

## 1. GENERAL.

The system is an integrated two-channel autopilot and flight director consisting of FCC 1 and 2 (Flight Control Computer). The system provides dual flight directors, a 2-axis autopilot, automatic pitch trim control, and independent yaw damping and yaw trim commands for the rudder control system. Flight deck controls consist of the APP (Autopilot Panel), the FCP (Flight Control Panel), the FD button on the DCP (Display Control Panel) and discrete buttons for disengage, sync and go around.

All mode changes, including engagement and transfer, are synchronized to provide smooth transitioning between modes. Roll magnitude and rate limits further enhance roll axis operation. Pitch commands are also magnitude and rate limited to ensure smooth, low-g captures. Programming of gains with altitude, speed or distance is performed whenever appropriate to improve overall system operation. Upon power-up the HDG and VS basic modes are automatically selected.

Pilot and copilot mode logic is synchronized together, except for glideslope and localizer which operates independently.

### Monitoring.

Continuous system monitoring is performed by the FCC.

Disengagement (or engagement prevention) of the autopilot and/or yaw damper occurs any time a failure condition is detected by the autopilot or yaw damper monitors.

Pitch trim monitoring is performed after engagement of the autopilot. Pitch trim failures cause automatic pitch trim operation to cease but the autopilot remains engaged.

## 2. AUTOMATIC YAW TRIM.

Automatic yaw trim operation is provided when the yaw damper is engaged. Yaw trim generates commands to eliminate steady state lateral acceleration (i.e. it centers the ball). Yaw trim failures cause au-

tomatic yaw trim operation to cease but the yaw damper remains engaged. Yaw auto trim failure is announced with an amber YAW AUTO TRIM INOP on EICAS.

Yaw trim operation is temporary disabled when manual rudder pedal force exist (exceeding ~15 lbs).

## 3. AUTOMATIC PITCH TRIM.

Automatic pitch trim is provided when the autopilot is engaged. Pitch trim failures cause automatic pitch trim operation to cease but the autopilot remains engaged. Pitch trim failure is announced with an amber AP PITCH TRIM INOP on EICAS.

## 4. YAW AND AUTOPILOT MISTRIM.

The aircraft must be trimmed out before autopilot engagement. With the autopilot engaged, any pitch and roll mistrim is announced by an amber P and R on the PFD respectively. If a mistrim condition exists longer than 10 seconds, an AP PITCH MISTRIM and/or AP ROLL MISTRIM caution is announced.

## 5. AUTOPILOT PANEL (APP).

The APP contains the autopilot and yaw damper engage levers, the pitch-turn knob assembly, and the turbulence mode select button. The turbulence button also contains an integral round indicator light.

### Pitch wheel.

The pitch wheel functions as a vertical speed command knob. The pitch wheel selects vertical speed mode and clears any active vertical mode except altitude preselect capture, altitude preselect track, overspeed, and glideslope capture. The pitch wheel does not clear vertical arm modes. Movement of the wheel up or down from center detent generates a vertical speed slew command proportional to the amount of displacement. When the pitch wheel is returned to the spring-loaded center detent, the commanded vertical speed reference is held. The pitch wheel has no function when in altitude preselect capture, altitude preselect track, overspeed, or glideslope capture.

**Turn knob.**

The roll knob functions as a command knob for the selected heading bug. Movement of the knob left or right from center detent generates a slew command for the heading bug which is proportional to the amount of knob displacement. When the roll knob is returned to the spring-loaded center detent, the heading bug is held.

**Turb button – Turbulence mode.**

Turbulence mode is selected and cleared by pushing the TURB button. Turbulence mode adapts autopilot gains (dynamic response) to turbulent flight conditions. Turbulence mode cannot be selected if the on-side localizer is captured or the autopilot is disengaged. Correspondingly, turbulence mode is automatically cleared when the onside localizer captures or the autopilot disengages.

**YD Engage lever – Yaw Damper engagement.**

The yaw damper is engaged by raising the solenoid held YD engage lever to the engaged position. To disengage the yaw damper, manually lower the YD engage lever to the disengaged position. An internal mechanical interlock raises the YD engage lever whenever the AP engage lever is raised. Conversely the AP engage lever is lowered whenever the YD engage lever is lowered.

Automatic disengagement, causing the YD engage lever to fall to the disengaged position, occurs anytime one rudder control unit or both rudder servo actuators fail, or a failure condition is detected by the FCC monitoring the yaw damper. Yaw damper operation is temporary disabled when excessive rudder pedal force exists.

**AP Engage lever – Autopilot engagement.**

The autopilot is engaged by raising the solenoid held AP engage lever to the engaged position. Upon engagement the autopilot will follow the flight director commands existing prior to engagement (the aircraft present flight profile). Autopilot engagement clears

vertical go-around mode by selecting vertical speed mode. To disengage the autopilot, push either the disconnect button, the go-around button, or the standby manual trim switch (all of which cause the AP engage lever to fall to the disengaged position) or manually lower the AP engage lever to the disengaged position. An internal mechanical interlock lowers the AP engage lever whenever the YD engage lever is manually lowered. Conversely the YD engage lever is raised whenever the AP engage lever is raised. The AP/YD disengage warning is cleared by a push of the A/P disconnect button located on the control wheel).

Automatic disengagement, causing the AP engage lever to fall to the disengaged position, occurs any time a failure condition is detected by the FCC monitoring the autopilot, or at activated stick shaker. Autopilot disengagement clears turbulence mode.

**6. FLIGHT CONTROL PANEL (FCP).**

The FCP contains the lateral and vertical mode select buttons, the heading, course, altitude preselect and speed knobs, the vertical speed slew rocker switch and the autopilot transfer button. Each knob has a pair of illuminated locator arcs bracketing it on the panel. Each mode button has a pair of rectangular indicator lights located directly above. The left indicator lights are driven by the pilot's FCC, and the right indicator lights are driven by the copilot's FCC. The AP transfer button has a triangular indicator light near each lower corner. The AP mode select buttons use push-on logic to control selection of the active lateral and vertical modes of the flight control system, except for HALF BANK which uses push-on/push-off logic.

**7. LATERAL MODES.****HDG button – Heading mode.**

Heading mode is the basic lateral mode. Heading mode occurs automatically at power-up, and when manually selected by pushing the HDG button on the FCP. Commands are generated to capture and maintain the selected heading, shown on the PFD and ND with the heading bug. Heading mode is automatically cleared by selection of another lateral mode.

