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1.04.50 ALTITUDE ALERT

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10.1 DESCRIPTION (See schematic p 11/12)

The aircraft is provided with an automatic flight control system. It achieves :

- Autopilot function and/or yaw damper (AP and/or YD)
- Flight director function (FD)
- Altitude alert

Main components are :

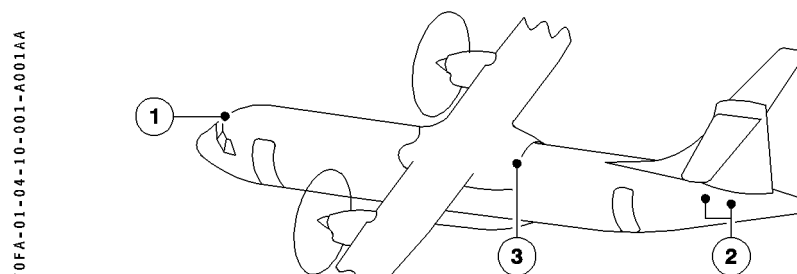
- one computer
- one control panel
- one advisory display unit (ADU)
- three servo-actuators (one for each axis).

The computer receives data from the two Air Data computers (ADC), the two Attitude and Heading Reference Systems (AHRS), the two SGU, the radio-altimeter, the GPS (if installed) and from some sensors.

It generates commands to the flight control actuators and to the FD bars.

Dual microprocessor architecture and digital servo-monitoring technique are used to provide an adequate safety level.

COMPONENT LAYOUT



- ① AFCS advisory display, control box and computer (cockpit and electronic rack).
- ② Yaw and pitch servo actuators.
- ③ Roll servo actuator.

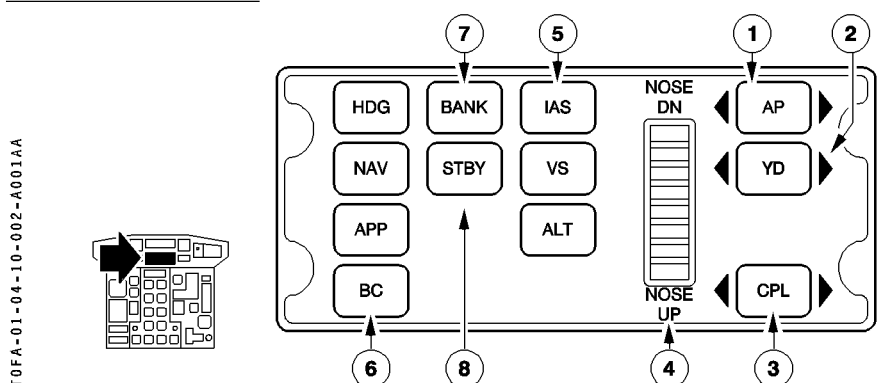
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10.2 CONTROLS

AFCS CONTROL PANEL

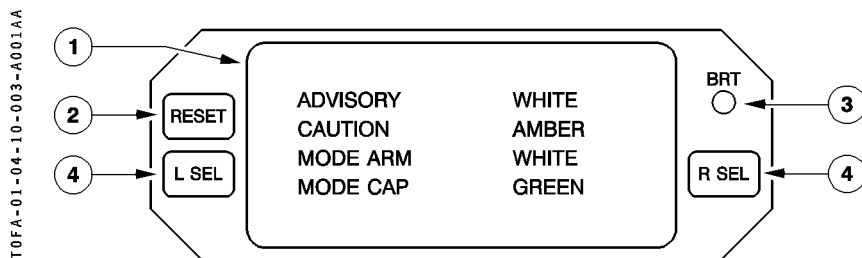
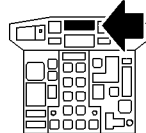


- ① **AP pb**
Action on the pb engages autopilot and yaw damper functions simultaneously. All four associated arrows illuminate white. A repeat action on the pb disengages only the autopilot function.
- ② **YD pb**
Action on the pb engages the yaw damper function. Both associated arrows illuminate white. A repeat action on the pb disengages the yaw damper function (and the autopilot if engaged).
- ③ **CPL pb**
Enables selection of the panel (CAPT or F/O) to be coupled to the AP/FD computer. At power up, selected side is CAPT side.
- ④ **Pitch wheel (PW)**
Operation of the pitch wheel when the system is flying VS, IAS will resynchronize the air data command reference (or pitch reference) without disengaging the mode. The pitch wheel is inhibited in GS, ALT SEL CAPTURE, ALT HOLD modes.
- ⑤ **Vertical modes pbs**
Enable selection of vertical modes : IAS HOLD, VS HOLD, ALT HOLD.
- ⑥ **Lateral modes pbs**
Enable selection of lateral modes : HDG SEL, NAV, APP, BC.
- ⑦ **BANK pb**
Permits selection of the bank angle limit, in the HDG SEL mode only. Alternate action on the pb causes alternate selection of a high bank angle limit (27°) and a low bank angle limit (15°), power up state is high bank angle.
- ⑧ **STBY pb**
Cancels all FD modes (both armed and active). When AP is engaged, resets to basic modes.

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ADU



① Display

The first line gives advisory messages in white letters
The second line gives caution messages in amber letters
The third line shows armed modes in white letters
The fourth line shows active modes in green letters.

② RESET pb

This button is used to cancel a caution message or to confirm an AFCS automatic choice.

③ BRT knob

Is used to adjust ADU Brilliance.

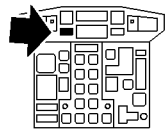
④ L SEL-R SEL pb

Is used in A.P. ground maintenance test.

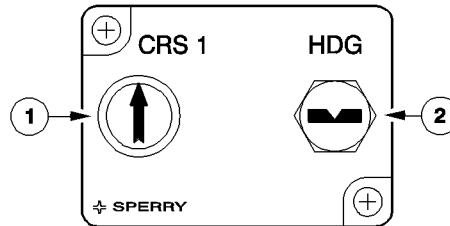
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CRS 1/HDG PANEL

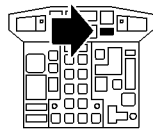


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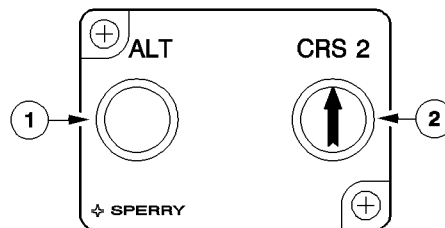


- ① CRS 1 Knob
Selects course on the CAPT EHSI.
- ② HDG knob
Selects on both EHSIs, the heading which is used as a reference by the AFCS.

ALT/CRS 2 PANEL

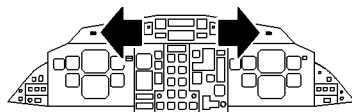


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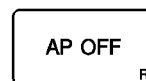


- ① ALT knob
Controls the preselected altitude which is shown on the advisory display.
- ② CRS 2 knob
Selects course on F/O EHSI

AP OFF LT



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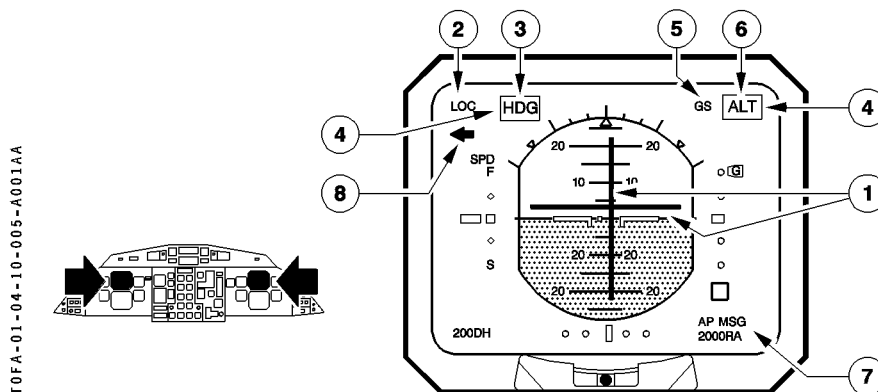


Both lights illuminate or flash red and the CCAS is activated through the MFC when AP is disengaged.

