AUTOMATIC FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

   A. This section gives the procedures to do a check of the autopilot system.

   B. The functional test of the CAT II monitoring function (AMM TASK 22-11-00-700-804-A/500) is applicable only to aircraft under the CAT II configuration.

   C. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	*DESCRIPTION*	*EFFECTIVITY*
22-11-00-700-801-A ♦	AUTOPILOT GO-AROUND MODE - OPERATIONAL CHECK	ALL
22-11-00-700-802-A	FLIGHT DIRECTOR MODES - FUNCTIONAL TEST	ALL
22-11-00-700-803-A	AUTOPILOT - FUNCTIONAL TEST	ALL
22-11-00-700-804-A ♦	CAT II MONITORING FUNCTION - FUNCTIONAL TEST	AIRCRAFT WITH CAT II CONFIGURATION
22-11-00-700-805-A ♦	ALTITUDE HOLD AND ALTITUDE PRESELECT MODES - FUNCTIONAL TEST (RVSM CONFIGURATION)	AIRCRAFT UNDER RVSM CONFIGURATION

TASK 22-11-00-700-801-A
EFFECTIVITY: ALL

2. AUTOPILOT GO-AROUND MODE - OPERATIONAL CHECK

A. General

(1) This task gives the procedures to do a check of the go-around mode of the autopilot.

(2) To do this task, it is necessary to make a condition equivalent to the aircraft in flight.

(3) During the air data simulation, first apply pressure to the static port and then apply pressure to the pitot tube.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 23-81-00/1	
AMM SDS 34-15-00/1	
AMM SDS 34-21-00/1	
AMM SDS 34-22-00/1	
AMM SDS 34-27-00/1	
AMM SDS 34-32-00/1	
AMM SDS 34-52-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 32-63-00-860-801-A/200	"FLIGHT"/"GROUND" CONDITION SIMULATION IN AIR/GROUND SYSTEM
AMM TASK 34-13-00-000-801-A/400	PITOT/STATIC-SYSTEM TEST SET - DISCONNECTION
AMM TASK 34-13-00-400-801-A/400	PITOT/STATIC-SYSTEM TEST SET - CONNECTION
AMM TASK 34-21-00-700-802-A/500	-
AMM TASK 34-27-00-700-801-A/500	DUAL IRS - OPERATIONAL TEST

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 044	Headset, Ramp handling	For communication	
GSE 126	Test Set, COMM/VOR/ILS, Ramp and Bench	To simulate VOR, LOC and GS frequencies and deviation	
GSE 128	Kit, Air Data	To connect the pitot/static system test set to the aircraft	
GSE 129	Test Set, Pitot/Static	To simulate altitude and airspeed	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Cockpit
1	Does the operation of the pitot/static system test set	Outside the aircraft

I. Preparation

SUBTASK 841-002-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Make sure that the SENSORS (PITOT1/TAT1/AOA1, PITOT3 and PITOT2/TAT2/AOA2) pushbuttons, on the Ice Protection control panel (overhead panel), are set to OFF. Attach DO-NOT-TURN-AUTO tags to them.

(3) Make sure the SENSORS HTG circuit breaker is closed, on the circuit breaker panel.

NOTE: If this circuit breaker is open, the heating of the pitot tubes and static ports will be activated.

WARNING: DO NOT TOUCH THE PITOT, PITOT/STATIC SENSORS, AND ANEMOMETRIC STATIC PORTS IMMEDIATELY AFTER THE HEATER WAS SET TO OFF TO PREVENT INJURY TO PERSONS.

CAUTION: DO NOT APPLY PRESSURE TO THE PITOT TUBES WHEN THE STATIC PORTS ARE WITHOUT PRESSURE. THIS COULD CAUSE DAMAGE TO THE MADC.

(4) Remove the protection cover from the pitot and pitot/static sensors.

(5) Connect the pitot/static system test set (GSE 129) to the aircraft (AMM TASK 34-13-00-400-801-A/400).

NOTE: This procedure can cause interference with the local air traffic during simulations of altitude with the anemometric bench test. To prevent this, make sure that the transponder is on the STANDBY condition (AMM SDS 34-52-00/1).

(6) Energize the aircraft with the external DC power supply (AMM TASK 20-40-01-860-801-A/200).

NOTE: After the energization of the aircraft with AHRS (AH-800), let three minutes go by for the AHRS stabilization.

(7) Make sure that the systems below are serviceable and on:

– Radio Management System (AMM SDS 23-81-00/1).

– ADC System (AMM SDS 34-15-00/1).

– AHRS (Attitude and Heading Reference System) (AMM SDS 34-21-00/1) or IRS (Inertial Reference System) (AMM SDS 34-27-00/1).

– EFIS (AMM SDS 34-22-00/1).

– VOR/ILS/GS/MB System (AMM SDS 34-32-00/1).

(8) Make sure there are no attitude and heading red flags (ATT FAIL and HDG FAIL, respectively) on both PFD's.

NOTE: • For aircraft with IRS, if these flags are shown, perform the alignment (AMM TASK 34-27-00-700-801-A/500).

• For aircraft with AHRS (AH-900), perform the alignment (AMM TASK 34-21-00-700-802-A/500).

(9) On the circuit breaker panel, open the RA1 and RA2 (for aircraft with two radio altimeters) circuit breakers and attach DO-NOT-CLOSE tags to them.

(10) On the electrical control panel, set the BATT1 and BATT2 switches to OFF.

(11) Do a simulation of flight condition in LGEU outputs A, B1, C, and D1 (AMM TASK 32-63-00-860-801-A/200).

(12) Connect the headsets (GSE 044).

J. Operationally Check AFCS Go-Around Mode (Figure 501)

SUBTASK 710-002-A

(1) On the COMM/VOR/ILS ramp and bench test set (GSE 126), simulate a valid ILS (GS and LOC) frequency.

(2) Set RMU1 to the NAV1 window (AMM SDS 23-81-00/1), and tune in to the same VOR/ILS (LOCALIZER) station above.

(3) On the pitot/static system test set (GSE 129), adjust the air data parameters as follows:

(a) Airspeed to 150 knots.

(b) Altitude to 500 ft minimum above the local baro altitude shown on the PFDs.

(4) On Display Controller (DC-550) 1, push in the NAV pushbutton until you set ILS1 as a navigation source on PFD1.

(5) Do this check of Go-Around mode 1:

NOTE: • The course pointer and the heading bug must be set to the fore lubber line, on the PFD.

• Make sure that the PLI (Pitch Limit Indicator) is not shown on the ADI. If it is shown, turn the AOA vane until the PLI goes out of view on the ADI top.

(a) Make sure Flight Director 1 is selected. On GC-550, the arrow on the left side of the CPL pushbutton must be on.

(b) On GC-550, set with the SPD knob the preselected airspeed to 150 kt (cyan) which will be shown on the PFD's.

(c) On GC-550, push in the HDG pushbutton.

Result:

1 On the PFD, the HDG green annunciator comes on.

2 On GC-550, the HDG pushbutton comes on.

(d) On GC-550, push in the APR pushbutton.

Result:

1 On GC-550, the APR pushbutton comes on.

2 The PFD shows:

- LOC (white) annunciator, near the HDG (green) annunciator, on the lateral mode display.
- GS (white) annunciator on the vertical mode display.

3 Let some seconds go by. On GC-550, the HDG pushbutton comes off. The PFD shows:

- LOC (green) annunciator on the lateral mode display.
- GS (green) annunciator on the vertical mode display.

(e) Push in the GA (GO-AROUND) switch, on the pilot's power control lever.

Result:

1 All annunciators go off.

2 The PFD shows:

- ROL annunciator on the lateral mode display.
- GA annunciator on the vertical mode display.

3 The flight director command bars show 10 degrees nose up and wing level attitude.

(f) Let approximately 20 seconds go by. The PFD shows:

Result:

1 The flight director command bars go to an attitude of zero degrees.

2 On the PFD, the GA annunciation goes off and IAS comes on.

(g) On the pitot/static system test set (GSE 129), set airspeed to 168 knots.

NOTE: Make sure that the PFD shows 168 knots.

(h) On GC-550, set with the SPD knob the preselected airspeed to 162 kt (cyan) which will be shown on the PFD's.

(i) Do the actions (c), (d), and (e) again.

Result:

1 The same results occur again.

(j) Let approximately 20 seconds go by.

Result:

1 The PFD still shows:

- ROL annunciator on the lateral mode display.
- GA annunciator on the vertical mode display.

2 The flight director command bars still show 10 degrees nose up and wing level attitude.

(k) On the pitot/static system test set (GSE 129) set airspeed to 172 knots.

NOTE: Make sure that the PFD shows 172 knots.

Result:

1 The flight director command bars go to an attitude of zero degrees.

2 On the PFD, the GA annunciation goes off and IAS comes on.

3 The preselected airspeed is automatically set to 170 knots.

(l) On GC-550, set all the flight director modes to off.

(6) Do this check of Go-Around mode 2:

NOTE:
- The course pointer and the heading bug must be set to the fore lubber line, on the PFD.
- Make sure that the PLI (Pitch Limit Indicator) is not shown on the ADI. If it is shown, turn the AOA vane until the PLI goes out of view on the ADI top.

(a) Make sure Flight Director 2 is selected. On GC-550, the arrow on the right side of the CPL pushbutton must be on.

(b) On the pitot/static system test set (GSE 129), set airspeed to 150 knots.

(c) On GC-550, set with the SPD knob the preselected airspeed to 150 kt (cyan) which will be shown on the PFD's.

(d) On GC-550, push in the HDG pushbutton.

Result:

1 On the PFD, the HDG green annunciator comes on.

(e) On GC-550, push in the APR pushbutton.

Result:

1 On GC-550, the HDG and APR pushbuttons come on.

2 The PFD shows:

- LOC (white) annunciator, near the HDG (green) annunciator, on the lateral mode display.
- GS (white) annunciator on the vertical mode display.

3 Let some seconds go by. The PFD shows:

- LOC (green) annunciator on the lateral mode display.
- GS (green) annunciator on the vertical mode display.

(f) Push in the GA (GO-AROUND) switch, on the copilot's power control lever.
Result:
1 All annunciators go off.
2 The PFD shows:
- ROL annunciator on the lateral mode display.
- GA annunciator on the vertical mode display.

3 The flight director command bars show 10 degrees nose up and wing level attitude.

(g) Let approximately 20 seconds go by. The PFD shows:
Result:
1 The flight director command bars go to an attitude of zero degrees.
2 On the PFD, the GA annunciation goes off and IAS comes on.

(h) On the pitot/static system test set (GSE 129), set airspeed to 168 knots.

NOTE: Make sure that the PFD shows 168 knots.

(i) On GC-550, set with the SPD knob the preselected airspeed to 162 kt (cyan) which will be shown on the PFD's.

(j) Do the actions (d), (e), and (f) again.
Result:
1 The same results occur again.

(k) Let approximately 20 seconds go by.
Result:
1 The PFD still shows:
- ROL annunciator on the lateral mode display.
- GA annunciator on the vertical mode display.

2 The flight director command bars still show 10 degrees nose up and wing level attitude.

(l) On the pitot/static system test set (GSE 129) set airspeed to 172 knots.

NOTE: Make sure that the PFD shows 172 knots.

Result:
1 The flight director command bars go to an attitude of zero degrees.
2 On the PFD, the GA annunciation goes off and IAS comes on.
3 The preselected airspeed is automatically set to 170 knots.

(m) On GC-550, set all the flight director modes to off.

K. Follow-on

SUBTASK 842-002-A

(1) On the circuit breaker panel, close the RA1, RA2 (for aircraft with two radio altimeters), AIR/GND A, AIR/GND B, AIR/GND C, and AIR/GND D circuit breakers, and remove the DO-NOT-CLOSE tags from them.

(2) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

(3) Disconnect the pitot/static system test set (GSE 129) (AMM TASK 34-13-00-000-801-A/400).

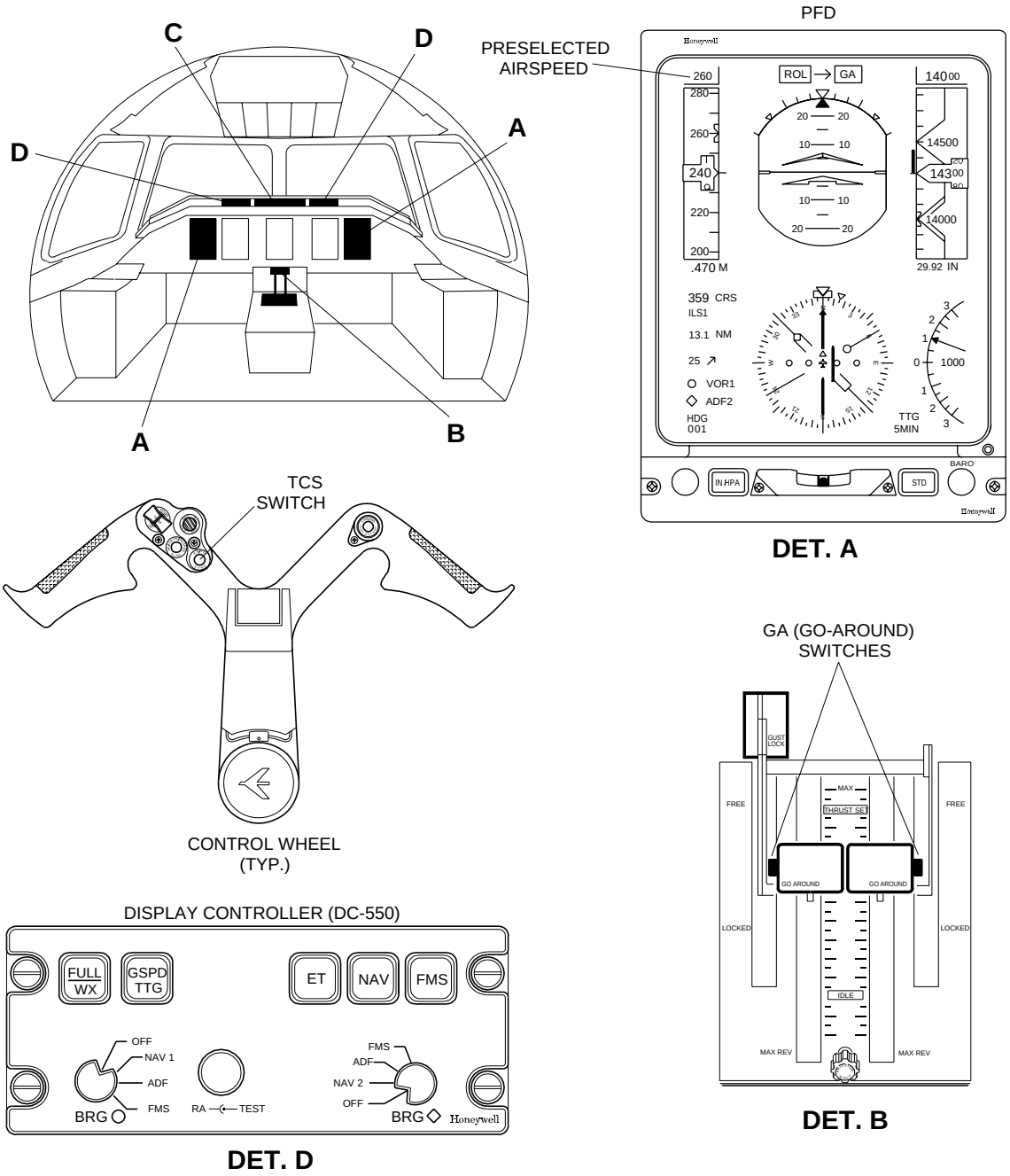
(4) Put the protection cover again on the pitot and pitot/static sensors.