**NAV button – Navigation mode.**

Navigation mode is selected by pushing the NAV button. Navigation mode arms when selected, but cannot capture if the FCC is not receiving valid navigation data. Prior to capture the FCC operates in a heading sub-mode. The FCC performs an all-angle adaptive capture (an intercept which differs from the final course by more than 90 degrees is not recommended).

If the lateral navigation signal selected for display by the EFIS is from the optional FMS, the FMS determines the capture point, after which the FCC follows lateral bank commands generated by the FMS. Navigation capture clears the heading sub-mode. Localizer capture also clears half bank and turbulence modes. Navigation captures are cleared, and/or prevented, in an FCC when the flight director on its side is driven by the flight guidance commands from the other FCC. Navigation mode is cleared by manual selection of another lateral mode. When captured, changing the source of the onside navigation signal will clear the capture, sync the heading bug, and rearm navigation mode.

Dead reckoning operation is provided during VOR station passage. When DME data is available, the dead reckoning region is approximately where the horizontal distance to the station is less than the altitude above the station. Without DME data, dead reckoning is based on a high rate of VOR deviation.

**APPR button – Approach mode.**

Approach mode is selected by pushing the APPR button. Approach mode arms when selected, but cannot capture if the FCC is not receiving valid navigation data. Prior to capture the FCC operates in a heading sub-mode. If the lateral navigation signal selected for display by the EFIS is from the FMS, the FMS determines the capture point, after which the FCC follows lateral bank commands generated by the FMS. The FCC performs an all-angle adaptive capture (an intercept which differs from the final course by more than 90 degrees is not recommended). Lateral approach capture clears half bank mode and the heading sub-mode, on the capture side. An onside localizer cap-

ture also clears turbulence mode, on both sides. If the other side does not concurrently capture, it will continue to operate in a heading sub-mode until it independently captures. Approach mode is cleared by manual selection of another lateral mode. When captured, changing the source of the navigation signal will clear the capture, sync the heading bug and rearm approach mode.

Dead reckoning operation is provided during VOR station passage. When DME data is available, the dead reckoning region is where the DME distance to the station is small. Without DME data, dead reckoning is based on a high rate of VOR deviation.

Approach mode switches the flight guidance commands to a dual-independent configuration.

Back-course operation will be automatically corrected by EFIS for localizer approaches when back course approach has been selected (localizer front course must be selected).

**Glideslope.**

The FCC arms for glideslope capture after a front course localizer capture in approach mode, if the FCC is receiving valid glideslope data. Prior to capture, the FCC operates in the currently active vertical mode. At glideslope capture all other vertical modes are automatically cleared on the captured side. If the other side does not concurrently capture glideslope, it will continue to operate in the currently active vertical mode, or any ensuing vertical mode, until it independently captures glideslope. Manual selection of another vertical mode except go-around is inhibited while in glideslope capture. Glideslope capture is cleared by back course operation, deselecting the localizer, overspeed, or by clearing approach mode.

When glideslope captures are not concurrent, the reference adjustment, vertical mode selection, PFD annunciations, etc., operate normally (and independently) on the non-capture side. When only one side has captured glideslope, only one vertical indicator will remain lighted on the FCP. The lighted indicator shows the current mode selection of the non-captured side. The other indicator will be off, indicating glideslope capture on that side.

**Approach Mode Alerts.**

An approach mode alert is generated when, during coupled glideslope operation below 1000 feet RALT, a loss of automatic approach (JARS – AWO – 153 & 253) may have occurred. The approach alert is issued upon a loss of FCC outer loop data, selection of a new mode except go around, or transferring when the other side is not in glideslope capture. Autopilot disengagement will not generate an approach alert. An approach alert is cancelled by pushing the AP disconnect button or go-around palm switches, or if the aircraft returns to an altitude above 1000 feet RALT.

Approach alert is announced by an amber LOSS OF APPROACH on EICAS.

**Half Bank Button – Half Bank mode.**

Half bank mode is manually selected and cleared by pushing the HALF BANK button. Half bank mode reduces the maximum commanded bank angle to about half of normal. Half bank mode is cleared automatically by lateral go-around mode, onside approach mode capture, or any onside localizer capture.

**8. VERTICAL MODES.****VS Button – Vertical Speed mode.**

Vertical speed mode is the basic vertical mode. Vertical speed mode occurs automatically at power-up, when manually selected (unless in glideslope capture or altitude preselect is captured or tracking), or if the altitude preselector is changed (when in climb or descend mode) to a setting which cannot be intercepted (see level change mode). VS mode is manually selected by pushing the VS mode button or the VS slew switch on the FCP, or by rotating the pitch wheel on the APP. Upon selection of VS mode, the VS refer-

ence (displayed on the PFD) is set to the current vertical speed. The VS can be changed up to a maximum of  $\pm 9900$  fpm. The VS reference is reset to the current vertical speed upon engagement or whenever the vertical sync button is pressed while not engaged. Vertical speed mode is cleared by selection or automatic capture of another vertical mode. The digital display of VS on the PFD is rounded to nearest 100 fpm.

**IAS/M button.**

First push of the IAS/M button selects IAS mode. Second push of the IAS/M button selects MACH mode. Subsequent pushes of the IAS/M button toggles between IAS and MACH modes.

**Mach mode.**

When Mach mode is selected the Mach reference displayed on the PFD is set to the current Mach number. The Mach reference can be changed, up to Mmo, using the IAS/M knob. The Mach reference is reset to the current Mach number, up to Mmo, upon engagement or whenever the vertical sync button is pushed while not engaged. Mach mode is automatically selected whenever a significant overspeed (Mmo + 0,15 Mach) condition occurs (unless in altitude preselect capture, altitude preselect track, or altitude hold modes) while above the IAS/Mach transition altitude. Upon automatic (overspeed) selection of Mach mode, the previously active vertical mode is cleared, and the Mach reference is initially set to 0,15 Mach below Mmo. When Mach mode has been selected automatically (overspeed) it cannot be deselected until the Mach number has decreased to below Mmo. Mach mode will remain selected after exiting Mach overspeed. Mach mode is normally cleared by manual selection or automatic capture of another vertical mode.

**IAS Mode.**

When IAS mode is selected the IAS reference displayed on the PFD is set to the current IAS. The IAS reference can be changed, up to  $V_{MO}$ , using the IAS/M knob. The IAS reference is reset to the current IAS, up to  $V_{MO}$ , upon engagement, or whenever the vertical sync button is pushed while not engaged. IAS mode is automatically selected whenever a significant overspeed ( $V_{MO} + 10$  knots) condition occurs (unless in altitude preselect capture, altitude preselect track, or altitude hold modes) while below the IAS/Mach transition altitude. Upon automatic (overspeed) selection of IAS mode, the previously active vertical mode is cleared, and the IAS reference is initially set to 5 knots below  $V_{MO}$ .