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EADI



① *Flight Director Command bars (Magenta)*

Display computed commands to capture and maintain a desired flight path.

② *Lateral armed mode annunciator (white)*

Displays in white the lateral AP/FD armed mode ; the annunciator extinguishes when this mode is captured.

Available lateral armed modes : VOR, LOC, BC, LNAV (if omega installed).

③ *Lateral active mode annunciator (green)*

Displays in green the lateral AP/FD active mode ; the indication is followed by a star while capture of an armed mode is in progress. The star disappears when capture is achieved.

Available lateral active modes : VOR, LOC, BC, HDG, LNAV (if omega installed).

④ *Transition box*

Is displayed in white around the green active mode annunciator for the first 5 seconds of capture of an armed mode.

⑤ *Vertical armed mode annunciator (white)*

Displays in white the vertical AP/FD armed mode ; the annunciator extinguishes when this mode is captured.

Available vertical armed modes : ALT, GS.

⑥ *Vertical active mode annunciator (green)*

Displays in green the vertical AP/FD active mode ; the indication is followed by a star while capture of an armed mode is in progress.

The star disappears when capture is achieved.

Available vertical active mode : VS, ALT, GS, IAS, GA (FD only).

⑦ *"AP MSG" annunciator*

Illuminates amber to indicate that a caution message can be read on the ADU. If no caution message is displayed and the autopilot is engaged "AP ENG" green is displayed.

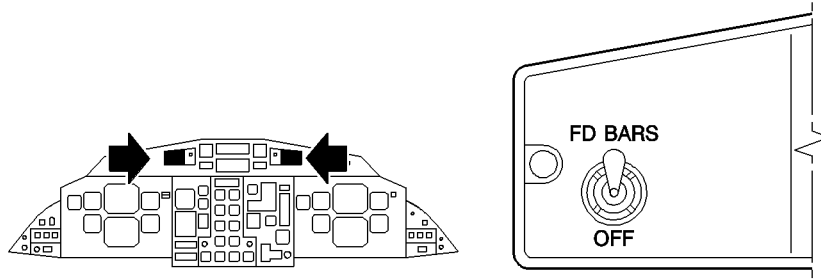
⑧ *CPL status annunciator (green arrow)*

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FD BARS SW

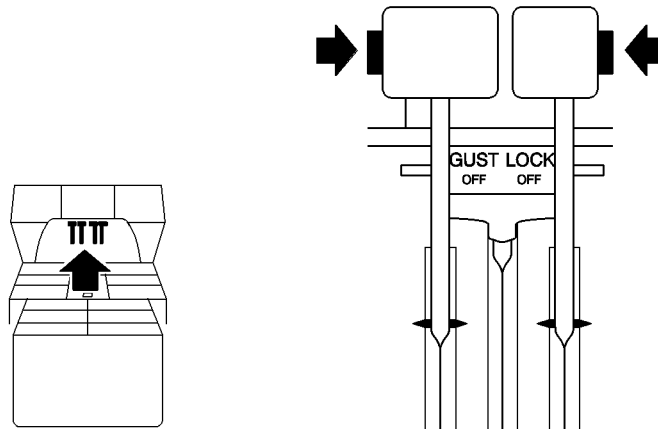
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FD BARS The Flight Director command bars are operative. Each bar is in view provided relevant axis is not in basic mode.
OFF The command bars are out of view.

GO AROUND PB

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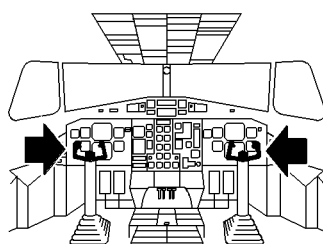
When one is depressed, the go around mode is selected. It drops all others FD armed and active modes. The AP disengages and the FD will command :
 – Laterally, heading hold (on heading followed at GA engagement).
 – Vertically, predetermined minimum safe pitch attitude (flaps function).
 The go around mode is cancelled by using TCS or STBY pb, or by selecting a new vertical mode or engaging AP.

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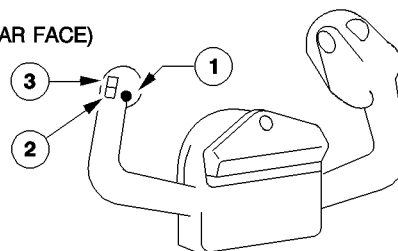
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CONTROL WHEEL

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(REAR FACE)



① AP quick disconnect pb

Allows to disconnect AP when depressed once. When depressed again, clears AP OFF alert indication.

② Normal pitch trim *ROCKER* (*ROCKER* actuation will disconnect AP)

③ Touch Control Steering (TCS) pb

Depressing the button allows the pilot temporary manual control of the aircraft. AP arrows extinguish on AFCS control panel.

- Basic AP mode : Depressing the TCS button in the basic mode will cause the AP to change the pitch and roll references. The reference attitude will be the aircraft's new pitch and roll attitude (within limits) at the time the TCS button is released. Pitch attitude resynchronization limits are $\pm 15^\circ$. If the button is released with a pitch attitude greater than 15° the aircraft will return to 15° and maintain that attitude.

If the TCS is released at bank angles less than 6° the system will level the wings and, at wings level will fly the existing heading. If the bank angle is greater than 6° but less than 35° at TCS release, the AP will maintain the bank angle. At bank angles greater than 35° the aircraft will return to 35° and the AP will maintain 35° .

- Modes linked to air data reference :
Action on TCS pb during ALT HOLD, VS HOLD or IAS HOLD modes will resynchronize the air data command reference without disengaging the mode.
Action of TCS pb during IAS or VS mode will generate a dashed IAS or VS reference message on ADU.
- In all other modes, a TCS activation will simply allow the pilot to take manual control of the aircraft without disengaging the mode.

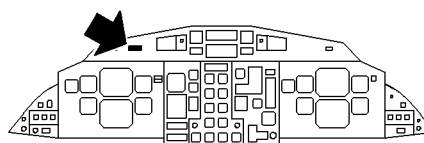
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GUIDANCE Indication (if installed)

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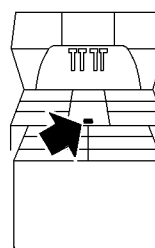
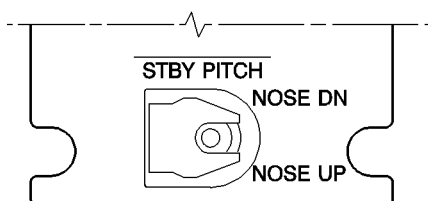
GUIDANCE



Illuminates amber if CAT II conditions are lost or if an excess deviation is detected.

STBY PITCH TRIM SW

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STBY PITCH TRIM will disengage the AP.

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10.3 ELECTRICAL SUPPLY / MFC LOGIC

ELECTRICAL SUPPLY

	EQUIPMENT	DC BUS SUPPLY (C/B)	AC BUS SUPPLY (C/B)
R	AP/FD computer + YD DISC circuit + control box + "GUIDANCE" indication (*)	DC EMER BUS (on overhead panel CMPTR)	- Nil -
R	ADU	DC STBY BUS (on overhead panel ADU)	- Nil -
R	Servo controls	DC STBY BUS (on overhead panel SERVO)	- Nil -
	AP OFF lights + AP DISC circuit	DC ESS BUS (on overhead panel WARN)	- Nil -

(*) if installed

MFC LOGIC

See chapter 1.01

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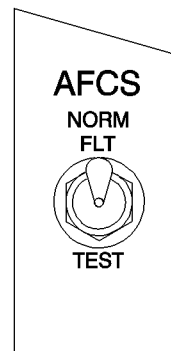
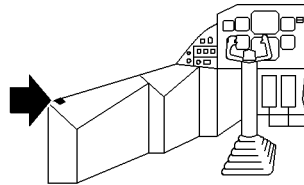
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10.4 LATERAL MAINTENANCE PANEL

On LH maintenance panel, a toggle switch allows to test the AFCS with the aircraft on the ground.

If an AFCS failure occurs in flight, the ground maintenance test mode should be entered after landing, and before removing avionics power, in order to retrieve the FLIGHT FAULT SUMMARY data.