(5) On the ice protection panel, on the overhead panel, remove the DO-NOT-TURN-AUTO tags from the PITOT1/TAT1/AOA1, PITOT3, and PITOT2/TAT2/AOA2 pushbuttons.

(6) Disconnect the headsets (GSE 044).

EFFECTIVITY: ALL

Autopilot Go-Around Mode Check
Figure 501



145AMM220042.MCE A

TASK 22-11-00-700-802-A
EFFECTIVITY: ALL

3. FLIGHT DIRECTOR MODES - FUNCTIONAL TEST

A. General

(1) This task gives the procedures to do the functional check of the modes of the flight director.

(2) Each mode of the flight director can be tested independently.

(3) To do this task, it is necessary to simulate an aircraft in-flight condition.

(4) During the air data simulation, first apply pressure to the static port and then apply pressure to the pitot tube.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM SDS 23-81-00/1	
AMM SDS 27-10-00/1	
AMM SDS 27-20-00/1	
AMM SDS 27-30-00/1	
AMM SDS 27-40-00/1	
AMM SDS 27-50-00/1	
AMM SDS 31-41-00/1	
AMM SDS 31-42-00/1	
AMM SDS 31-51-00/1	
AMM SDS 34-15-00/1	
AMM SDS 34-21-00/1	
AMM SDS 34-22-00/1	
AMM SDS 34-27-00/1	
AMM SDS 34-31-00/1	
AMM SDS 34-32-00/1	
AMM SDS 34-52-00/1	
AMM SDS 45-45-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
AMM TASK 34-13-00-000-801-A/400	PITOT/STATIC-SYSTEM TEST SET - DISCONNECTION
AMM TASK 34-13-00-400-801-A/400	PITOT/STATIC-SYSTEM TEST SET - CONNECTION
AMM TASK 34-21-00-700-804-A/500	AHRS - MOUNTING TRAY LEVELING/ALIGNMENT
AMM TASK 34-27-00-700-801-A/500	DUAL IRS - OPERATIONAL TEST
AMM TASK 34-31-00-800-801-A/200	RADIO ALTIMETER - RIGGING

(Continued)

REFERENCE	*DESIGNATION*
AMM TASK 34-32-00-700-801-A/500	VOR/ILS SYSTEM OPERATIONAL TEST

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 044	Headset, Ramp handling	For communication	
GSE 126	Test Set, COMM/VOR/ILS, Ramp and Bench	To simulate VOR, LOC and GS frequencies and deviations	
GSE 128	Kit, Air Data	To connect the pitot/static system test set to the aircraft	
GSE 129	Test Set, Pitot/Static	To simulate altitude and airspeed	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Cockpit
1	Operates the test sets	Outside the aircraft

I. Preparation

SUBTASK 841-003-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Make sure that the SENSORS (PITOT1/TAT1/AOA1, PITOT3 and PITOT2/TAT2/AOA2) pushbuttons, on the Ice Protection control panel (overhead panel), are set to OFF. Attach DO-NOT-TURN-AUTO tags to them.

(3) On the circuit breaker panel, make sure that the SENSORS HTG circuit breaker is closed.

NOTE: If this circuit breaker is open, the heating of the pitot tubes and static ports will be activated.

WARNING: DO NOT TOUCH THE PITOT, PITOT/STATIC SENSORS, AND ANEMOMETRIC STATIC PORTS IMMEDIATELY AFTER THE HEATER WAS SET TO OFF TO PREVENT INJURY TO PERSONS.

(4) Remove the protection cover from the pitot and pitot/static sensors.

CAUTION: DO NOT APPLY PRESSURE TO THE PITOT TUBES WHEN THE STATIC PORTS ARE WITHOUT PRESSURE. THIS COULD CAUSE DAMAGE TO THE MADC.

(5) Connect the pitot/static system test set (GSE 129) to the aircraft (AMM TASK 34-13-00-400-801-A/400).

NOTE: This procedure can cause interference with the local air traffic during simulations of altitude with the anemometric bench test. To prevent this, make sure that the transponder is on the STANDBY condition (AMM SDS 34-52-00/1).

(6) Energize the aircraft with the external DC power supply (AMM TASK 20-40-01-860-801-A/200).

NOTE: After the energization of the aircraft with AHRS (AH-800), let three minutes go by for the AHRS stabilization.

(7) Make sure that the systems below are serviceable and on:

- Radio Management System (AMM SDS 23-81-00/1).
- Aileron System (AMM SDS 27-10-00/1).
- Rudder System (AMM SDS 27-20-00/1).
- Elevator and Tab Systems (AMM SDS 27-30-00/1).
- Horizontal Stabilizer System (AMM SDS 27-40-00/1).
- Flap System (AMM SDS 27-50-00/1).
- EICAS (AMM SDS 31-41-00/1).
- Integrated Computer System (AMM SDS 31-42-00/1).
- Aural Warning System (AMM SDS 31-51-00/1).
- ADC System (AMM SDS 34-15-00/1).
- AHRS (Attitude and Heading Reference System) (AMM SDS 34-21-00/1) or IRS (Inertial Reference System) (AMM SDS 34-27-00/1).
- EFIS (AMM SDS 34-22-00/1).
- Radio Altimeter System (AMM SDS 34-31-00/1).
- VOR/ILS/GS/MB System (AMM SDS 34-32-00/1).

(8) Make sure there are no attitude and heading red flags (ATT FAIL and HDG FAIL, respectively) on both PFD's.

NOTE: • For aircraft with IRS, if these flags are shown, perform the alignment (AMM TASK 34-27-00-700-801-A/500).

- For aircraft with AHRS (AH-900), perform the alignment (AMM TASK 34-21-00-700-804-A/500).

(9) Make sure that the control surfaces are free to move.

(10) Connect the headsets (GSE 044).

J. Functionally Check the Flight Director Modes (Figure 502)

SUBTASK 720-002-A

(1) On the pitot/static system test set (GSE 129), adjust the air data parameters as follows:

(a) Airspeed to 150 Knots.

(b) Altitude to 1,500 ft.

(2) Do the check of the HDG mode as follows:

(a) On the flight guidance controller (GC-550), push the HDG and HDG PUSH SYNC pushbuttons.

Result:

1 On GC-550, the HDG pushbutton comes on.

2 The PFD shows:

- HDG (green) annunciator, on the lateral mode display.
- The flight director command bars with an attitude of zero degrees.

(b) On GC-550, turn the HDG control until you set the HDG bug, on the PFD, to 30 degrees to the right.

Result:

1 The flight director command bars tilt to the right.

(c) On GC-550, turn the HDG control until you set the HDG bug, on the PFD, to 30 degrees to the left.

Result:

1 The flight director command bars tilt to the left.

(d) On GC-550, turn the HDG control until you set the HDG bug, on the PFD, to the center position.

Result:

1 The flight director command bars tilt to an attitude of zero degrees.

(3) Do the check of the LOW BANK mode as follows:

(a) On the flight guidance controller (GC-550), momentarily push the BNK pushbutton.

Result:

1 On GC-550, the BNK pushbutton comes on.

2 The PFD shows a green arc between -15 and +15 degrees, on the roll attitude display.

(b) On GC-550, momentarily push the BNK pushbutton.

Result:

1 On GC-550, the BNK pushbutton goes off.

2 On the PFD, the green arc goes out of view.

(c) Set the pitot/static system test set (GSE 129) to an altitude of 26,000 ft and a rate of climb of 3,000 feet per minute.

Result:

1 At approximately 25,000 ft:

- On GC-550, the BNK pushbutton comes on.
- The PFD shows a green arc between -15 and +15 degrees, on the roll attitude display.

(d) Decrease the pitot/static system test set (GSE 129) to an altitude of 24,500 ft.

Result:

1 At approximately 24,750 ft:

- On GC-550, the BNK pushbutton goes out of view.
- On the PFD, the green arc on the roll attitude display goes out of view.

(e) On GC-550, push the HDG pushbutton to set the HDG mode to off.

Result:

1 The HDG annunciations go out of view on the PFD and the HDG pushbutton goes off on GC-550.

(f) Set the pitot/static system test set (GSE 129) to local altitude.

(4) Do the check of the NAV VOR Course mode as follows:

(a) Set RMU1 to the NAV1 window, and tune in to VOR/ILS stations (AMM TASK 34-32-00-700-801-A/500).

(b) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set to the VOR frequency of 108.00 MHz.

(c) Set the pitot/static system test set (GSE 129) to an airspeed of 100 knots.

(d) On RMU1, select the frequency of 108.00 MHz.

(e) On the flight guidance controller (GC-550), set course selector knob CRS1 to read, on the PFD, a lateral deviation of zero dot.

(f) On the display controller (DC-550), push the NAV pushbutton until you select, on the PFD, VOR1 as a navigation source.

(g) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the 0-degree position.

(h) On GC-550, push the NAV pushbutton to select the NAV mode.

Result:

1 On GC-550, the NAV pushbutton comes on.

2 The PFD shows:

- The VOR (green) annunciator on the lateral mode display.
- The flight director command bars with leveled attitude.

(i) On GC-550, with course selector knob CRS1, set the course (CRS) pointer, on the PFD, to 10 degrees to the left.

Result:

1 On the PFD, the flight director command bars follow the course (CRS) pointer.

(j) On GC-550, with the course selector knob CRS1, set the course (CRS) pointer, on the PFD, to 10 degrees to the right.

Result:

1 On the PFD, the flight director command bars follow the course (CRS) pointer.

(k) On GC-550, push the NAV pushbutton to set to off the VOR NAV Course mode.

(l) Set to off all FD modes.

(5) Do the check of VOR NAV Deviation as follows:

(a) On the COMM/VOR/ILS ramp and bench test set (GSE 126), simulate a VOR lateral deviation, on the PFD, of more than 2 dots.

(b) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(c) On GC-550, with the course selector knob CRS1, set the course (CRS) pointer, on the PFD, to 90 degrees to the right.

(d) On GC-550, push the NAV pushbutton.

Result:

1 The PFD shows:

- The HDG (green) and VOR (white) annunciators on the lateral mode display.
- The flight director command bars with a leveled position.

(e) On the COMM/VOR/ILS ramp and bench test set (GSE 126), slowly decrease VOR lateral deviation.

Result:

1 At approximately 1/2 dot, the flight director captures the NAV mode:

- On the PFD, the VOR (white) annunciator changes to VOR (green) and the HDG annunciator goes out of view, on the lateral mode display.

(f) On GC-550, push the NAV pushbutton.

Result:

1 The NAV pushbutton goes off on GC-550 and the NAV annunciator goes out of view on the PFD.

2 The flight director command bar goes out of view.

(g) Set the pitot/static system test set (GSE 129) to an airspeed of 250 knots.

(h) On GSE 126, simulate a VOR lateral deviation, on the PFD, of more than 2 dots to the left.

(i) On GC-550, push the NAV pushbutton.

Result:

1 The PFD shows:

- The VOR (white) and HDG (green) annunciators on the lateral mode display.
- The flight director command with a leveled attitude.

(j) On GSE 126, slowly set the VOR lateral deviation, on the PFD, to zero.

Result:

1 At approximately 1 dot of lateral deviation, the flight director command bars tilt to the right.

NOTE: The flight director command bars can go to the left first and then to the right.

2 The VOR (white) annunciator changes to VOR (green) on the lateral mode display.

(k) On GC-550, push the NAV pushbutton.

Result:

1 The NAV pushbutton goes off on GC-550 and the NAV annunciator goes out of view on the PFD.

(l) Set to off all FD modes.

(6) Do the check of the APR mode as follows:

(a) Set RMU1 to the NAV1 window, and tune in to VOR/ILS stations (AMM TASK 34-32-00-700-801-A/500).

(b) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set the VOR frequency of 108.00 MHz.

(c) Set the pitot/static system test set (GSE 129) to an airspeed of 100 knots, and an altitude of 1,500 ft.

(d) On RMU1, set the NAV1 system to the frequency of 108.00 MHz.

(e) On the display controller (DC-550), set the NAV pushbutton until you select VOR1, on the PFD, as a navigation source.

(f) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(g) On GC-550, with the course selector knob CRS1, set the course (CRS) pointer, on the PFD, to the fore lubber line.