When IAS mode has been selected automatically, it cannot be deselected until the IAS has decreased to below  $V_{MO}$ . IAS mode will remain selected after exiting IAS overspeed. IAS mode is normally cleared by manual selection or automatic capture of another vertical mode.

**Level Change (LVL CHG) button – Climb/Descend Mode.**

Pushing the level change button (LVL CHG) automatically selects either climb mode or descend mode (unless in glideslope capture or altitude preselect is captured or tracking) based upon the altitude preselector setting. If the aircraft altitude is below the preselector setting (at the moment the LVL CHG button is pushed) climb mode will be selected. Conversely, if the aircraft altitude is above the preselector setting, descend mode will be selected. The selected mode (climb or descend) will be cleared (and VS mode will be selected) if the altitude preselector is changed to a setting which cannot be intercepted (i.e. a setting below the aircraft altitude when in climb mode, or a setting above the aircraft altitude when in descend mode).

**Climb mode.**

When climb mode is selected it is configured to fly a normal climb profile.

A second push of the LVL CHG button configures climb mode to fly the medium and third push flies the high speed climb profiles. Additional pushes of the LVL CHG button will cause climb mode to cycle between the normal, medium and high speed profiles.

The vertical reference is IAS at low altitudes, and Mach at high altitudes. Climb mode is cleared by manual selection or automatic capture of another vertical mode. Climb mode is also cleared (and VS mode is selected) if the altitude preselector is changed to a setting below the aircraft altitude.

**Descend mode.**

When descend mode is selected it is configured to fly a normal descent profile. A second push of the LVL CHG button configures descend mode to fly a high-speed descent profile. Additional pushes of the LVL CHG button will cause descend mode to cycle between the normal and high-speed profiles. The vertical reference is Mach at high altitudes, and IAS at low altitudes. Descend mode is cleared by manual selection or automatic capture of another vertical mode. Descend mode is also cleared (and VS mode is selected) if the altitude preselector is changed to a setting above the aircraft altitude.

**ALT button – Altitude Hold mode.**

Altitude hold mode is manually selected by pushing the ALT button (unless in glideslope capture or altitude preselect is tracking). Commands are generated to capture and maintain the pressure altitude existing at the time of altitude hold mode selection. The altitude reference is reset to the current pressure altitude whenever the vertical sync button is pushed while not engaged. Altitude hold mode is automatically selected if the altitude preselector setting is changed while in altitude preselect track. Altitude hold mode is cleared by manual selection or automatic capture of another vertical mode except ALTS which will not clear Altitude hold.

**VNAV button – Vertical Navigation mode.**

Not used – inoperative.

**Altitude Preselect mode.**

Altitude preselect mode is armed at all times, except during glideslope capture, vertical go-around, altitude hold, altitude preselect capture, or altitude preselect track.

Altitude preselect capture occurs when the flight path of the aircraft nears the altitude set on the ALTS alerter. Capture will not occur if the ALTS alerter is slewed through the current altitude. The capture point is a function of closure rate, with the capture point moving away from the preselected altitude for high closure rates. At capture the previously active vertical mode is cleared. Manual selection of another vertical mode, except for altitude hold, is inhibited while in altitude preselect capture. Manual selection of any other vertical mode is inhibited while in altitude preselect track. Barometric altitudes are used for all altitude preselect computations.

During the altitude capture maneuver (called altitude capture) if the preselect altitude is changed, vertical speed mode is automatically selected and altitude preselect mode is rearmed. After becoming established on a preselected altitude (called altitude track) if the preselect altitude is changed, altitude hold mode is automatically selected.

Altitude preselect capture and track are cleared upon AP engagement, go-around, or automatic capture of another vertical mode. Altitude preselect capture is also cleared by selecting altitude hold, or by altitude preselect track. For altitude preselect alert envelope description see EFIS.

**Pitch mode.**

Pitch mode is selected by pushing the flight director VERT SYNC button while in vertical go around. Upon selection of pitch mode the pitch reference is set to the current pitch angle. Commands are generated to maintain the pitch reference value. The pitch reference is reset to the current pitch attitude whenever the sync switch is pushed while in pitch mode. Pitch mode is cleared by selection or automatic capture of another vertical mode, or upon autopilot engagement.

**9. MODE REVERSION.**

The FCC automatically reverts to an attitude hold (pitch and/or roll) submode upon losing data required to fly the current mode. The FCC automatically returns to flying the current mode if the data becomes valid again. The initial loss of data and subsequent reversion is not annunciated.

**10. FCP CONTROLS.**

All control knobs incorporate multiple mechanical detents (clicks). The values selected are proportional to the turning rate of the knobs.

**ALTS knob.**

The ALTS knob is used to change the altitude preselector setting used by altitude preselect mode. The preselected altitude is displayed on the PFD. Pushing the ALTS knob will cancel aural and visual altitude alerts.

**HDG knob.**

The HDG knob is used to select heading, shown on the PFD by the digital heading readout and the heading bug. Pushing the HDG knob will set the heading bug to the current heading.

**IAS/M knob.**

The IAS/M knob is used to change the speed reference value used by IAS or mach modes. The current speed reference is shown by the digital readout on the PFD.

**VS Slew switch.**

The VS slew rocker switch is used to slew the vertical speed reference displayed on the PFD. The rocker switch selects vertical speed mode and clears any active vertical mode except altitude preselect capture, altitude preselect track, overspeed, and glideslope capture. A quick push of the rocker switch will change the vertical speed reference by 100 fpm per push. Pushing and holding the switch will slew the reference with a progressively increasing slew rate.

**CRS1 and CRS2 knobs.**

The CRS1 knob is used to select the pilot's course, displayed by the course pointer on the left PFD. Conversely CRS2 is used to select the copilot's course, displayed on the right PFD. Pushing the button in a course knob will drive the course pointer to the selected NAV station's radial required to fly directly to the station.

**1 / 2 Button – Autopilot transfer.**

Transfer is selected and cleared by pushing the 1 / 2 button. The pilot's channel (channel 1) is initially used to provide flight guidance commands to both flight directors and the autopilot. Selecting transfer, switches the flight directors and autopilot to flight guidance commands from the copilot's channel (channel 2). Approach and go-around modes switch the flight guidance commands to a dual-independent configuration (the pilot's flight director is driven by the pilot's flight guidance commands, and the copilot's flight director is driven by the copilot's commands). Transfer mode always determines which side's flight guidance commands are used for the autopilot.