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PROCEDURE

- Airspeed less than 50 kts, aircraft on ground.
- Autopilot/Yaw damper disengaged.
- Toggle switch on "test".

The ADU should now display :

01 FGC TEST ?

- Step through the tests using the L SEL button until Test 98 FLIGHT FAULT SUMMARY appears as shown below :

98 FLIGHT FAULT SUMMARY ?

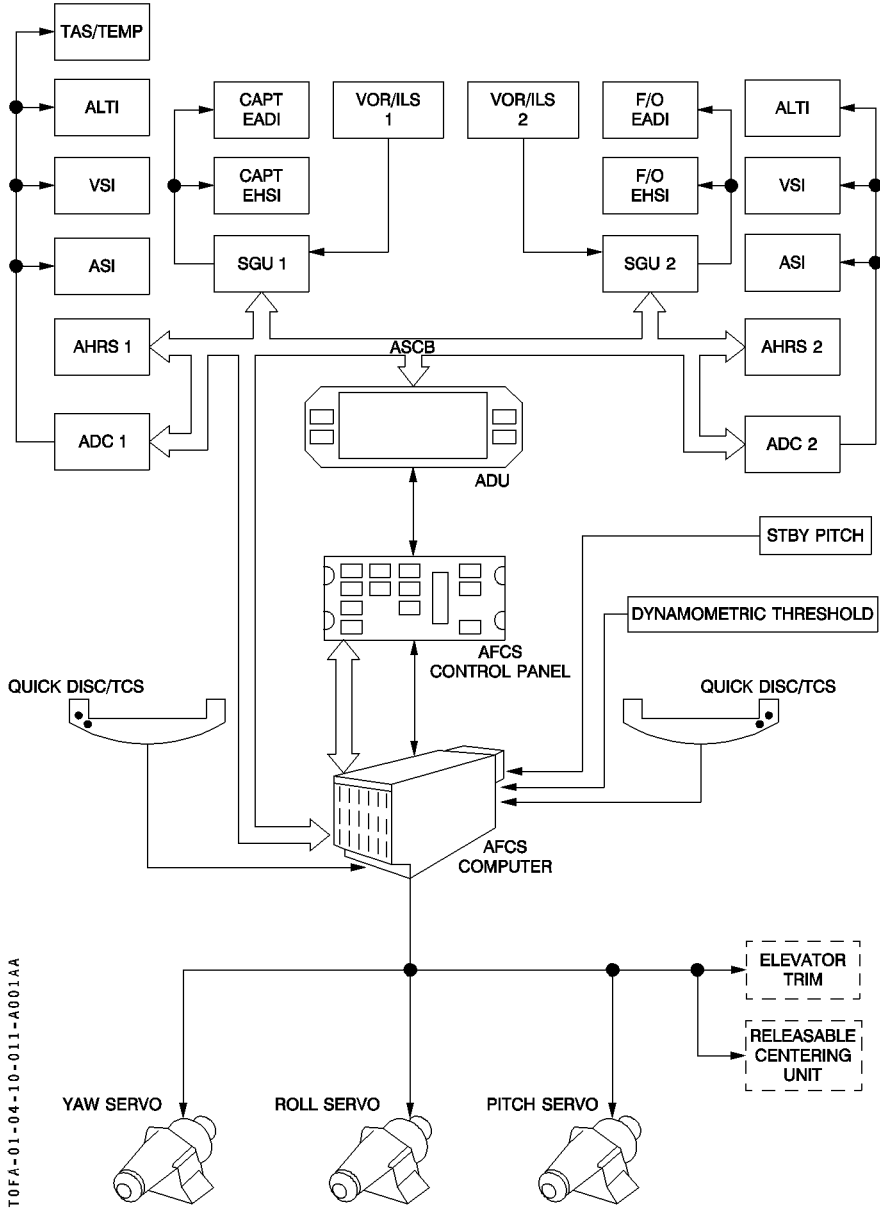
- Push the RESET button and data for the AFCS computer will appear. The alphanumeric codes should be recorded for use by maintenance personnel in trouble shooting the problems.
- Toggle switch on "NORM FLT".

Note : If power is shut down, flight fault summary is lost.

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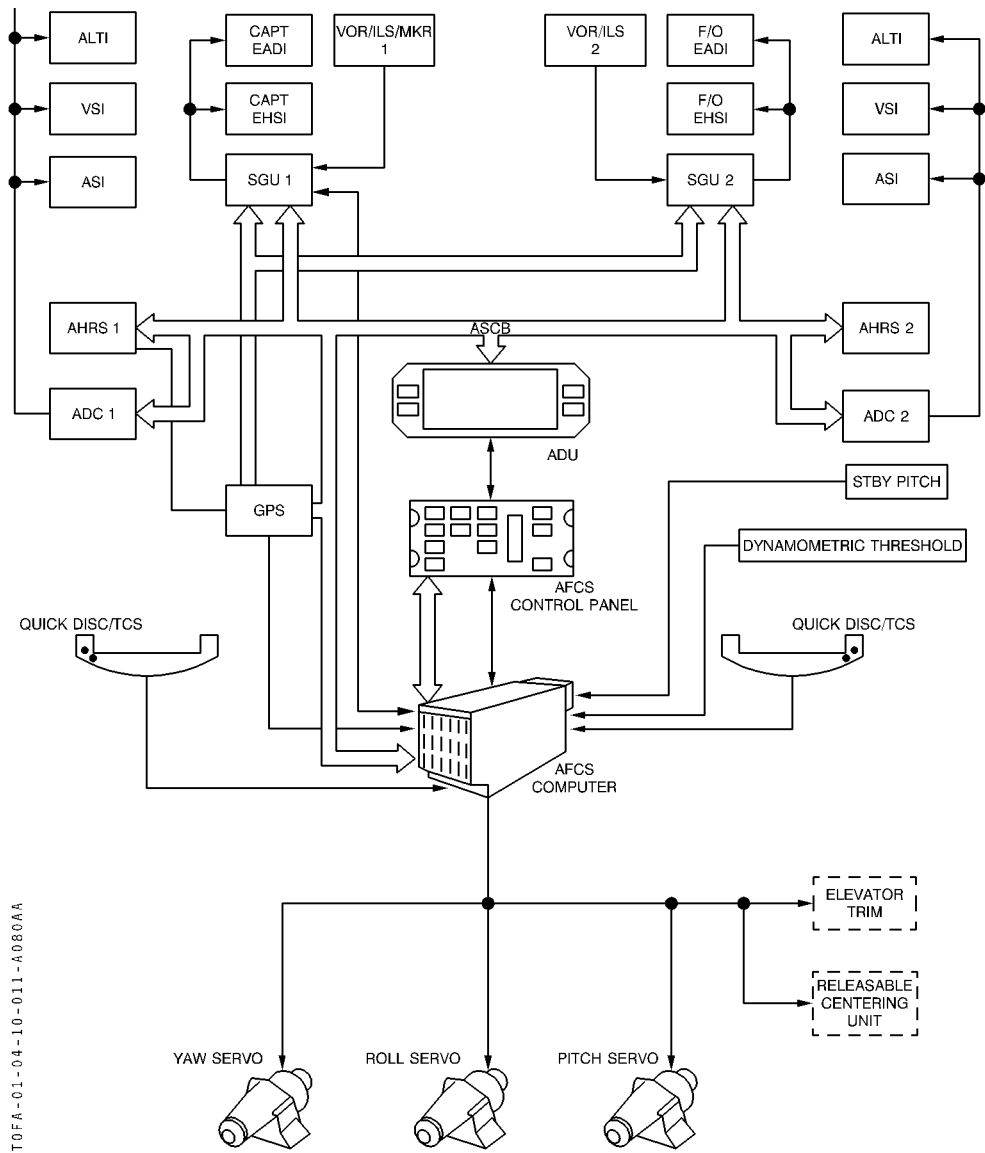
10.5 SCHEMATIC



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10.5 SCHEMATIC



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PURPOSE

The YAW DAMPER (YD) provides yaw damping and turn coordination. To achieve these functions, AFCS computer and AP yaw actuator are used.