(h) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set the VOR lateral deviation, on the PFD, to read 2 dots to the right.

(i) On GC-550, push the APR pushbutton.

Result:

1 On GC-550, the APR and HDG pushbuttons come on.

2 The PFD shows:

- The VAPP (white) and HDG (green) annunciators on the lateral mode display.
- The flight director command bars with leveled attitude.

(j) On GSE 126, reduce the VOR radio deviation to zero (see PFD).

Result:

1 On the PFD:

- HDG annunciator goes out of view.
- VAPP (white) annunciator changes to VAPP (green).

(k) Let 20 seconds go by.

(l) On GC-550, with course selector knob CRS1, quickly set the course (CRS) pointer, on the PFD, to approximately 30 degrees out of the aircraft heading.

Result:

1 The flight director command bar follows the course pointer change, not the course deviation.

(m) Set the course (CRS) pointer, on the PFD, to 5 degrees more than the aircraft heading.

(n) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set the radio deviation, on the PFD, to read 1 dot to the left.

Result:

1 For approximately 30 seconds, the flight director command bar follows only the course error and then tilts to the left in response to the radio deviation.

(o) On GC-550, push the APR pushbutton.

Result:

1 The APR mode annunciator goes out of view on the PFD and the APR pushbutton goes off on the flight guidance controller (GC-550).

2 The flight director command bar goes out of view.

(p) Set to off all FD modes.

(7) Do the check of the APR ILS mode as follows:

(a) Set RMU1 to the NAV1 window, and tune in to VOR/ILS stations (AMM TASK 34-32-00-700-801-A/500).

(b) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set the LOC frequency of 108.10 MHz.

(c) Set the pitot/static system test set (GSE 129) to an airspeed of 100 knots and an altitude of 1,500 ft.

(d) On RMU1, set the NAV1 system to a frequency of 108.10 MHz.

(e) On the display controller (DC-550), set the NAV pushbutton until you select ILS1, on the PFD, as a navigation source.

(f) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(g) On GC-550, with course selector knob CRS1, set the course (CRS) pointer, on the PFD, to 90 degrees to the right.

(h) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set the LOC lateral deviation, on the PFD, to read 2 dots to the right and a GS deviation to 0 dots.

(i) On GC-550, push the APR pushbutton.

Result:

1 On GC-550, the APR and HDG pushbuttons come on.

2 The PFD shows:

- The LOC (white) and HDG (green) annunciators on the lateral mode display.
- The flight director command bars with leveled attitude.

(j) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set the LOC lateral deviation, on the PFD, to zero.

Result:

1 On GC-550, the HDG pushbutton goes off.

2 On the PFD:

- The HDG (green) annunciator on the lateral mode display goes out of view.
- The LOC (white) annunciator changes to LOC (green) on the lateral mode display.

(k) On GC-550, with course selector knob CRS1, set the course (CRS) pointer, on the PFD, to the fore aircraft heading.

(l) Let one minute go by.

(m) On GC-550, with course selector knob CRS1, set the course (CRS) pointer, on the PFD, to 45 degrees to the left of the aircraft heading.

Result:

1 The flight director command bar initially goes left then becomes null.

(n) Set the course (CRS) pointer, on the PFD, to 45 degrees to the right of the aircraft heading.

Result:

1 The flight director command bar initially goes right then becomes null.

(o) Set the course (CRS) pointer, on the PFD, to the fore aircraft heading.

(p) On GC-550, push the APR pushbutton.

Result:

1 The flight director command bar goes out of view.

2 The APR pushbutton goes off on GC-550.

3 On the PFD, the LOC annunciator goes out of view.

(q) Set to off all FD modes.

(8) (Aircraft equipped with only one radio altimeter)

Simulate the radio altitude of 1,500 ft. Refer to AMM TASK 34-31-00-800-801-A/200.

(9) (Aircraft equipped with two radio altimeters)

Simulate the radio altitude of 1,500 ft on radio altimeters 1 and 2. Refer to AMM TASK 34-31-00-800-801-A/200.

(10) Do the check of the APR Glide Slope mode as follows:

(a) On the COMM/VOR/ILS ramp and bench test set (GSE 126), set the frequency of 108.10 MHz.

(b) Set the pitot/static system test set (GSE 129) to an airspeed of 150 knots and an altitude of 1,500 ft.

(c) Set RMU1 to the NAV1 window, and tune in to a VOR/ILS station (AMM TASK 34-32-00-700-801-A/500).

(d) Tune in RMU1 to the frequency of 108.10 MHz.

(e) With the NAV pushbutton, on the display controller (DC-550), select ILS1 as a navigation source.

(f) On GC-550, with the course selector knob CRS1, set the course (CRS) pointer, on the PFD, to the fore lubber line.

(g) On GC-550, turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(h) On the test set (GSE 126), set on the PFD the LOC deviation to 0 dots and the GS deviation to 1 dot nose up.

(i) On GC-550, push the APR and ALT pushbuttons.

Result:

1 On GC-550, the APR and ALT pushbuttons come on.

2 The PFD shows:

- The GS (white) and ALT (green) annunciators on the vertical mode display.
- LOC (green) annunciator on the lateral mode display.

(j) On the test set (GSE 126), decrease the GS deviation, on the PFD, to 1/4 dot nose up.

Result:

1 The GS (white) annunciator changes to GS (green) on the vertical mode display.

2 The flight director command bar initially commands nose down and then, after 15 seconds, commands nose up.

(k) On the test set (GSE 126), decrease the GS deviation, on the PFD, to 0 (zero).

Result:

1 The flight director command bars become null.

(l) On the test set (GSE 126), simulate a GS deviation of 1/4 dot nose down.

Result:

1 The flight director command bars command nose down.

(m) On the circuit breaker panel, open the RA1 circuit breaker and attach a DO-NOT-CLOSE tag to it.

On aircraft equipped with two radio altimeters, also open the RA2 circuit breaker.

(n) On the test set (GSE 126), set on the PFD the LOC deviation to 0 dots and the GS deviation to 1 dot nose up.

(o) On GC-550, push the APR pushbutton.

Result:

1 The NAV capture, APR armed, and ALT annunciators come into view on the PFD, and the NAV, APR, and ALT pushbuttons come on the flight guidance controller (GC-550).

2 The PFD shows:

- The LOC (green) annunciator on the lateral mode display.
- The GS (white) and ALT (green) on the vertical mode display.

(p) On the test set (GSE 126), decrease the GS deviation, on the PFD, to zero and then move it back to 1/4 dot nose up.

Result:

1 The flight director commands nose down and then, after 15 seconds, commands nose up.

2 The GS (white) annunciator changes to GS (green) on the vertical mode display.

(q) On GC-550, push the APR pushbutton.

Result:

1 The APR pushbutton goes off on GC-550 and the LOC annunciator goes out of view on the PFD.

2 The flight director command bar goes out of view.

(r) On the circuit breaker panel, close the RA1 circuit breaker and remove the DO-NOT-CLOSE tag from it.

For aircraft equipped with two radio altimeters, it is also necessary to close the RA2 circuit breaker.

(s) Set to off all FD modes. Set simulated airspeed to zero.

(11) Do the check of the Back Course mode as follows:

(a) Set the COMM/VOR/ILS ramp and bench test set (GSE 126) to back course and to a frequency of 108.10 MHz.

(b) Set the pitot/static system test set (GSE 129) to an airspeed of 150 knots and an altitude of 1,500 ft.

(c) Set RMU1 to the NAV1 window and tune in to a VOR/ILS station (AMM TASK 34-32-00-700-801-A/500).

(d) Tune in the RMU to the frequency of 108.10 MHz.

(e) With the NAV pushbutton, on the display controller (DC-550), select ILS1 as a navigation source.

(f) On GC-550, with course selector knob CRS1, set the course (CRS) pointer, on the PFD, to the aft lubber line.

(g) On GSE 126, set the LOC deviation, on the PFD, to more than 2 dots to the left of the screen.

(h) On GC-550, turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(i) On GC-550, push the APR and ALT pushbuttons.

Result:

1 On GC-550, the HDG, APR, and ALT pushbuttons come on.

2 The PFD shows:

- The BC (white) and HDG (green) annunciators on the lateral mode display.
- The ALT (green) annunciator on the vertical mode display.

(j) On GSE 126, set the LOC deviation, on the PFD, to zero.

Result:

1 On GC-550, the HDG pushbutton goes off.

2 On the PFD:

- The HDG (green) annunciator, on the lateral mode display, goes out of view.
- The BC (white) annunciator changes to BC (green) on the lateral mode display.

(k) On GC-550, with course selector knob CRS1, set the tail of the course (CRS) pointer, on the PFD, to 45 degrees to the right of the aircraft heading.

Result:

1 The flight director command bars tilt to the right and then become null in a very slight movement.

(l) Set to off all FD modes.

(12) Do the check of the ALT select mode as follows:

(a) Set the pitot/static system test set (GSE 129) to an altitude of 10,000 ft and an airspeed of 150 knots.

(b) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(c) On the GC-550 control panel, select the HDG and ALT modes.

Result:

1 On GC-550, the HDG and ALT pushbuttons come on.

2 On the PFD:

- The HDG (green) annunciator, on the lateral mode display, comes into view.
- The ALT (green) annunciator, on the vertical mode display, comes into view.

(d) Simulate 200 ft more than the original altitude and a rate of climb of 1,000 feet per minute.

Result:

1 The flight director command bars show nose down.

(e) Push the ALT pushbutton to stop the ALT mode.

Result:

1 The ALT (green) annunciator, on vertical mode display, goes out of view and the PIT (green) annunciator, on vertical mode display, comes into view.

(f) Push the ALT pushbutton again.

Result:

1 The flight director synchronizes again with the new altitude.

(g) Simulate 200 ft less than the original altitude.

Result:

1 The flight director command bars show nose up.

(h) Push the HDG and ALT pushbuttons to set to off the flight director.

(i) Set to off all FD modes.

(13) Do the check of the ALT SEL mode as follows:

(a) Set the pitot/static system test set (GSE 129) to an altitude of 5,000 ft and an airspeed of 150 knots.

(b) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(c) On GC-550, with the ASEL knob, select the altitude of 10,000 ft, on the top right corner of the PFDs.

(d) On GC-550, select the HDG and VS modes.

Result:

1 On GC-550, the HDG and VS pushbuttons come on.

2 On the PFD:

- The HDG (green) annunciator, on the lateral mode display, comes into view.
- The VS (green) annunciator, on the vertical mode display, comes into view.
- The flight director command bars are with a leveled attitude.

(e) On GSE 129, increase the altitude to 10,000 ft, with a rate of climb of 2,000 ft per minute.

Result:

1 On the PFDs, the ASEL annunciator is shown in white.

2 At approximately 9,000 ft, the ALT PRESELECT window, on the PFD, changes from blue to amber.

3 The altitude alert horn sounds.

4 At approximately 9,600 ft, this occurs:

- On the PFDs, the VS (green) annunciator goes out of view and the ASEL (white) annunciator changes to ASEL (green).
- A white box is shown for 7 seconds around the ASEL annunciator.
- The flight director command bars indicate nose down.

5 At approximately 9,750 ft, the ALT PRESELECT window changes from amber to blue.

- The flight director command bars show nose down.

(f) Decrease the climb rate to zero at 10,000 ft.

Result:

1 The ASEL (green) annunciator goes out of view.

2 The ALT pushbutton comes on the flight guidance controller (GC-550) and the ALT annunciator comes into view on the PFDs.

NOTE: The system will not go to the ALT hold mode if the rate of climb is not less than 300 feet per minute and less than 25 ft of selected altitude.

(g) While in the ALT hold mode, decrease the altitude to less than 9,750 ft.

Result:

1 The ALT PRESELECT window changes from blue to amber.

2 The altitude alert horn sounds.

(14) Do the check of the VS select mode as follows:

(a) On the pitot/static system test set (GSE 129), simulate a rate-of-climb attitude of 2,000 feet per minute and an airspeed of 120 knots.

(b) On GC-550, turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(c) On GC-550, select the HDG and VS modes.

Result:

1 On GC-550, the HDG and VS pushbuttons come on.

2 On the PFD:

- The HDG (green) annunciator, on the lateral mode display, comes into view.
- The VS (green) annunciator, on the vertical mode display, comes into view.

(d) Increase the climb rate to 2,500 ft per minute.

Result:

1 On the PFDs, the ASEL annunciator is shown in white.

2 The flight director command bars show nose down.

(e) Push and hold the TCS switch on the control wheel until the signal becomes null.

Result:

1 On the PFD, the TCS (white) annunciator come into view while the TCS switch is pushed.

(f) Release the TCS switch.

Result:

1 The PFD shows the new VS, on the air data display, when the TCS switch is released.

(g) Set the simulated rate of climb to zero.

(h) Set to off all flight director modes.

(15) Do the check of the SPD (speed) mode as follows:

(a) Set the pitot/static system test set (GSE 129) to an altitude of 15,000 ft and an airspeed of 200 knots.

(b) On GC-550, turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(c) On GC-550, select the HDG and SPD modes.

Result:

1 On GC-550, the HDG and SPD pushbuttons come on.

2 On the PFD:

- The HDG (green) annunciator, on the lateral mode display, comes into view.
- The IAS (green) annunciator, on the vertical mode display, comes into view.
- The air data command display shows 200 knots.
- The flight director command bars are with a leveled attitude.

(d) On GSE 129, decrease the airspeed to 190 Knots.

Result:

1 The flight director command bars command nose down.

(e) On GSE 129, increase the simulated airspeed to 210 knots.

Result:

1 The flight director command bars command nose up.

(f) Push and hold the TCS switch on the control wheel until the signal becomes null.

Result:

1 On the PFD, the TCS (white) annunciator come into view while the TCS switch is pushed.

(g) Release the TCS switch.

Result:

1 The PFD shows the new IAS, on the air data display, when the TCS switch is released.

(h) On GC-550, make sure that the SPD mode is selected.

