AIR/GROUND (WOW) SYSTEM SIMULATION - MAINTENANCE PRACTICES

EFFECTIVITY: ALL

1. General

A. This section gives the procedures to simulate "flight" or "ground" condition in the AIR/GROUND system with the aircraft on the ground and with the aircraft on jacks, respectively.

B. 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*
32-63-00-860-801-A	"FLIGHT"/"GROUND" CONDITION SIMULATION IN AIR/GROUND SYSTEM	ALL

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TASK 32-63-00-860-801-A
EFFECTIVITY: ALL

2. "FLIGHT"/"GROUND" CONDITION SIMULATION IN AIR/GROUND SYSTEM

A. General

(1) This procedure gives the instructions to simulate the "flight" and "ground" conditions.

(2) The task is divided into two parts: Part A gives the procedures to simulate "flight" condition with the aircraft on the ground and Part B gives the procedures to simulate "ground" condition with the aircraft on jacks.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 31-31-00-700-803-A/500	FDR DATA - PERSONAL COMPUTER DOWNLOADING
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
AMM TASK 32-63-01-400-801-A/400	AIR/GROUND (WOW) PROXIMITY SWITCH OF MLG - INSTALLATION
AMM TASK 32-63-05-700-801-A/500	PROXIMITY SWITCH (SENSOR) - FUNCTIONAL CHECK
SB145-32-0036	-
WM 32-61-50	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Standard	Metallic target with adhesive	To simulate the shock-absorber extended condition	5

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

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H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Cockpit
1	Helps the other technician	Main landing gear and nose landing gear

I. Preparation

SUBTASK 841-002-A

WARNING: IF IT IS NECESSARY TO ENERGIZE THE AIRCRAFT WHILE IT IS IN THE IN-FLIGHT CONDITION, MAKE SURE THAT THE WEATHER RADAR BUTTON IS IN THE OFF POSITION ON THE WEATHER RADAR CONTROLLER IN THE COCKPIT. FAILURE TO DO THIS LETS THE RADAR BE OPERATIONAL AND INJURY TO PERSONS IN THE ADJACENT AREA CAN OCCUR.

(1) For Part A, paragraph J. (to simulate "flight" condition with the aircraft on the ground), and Part B, paragraph K (to simulate "ground" condition with the aircraft on jacks), the steps related to the preparation will be given along the text of the task.

NOTE: These steps start the recording function of the FDR which will overwrite the data stored in the FDR.
If it is necessary to keep the data stored in the FDR, open the FDR circuit breaker on the circuit breaker panel or, if it is necessary to keep the FDR on, do an FDR downloading as given in AMM TASK 31-31-00-700-803-A/500.

(2) For aircraft PRE-MOD SB145-32-0036, make sure that the pressure in hydraulic system No. 1 is fully released (AMM TASK 29-10-00-860-802-A/200).

(3) For aircraft POST-MOD SB145-32-0036, install the safety pin of the NLG door solenoid valve (AMM TASK 32-00-02-910-801-A/200).

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

(5) On the overhead panel, set the BATT 1 switch to OFF and make sure that the BATT 2 switch is set at OFF.

NOTE: The switches of batteries 1 and 2 must be set at the OFF position to permit the external power to energize the electrical systems when the aircraft is in the AIR condition.

(6) Make sure that the sensors (PITOT 1/TAT 1/AOA 1; PITOT 2/TAT 2/AOA 2; PITOT/ STATIC 3) pushbuttons, on the overhead panel, are set at OFF (lights ON) and attach a DO-NOT-TURN-AUTO tag to them. Refer to Figure 202.

WARNING: IF THE SENSORS HTG CIRCUIT BREAKER IS OPEN, THE HEATING OF THE PITOT TUBES AND STATIC PORTS WILL BE ACTIVATED.

(7) On the circuit breaker panel, on the cockpit ceiling, make sure that the SENSORS HTG circuit breaker is closed.

(8) On the circuit breaker panel, make sure that the CLOCK 2 circuit breaker is closed.

J. Simulation of "Flight" Condition with Aircraft on Ground (Figure 201)

SUBTASK 860-002-A

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NOTE: If there is a suspicion of proximity switch failure during the check, you can do the specific test of the proximity switch (AMM TASK 32-63-05-700-801-A/500).