The AUTO PILOT (AP) allows the following :

- Stabilizing the aircraft around its center of gravity while holding pitch attitude and heading or bank angle (AP in basic modes).
- Flying automatically any flight director active mode (AP in AP/FD modes) except GO AROUND mode which must be flown manually only.

AUTO PILOT ENGAGEMENT

When the AP is engaged, the pitch, roll and yaw actuators are connected to the flight controls and the pitch autotrim function is activated.

- Engagement with no vertical FD mode selected. The AP flies actual pitch attitude. This is the basic vertical mode. Pitch wheel and TCS can be used to modify the pitch attitude.
- Engagement with no lateral FD mode selected : the AP will first level wings and then maintain the heading reached at this time. This is the basic lateral mode. TCS pb may be used (see 1.04.10).
- Engagement with a lateral or vertical armed FD mode selected : the AP flies basic mode until the armed mode becomes active.
- Engagement with a lateral and/or vertical active F/D mode selected : the AP maneuvers to fly to zero the FD command bars.

AUTO PILOT DISENGAGEMENT

AP can be disengaged manually or automatically.

- Manual disengagement is achieved by action on either one of the following devices :
 - Quick disconnect pb on control wheel
 - Action on Pitch Trim (normal or STBY)
 - AP pb on AFCS control panel.
 - YD pb on AFCS control panel.
 - G A pb on PL
 - Pilot's force on the pedals over 30 daN (66 lb).
 - Pilot's force on the control column (pitch axis) over 10 daN (22 lb).
- Automatic disengagement occurs when :
 - One of the engagement conditions of the AP and/or YD is no longer met;
 - Stall warning indicator threshold is achieved.
 - There is a disagreement between the two AHRS or between the two ADC.
 - There is a mismatch between the two pitch trims.

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MANUAL DISENGAGEMENT

- Action on the AP pb on the control panel, or quick disconnect pb on each control column, or GA mode activation, or STBY or NORMAL pitch trim switch activation or effort on control column disengage the AP function without disengaging the YD function. The AP white arrows extinguish, the AP OFF it illuminates red and the "cavalry charge" aural warning is generated.
- On the ADU, the RESET pb illuminates amber and the "AP DISENGAGED" message is displayed in amber on the second line. Action on the RESET pb or quick disconnect pb clears the warnings and message.

Note: If a failure occurs, the "PITCH TRIM FAIL", "PITCH MISTRIM" or "AILERON MISTRIM" message is displayed on the ADU.

The crew has to disengage AP and manually fly the aircraft.

- Action on the YD pb on control panel or effort on pedals disengages the YD and AP. The AP and YD white arrows extinguish. The "AP OFF" It illuminates red and the "cavalry charge" aural warning is generated. On the ADU, the "RESET" pb illuminates amber and the "AP/YD DISENGAGED" message is displayed in amber on the second line. Action on the RESET pb or the quick disconnect pb clears the warnings and message.

AUTOMATIC DISENGAGEMENT

The warnings and messages are the same as those which occur in case of manual disengagement but "AP OFF", light and "AP" or "AP/YD DISENGAGED" message are flashing. Action on "RESET" pb clears warnings and messages.

- R *Note : If PITCH TRIM ASYM Lt illuminates on central panel, AP automatically disengages and cannot be reengaged.*

AP/YD MONITORING RECOVERY

When a monitored failure is detected, AP and/or YD is disengaged. If the pilot clears messages displayed on ADU (by using RESET pb) the FGC will attempt a "monitor recovery". The AP/YD can be once again engaged.

If initial failure condition still exists, AP/YD is disengaged again.

Conditions which will inhibit all recovery attempts are :

- Loss of AP, YD and AFCS controls panel.
- Trim inoperative monitor failures.
- Any APP mode.
- GA mode.
- LOC or BC modes.

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FUNCTION

The purpose of the FLIGHT DIRECTOR (FD) is to provide information to the pilot through the command bars on the EADI to allow a manual guidance of the A/C :

- In pitch axis if a vertical mode is selected.
- In roll axis if a lateral active mode is selected.

The FD commands are satisfied when the FD bars remain centered on the EADI.

If no vertical and/or lateral active mode is selected, the corresponding command bar is removed. In addition, the two bars can be removed by setting the FD BARS selection sw to OFF.

The following modes are available :

- Vertical modes :
ALT SEL, ALT, VS, IAS
- Lateral modes :
HDG, NAV, BC
- Common modes :
APP (lateral and vertical guidance for approach), G.A

Some modes have an initial arm status before becoming active.

Their active phase is divided into a capture phase followed by a track or hold phase.

When AP is engaged, it normally automatically follows the FD commands. If no FD active mode is selected, the system flies basic AP mode (see 1.04.20).

MODE SELECTION

Mode selection is achieved by action on the corresponding pb on the AFCS control panel except for ALT SEL mode and GO AROUND mode :

- ALT SEL mode is automatically armed.
- GO AROUND mode is activated as soon as one of the GA pb located on the PL's is depressed, and is disengaged by using TCS, STBY pb, by selecting a new vertical mode or by engaging AP.

Note : Simultaneous armed status modes is limited to one lateral mode and two vertical modes. Therefore vertical armed modes are prioritized in the following order :

- ILS GS ARM
- ALT SEL ARM

ACTIVATION OF ARMED MODES

Only one lateral and one vertical mode can be activated simultaneously. If two vertical modes are armed, the first which meets the capture conditions becomes first active. The second remains armed.

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MODE DISENGAGEMENT

Action on the pb of an armed or active mode on the AFCS control panel disengages that mode.

Action on either GA pb on the PL's disengages all other armed or active modes.

Action on the STBY pb on the AFCS control panel disengages all armed and active modes. ALT SEL mode will rearm automatically only if AP is engaged or if a FD mode is selected again and if aircraft flies toward the selected altitude.

When a vertical (or lateral) mode becomes active, the previously active vertical (or lateral) mode is automatically disengaged.

Other automatic disengagement logic conditions are detailed for each mode in chapter 1.04.40.

FLIGHT GUIDANCE DISPLAYS AND ANNUNCIATIONS

- The EHSI displays navigation information. The FD uses information from the coupled EHSI which is selected through the CPL pb on the AFCS control panel.
- Heading bug : the heading bug is controlled by the single heading knob. The heading error between actual heading and selected heading as displayed on the coupled EHSI is sent to the FD.
- Course pointer : the course pointer of each EHSI is controlled by the associated course knob. The course error as displayed on the coupled EHSI is sent to the FD.
- Deviations : deviations displayed on the coupled EHSI and used by the FD are as follows, depending on the selected navigation source.
 - in lateral : VOR, LOC or LNAV (if installed)
 - in vertical : GS
- The EADI displays guidance information through the pitch and roll command bars. It also displays mode status annunciations :

Armed modes are displayed in white and captured modes are displayed in green (see 1.04.10).
- The ADU provides mode status annunciations :
 - Lateral armed mode status is displayed in white on the left portion of the third line.
 - Vertical armed mode status is displayed in white on the central and right portion of the third line.
 - Lateral active mode status is displayed in green on the left portion of the fourth line.
 - Vertical active mode status is displayed in green on the right portion of the fourth line.
 - During capture phase, a star is added to the mode annunciation on EADI and ADU.

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40.1 SYSTEM OPERATION

For basic stabilization computations, the AFCS computer receives data from both CAPT and F/O ADC and AHRS. An average value is used.

AP Basic modes are not affected by the selected coupled side.

For guidance computations, the AFCS computer is coupled either to CAPT side or to F/O side. It uses data from the coupled ADC and SGU only and displays the same commands on both sides. Selection of the coupled side is achieved through repeated actions on the CPL pb. At power up, left side is coupled. The coupled side is indicated by illumination of the corresponding arrow located at each side of the CPL pb.

All FD modes not using SGU data (ALT HOLD, ALT SEL, VS, IAS, GO AROUND) will be retained following a CPL transition. The FD will give commands to ensure a smooth transition maneuver if the new data are different (different baro settings in ALT HOLD for example).

All FD modes using SGU data (NAV, BC, APP) will be dropped following the change of selected coupled side.

During ILS approach only :

DUAL CPL automatically occurs after LOC and GS track phase has begun if both NAV receivers are tuned to ILS. In DUAL CPL both arrows are illuminated and both NAV receivers are coupled to the AFCS computer which utilizes average data for guidance computation. When the APP mode is manually cancelled, the FD remains coupled to the side selected prior to dual coupling.