**11. DISPLAY CONTROL PANEL (DCP).**

The FD buttons, located on the DCPs are used to select and remove the steering commands on the EFIS except when overridden by the FCC. The FCC mode annunciations are not removed by the FD buttons.

**12. EXTERNAL CONTROLS.****Ap Disconnect buttons.**

The AP disconnect buttons are located on the outboard side of each control wheel. Pushing a disconnect button is the primary autopilot disengagement. The AP and YD disengage warning is cancelled by pushing a disconnect button a second time.

**Vertical Sync buttons.**

The vertical sync buttons are located on the inboard side of each control wheel. The vertical sync button is used, when not engaged, to synchronize (set) the vertical reference to the current flight value.

The vertical reference being synchronized is IAS (if in IAS mode), Mach (if in Mach mode), VS (if in VS mode), altitude hold memory (if in altitude hold mode) or the pitch angle memory (if in pitch mode). Over-speed, glideslope capture, altitude preselect capture, altitude preselect track, and climb/descent are not affected by sync button operation. No lateral references are synchronizable.

**Go-around buttons – Go-around mode.**

Go-around mode is selected by pushing the Power Lever go-around palm switches. Go-around selection generates a fixed pitch up command in the vertical axis, and a heading hold command, with decreased bank limits (5 degrees), in the lateral axis.

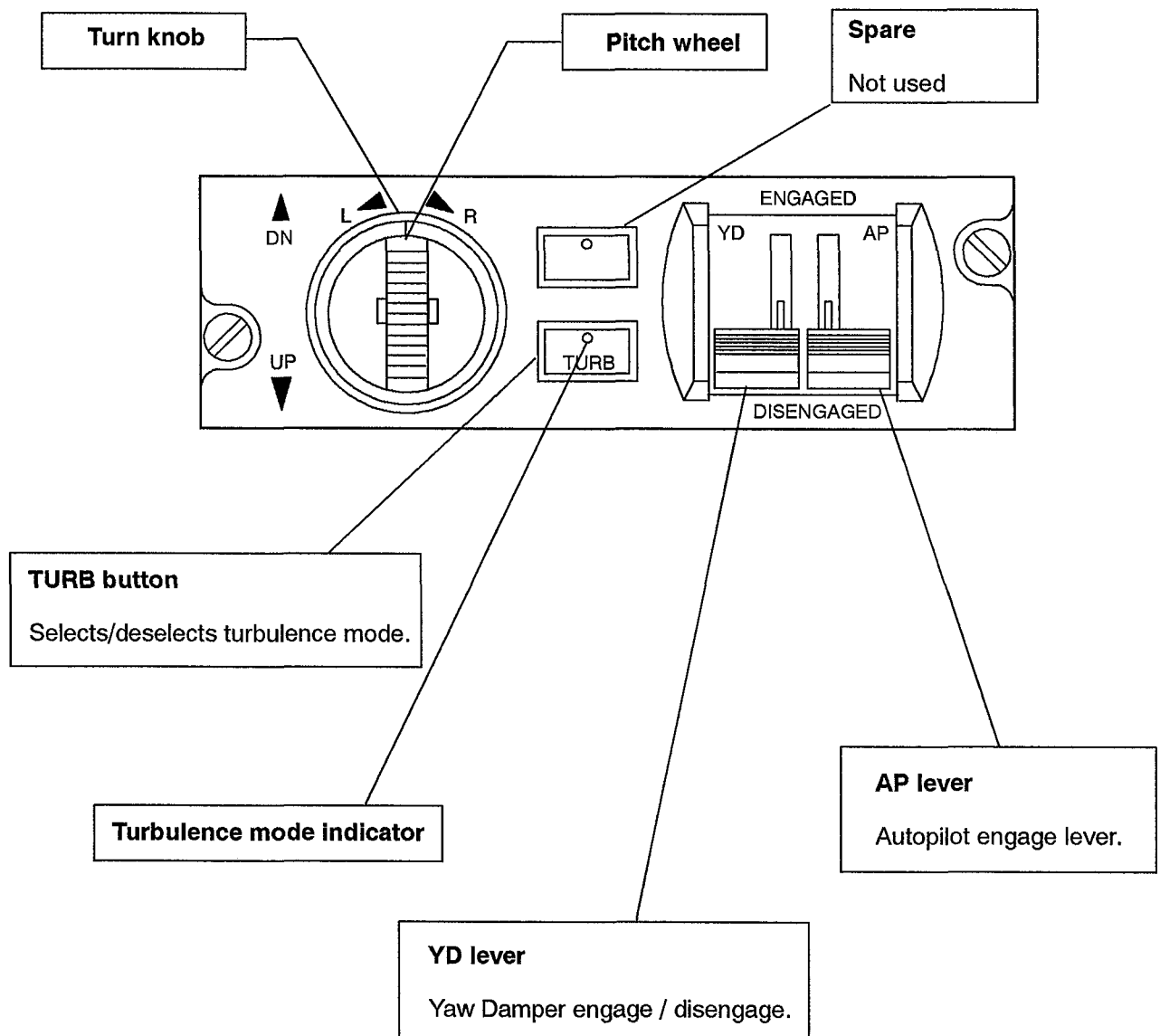
When on ground, the lateral axis generates a wings-level command until liftoff. After liftoff the lateral axis holds the heading that existed at the moment of liftoff.

Go-around selection disengages the autopilot, not the yaw damper, and clears all other modes. Go-around clears altitude preselect arm. Vertical go-around is cleared by engaging the autopilot which results in automatic selection of VS mode, by vertical sync button operation (which results in automatic selection of pitch mode), or by manual selection of another active vertical mode. Lateral go-around is cleared by manual selection of another lateral mode.

**Main Pitch Trim switches.**

Main pitch trim switches are located on the outboard side of each control wheel. The main pitch trim switches are disabled when the autopilot is engaged. Standby pitch trim switches are located on the center pedestal. Operation of the standby pitch trim switches will disengage the autopilot.