(1) Reset the air/ground channels of the LGEU - landing gear electronic unit as follows:

(a) Open the AIR/GND A, AIR/GND B, AIR/GND C and AIR/GND D circuit breakers. Then close the circuit breakers in 10 seconds maximum.

NOTE: During the reset processing (3 sec. max.), the LG AIR/GND FAIL caution message is activated. After the reset, the message goes out of view.

(2) Simulate a "flight" condition in LGEU outputs: A, B1, C, and D1 as follows:

(a) On the circuit breaker panel, on the cockpit ceiling, open the AIR/GND A, B, C, and D circuit breaker location tips:

- AIR/GND A: DC BUS 1/LDG GEAR/AIR/GND A.
- AIR/GND B: ESSENTIAL DC BUS 1/LDG GEAR/AIR/GND B.
- AIR/GND C: DC BUS 2/LDG GEAR/AIR/GND C.
- AIR/GND D: ESSENTIAL DC BUS 2/LDG GEAR/AIR/GND D.

NOTE: For all the conditions above, the LG AIR/GND FAIL message is activated on the EICAS display.

(b) To make sure that the LGEU outputs are in the "flight" condition after you do the step above, do as follows:

1 Push the test button of display controller 1 and make sure that the IC-600 self-test does not start on PFD 1.

When the AIR/GND A circuit breaker is opened, LGEU channel A (output A) inhibits the IC-600 self-test. This shows that the aircraft is in the "flight" condition.

2 Do as follows:

a (Aircraft with AHRS 800): On the maintenance panel, set the AHRS switch to position 1 and make sure that the AHRS self-test does not start on PFD 1.

b (Aircraft with dual IRS or AHRS 900): This step is not applicable, because the air/ground system does not inhibit the test of the IRS test mode.

c When AIR/GND B circuit breaker is opened, LGEU channel B (output B1) inhibits the AHRS self-test. This shows that the aircraft is in the "flight" condition.

3 Push the test button of display controller 2 and make sure that the IC-600 self-test does not start on PFD 2.

When AIR/GND C circuit breaker is opened, LGEU channel C (output C) inhibits the IC-600 self-test. This shows that the aircraft is in the "flight" condition.

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4 (For aircraft with AHRS 800, do step below (a) as follows).

(For aircraft with AHRS 900 or dual IRS, go to step (b) below).

a (Aircraft with AHRS 800): On the maintenance panel, set the AHRS switch to position 2 and make sure that the AHRS self-test does not start on PFD 2.

When AIR/GND D circuit breaker is opened, LGEU channel D (output D1) inhibits the AHRS self-test. This shows that the aircraft is in the "flight" condition.

b (Aircraft with AHRS 900 or dual IRS): Look at the copilot's digital clock to see its indication. Make sure that on its ET / CHR display there is colon between the hour and minute digits and that, after one minute, the time on the ET / CHR display changed.

When AIR/GND D circuit breaker is opened, LGEU channel D (output D1) starts the flight time in the copilot's clock. This shows that the aircraft is in the "flight" condition.

(3) Simulate a "flight" condition in LGEU outputs: B2 and D2, as follows:

NOTE: There are two procedures to do this simulation:

- The first procedure (a) is to add the metallic target with adhesive in front of the AIR GROUNG proximity switches (WOW 1, 2, 3, and 4) installed on the main landing gear.
- The second procedure (b) is to put jumper pins on the LGEU connectors.

(a) First procedure:

1 Attach metallic targets with adhesive in front of the AIR GROUND proximity switches (WOW 1, 2, 3, AND 4) installed on the main landing gear.

2 Do the reset procedure of paragraph J.(1).

NOTE: To make sure that the LGEU outputs are in the "flight" condition after you do the step above, do as follows:

1. Push the PGE button of RMU 1/RMU 2 and make sure that the MAINTENANCE label is not available on the RMU display. In this condition, LGEU channels B/D (outputs B2/D2) inhibit the MAINTENANCE label. This shows that the aircraft is in the "flight" condition.

(b) Second procedure:

1 On the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C, AIR/GND D, IND 1 and IND 2, AWS 1 and 2 circuit breakers.

2 Remove connectors P7163 and P7164 of the LGEU (Figure 202).

3 Put a jumper between pins N and S of connectors P7163 and P7164.

4 Close circuit breakers AIR/GND B and D.

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NOTE: To make sure that the LGEU outputs are in the "flight" condition after you do the step above, do as follows:

1. Push the PGE button of RMU 1/RMU 2 and make sure that the MAINTENANCE label is not available on the RMU display. In this condition, LGEU channels B/D (outputs B2/D2) inhibit the MAINTENANCE label. This shows that the aircraft is in the "flight" condition.