Excess DEV monitoring utilizes ILS data from both SGU (CAT 2 approach)

AP COUPLING WHEN A FAILURE OCCURS

- When one sensor used for guidance computations fails, the pilot can still couple the AFCS to the corresponding side but the FD modes using the invalid sensor cannot be engaged.
- Loss of ILS :
 - Out of DUAL CPL phase : AP remains engaged on coupled side.
 - In DUAL CPL phase : AP operates an automatic selection.

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FAILURES

When a failure appears on AFCS, AP MSG message is displayed on both EADI and corresponding explanation appears on ADU.

CAUSE	MESSAGE	PILOT ACTION
AP/YD Disengagement	AP/YD DISENGAGED YD DISENGAGED AP DISENGAGED	
Monitor	AFCS INVALID or AP INVALID	
CAT I or CAT II capacity	CAT I or CAT II displayed on the first line of ADU	
Loss of CAT II capacity	CAT II INVALID and CCAS is activated through the MFC (3 CLIC)	
Excess LOC or GS deviation	EXCESS DEV (LOC and GS scales flash amber on both EADI)	
Aberrancy on ROLL AXIS	AILERON MISTRIM RETRIM ROLL R(L) WING DN	Refer to 2.05.11 Refer to 2.02.04
AIRCRAFT out of TRIM on PITCH AXIS	PITCH MISTRIM	Use of A/P prohibited
Loss of AUTOTRIM	PITCH TRIM FAIL	Use of A/P prohibited
Excess difference between both AHRS or both ADC	AHRS DATA INVALID ADC DATA INVALID	
Incorrect navigation source/selected mode	CHECK NAV SOURCE	
AP engagement on ground	NO ENGAGEMENT ON GROUND	
Loss of a coupled transmitter	CPL DATA INVALID	
AP engagement with a condition making this engagement impossible	ENGAGE INHIBIT	
Loss of computer	AFCS INVALID	
Loss of ASCB bus	Dashes on ADU	
Incoherence between ASCB AP/YD disengage data and clutches status. FAULT detected by ADU	DISENGAGED ANNUN DATA FAULT	
Mismatch between the two NAV receivers ILS in Dual CPL	NAV MISMATCH (R SEL) or NAV MISMATCH (LSEL)	

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40.2 AUTOPILOT / FLIGHT DIRECTOR MODES

VERTICAL MODES

ALTITUDE SELECT MODE

ALT SEL mode is automatically armed when the aircraft is climbing or is descending towards the selected altitude except after action on the STBY pb. In this case, ALT SEL mode rearms only if AP is engaged or if a FD mode is selected, in addition to the previous conditions. ALT SEL is displayed on ADU and ALT is displayed on EADI.

– ARM PHASE

The ALT SEL ARM mode is annunciated on the ADU and EADI as a vertical armed mode, by a white ALT message. VS HOLD, IAS HOLD or PITCH HOLD modes can be used to fly to the selected altitude.

– CAPTURE PHASE

When approaching the preselected altitude, the system automatically switches to the ALT SEL CAP mode and the previous vertical mode is cancelled. A command is generated to asymptotically capture the selected altitude. ALT SEL CAPTURE is annunciated on the ADU and EADI by a green ALT*.

Note : If preselect altitude value is changed during capture phase, AP will return to basic PITCH HOLD mode.

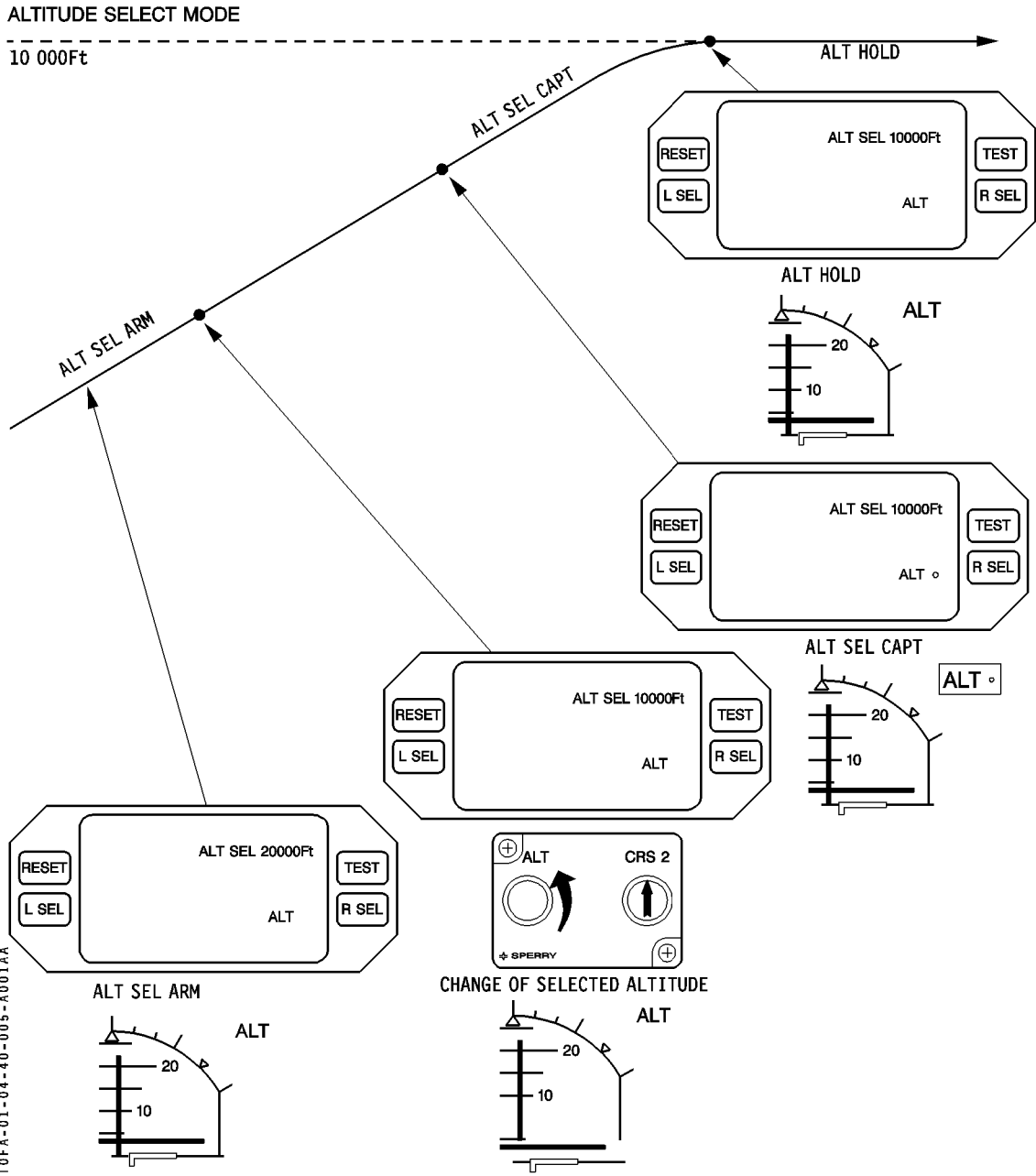
– HOLD PHASE

When the desired altitude is reached, the ALT SEL CAP mode is automatically cancelled and ALT HOLD mode is automatically selected. The ALT HOLD mode is annunciated on the ADU and EADI by a green ALT.

During the three phases (ALT SEL ARM, ALT SEL CAP, ALT HOLD), a GS capture will override the altitude mode.