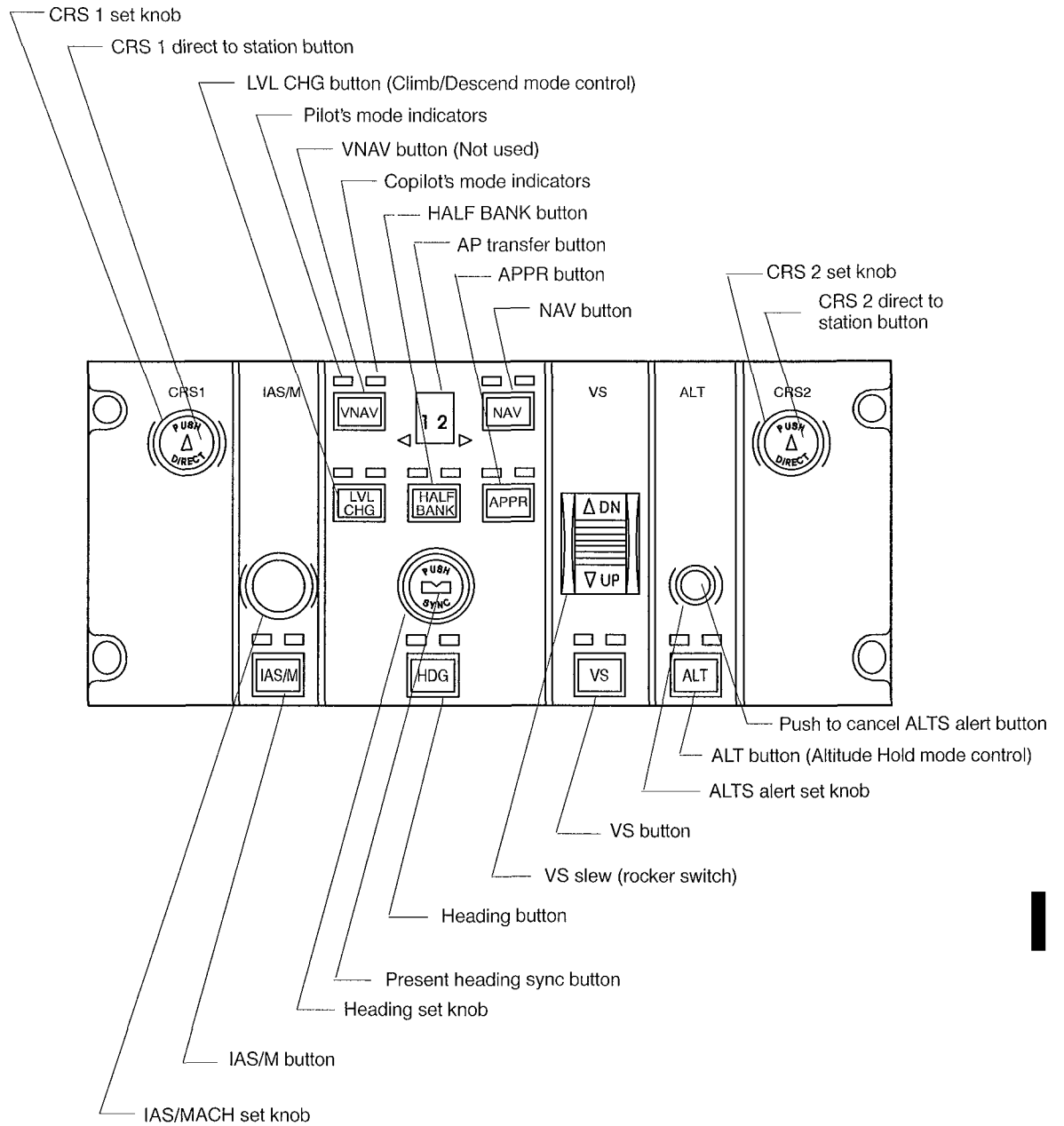
## 13. CONTROLS AND INDICATORS.



B4477

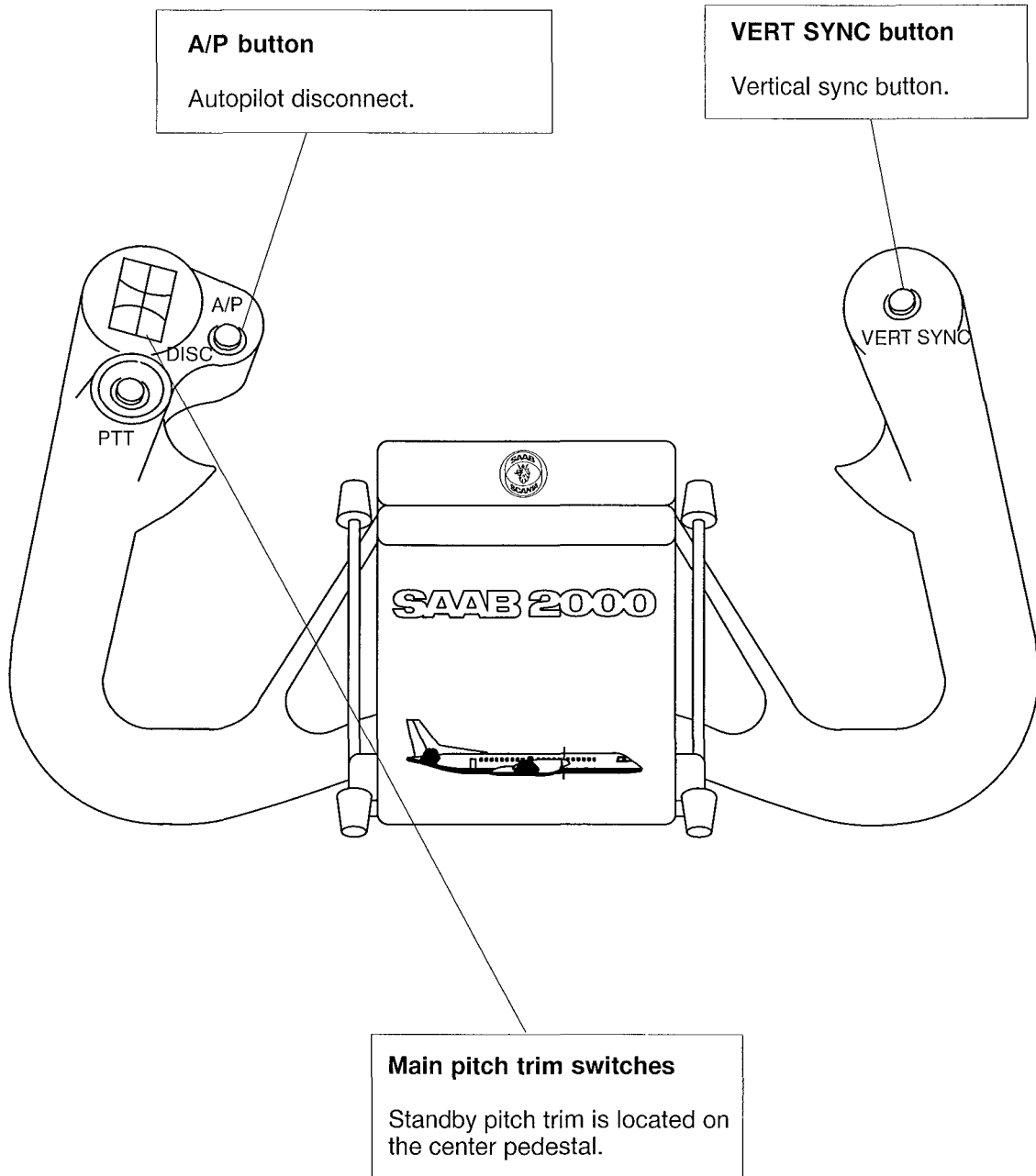
FIG. 1. Autopilot panel, APP.