(4) To simulate only the nose-landing-gear in the "flight" condition, do as follows:

- Attach a metallic target in front of the air/ground (WOW-weight on wheel) proximity switch of the nose landing gear. Refer to Figure 201.

K. Simulation of "Ground" Condition with Aircraft on Jacks (Figure 201)

SUBTASK 860-003-A

NOTE: If the check shows that a proximity switch failure is possible, you can do the specific test of the proximity switch (AMM TASK 32-63-05-700-801-A/500).

(1) Reset the air/ground channels of the LGEU - landing gear electronic unit as follows:

(a) Open the AIR/GND A, AIR/GND B, AIR/GND C and AIR/GND D circuit breakers. Then close the circuit breakers in 10 seconds maximum.

NOTE: During the reset processing (3 sec. max.), the LG AIR/GND FAIL caution message is activated. After the reset, the message goes out of view.

(2) Simulate a "ground" condition in LGEU outputs: B2 and D2 as follows:

(a) On the circuit breaker panel, on the cockpit ceiling, open the AIR/GND B, and D circuit breakers:

- AIR/GND B: ESSENTIAL DC BUS 1/LDG GEAR/AIR/GND B.
- AIR/GND D: ESSENTIAL DC BUS 2/LDG GEAR/AIR/GND D.

NOTE: For all the conditions above, the LG AIR/GND FAIL message is activated.

(b) To make sure that the LGEU outputs are in the "ground" condition after you do the steps above, do as follows:

1 Push the PGE button of RMU 1 and 2 and make sure that the MAINTENANCE label is available.

When the AIR/GND B and D circuit breakers are opened, LGEU channels B and D (outputs B2 and D2) activate the MAINTENANCE label on the RMU display. This shows that the aircraft is in the "ground" condition.

(3) Simulate a "ground" condition in LGEU outputs: A, B1, C, and D1 as follows:

NOTE: There are two procedures to do this simulation:

- The first procedure (a) is to remove all air/ground (WOW - weight on wheels) proximity switches from the nose and main landing gears.

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- The second procedure (b) is to put jumper pins on the LGEU connector.

(a) First procedure:

1 Disconnect the electrical connectors of all air/ground (WOW - weight on wheels) proximity switches of the nose and main landing gears (Figure 201).

2 Do the reset procedure of paragraph J.(1).

3 Do step (c) below.

(b) Second procedure:

1 On the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C, AIR/GND D, IND 1 and IND 2 , AWS 1 and 2 circuit breakers.

2 Remove connectors P7163 and P7164 of the LGEU (WM 32-61-50).

3 Put a jumper between pins C and E and between pins N and J of connector P7163.

4 Put a jumper between pins C and E and between pins N and J of connector P7164.

5 Close circuit breakers : AIR/GND A, B, C, and D.

(c) To make sure that the LGEU outputs is on the "ground" condition after you do the steps above, do as follows:

1 Push the TEST button of display controller 1 and make sure that the IC-600 self-test starts on PFD 1.

When the AIR/GND A circuit breaker is closed, LGEU channel A (output A) activates the IC-600 self-test. This shows that the aircraft is in the "ground" condition.

2 Do as follows:

a (Aircraft with AHRS 800): On the maintenance panel, set the AHRS switch to position 1 and make sure that the AHRS self-test starts on PFD 1.

b (Aircraft with dual IRS or AHRS 900): This step is not applicable, because the air/ground system does not inhibit the test of the IRS test mode.

c When the AIR/GND B is closed, LGEU channel B (output B1) activates the AHRS self-test. This shows that the aircraft is in the "ground" condition.

3 Push the test button of display controller 2 and make sure that the IC-600 self-test starts on PFD 2.

When the AIR/GND C circuit breaker is closed, LGEU channel C (output C) activates the IC-600 self-test. This shows that the aircraft is in the "ground" condition.

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4 (For aircraft with AHRS 800, do step (a) below as follows).

(For aircraft with AHRS 900 or dual IRS, go to step (b) below).

a (Aircraft with AHRS 800): On the maintenance panel, set the AHRS switch to position 2 and make sure that the AHRS self-test does starts on PFD 2.