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ALTITUDE HOLD MODE

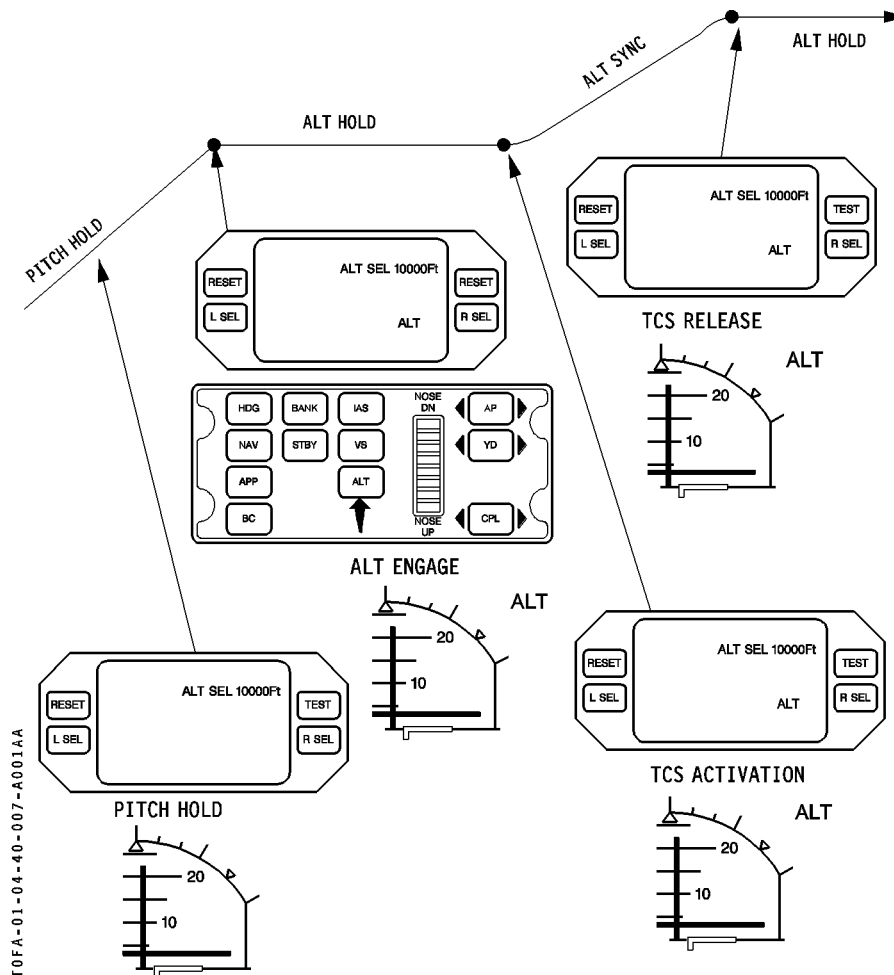
Activation of the ALT pb on the AFCS control panel selects the ALT HOLD mode and overrides all active FD vertical modes.

ALT existing at engagement is maintained.

The ALT HOLD mode is annunciated on both ADU and EADI by a green ALT.

Depressing and holding the TCS button allows the pilot to maneuver the aircraft to a new altitude reference without disengaging the mode.

In the ALT HOLD mode, all armed FD vertical modes are allowed, but a GS capture will override the ALT HOLD mode.



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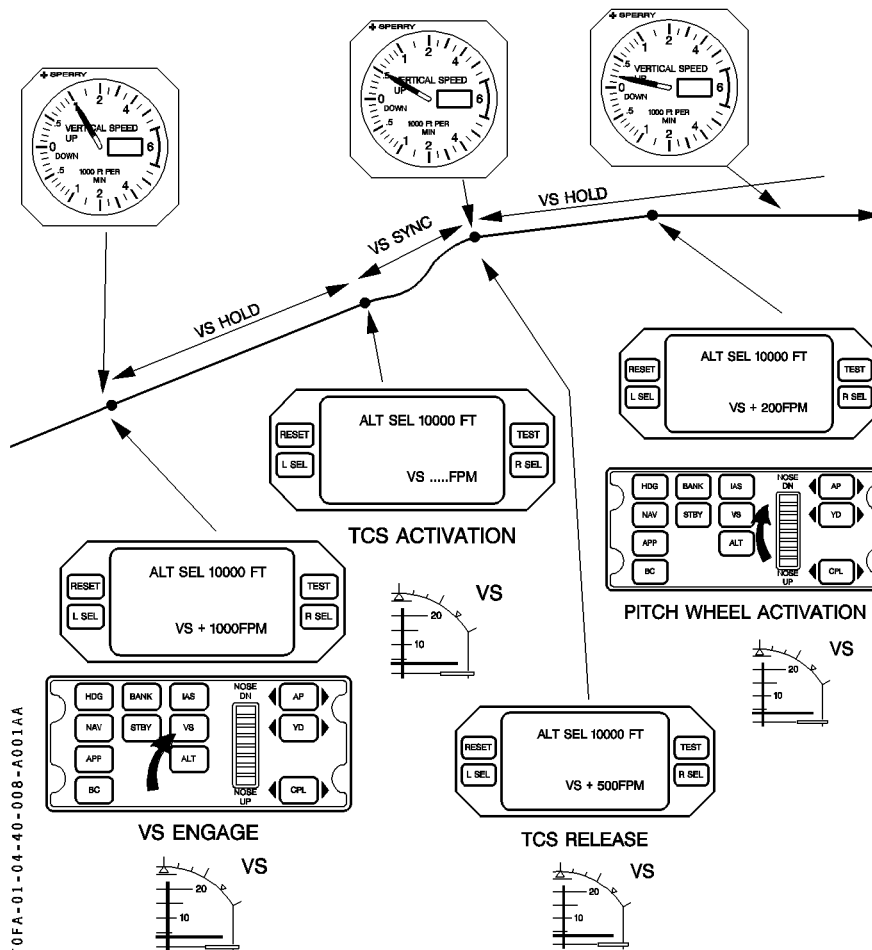
VERTICAL SPEED HOLD MODE

Action on the VS pb on the control panel selects the VS HOLD mode and overrides all active FD vertical modes. VS existing at engagement is maintained and displayed in hundreds of feet per minute in green on the ADU. "VS" message is displayed in green on the EADI.

Activation of the PTW will set a new vertical speed reference without disengaging the mode.

Depressing and holding the TCS button allows the pilot to maneuver the aircraft to a new vertical speed reference without disengaging the mode.

In VS HOLD mode any other vertical mode may be armed, and when captured will override VS HOLD mode.



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INDICATED AIRSPEED HOLD MODE

Action on the IAS pb on the control panel selects the IAS HOLD mode and overrides all active FD vertical modes.

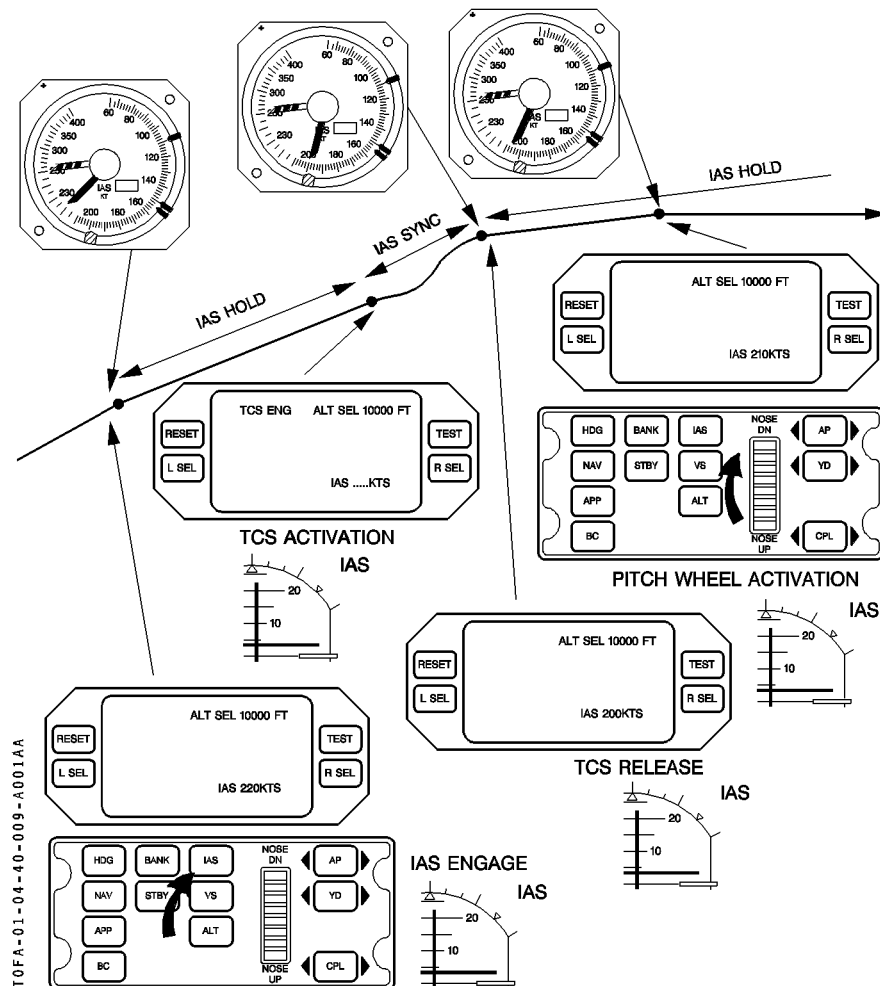
Airspeed existing at engagement is maintained and displayed in knots in green color on the ADU.