Result:

1 On GC-550, the SPD pushbutton is on.

2 The PFD shows:

- IAS (green) annunciator, on the vertical mode display.
- 210 Kts, on the air data command display.

(i) On GSE 129, slowly increase the altitude to 26,000 ft.

Result:

1 When the altitude increases to more than 25,100 ft, this occurs:

- MACH is shown on the GC-550 display and on the PFD.
- The air data command shows a Mach number target.

(j) On GSE 129, slowly decrease the altitude to 24,000 ft.

Result:

1 When the altitude decreases to less than 24,900 ft, this occurs:

- IAS is shown on the GC-550 display and on the PFD.
- The air data command shows an airspeed target.

(k) Set to off all flight director modes.

(16) On the pitot/static system test set (GSE 129), adjust the air data parameters as follows:

(a) Airspeed to 0 Knots.

(b) Altitude to local altitude.

(17) Do the check of Go-Around, Take-off and Windshear modes as follows:

(a) On the circuit breaker panel, open the RA1 circuit breaker and attach a DO-NOT-CLOSE tag to it.

On aircraft equipped with two radio altimeters, also open the RA2 circuit breaker.

(b) Make sure that the aircraft is configured to ground (WOW).

(c) On the pilot's power control lever, push the GA (GO-AROUND) pushbutton.

Result:

1 The PFD shows:

- TO annunciator, on the vertical mode display.
- Flight director command bars with a nose up attitude.

CAUTION: MAKE SURE THAT THE CONTROL SURFACES ARE FREE OF STANDS AND PERSONNEL BEFORE YOU DO THE ACTIONS THAT FOLLOW.

(d) On GC-550, push the AP pushbutton.

Result:

1 The TO annunciator goes out of view.

2 The flight director command bars go to a leveled attitude.

(e) On GC-550, push the AP pushbutton to disengage the Autopilot.

(f) On the copilot's power control lever, push the GA (GO-AROUND) pushbutton.

Result:

1 The PFD shows:

- TO annunciator, on the vertical mode display.
- Flight director command bars with a nose up attitude.

(g) On GC-550, push the AP pushbutton.

Result:

1 The TO annunciator goes out of view.

2 The flight director command bars go to a leveled attitude.

(h) On GC-550, push the AP pushbutton to disengage the Autopilot.

(i) On the circuit breaker panel, remove the DO-NOT-CLOSE tag from the RA1 circuit breaker and close it.

On aircraft equipped with two radio altimeters, also close the RA2 circuit breaker.

(j) (Aircraft equipped with only one radio altimeter)

Simulate the radio altitude of 450 ft. Refer to AMM TASK 34-31-00-800-801-A/200.

(k) (Aircraft equipped with two radio altimeters)

Simulate the radio altitude of 450 ft on radio altimeters 1 and 2. Refer to AMM TASK 34-31-00-800-801-A/200.

(l) On the electrical control panel, set the BATT1 and BATT2 switches to OFF.

(m) Pressurize the hydraulic system (AMM TASK 29-10-00-860-801-A/200).

(n) With the aircraft on the ground (WOW), on the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C and AIR/GND D circuit breakers and attach DO-NOT-CLOSE tags to them. This is to put the aircraft in the flight configuration.

(o) On the pilot's power control lever, push in the GA (GO-AROUND) pushbutton.

Result:

1 The PFD shows:

- GA (green) annunciator on the vertical mode display.
- ROL (green) annunciator no the lateral mode display
- Flight director command bars with a nose up attitude.

(p) Push the AILERON SHUTOFF SYS 1 and AILERON SHUTOFF SYS 2 pushbuttons to turn on the aileron systems. Make sure that the pushbutton lights go off.

(q) Push the RUDDER SHUTOFF SYS 1 and RUDDER SHUTOFF SYS 2 pushbuttons to turn on the rudder systems. Make sure that the pushbutton lights go off.

(r) On the flight guidance controller (GC-550), push the AP pushbutton to engage the autopilot.

NOTE: The internal monitors can disengage the AP soon after engagement. If this occurs, push the AP/TRIM/PUSHER DISC switch on the control wheel to reset the system.

Result:

1 On the PFDs, the AP and YD annunciators come on.

(s) On GC-550, push the AP pushbutton to disengage the autopilot.

(t) On GC-550, push the CPL pushbutton.

(u) On the copilot's power control lever, push in the GA (GO-AROUND) pushbutton.

Result:

1 The PFD shows:

- GA (green) annunciator on the vertical mode display.
- ROL (green) annunciator on the lateral mode display.
- Flight director command bars are with a nose up attitude.

(v) On GC-550, push the AP pushbutton to engage the autopilot.

NOTE: The internal monitors can disengage the AP soon after engagement. If this occurs, push the AP/TRIM/PUSHER DISC switch on the control wheel to reset the system.

Result:

1 On the PFDs, the AP and YD annunciators come on.

(w) On the circuit breaker panel, close the AIR/GND A, AIR/GND B, AIR/GND C and AIR/GND D circuit breakers and remove the DO-NOT-CLOSE tags from them.

(x) Open maintenance panel door 223LZ (AMM MPP 06-41-03/100) and set the GPWS/WDSH test switch (AMM SDS 45-45-00/1).

Result:

1 The PFD shows:

- ROL (green) annunciator on the lateral mode display.
- WDSHR (green) annunciator on the vertical mode display.

NOTE: The autopilot disengages.

(y) On the pilot's power control lever, push in the GA (GO-AROUND) pushbutton.

Result:

1 On the PFD:

- WDSHR annunciator, on the vertical mode display, is deselected.

(z) On GC-550, deselect all modes of the flight director.

Result:

1 On the PFDs, the flight director command bars go out of view.

(aa) Push the AILERON SHUTOFF SYS 1 and AILERON SHUTOFF SYS 2 pushbuttons to turn off the aileron systems. Make sure that the pushbutton lights go on.

(ab) Push the RUDDER SHUTOFF SYS 1 and RUDDER SHUTOFF SYS 2 pushbuttons to turn off the rudder systems. Make sure that the pushbutton lights go on.

(ac) Release the hydraulic pressure from systems 1 and 2 (AMM TASK 29-10-00-860-801-A/200

(ad) Close maintenance panel door 223LZ (AMM MPP 06-41-03/100).

(18) Put the radio altimeter system back to normal. Refer to AMM TASK 34-31-00-800-801-A/200.

K. Follow-on

SUBTASK 842-003-A

(1) Release the pressure from the hydraulic system (AMM TASK 29-10-00-860-801-A/200).

(2) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

(3) Disconnect the pitot/static system test set (GSE 129) from the aircraft (AMM TASK 34-13-00-000-801-A/400).

(4) Put the protection cover again on the pitot and pitot/static sensors.

(5) On the ice protection panel, on the overhead panel, remove the DO-NOT-TURN-AUTO tags from the PITOT1/TAT1/AOA1, PITOT3, and PITOT2/TAT2/AOA2 pushbuttons.

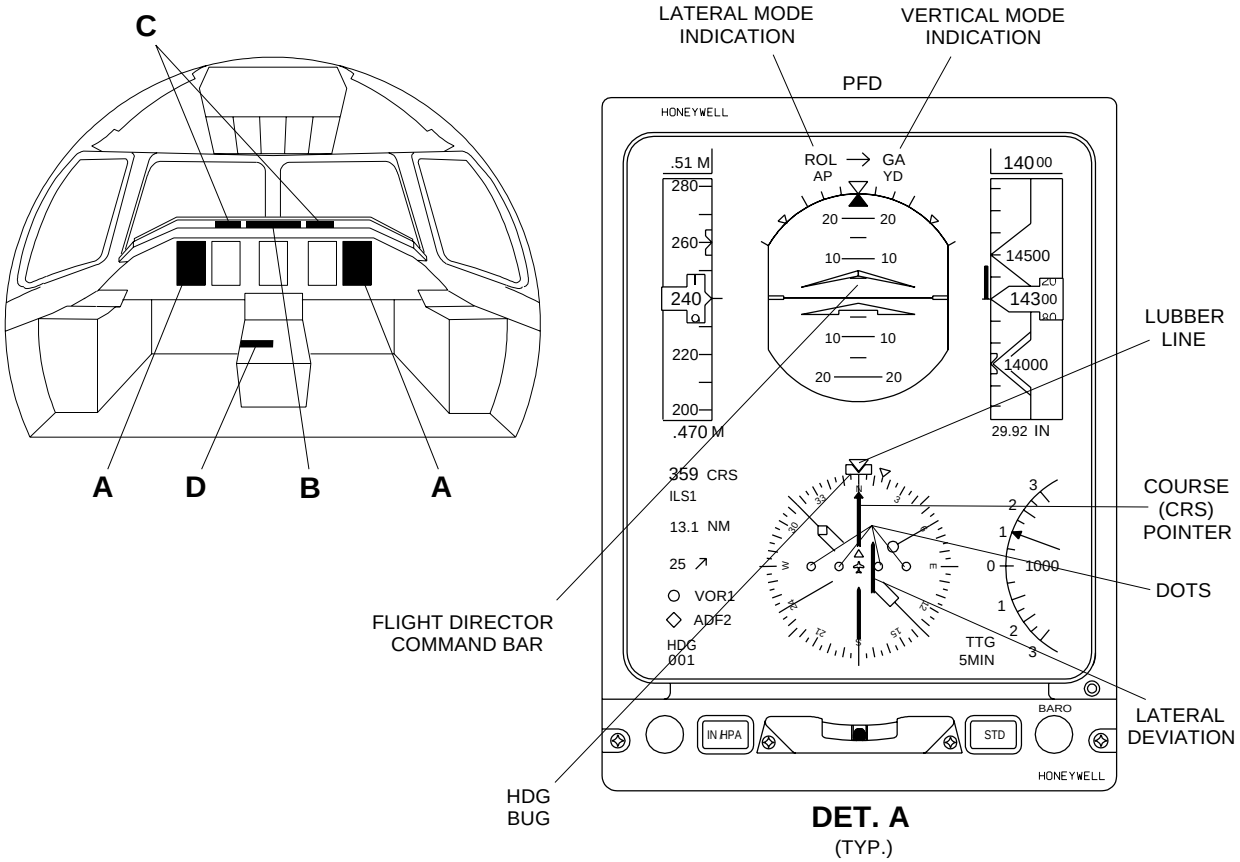
(6) Turn off the following test simulators:

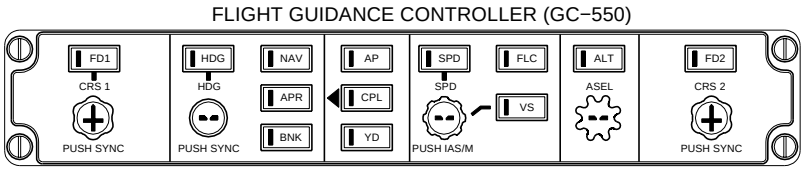
- COMM/VOR/ILS ramp and bench test set (GSE 126).

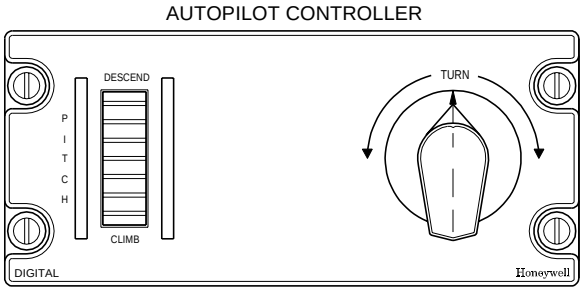
(7) Disconnect the headsets (GSE 044).

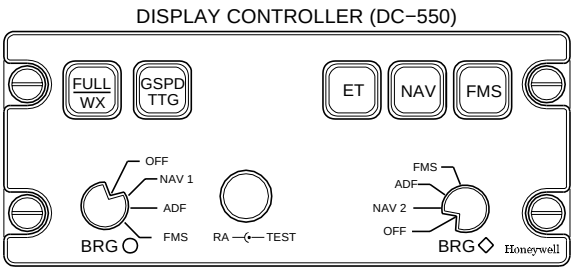
EFFECTIVITY: ALL

Flight Director - Functional Test
Figure 502









EM145AMM220070A.DGN

TASK 22-11-00-700-803-A
EFFECTIVITY: ALL

4. AUTOPILOT - FUNCTIONAL TEST

A. General

(1) This task gives the procedures to do the functional check of the autopilot functions with the autopilot engaged.

(2) To do this task, it is necessary to simulate an aircraft in-flight condition.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 23-81-00/1	
AMM SDS 27-10-00/1	
AMM SDS 27-20-00/1	
AMM SDS 27-30-00/1	
AMM SDS 27-40-00/1	
AMM SDS 27-50-00/1	
AMM SDS 31-41-00/1	
AMM SDS 31-42-00/1	
AMM SDS 31-51-00/1	
AMM SDS 34-15-00/1	
AMM SDS 34-21-00/1	
AMM SDS 34-22-00/1	
AMM SDS 34-27-00/1	
AMM SDS 34-31-00/1	
AMM SDS 34-32-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
AMM TASK 34-21-00-700-802-A/500	-
AMM TASK 34-27-00-700-801-A/500	DUAL IRS - OPERATIONAL TEST

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Cockpit

I. Preparation

SUBTASK 841-004-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Make sure that the SENSORS (PITOT1/TAT1/AOA1, PITOT3 and PITOT2/TAT2/AOA2) pushbuttons, on the Ice Protection control panel (overhead panel), are set to OFF. Attach DO-NOT-TURN-AUTO tags to them.

(3) Make sure the SENSORS HTG circuit breaker is closed, on the circuit breaker panel.

NOTE: If this circuit breaker is open, the heating of the pitot tubes and static ports will be activated.

(4) Energize the aircraft with the external DC power supply (AMM TASK 20-40-01-860-801-A/200).

NOTE: After the energization of the aircraft with AHRS (AH-800), let three minutes go by for the AHRS stabilization.

(5) Make sure that systems below are serviceable and on:

– Radio Management System (AMM SDS 23-81-00/1).

