate brace position and SHOUT: "BEND OVER, HEAD DOWN".

12 AIRCRAFT SYSTEMS

For a complete description of aeroplane systems, related controls and indications refer to the Aircraft Operations Manual. This manual is prepared for the Flight Crew and contains information and instruction for operating Fokker 50 aircraft.

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