B4395

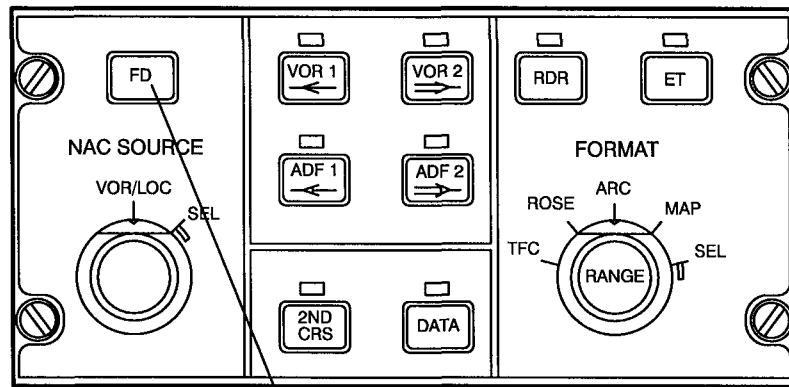
FIG. 2. Flight Control Panel, FCP.



B4565

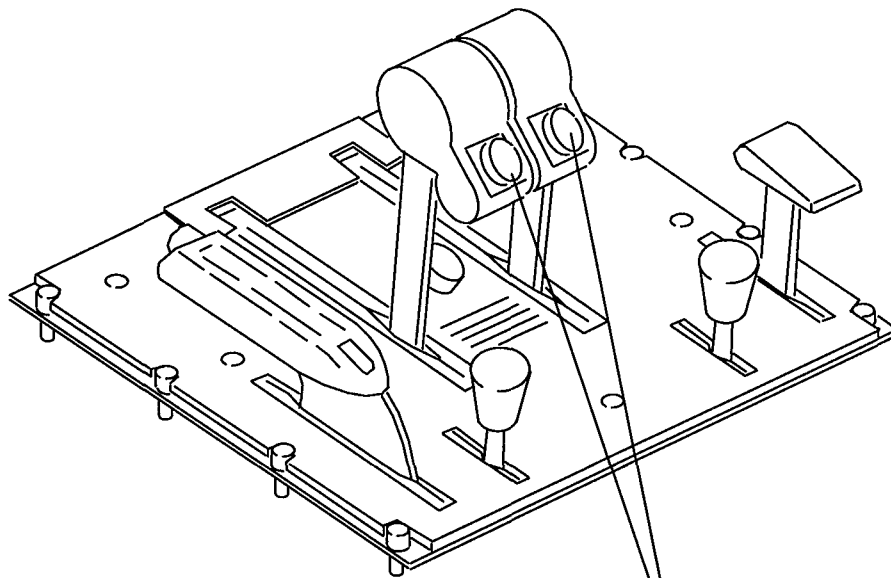
FIG. 3. Control wheel – Autopilot buttons.

## DISPLAY CONTROL PANEL, DCP



B1810

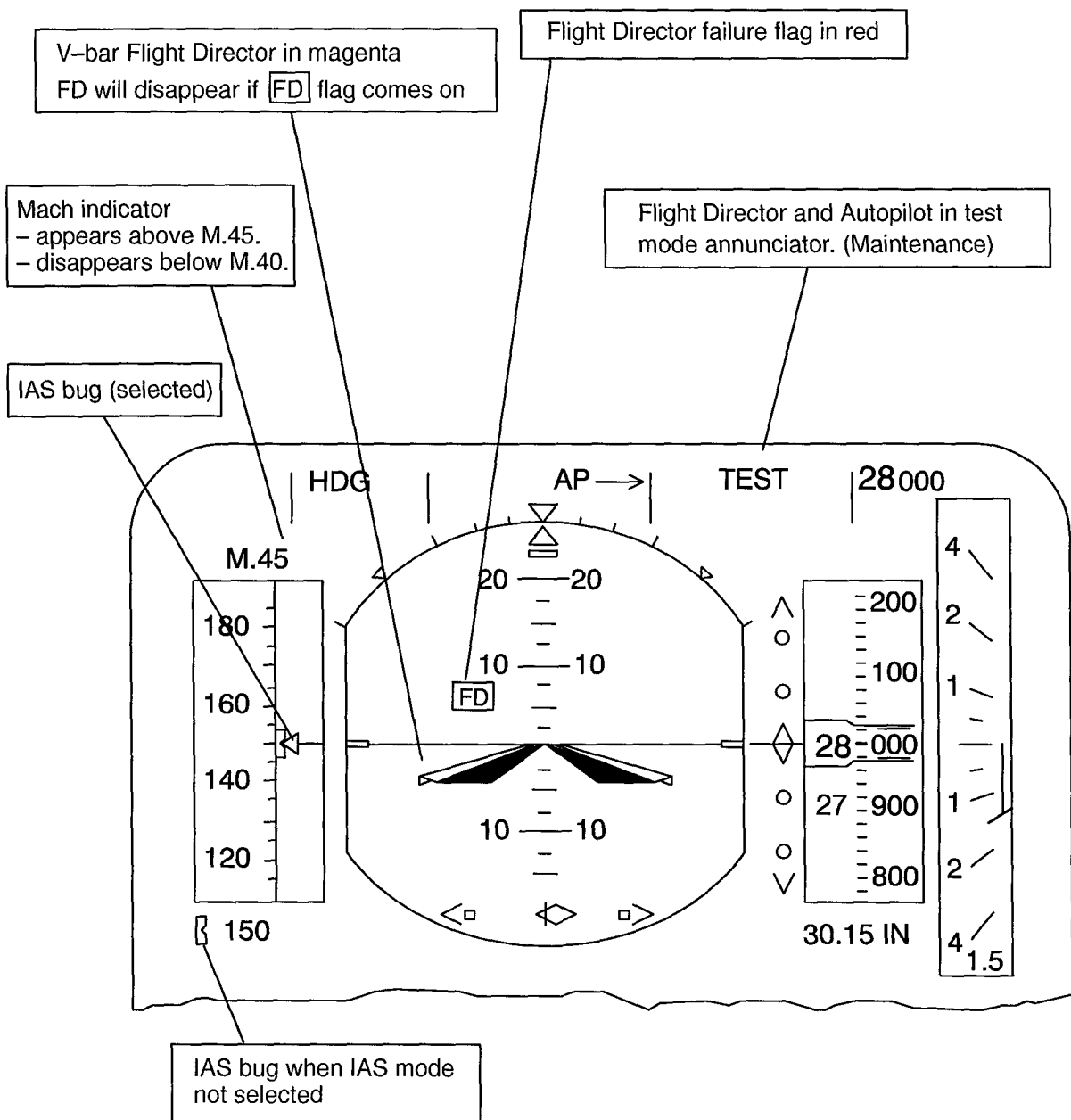
**FD button**  
Removes / Selects the Flight Director.