– Aileron System (AMM SDS 27-10-00/1).

– Rudder System (AMM SDS 27-20-00/1).

– Elevator and Tab Systems (AMM SDS 27-30-00/1).

– Horizontal Stabilizer System (AMM SDS 27-40-00/1).

– Flap System (AMM SDS 27-50-00/1).

– EICAS (AMM SDS 31-41-00/1).

– Integrated Computer System (AMM SDS 31-42-00/1).

– Aural Warning System (AMM SDS 31-51-00/1).

– ADC System (AMM SDS 34-15-00/1).

– AHRS (Attitude and Heading Reference System) (AMM SDS 34-21-00/1) or IRS (Inertial Reference System) (AMM SDS 34-27-00/1).

– EFIS (AMM SDS 34-22-00/1).

– Radio Altimeter System (AMM SDS 34-31-00/1).

– VOR/ILS/GS/MB System (AMM SDS 34-32-00/1).

(6) Make sure there are no attitude and heading red flags (ATT FAIL and HDG FAIL, respectively) on both PFD's.

NOTE: • For aircraft with IRS, if these flags are shown, perform the alignment (AMM TASK 34-27-00-700-801-A/500).

• For aircraft with AHRS (AH-900), perform the alignment (AMM TASK 34-21-00-700-802-A/500).

(7) Make sure that the control surfaces are free to move.

(8) On the electrical control panel, set the BATT1 and BATT2 switches to OFF.

(9) Pressurize the hydraulic system (AMM TASK 29-10-00-860-801-A/200).

(10) With the aircraft on the ground (WOW), on the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C and AIR/GND D circuit breakers and attach DO-NOT-CLOSE tags to them. This is to put the aircraft in the flight configuration.

J. Functionally Check Autopilot (Figure 503) (Figure 504)

SUBTASK 720-003-A

NOTE: The aural warning AUTOPILOT can be canceled as follows:
On the pilot's or copilot's control wheel, push and hold the AP/TRIM/PUSHER DISC for 2 seconds minimum.

(1) Do the check of the Autopilot and Yaw Damper engagement and disengagement logic as follows:

WARNING: MAKE SURE THAT THE CONTROL SURFACES ARE FREE OF STANDS AND PERSONNEL BEFORE YOU DO THE PROCEDURES BELOW.

(a) On the flight guidance controller (GC-550), push the AP engage pushbutton.
Result:
1 On GC-550, the AP and YD pushbuttons come on.
2 On the PFDs, the AP and YD annunciators come on.

(b) On GC-550, push the AP engage pushbutton.
Result:
1 The aural warning AUTOPILOT sounds.
2 On GC-550, the AP pushbutton goes off and the YD pushbutton stays on.
3 On the PFDs, the AP annunciator flashes for 5 seconds and then goes out of view.

(c) On GC-550, push the YD engage pushbutton.
Result:
1 On GC-550, the YD pushbutton goes off.
2 On the PFDs, the YD (amber) annunciator flashes for 5 seconds and then goes out of view.

(d) On GC-550, push the AP pushbutton to engage the autopilot and yaw damper.

(e) On the pilot's control wheel, set the AP/TRIM/PUSHER DISC switch.

Result:

1 The aural warning AUTOPILOT sounds.

2 On the PFDs, the AP (amber) and YD (amber) annunciators flash for 5 seconds and then go out of view.

3 On GC-550, the AP and YD pushbuttons go off.

(f) On GC-550, push the AP pushbutton to engage the autopilot and yaw damper.

(g) On the copilot's control wheel, set the AP/TRIM/PUSHER DISC switch.

Result:

1 The aural warning AUTOPILOT sounds.

2 On the PFDs, the AP (amber) and YD (amber) annunciators flash for 5 seconds and then go out of view.

3 On GC-550, the AP and YD pushbuttons go off.

(h) On GC-550, push the AP pushbutton to engage the autopilot and yaw damper.

(i) On the pilot's control wheel, set the UP/DOWN pitch trim switch to UP or DOWN.

Result:

1 The aural warning AUTOPILOT sounds.

2 On the PFD, the AP annunciator flashes for 3 seconds and then goes out of view and the YD annunciator stays on view.

3 On GC-550, the AP pushbutton goes off and the YD pushbutton stays on.

(j) On GC-550, push the AP pushbutton to engage the autopilot.

(k) On the copilot's control wheel, set the UP/DOWN pitch trim switch to UP or DOWN.

Result:

1 The aural warning AUTOPILOT sounds.

2 On the PFDs, the AP annunciator flashes for 3 seconds and then goes out of view and the YD annunciator stays on view.

3 On GC-550, the AP pushbutton goes off and the YD pushbutton stays on.

(l) On GC-550, push the AP pushbutton to engage the autopilot.

(m) On the trim control module, on the control pedestal, set the BACKUP test switch to the UP or DN (down) position.

Result:

1 The aural warning AUTOPILOT sounds.

2 On the PFD, the AP annunciator flashes for 3 seconds and then goes out of view and the YD annunciator stays on.

3 On GC-550, the AP pushbutton goes off and the YD pushbutton stays on.

(n) On GC-550, push the AP pushbutton to engage the autopilot.

(o) On the circuit breaker panel, open the IC-1 circuit breaker, and attach a DO-NOT-CLOSE tag to it.

Result:

1 The aural warning AUTOPILOT sounds.

2 On the copilot PFD, the AP and YD annunciators go out of view.

3 The EICAS display and the pilot's PFD and MFD show a red "X" failure flag.

(p) On the circuit breaker panel, close the IC-1 circuit breaker and remove the DO-NOT-CLOSE tag from it.

(q) On GC-550, push the AP pushbutton to engage the autopilot and yaw damper.

(r) On the circuit breaker panel, open the AP1 circuit breaker, and attach a DO-NOT-CLOSE tag to it.

Result:

1 The aural warning AUTOPILOT sounds.

2 On the PFD, the AP (amber) and YD (amber) annunciators flash for 5 seconds and then go out of view.

3 On GC-550, the AP and YD pushbuttons go off.

(s) On the circuit breaker panel, close the AP1 circuit breaker and remove the DO-NOT-CLOSE tag from it.

(2) Do the check of the autopilot Roll axis as follows:

(a) Center the control wheel.

(b) On the PFD, set the Heading bug to fore lubber line.

(c) On GC-550, select the HDG mode.

Result:

1 On the PFDs, the HDG (green) annunciator comes on.

(d) On GC-550, push the AP engage pushbutton.

Result:

1 On the PFDs, the AP and YD annunciators come on.

(e) On the autopilot controller (PC-400), turn the TURN knob totally clockwise.

Result:

1 On the PFDs, the HDG (green) annunciator changes to ROL(green) on the lateral mode display.

2 The autopilot and control wheel obey the TURN knob command.

(f) On the autopilot controller (PC-400), turn the TURN knob totally counterclockwise.

Result:

1 The autopilot and control wheel obey the TURN knob command.

(g) Push and release the AP/TRIM/DISC switch, on the control wheel.

Result:

1 The autopilot disengages.

2 The aural warning AUTOPILOT sounds.

3 On the PFDs, the AP and YD annunciators flash and then go out of view and the TKNB (amber) annunciator comes on.

(h) Push the AP engage pushbutton.

Result:

1 On the PFDs, the AP annunciator stays off and the YD annunciator comes on.

(i) Turn the TURN knob to the center detent position and push in the AP engage pushbutton.

Result:

1 On the PFDs, the TKNB (amber) goes out of view.

2 On the PFDs, the AP engage annunciator comes on.

3 On the PFDs, the YD annunciator stays on.

(j) Push in and hold the A/P TCS button on the control wheel.

(k) Turn the control wheel right and left and then put it in the center position.

Result:

1 Autopilot and Yaw Damper stay engaged.

2 On the PFDs, the AP annunciator is replaced with the TCS annunciator.

3 The control wheel moves freely while the TCS button is pushed in.

(l) Release the A/P TCS button.

Result:

1 The Autopilot and Yaw Damper stay engaged.

2 On the PFDs, the AP annunciator comes back.

(m) Push the AP pushbutton on GC-550 to disengage the Autopilot.

(3) Do the check of the autopilot pitch axis as follows:

(a) Put the control column in the center position and push the AP pushbutton, on GC-550, to engage the autopilot.

(b) On the autopilot controller, set the PITCH wheel to DESCEND.

Result:

1 The autopilot obeys the pitch wheel command.

(c) On the autopilot controller, set the PITCH wheel to CLIMB.

Result:

1 The autopilot obeys the pitch wheel command.

(d) Push in and hold the A/P TCS button and put the control column in the center position.

Result:

1 The control column is free to move while the TCS button is pushed.

2 On the PFDs, the AP annunciator is replaced with TCS annunciator.

(e) Release the A/P TCS button.

Result:

1 The control column obeys the autopilot pitch command.

2 On the PFDs, the AP annunciator comes back.

(f) Push the AP pushbutton on GC-550 to disengage the autopilot.

(4) Do the check of the Autopilot Trim as follows:

(a) On the control wheel, set the aircraft UP/DOWN pitch trim switch to move the bug of the pitch trim indicator, on the EICAS, to the nose up limit.

(b) On the GC-550, push the AP pushbutton to engage the Autopilot.

(c) On the PC-400, very slowly turn the PITCH wheel two turns in the DESCEND direction.

Result:

1 After approximately 3 seconds, the autopilot trim moves the control column forward.

2 On the EICAS, after approximately 5 seconds, the bug of the pitch trim indicator moves down.

NOTE: 1. After approximately 20 seconds, the Autopilot disengages because there is no aerodynamic pressure on the stabilizer during the test. On the EICAS, the AUTOPILOT FAIL warning message comes into view and the aural warning AUTOPILOT sounds.

2. A fast command on the PITCH wheel, on the PC-400, causes the Autopilot disconnection.

3. AP AIL MISTRIM and AP ELEV MISTRIM caution messages can come into view or not.

(d) On the control yoke, push the AP/TRIM/PUSHER DISC switch 2 seconds minimum, to stop it.

(e) On the control wheel, set the aircraft UP/DOWN pitch trim switch to move the bug of the pitch trim indicator, on the EICAS, to the nose down limit.

(f) On the GC-550, push the AP pushbutton to engage the Autopilot.

(g) On the PC-400, very slowly turn the PITCH wheel two turns in the CLIMB direction.

Result:

1 After approximately 3 seconds, the autopilot trim moves the control column rearward.

2 On the EICAS, after approximately 5 seconds, the bug of the pitch trim indicator moves up.

(h) On the GC-550, push the AP pushbutton to disengage the Autopilot.

K. Follow-on

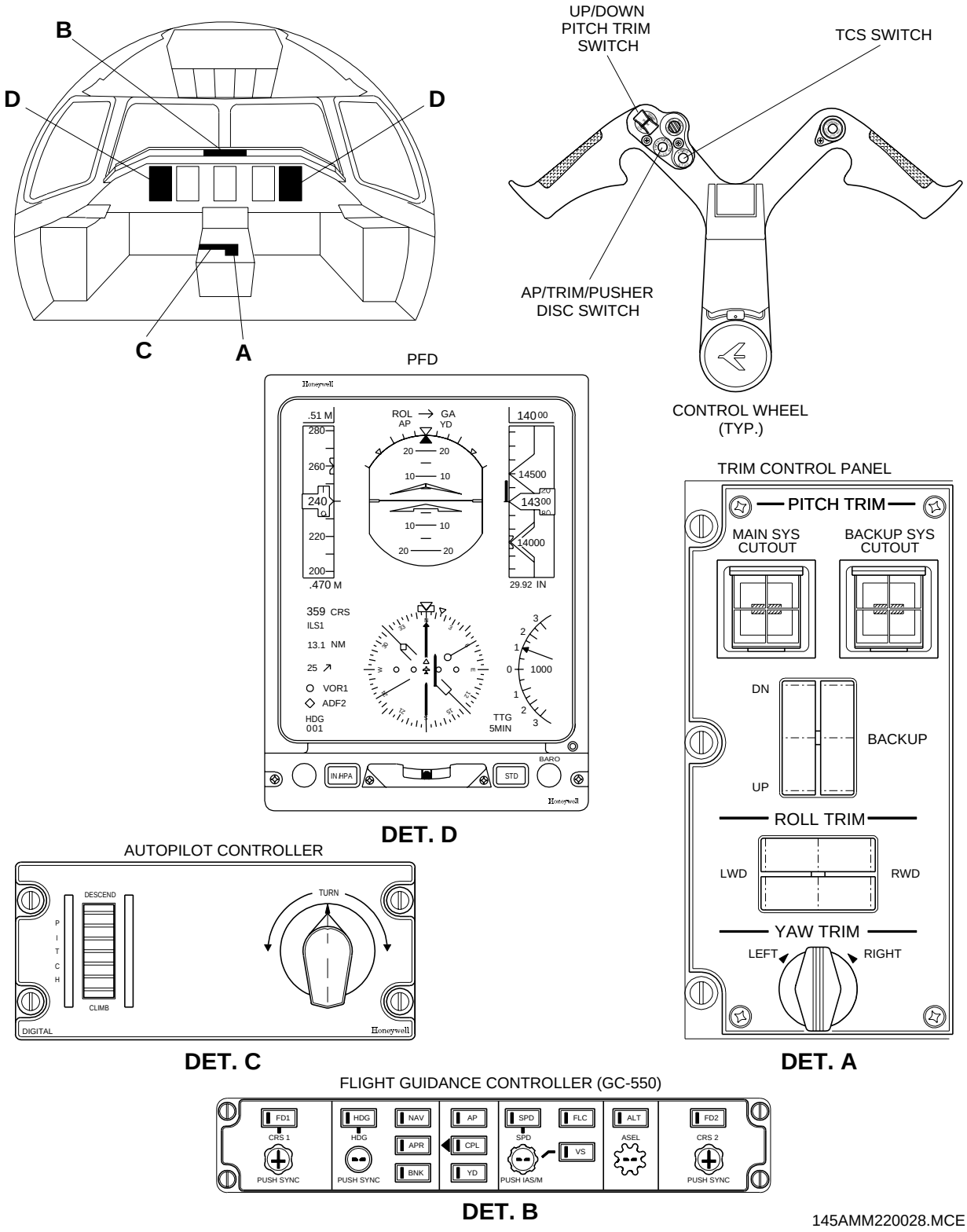
SUBTASK 842-004-A

(1) On the circuit breaker panel, close the AIR/GND A, AIR/GND B, AIR/GND C and AIR/GND D circuit breakers and remove the DO-NOT-CLOSE tags from them.