"IAS" message is displayed in green on the EADI.

Actuation of the PTW will set a new IAS reference without disengaging the mode.

Depressing and holding the TCS button allows the pilot to maneuver the aircraft to a new IAS reference without disengaging the mode.

In IAS HOLD mode, any other vertical mode may be armed, and when captured will override IAS HOLD mode.



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LATERAL MODES

HEADING SELECT MODE

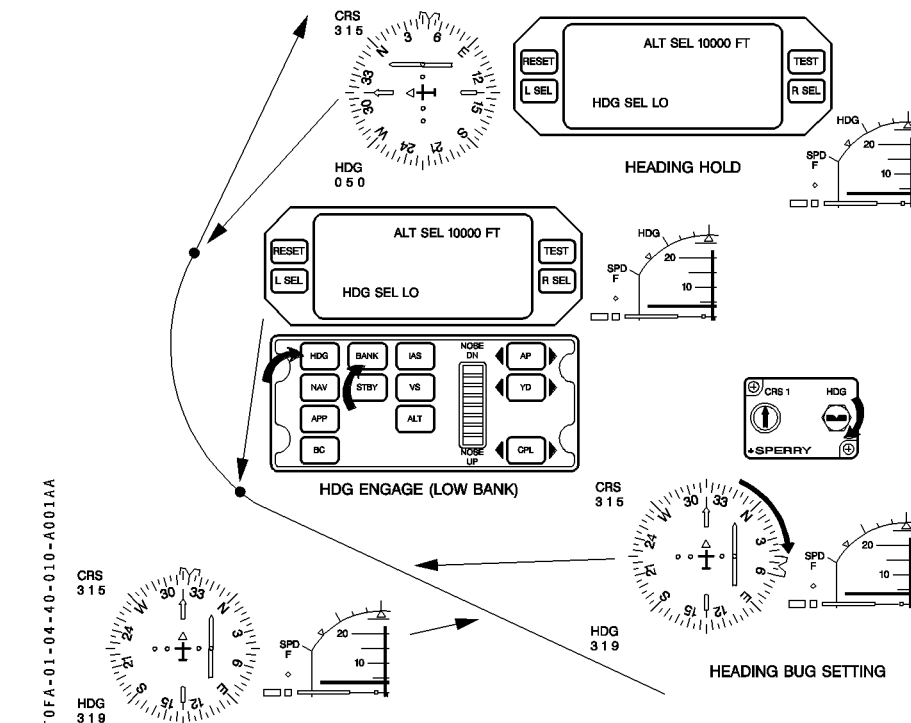
Action on the HDG pb on the AFCS control panel selects the Heading Select mode and overrides all active lateral FD modes. Selection of heading is made by the heading knob and is displayed on both EHSI's. The heading Select mode is annunciated on the ADU and the EADI by a green "HDG" at the lateral active location.

Selection of turns greater than 180° will lead the system to order a turn as short as possible if selection has been made before HDG mode being engaged. If selection is made after HDG mode engagement, turning command will occur by the side selected by the pilot.

CAUTION: Before take off, A/C lined up at the runway heading, the vertical command bar is to be checked and centered (if necessary).

The BANK pb on the AFCS control panel allows selection of the bank angle limit in the HDG SEL mode only. Alternate action on the Bank pb causes alternate selection of a High bank angle limit (27°) and a low bank angle limit (15°). Power up state is High bank angle. The bank angle limit status is annunciated on the ADU by a green "HDG SEL LO" if low bank is selected.

In the Heading Select mode, all armed roll FD Modes are allowed but the capture of any armed lateral mode will override the Heading Select mode.



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NAVIGATION MODE

Action on the NAV pb on the AFCS control panel arms the lateral guidance for capture of the selected navigation source that is displayed on the active EHSI. Depending on the selected NAV source and the frequency tuning, VOR ARM or LOC ARM, is selected. (L NAV if OMEGA installed and frequency tuned).

– VOR NAVIGATION MODE

VOR ARM is annunciated on the ADU and the EADI by a white "VOR". HDG SELECT, HDG HOLD modes can be used to fly the system during the VOR ARM phase.

At capture, the previous lateral mode is cancelled. VOR CAPTURE is annunciated on the ADU and the EADI by a green "VOR*". For the five first seconds of capture of the armed mode, a white box surrounds the message on the EADI. VOR TRACK mode is annunciated on the ADU and the EADI by the removal of the * symbol.

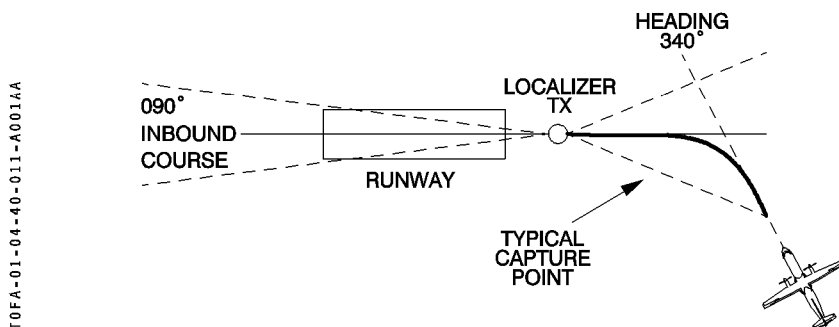
– LOCALIZER MODE

Selection and display are identical to VOR NAV mode except that there is no OVERSTATION and AFTER OVERSTATION capability.