B4678

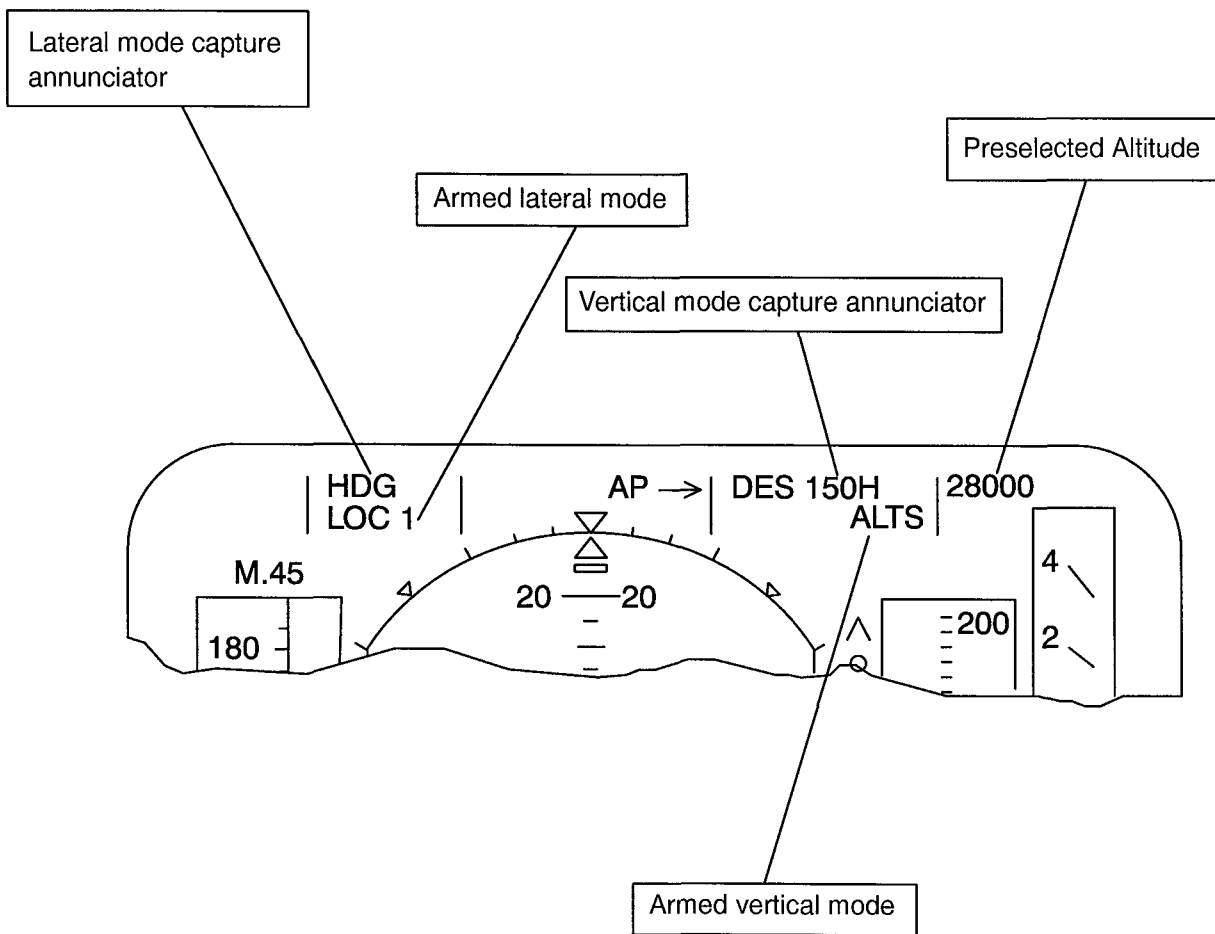
**Palm switches**  
Provide Go-around mode.

FIG.4. DCP and Power lever – Autopilot buttons.



B2729

FIG. 5. V-bar FD symbology and FD/AP test.



B2731

FIG. 6. Mode annunciators.

**Lateral mode annunciation.**

The lateral mode annunciation is divided into two sections: Lateral Capture (green) and Lateral Arm (white).

The Lateral Capture annunciator is capable of displaying the following annunciations.

ROLL	– Roll Hold
HDG	– Heading Select
LOC1	– LOC1 Capture
B/C1	– Back Course LOC1 Capture
LOC2	– LOC2 Capture
B/C2	– Back Course LOC2 Capture
VOR1	– VOR1 Capture
VOR2	– VOR2 Capture
GA	– Go-Around
* LNAV	– LNAV Capture
* LNAV1	– LNAV1 Capture
* LNAV2	– LNAV2 Capture

The Lateral Arm annunciator is capable of displaying the following annunciations. Lateral Arm mode annunciations are mutually exclusive and the possible annunciations appear in the table in order of display priority if more than one mode is active.

LOC1	– LOC1 Armed
B/C1	– Back Course LOC1 Armed
LOC2	– LOC2 Armed
B/C2	– Back Course LOC2 Armed
VOR1	– VOR1 Armed
VOR2	– VOR2 Armed
* LNAV	– LNAV Armed
* LNAV1	– LNAV1 Armed
* LNAV2	– LNAV2 Armed

\* Optional equipment

FIG. 7. Lateral mode annunciation.