(2) Release the pressure from the hydraulic system (AMM TASK 29-10-00-860-801-A/200).

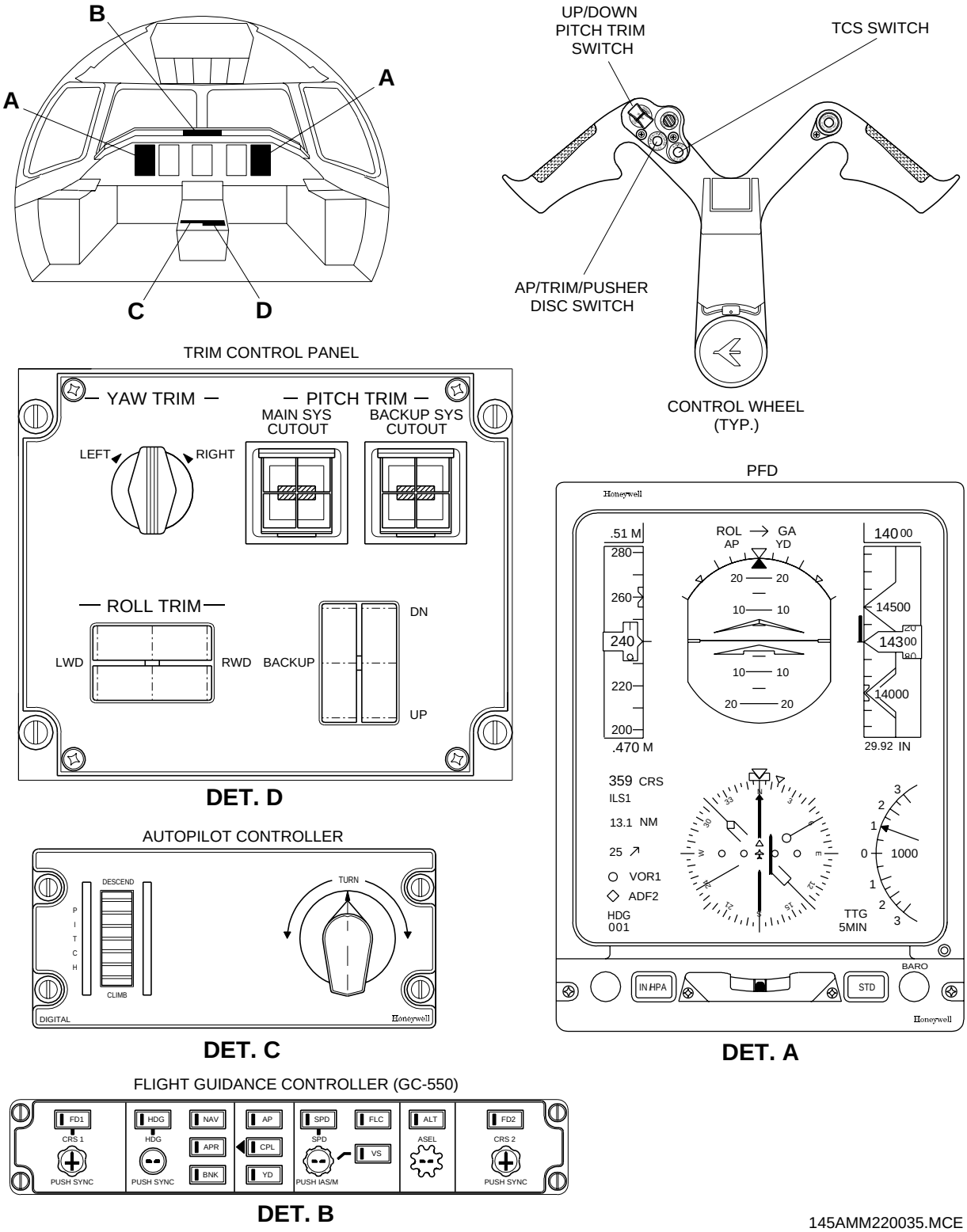
(3) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

EFFECTIVITY: AIRCRAFT WITH SINGLE FMS (HONEYWELL)
Autopilot - Functional Test
Figure 503



145AMM220028.MCE C

EFFECTIVITY: AIRCRAFT WITH DUAL FMS
Autopilot - Functional Test
Figure 504



145AMM220035.MCE B

TASK 22-11-00-700-804-A
EFFECTIVITY: AIRCRAFT WITH CAT II CONFIGURATION

5. CAT II MONITORING FUNCTION - FUNCTIONAL TEST

A. General

(1) This task gives the procedures to do a check of the CAT II monitoring function.

(2) To do this task, it is necessary to simulate an aircraft in flight condition.

(3) During the air data simulation, first apply pressure to the static port and then apply pressure to the pitot tube.

(4) The combination of DAU and ICs P/Ns that make up each EICAS version is shown in a table referred to in IPC 31-31-01.

(5) After any LRU replacement listed in table 501, it is not necessary to do the procedure (AMM TASK 22-11-00-700-804-A/500) to guarantee the CAT II approach capability. The AMM installation task of each LRU, already addresses the required test(s). Table 501 is only for information.

Table 501 - MINIMUM REQUIRED RETURN-TO-SERVICE TESTS

LRU	AMM TASK NUMBER FOR TESTS	QTY INSTALLED
Display Controller	AMM TASK 34-22-00-700-801-A/500	02
Data Acquisition Unit	AMM TASK 31-41-00-700-801-A/500	02
Integrated Computer	AMM TASK 31-42-00-700-801-A/500	02
Attitude and Heading Computer	AMM TASK 34-21-00-700-802-A/500	02
Flux Detector	AMM TASK 34-21-02-820-801-A/500	02
Standby Attitude	AMM TASK 34-24-00-700-801-A/500	01
Standby Altimeter	AMM TASK 34-11-00-700-801-A/500 AMM TASK 34-13-00-790-804-A/500	01
Standby Airspeed	AMM TASK 34-12-00-700-801-A/500 AMM TASK 34-13-00-790-804-A/500	01
Integrated Standby Instrument System (ISIS) [1]	AMM TASK 34-13-00-790-804-A/500 AMM TASK 34-01-01-700-801-A/500	01

[1] If the aircraft is equipped with ISIS (Integrated Standby Instrument System), the Standby Attitude, Standby Altimeter and Standby Airspeed Indicators will not be available.

Table 501 - MINIMUM REQUIRED RETURN-TO-SERVICE TESTS (Continued)

LRU	AMM TASK NUMBER FOR TESTS	QTY INSTALLED
Radio Altimeter	AMM TASK 34-31-00-700-801-A/500	01
Integrated Navigation Unit	AMM TASK 34-32-00-700-801-A/500 AMM TASK 34-51-00-700-801-A/500 AMM TASK 34-53-00-700-801-A/500	02
Ground Proximity Warning System Computer or Enhanced Ground Proximity Warning System Computer	AMM TASK 34-41-00-700-801-A/500 or AMM TASK 34-41-00-700-803-A/500	01
Air Data Computer	AMM TASK 34-15-00-700-802-A/500 AMM TASK 34-13-00-790-802-A/500 AMM TASK 34-13-00-790-803-A/500	02
Primary Flight Display	AMM TASK 34-22-00-700-801-A/500	02
Autopilot Controller	AMM TASK 22-11-00-700-803-A/500	01
Flight Guidance Controller	AMM TASK 22-11-00-700-801-A/500	01
Integrated Communication Unit	AMM TASK 23-12-00-700-801-A/500 AMM TASK 34-52-00-700-802-A/500	01
Windshield Wiper Control Box	AMM TASK 30-41-00-700-801-A/500	01
Inertial Reference Unit (Single IRS)	AMM TASK 34-26-00-700-801-A/500	01
Inertial Reference Unit (Dual IRS)	AMM TASK 34-27-00-700-801-A/500	02

B. References

REFERENCE	*DESIGNATION*
AMM SDS 22-10-00/1	
AMM SDS 23-81-00/1	
AMM SDS 27-10-00/1	
AMM SDS 27-20-00/1	
AMM SDS 27-30-00/1	

(Continued)

REFERENCE	*DESIGNATION*
AMM SDS 27-40-00/1	
AMM SDS 27-50-00/1	
AMM SDS 31-42-00/1	
AMM SDS 34-15-00/1	
AMM SDS 34-21-00/1	
AMM SDS 34-22-00/1	
AMM SDS 34-27-00/1	
AMM SDS 34-31-00/1	
AMM SDS 34-32-00/1	
AMM SDS 34-52-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 22-11-00-700-801-A/500	AUTOPILOT GO-AROUND MODE - OPERATIONAL CHECK
AMM TASK 22-11-00-700-803-A/500	AUTOPILOT - FUNCTIONAL TEST
AMM TASK 22-11-00-700-804-A/500	CAT II MONITORING FUNCTION - FUNCTIONAL TEST
AMM TASK 23-12-00-700-801-A/500	COMMUNICATION SYSTEM - OPERATIONAL TEST
AMM TASK 27-36-00-700-801-A/500	STALL PROTECTION SYSTEM - OPERATIONAL CHECK
AMM TASK 27-51-00-700-801-A/500	FLAP CONTROL SYSTEM - OPERATIONAL CHECK
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
AMM TASK 30-41-00-700-801-A/500	WINDSHIELD WIPER SYSTEM - OPERATIONAL TEST
AMM TASK 31-41-00-700-801-A/500	DAU CHANNEL REVERSION - OPERATIONAL TEST
AMM TASK 31-42-00-700-801-A/500	INTEGRATED COMPUTERS - OPERATIONAL TEST
AMM TASK 34-01-01-700-801-A/500	ISIS (THALES) - FUNCTIONAL TEST
AMM TASK 34-11-00-700-801-A/500	-
AMM TASK 34-12-00-700-801-A/500	-
AMM TASK 34-13-00-000-801-A/400	PITOT/STATIC-SYSTEM TEST SET - DISCONNECTION
AMM TASK 34-13-00-400-801-A/400	PITOT/STATIC-SYSTEM TEST SET - CONNECTION
AMM TASK 34-13-00-790-802-A/500	PITOT-STATIC SYSTEM 1 - LEAKAGE TEST
AMM TASK 34-13-00-790-803-A/500	PITOT-STATIC SYSTEM 2 - LEAKAGE TEST
AMM TASK 34-13-00-790-804-A/500	STANDBY SYSTEM - LEAKAGE TEST
AMM TASK 34-15-00-700-802-A/500	ADC SYSTEM - OPERATIONAL TEST
AMM TASK 34-21-00-700-802-A/500	-
AMM TASK 34-21-00-700-804-A/500	AHRS - MOUNTING TRAY LEVELING/ALIGNMENT
AMM TASK 34-21-02-820-801-A/500	FLUX DETECTOR UNIT - COMPENSATION

(Continued)

REFERENCE	*DESIGNATION*
AMM TASK 34-22-00-700-801-A/500	ELECTRONIC FLIGHT INSTRUMENT SYSTEM - OPERATIONAL CHECK
AMM TASK 34-24-00-700-801-A/500	-
AMM TASK 34-26-00-700-801-A/500	SINGLE IRS - OPERATIONAL TEST
AMM TASK 34-27-00-700-801-A/500	DUAL IRS - OPERATIONAL TEST
AMM TASK 34-31-00-700-801-A/500	RADIO ALTIMETER SYSTEM - OPERATIONAL TEST
AMM TASK 34-31-00-800-801-A/200	RADIO ALTIMETER - RIGGING
AMM TASK 34-32-00-700-801-A/500	VOR/ILS SYSTEM OPERATIONAL TEST
AMM TASK 34-41-00-700-801-A/500	GPWS/WINDSHEAR - OPERATIONAL CHECK
AMM TASK 34-41-00-700-803-A/500	EGPWS/WINDSHEAR - OPERATIONAL CHECK
AMM TASK 34-51-00-700-801-A/500	DME SYSTEM OPERATIONAL TEST
AMM TASK 34-52-00-700-802-A/500	TRANSPONDER SYSTEM - OPERATIONAL TEST
AMM TASK 34-53-00-700-801-A/500	ADF SYSTEM OPERATIONAL TEST
IPC 31-31-01	FLIGHT DATA RECORDER
WM 34-90-02	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 044	Headset, Ramp handling	For communication	
GSE 126	Test Set, COMM/VOR/ILS, Ramp and Bench	To simulate LOC and GS frequencies and deviations	
GSE 128	Kit, Air Data	To connect the pitot/static system test set to the aircraft	
GSE 129	Test Set, Pitot/Static	To simulate altitude and airspeed	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Cockpit
1	Operates the test sets	Outside the aircraft

I. Preparation

SUBTASK 841-005-A

EFFECTIVITY: AIRCRAFT WITH CAT II CONFIGURATION

(1) Make sure that the aircraft is safe for maintenance.

(2) Connect the headsets (GSE 044).

(3) Make sure that the SENSORS (PITOT1/TAT1/AOA1, PITOT3, and PITOT2/TAT2/AOA2) pushbuttons, on the overhead panel (Ice Protection panel), are set to OFF. Attach DO-NOT-TURN-AUTO tags to them.

(4) On the circuit breaker panel, make sure that the SENSORS HTG circuit breaker is closed.

NOTE: If this circuit breaker is open, the heating of the pitot tubes and static ports will be activated.

WARNING: DO NOT TOUCH THE PITOT, PITOT/STATIC SENSORS, AND ANEMOMETRIC STATIC PORTS IMMEDIATELY AFTER THE HEATER WAS SET TO OFF TO PREVENT INJURY TO PERSONS.