When AIR/GND D circuit breaker is closed, LGEU channel D (output D1) activates the AHRS self-test. This shows that the aircraft is in the "ground" condition.

b (Aircraft with AHRS 900 or dual IRS): Look at the copilot's digital clock to see its indication. Make sure that on its ET / CHR display there is no colon between the hour and minute digits and that, after one minute, the time on the ET / CHR display did not change.

When AIR/GND D circuit breaker is closed, LGEU channel D (output D1) inhibits the flight's time in the copilot's clock. This shows that the aircraft is in the "ground" condition.

(4) To simulate only the nose-landing-gear in the "ground" condition, do as follows:

- On the circuit breaker panel, open the AIR/GND D circuit breaker.

L. Follow-on

SUBTASK 842-002-A

(1) Make sure that the FDR circuit breaker is closed.

(2) Make sure that all air/ground proximity switches (WOW) of the nose and main landing gears are installed (AMM TASK 32-63-01-400-801-A/400) (Figure 201).

(3) Remove all jumpers installed on connectors P7163 and P7164, and install these connectors on the LGEU.

(4) On aircraft POST-MOD SB145-32-0036, remove the safety pin of the NLG door solenoid valve (AMM TASK 32-00-02-910-801-A/200).

(5) Make sure that the AIR/GND A, AIR/GND B, AIR/GND C and AIR/GND D, IND 1, and IND 2, AWS 1 and 2 circuit breakers are closed.

(6) Set the SENSORS (PITOT 1/AOA 1/TAT 1; PITOT 2/TAT 2/AOA 2; and PITOT/ STATIC 3) pushbuttons to AUTO and remove the DO-NOT-TURN-AUTO tag from them.

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

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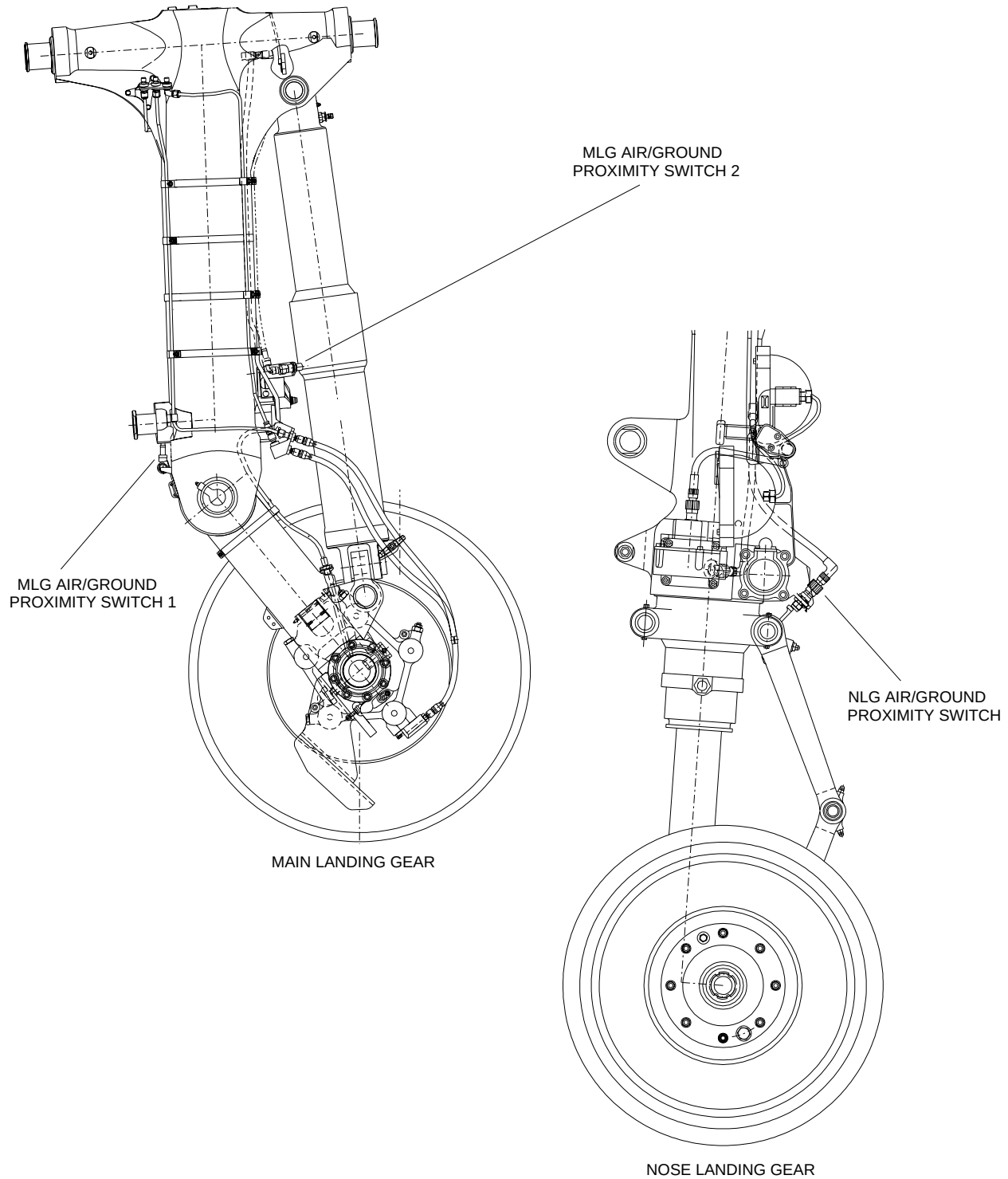
EFFECTIVITY: ALL
AIR/GND System - Simulation
Figure 201