**Vertical mode annunciation.**

The vertical mode annunciation is divided into two sections: Vertical Capture (green) and Vertical Arm (white).

The vertical capture mode annunciator is capable of displaying the following annunciations. The vertical capture mode annunciations are mutually exclusive and the possible annunciations appear in the table in order of display priority if more than one mode is active.

IAS XXX	– IAS mode (XXX = selected IAS)
MACH .XX	– Mach mode (.XX = selected Mach)
VS X.X*	– Vertical speed (X.X= selected Vertical speed and * = up or down arrow)
G/S	– Glide Slope
ALT	– Altitude Hold
ALTS CAP	– Preselected Altitude capture
ALTS	– Preselected Altitude track
DES XXX	– IAS Descent (XXX = selected IAS)
DES XXXH	– IAS High Descent (XXX = selected IAS, H = High)
DES .XXH	– Mach High Descent (.XX = selected Mach, H = High)
CLB XXX	– IAS Climb (XXX = selected IAS)
CLB XXXM	– IAS Climb (XXX = selected IAS, M = Medium)
CLB XXXH	– IAS High Climb (XXX = selected IAS, H = High)
CLB .XX	– Mach Climb (.XX = selected Mach)
CLB .XXM	– Mach Medium Climb (.XX = selected Mach, M = Medium)
CLB .XXH	– Mach High Climb (.XX = selected Mach, H = High)
GA	– Go Around
PTCH	– Pitch Hold
ALTS	– Preselected Altitude track

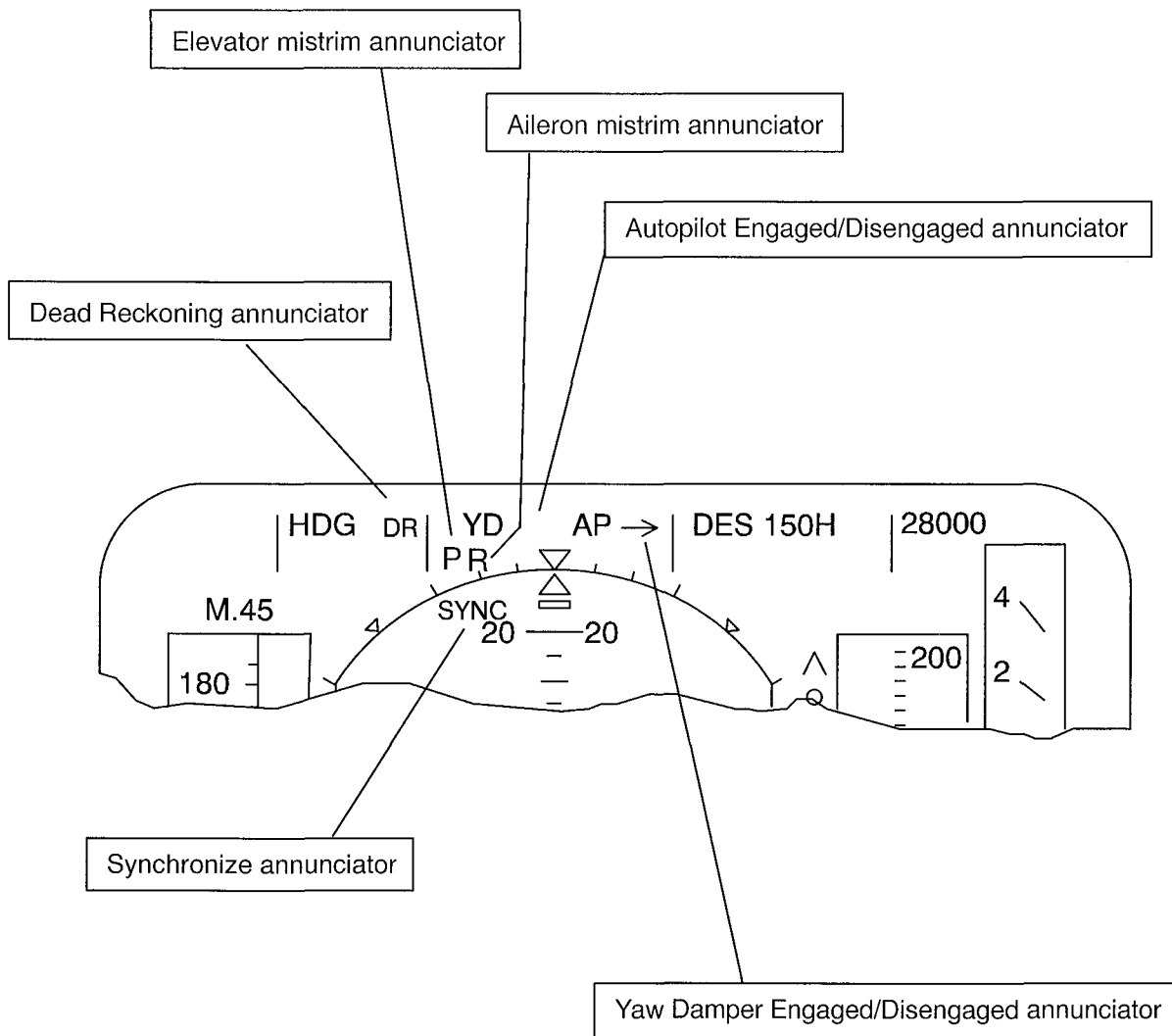
If an overspeed condition exist, the IAS or MACH display will change color to amber and flash until the overspeed condition is removed.

For the Vertical Arm annunciations the "G/S" annunciation is exclusive and the two "ALTS" annunciations are mutually exclusive. Up to two vertical arm annunciations may appear. The G/S has one field, and the ALTS annunciations have one field.

The vertical arm annunciator is capable of displaying the following annunciations:

G/S	– ILS G/S Arm
ALTS	– Preselected Altitude
NO VNAV	– VNAV selected but not installed in aircraft.

FIG. 8. Vertical mode annunciation.



B2732

FIG. 9. Autopilot annunciators.



## 14. ELECTRICAL POWER SUPPLY.

### Autoflight channel 1

Autopilot/Yaw damper .....	L AVIONICS BUS	G-14	L AP
Flight Director .....	L AVIONICS BUS	G-15	L IAPS PWR/FD

### Autoflight channel 2

Autopilot/Yaw damper .....	R AVIONICS BUS	N-14	R AP
Flight Director .....	R AVIONICS BUS	N-15	R IAPS PWR/FD