(5) Remove the protection cover from the pitot and pitot/static sensors.

CAUTION: DO NOT APPLY PRESSURE TO THE PITOT TUBES WHEN THE STATIC PORTS ARE WITHOUT PRESSURE. THIS COULD CAUSE DAMAGE TO THE MADC.

(6) Connect the pitot/static system test set (GSE 129) to the aircraft (AMM TASK 34-13-00-400-801-A/400).

NOTE: This procedure can cause interference with the local air traffic during simulations of altitude with the anemometric bench test. To prevent this, make sure that the transponder is on the STANDBY condition (AMM SDS 34-52-00/1).

(7) Energize the aircraft with the external DC power supply (AMM TASK 20-40-01-860-801-A/200).

NOTE: After the energization of the aircraft with AHRS (AH-800), let three minutes go by for the AHRS stabilization.

(8) Make sure that the systems below are serviceable and on:

- Autopilot (AMM SDS 22-10-00/1).
- Approach mode (AMM SDS 22-10-00/1).
- Radio Management System (AMM SDS 23-81-00/1).
- Aileron System (AMM SDS 27-10-00/1).
- Rudder System (AMM SDS 27-20-00/1).
- Elevator and Tab Systems (AMM SDS 27-30-00/1).
- Horizontal Stabilizer System (AMM SDS 27-40-00/1).

- Flap System (AMM SDS 27-50-00/1).
- Integrated Computer System (AMM SDS 31-42-00/1).
- ADC System (AMM SDS 34-15-00/1).
- AHRS (Attitude and Heading Reference System) (AMM SDS 34-21-00/1) or IRS (Inertial Reference System) (AMM SDS 34-27-00/1).
- EFIS (AMM SDS 34-22-00/1).
- Radio Altimeter System (AMM SDS 34-31-00/1).
- VOR/ILS/GS/MB System (AMM SDS 34-32-00/1).

(9) Make sure there are no attitude and heading red flags (ATT FAIL and HDG FAIL, respectively) on the PFDs.

NOTE:
- For aircraft with IRS, if these flags are shown, perform the alignment (AMM TASK 34-27-00-700-801-A/500).
- For aircraft with AHRS (AH-900), perform the alignment (AMM TASK 34-21-00-700-804-A/500).

(10) Make sure that the control surfaces are free to move.

(11) On the electrical control panel, set the BATT1 and BATT2 switches to OFF.

(12) With the aircraft on the ground (WOW), on the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C, and AIR/GND D circuit breakers and attach DO-NOT-CLOSE tags to them. This is to put the aircraft in the flight configuration.

J. Functionally Check CAT II Monitoring Function (Figure 505)

SUBTASK 720-004-A

EFFECTIVITY: AIRCRAFT WITH CAT II CONFIGURATION

(1) On the pitot/static system test set (GSE 129), adjust the air data parameters as follows:

(a) Airspeed to 150 knots.

(b) Altitude to 1,500 ft.

(2) If the local field elevation is above 1,500 ft, engage GPWS TERRAIN SYS OVERRIDE.

(3) (Aircraft equipped with only one radio altimeter)

Simulate the radio altitude of 1,500 ft. Refer to AMM TASK 34-31-00-800-801-A/200.

(4) (Aircraft with EICAS up to version 16.5, equipped with two radio altimeters)

Simulate the radio altitude of 1,500 ft on radio altimeters 1 and 2. Refer to AMM TASK 34-31-00-800-801-A/200.

(5) (Aircraft with EICAS version 17 and on, equipped with two radio altimeters)

On the circuit breaker panel, open the RA1 or RA2 circuit breaker, and attach a DO-NOT-CLOSE tag to it.

Simulate the radio altitude of 1,500 ft on the radio altimeter of which the circuit breaker is closed. Refer to AMM TASK 34-31-00-800-801-A/200.

NOTE: For aircraft with EICAS version 17 and on, equipped with two radio altimeters, it is not necessary to simulate the radio altitude in the two radio altimeters. Only make sure that the circuit breaker of the radio altimeter that is not simulated is open.

(6) Do the check of the CAT II monitoring function as follows:

(a) On the two display controllers (DC-550 1 and DC-550 2), turn the external rotary switch of the RA-TEST switch, until you select a RA (DH) of 150 ft.

WARNING: MAKE SURE THAT THE CONTROL SURFACES ARE FREE OF STANDS AND PERSONS BEFORE YOU DO THE ACTIONS BELOW.

(b) Make sure that the gust lock lever is set to the FREE position.

(c) Put the flap selector lever at the 22° position (AMM TASK 27-51-00-700-801-A/500).

Result:

1 On the PFDs, the CAT 2 annunciation changes from amber to green.

(d) Set RMU1 and RMU2 to the NAV1 and NAV2 windows, respectively, and tune them in to VOR/ILS stations (AMM TASK 34-32-00-700-801-A/500).

(e) Tune RMU1 and RMU2 to the 108.10 MHz frequency.

(f) On the COMM/VOR/ILS ramp and bench test set (GSE 126), simulate a valid ILS (GS and LOC) frequency. See the PFDs.

(g) On GC-550, with the course selector knob CRS1, set the course (CRS) pointer, on the PFDs, to the fore lubber line.

(h) On GC-550, turn the HDG control until you set the HDG bug, on the PFDs, to the fore lubber line.

(i) On the test set (GSE 126), set the LOC and GS deviations to 0 ddm (centered), on the PFDs.

(j) With the NAV pushbutton, on the left display controller (DC-550 1), select ILS1 as the pilot's displayed navigation source.

(k) With the NAV pushbutton, on the right display controller (DC-550 2), select ILS2 as the copilot's displayed navigation source.

(l) Pressurize the hydraulic system (AMM TASK 29-10-00-860-801-A/200).

(m) On the overhead panel (Flight Controls Panel), set all pushbuttons to on.

(n) On the control wheel, set the UP/DOWN pitch trim switch to move the bug of the pitch trim indicator to the green band, on the EICAS.

NOTE: Check that there are no comparison monitor warnings on the PFD's, such as IAS, ATT, ROL, PIT, RA, GS, LOC, ILS, ALT or HDG, in amber. Refer to Figure 506.

(o) On GC-550, push the APR pushbutton.

Result:

1 On GC-550, the APR pushbutton comes on.

2 The PFDs show:

- The GS (green) annunciation on the vertical mode display.
- LOC (green) annunciation on the lateral mode display.

(p) On the flight guidance controller (GC-550), push the AP engage pushbutton.

Result:

1 On GC-550, the AP and YD pushbuttons come on.

2 The PFDs show:

- AP and YD indications.

(q) Let the control wheels free to move.

Result:

1 In a few seconds, the AP ELEV MISTRIM and AUTO TRIM FAIL caution messages come into view on the EICAS display.

2 A master caution tone sounds every five seconds.

(r) Push in the master caution switch to stop the master caution tone.

(s) Wait about two or four minutes until this occurs.

Result:

1 The Autopilot disengages.

2 The CAT 2 annunciation changes from green to amber and flashes for a few seconds and then stays steady.

NOTE: If the CAT II - AP ENGAGED is configured as DISABLED in IC-600 CONFIGURATION MODULE (refer to WM 34-90-02), the CAT 2 annunciation stays green.

3 The AUTOPILOT aural warning sounds.

NOTE: 1. The Autopilot disengages because of a lack of aerodynamic pressure on the stabilizer during the test, and it can take up to 4 minutes to occur.

2. On the EICAS, the AUTOPILOT FAIL warning message comes into view.

(t) If the aural warning sounds many times, push the AP/TRIM/PUSHER DISC switch 2 seconds minimum, to stop it.

(u) Center the control wheel.

(v) On the control wheel, set the UP/DOWN pitch trim switch to move the bug of the pitch trim indicator to the green band, on the EICAS.

(w) On GC-550, push the AP engage pushbutton.

Result:

1 On GC-550, the AP and YD pushbuttons come on.

2 The PFDs show the AP and YD indications.

3 The CAT 2 (green) annunciation.

NOTE: Make sure that there are no comparison monitor warnings on the PFD's, such as IAS, ATT, ROL, PIT, RA, GS, LOC, ILS, ALT, or HDG, in amber. Refer to Figure 506.

(x) Before the Autopilot disengagement, push the GA (GO-AROUND) pushbutton, on the pilot's or copilot's control lever.

Result:

1 On the PFDs:

- The LOC and GS modes for FD are dropped.
- The GA (Go-around mode) or IAS (SPD mode) annunciators are shown.
- The CAT 2 annunciation goes out of view on the PFDs.

(y) Push in the AP pushbutton to disengage the Autopilot.

(z) On the overhead panel (Flight Controls Panel), set all pushbuttons to off.

(aa) Release the pressure from the hydraulic system (AMM TASK 29-10-00-860-801-A/200).

(7) Put the radio altimeter system back to normal. Refer to AMM TASK 34-31-00-800-801-A/200.

(8) (Aircraft with EICAS version 17 and on, equipped with two radio altimeters) On the circuit breaker panel, close the RA1 or RA2 circuit breaker, which is open, and remove the DO-NOT-CLOSE tag from it.

K. Follow-on

SUBTASK 842-005-A

EFFECTIVITY: AIRCRAFT WITH CAT II CONFIGURATION

(1) On the circuit breaker panel, close the AIR/GND A, AIR/GND B, AIR/GND C, and AIR/GND D circuit breakers and remove the DO-NOT-CLOSE tags from them.

(2) If the local field elevation is above 1,500 ft , disengage GPWS TERRAIN SYS OVERRIDE.

(3) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

(4) Disconnect the pitot/static system test set (GSE 129) from the aircraft (AMM TASK 34-13-00-000-801-A/400).

(5) Do the operational checks of the Stall Protection System (AMM TASK 27-36-00-700-801-A/500) and of the Radio Altimeter System (AMM TASK 34-31-00-700-801-A/500) to make sure that they were not affected.

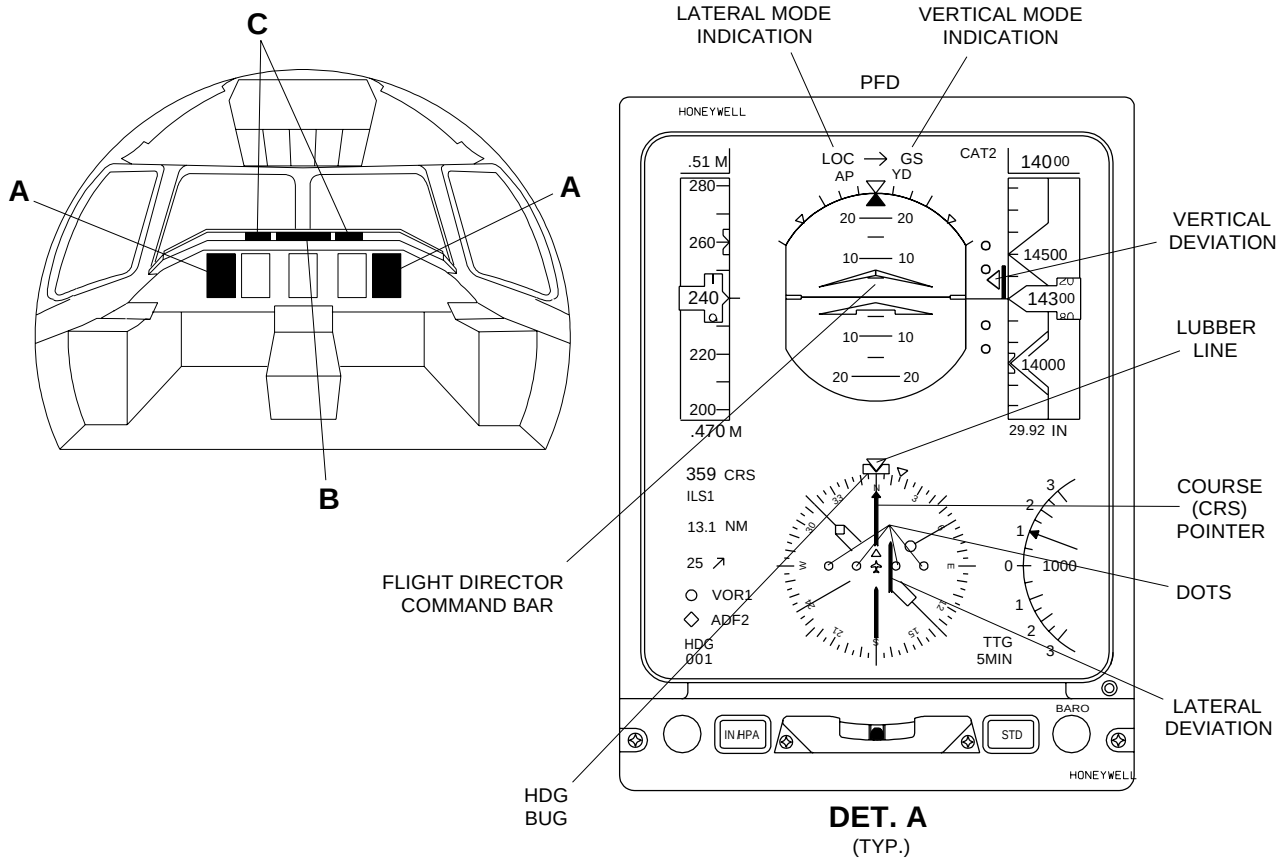
(6) Put the protection cover again on the pitot and pitot/static sensors.

(7) On the ice protection panel, on the overhead panel, remove the DO-NOT-TURN-AUTO tags from the PITOT1/TAT1/AOA1, PITOT3, and PITOT2/TAT2/AOA2 pushbuttons.

(8) Turn off the COMM/VOR/ILS ramp and bench test set (GSE 126).