BACK COURSE MODE

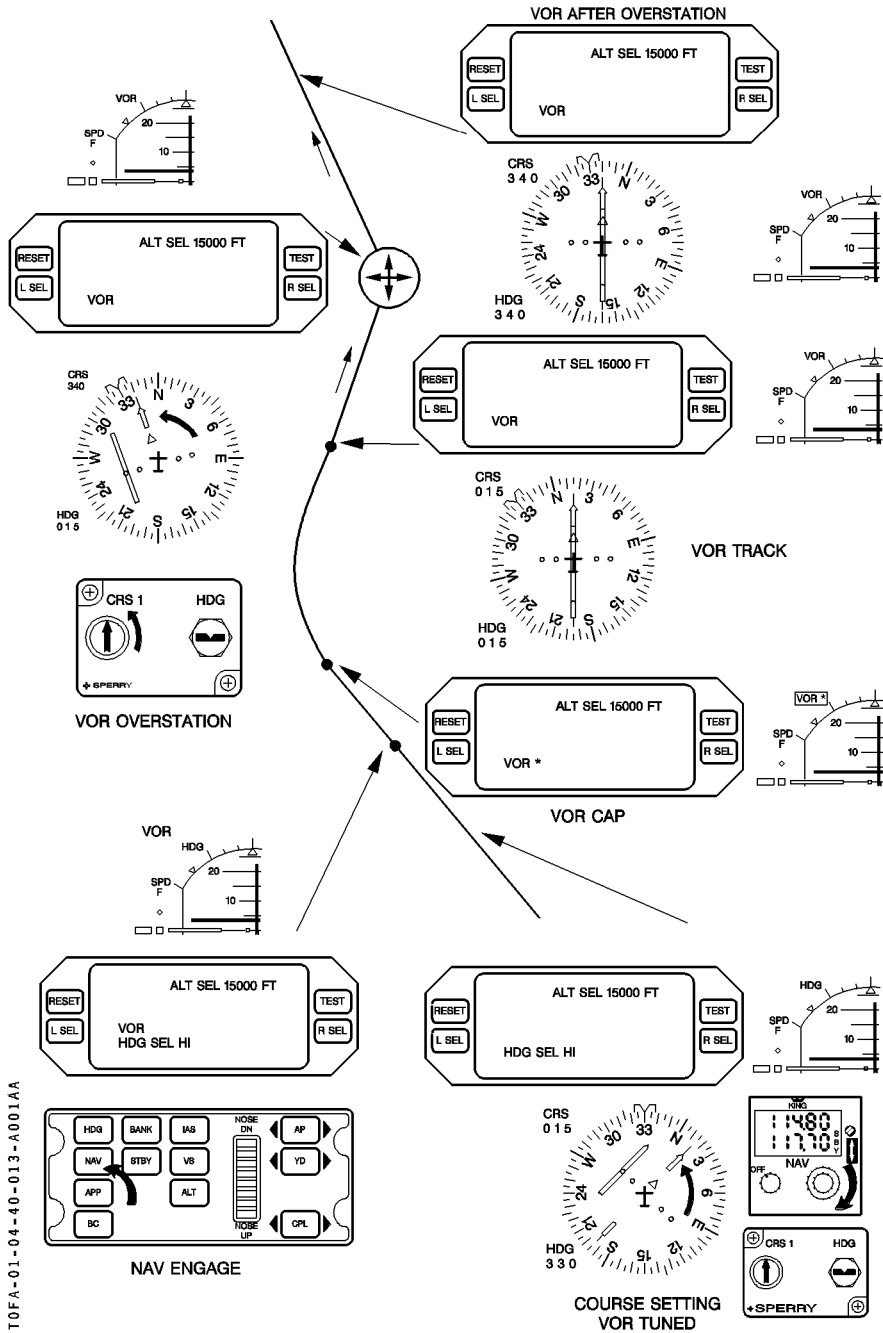
The back course mode is set up and flown exactly like a front course localizer approach but selecting BC mode. In this case, glideslope capture is automatically inhibited.

- Set the course pointer on the EHSI for the inbound published track.
- Set the heading bug on EHSI for the desired heading to intercept the course.



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COMMON MODES

ILS APPROACH MODE

Action on the APP pb on AFCS control panel selects LOC and GS ARM modes provided the coupled NAV receiver is tuned to an ILS frequency.

LOC ARM is annunciated on the ADU and the EADI by a white "LOC". HDG SELECT, HDG HOLD modes can be used to fly the system during the LOC ARM phase.

GS ARM is annunciated on the ADU and the EADI by a white "GS". Any vertical mode is allowed during GS ARM phase.

At LOC CAPTURE the previous lateral mode used to fly is cancelled. LOC CAPTURE is annunciated on the ADU and the EADI by a green "LOC**".

LOC TRACK is annunciated on the ADU and the EADI by the removal of the * symbol.

Glideslope capture is interlocked such that the localizer must be captured prior to glideslope capture. The GS capture overrides all vertical modes which were previously engaged. GS CAPTURE is annunciated on the ADU and the EADI by a green "GS**".

GS TRACK is annunciated on the ADU and the EADI by the removal of the * symbol.

GO AROUND MODE (FD MODE ONLY)

Action on the GA pb selects the GO AROUND mode and drops all armed and active FD modes. The AP disengages and the FD gives commands to maintain predetermined minimum safe pitch attitude and to maintain heading followed at GA engagement.

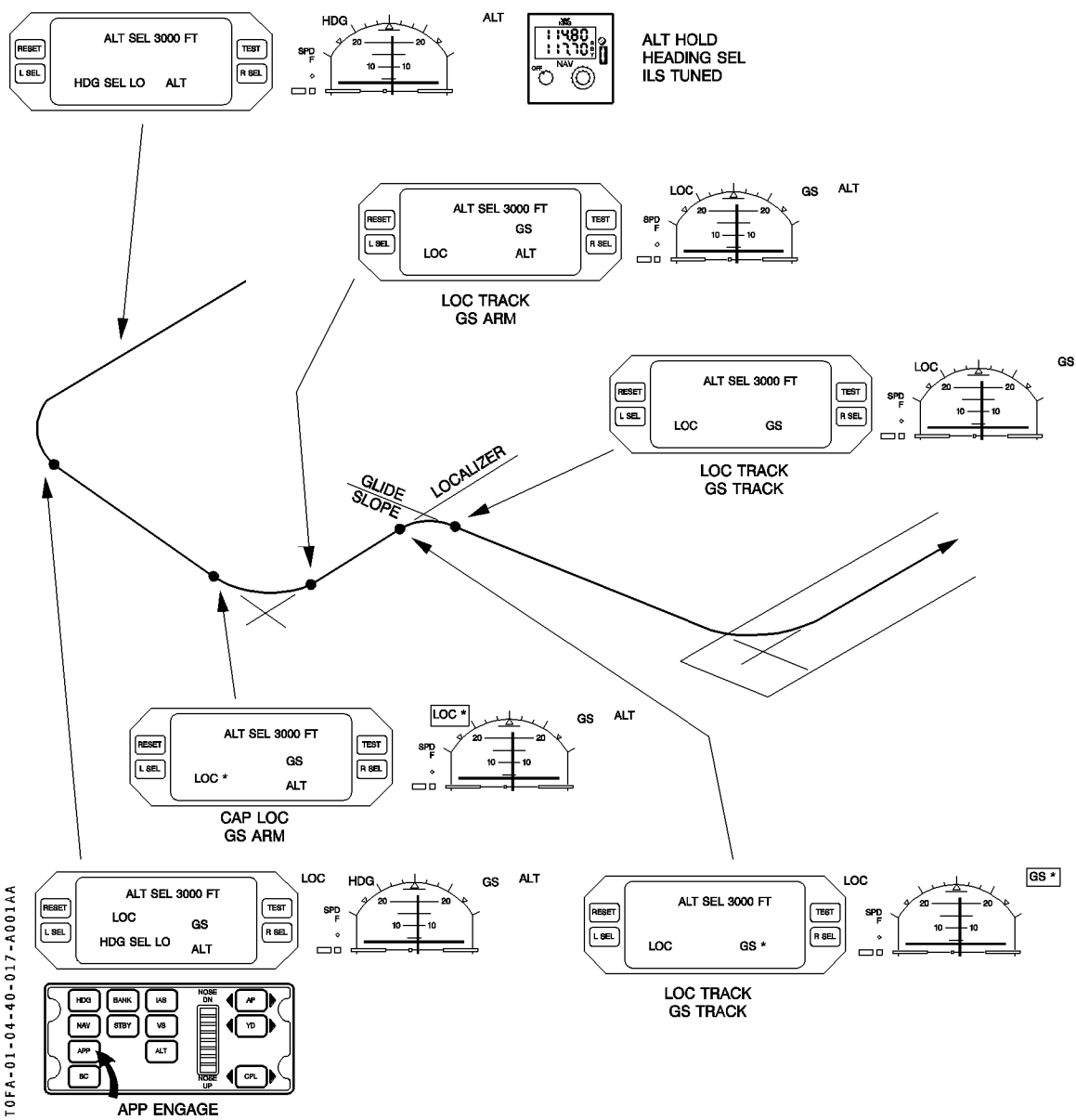
The GO AROUND mode is annunciated on the ADU and the EADI by a green "GA" at the active vertical location.

The GO AROUND mode is cancelled by selecting another vertical mode, engaging TCS, pushing the STBY pb or engaging the AP.

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APP MODE



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			P 1	001	
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The purpose of the altitude alert function is to alert the crew by activation of a visual signal and an aural signal when the aircraft is reaching or leaving the preselected altitude. Preselection is achieved through a rotary knob and displayed in white on the first line of the advisory display.

The visual signal consists of one amber light located on each of the two altimeters which illuminate when altitude is between $H + 250$ ft and $H + 1000$ ft or between $H - 250$ ft and $H - 1000$ ft.

The aural signal consists in a "C chord" signal of 0,75 s duration which is activated each time the aircraft enters one of the two altitude zones defined above.