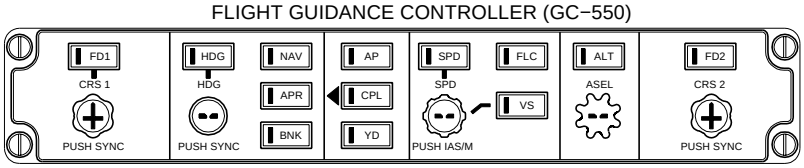
(9) Disconnect the headsets (GSE 044).

EFFECTIVITY: AIRCRAFT WITH CAT II CONFIGURATION
CAT II Monitoring Function - Functional Test
Figure 505



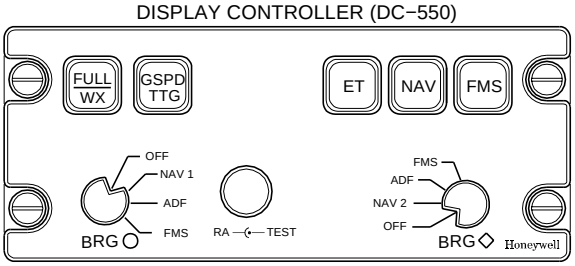
DET. A
(TYP.)

FLIGHT GUIDANCE CONTROLLER (GC−550)



DET. B

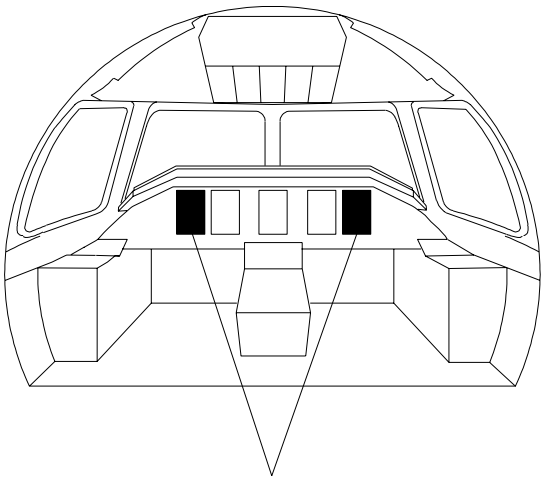
DISPLAY CONTROLLER (DC−550)

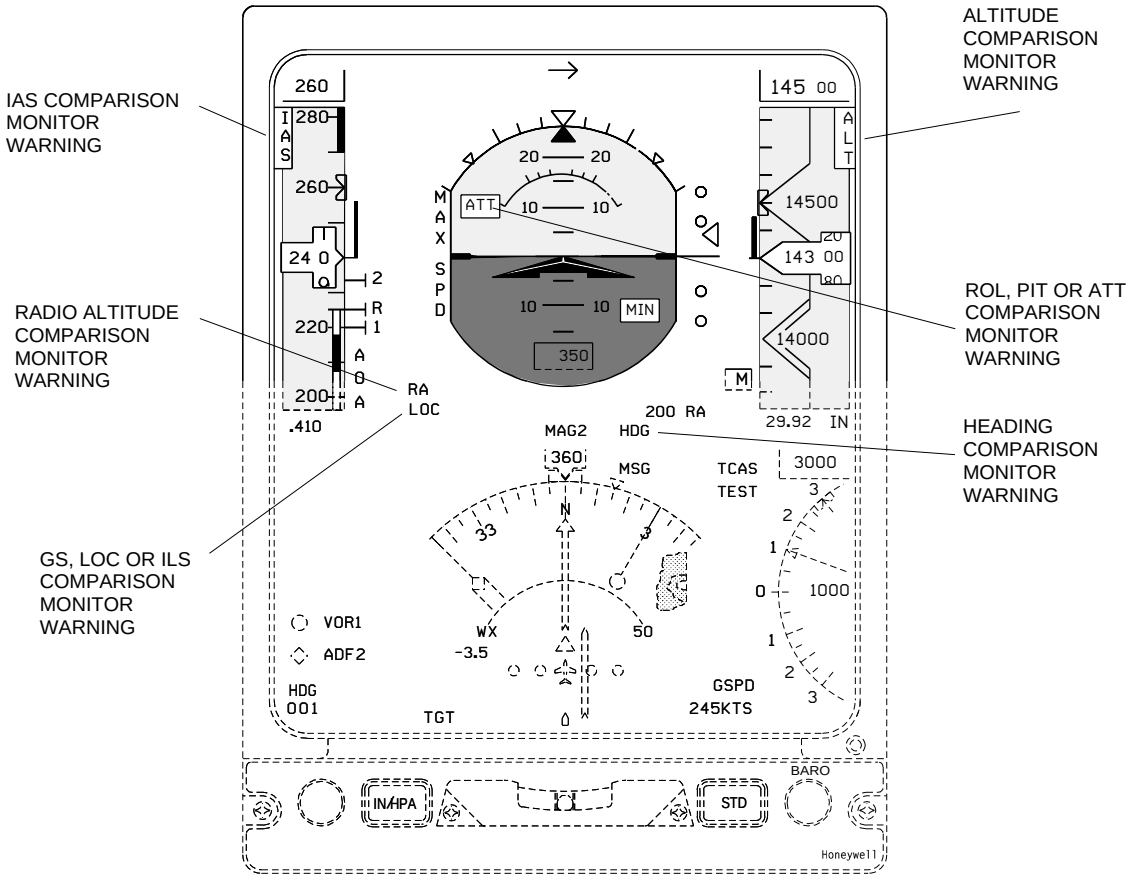


DET. C

EM145AMM220071A.DGN

EFFECTIVITY: AIRCRAFT WITH CAT II CONFIGURATION
Comparison Monitor Warnings
Figure 506





DET. A

145AMM220043.MCE

TASK 22-11-00-700-805-A
EFFECTIVITY: AIRCRAFT UNDER RVSM CONFIGURATION

6. ALTITUDE HOLD AND ALTITUDE PRE-SELECT MODES - FUNCTIONAL TEST (RVSM CONFIGURATION)

A. General

(1) This task gives the procedures to do just the functional check of the ALT and ALT SEL flight director modes, under RVSM configuration.

(2) You can test each mode of the flight director independently.

(3) To do this task, it is necessary to simulate an aircraft in-flight condition.

(4) During the air data simulation, first apply pressure to the static port and then apply pressure to the pitot tube.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 31-41-00/1	
AMM SDS 31-42-00/1	
AMM SDS 31-51-00/1	
AMM SDS 34-15-00/1	
AMM SDS 34-21-00/1	
AMM SDS 34-22-00/1	
AMM SDS 34-27-00/1	
AMM SDS 34-31-00/1	
AMM SDS 34-32-00/1	
AMM SDS 34-51-00/1	
AMM SDS 34-52-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 34-13-00-000-801-A/400	PITOT/STATIC-SYSTEM TEST SET - DISCONNECTION
AMM TASK 34-13-00-400-801-A/400	PITOT/STATIC-SYSTEM TEST SET - CONNECTION
AMM TASK 34-21-00-700-802-A/500	-
AMM TASK 34-27-00-700-801-A/500	DUAL IRS - OPERATIONAL TEST

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 129	Test Set, Pitot/Static	To simulate altitude and airspeed	
GSE 044	Headset, Ramp handling	For communication	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Cockpit
1	Operates the test sets	Outside the aircraft

I. Preparation

SUBTASK 841-006-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Make sure that the SENSORS (PITOT1/TAT1/AOA1, PITOT3 and PITOT2/TAT2/AOA2) pushbuttons, on the Ice Protection control panel (overhead panel), are set to OFF. Attach DO-NOT-TURN-AUTO tags to them.

(3) Make sure the SENSORS HTG circuit breaker is closed, on the circuit breaker panel.

NOTE: If this circuit breaker is open, the heating of the pitot tubes and static ports will be activated.

WARNING: DO NOT TOUCH THE PITOT, PITOT/STATIC SENSORS, AND ANEMOMETRIC STATIC PORTS IMMEDIATELY AFTER THE HEATER WAS SET TO OFF TO PREVENT INJURY TO PERSONS.

CAUTION: DO NOT APPLY PRESSURE TO THE PITOT TUBES WHEN THE STATIC PORTS ARE WITHOUT PRESSURE. THIS COULD CAUSE DAMAGE TO THE MADC.

(4) Remove the protection cover from the pitot and pitot/static sensors.

(5) Connect the pitot/static system test set (GSE 129) to the aircraft (AMM TASK 34-13-00-400-801-A/400).

NOTE: This procedure can cause interference with the local air traffic during simulations of altitude with the anemometric bench test. To prevent this, make sure that the transponder is on the STANDBY condition (AMM SDS 34-52-00/1).

(6) Energize the aircraft with the external DC power supply (AMM TASK 20-40-01-860-801-A/200).

NOTE: After the energization of the aircraft with AHRS (AH-800), let three minutes go by for the AHRS stabilization.

(7) Make sure that the systems below are serviceable and on:

– EICAS (AMM SDS 31-41-00/1).

– Integrated Computer System (AMM SDS 31-42-00/1).

– Aural Warning System (AMM SDS 31-51-00/1).

– ADC System (AMM SDS 34-15-00/1).

– AHRS (Attitude and Heading Reference System) (AMM SDS 34-21-00/1) or IRS (Inertial Reference System) (AMM SDS 34-27-00/1).

– EFIS (AMM SDS 34-22-00/1).

– Radio Altimeter System (AMM SDS 34-31-00/1).

– VOR/ILS/GS/MB System (AMM SDS 34-32-00/1).

– DME System (AMM SDS 34-51-00/1).

(8) Make sure there are no attitude and heading red flags (ATT FAIL and HDG FAIL, respectively) on both PFD's.

NOTE: • For aircraft with IRS, if these flags are shown, perform the alignment (AMM TASK 34-27-00-700-801-A/500).

• For aircraft with AHRS (AH-900), perform the alignment (AMM TASK 34-21-00-700-802-A/500).

(9) Connect the headsets (GSE 044).

J. Functionally Check AFCS Altitude Hold Mode and Altitude Pre-select Mode

SUBTASK 720-005-A

(1) Do the check of the ALT select mode as follows:

(a) Set the pitot/static system test set (GSE 129) to an altitude of 10,000 ft and an airspeed of 150 knots.

(b) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(c) On the GC-550 control panel, select the HDG and ALT modes.

Result:

1 On GC-550, the HDG and ALT pushbuttons come on.

2 On the PFD:

• The HDG (green) annunciator, on the lateral mode display, comes into view.

• The ALT (green) annunciator, on the vertical mode display, comes into view.

• The flight director synchronizes with the new altitude.

(d) Simulate 200 ft more than the original altitude and a rate of climb of 1,000 feet per minute.

Result:

1 The flight director command bars show nose down.

(e) Push the ALT pushbutton to stop the ALT mode.

Result:

1 The ALT (green) annunciator, on vertical mode display, goes out of view and the PIT (green) annunciator, on vertical mode display, comes into view.

(f) Push the ALT pushbutton again.

Result:

1 The flight director synchronizes again with the new altitude.

(g) Simulate 200 ft less than the original altitude.

Result:

1 The flight director command bars show nose up.

(h) Push the HDG and ALT pushbuttons to set to off the flight director.

(2) Do the check of the ALT SEL mode as follows:

(a) Set the pitot/static system test set (GSE 129) to an altitude of 5,000 ft and an airspeed of 150 knots.

(b) On the flight guidance controller (GC-550), turn the HDG control until you set the HDG bug, on the PFD, to the fore lubber line.

(c) On GC-550, with the ASEL knob, select the altitude of 10,000 ft, on the top right corner of the PFDs.

Result:

1 On the PFDs, the selected altitude is shown in blue.

NOTE: If, before this step, the altitude value was already selected to 10,000 ft and it is shown in amber, turn the ASEL knob and select the altitude of 10,000 ft again to change the indication from amber to blue.

(d) On GC-550, select the HDG and VS modes.

Result:

1 On GC-550, the HDG and VS pushbuttons come on.

2 On the PFD:

- The HDG (green) annunciator, on the lateral mode display, comes into view.
- The VS (green) and ASEL (white) annunciators, on the vertical mode display, come into view.
- The flight director command bars are with a leveled attitude.

(e) On GSE 129, increase the altitude to 10,000 ft, with a rate of climb of 2,000 ft per minute.

Result:

1 The flight director command bars shown nose down.

2 At approximately 9,000 ft, the ALT PRESELECT window, on the PFD, changes from blue to amber.

3 The altitude alert horn sounds.

4 At approximately 9,600 ft, this occurs:

- On the PFDs, the VS (green) annunciator goes out of view and the ASEL (white) annunciator changes to ASEL (green).
- A white box comes into view around the ASEL annunciator for 7 seconds .

5 At approximately 9,750 ft, the ALT PRESELECT window changes from amber to blue.

- The flight director command bars show nose down.

6 At 10,000 ft, the flight director command bars shown 0 degrees.

(f) Decrease the climb rate to zero at 10,000 ft.

Result:

1 The ASEL (green) annunciator goes out of view.

2 The ALT pushbutton comes on the flight guidance controller (GC-550) and the ALT annunciator comes into view on the PFDs.

NOTE: The system will not go to the ALT hold mode if the rate of climb is not less than 300 feet per minute and less than 25 ft of selected altitude.

3 The flight director synchronizes with the new altitude.

(g) While in the ALT hold mode, on the GSE129 decrease the altitude to less than 9,750 ft and, with a rate of climb of 1000 ft per minute.

Result:

1 The ALT PRESELECT window changes from blue to amber.

2 The altitude alert horn sounds.

3 The flight director command bars show nose up.

K. Follow-on

SUBTASK 842-006-A

(1) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

(2) Disconnect the pitot/static system test set (GSE 129) from the aircraft (AMM TASK 34-13-00-000-801-A/400).

(3) Put the protection cover again on the pitot and pitot/static sensors.

(4) On the ice protection panel, on the overhead panel, remove the DO-NOT-TURN-AUTO tags from the PITOT1/TAT1/AOA1, PITOT3, and PITOT2/TAT2/AOA2 pushbuttons.

(5) Disconnect the headsets (GSE 044).