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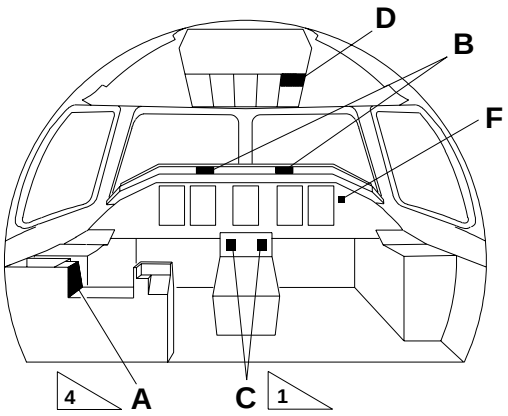
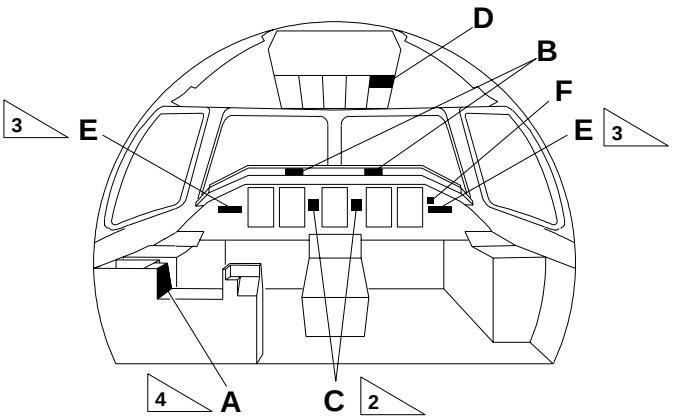
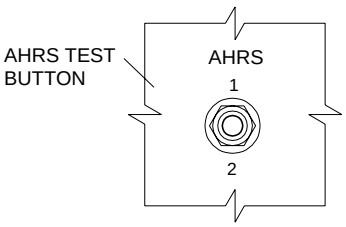
EFFECTIVITY: ALL

AIR/GND System - Simulation - LGEU

Figure 202

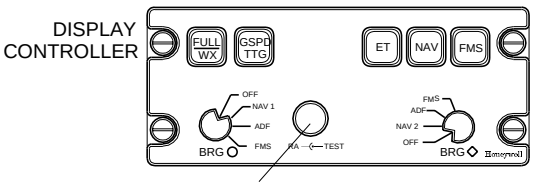




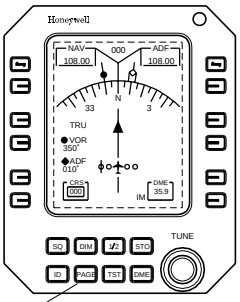


DET. A

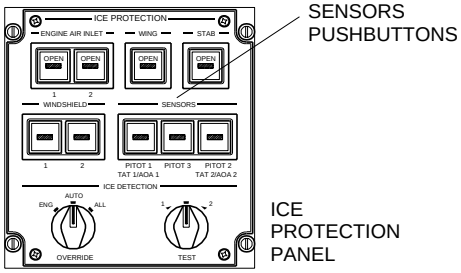
MAINTENANCE PANEL



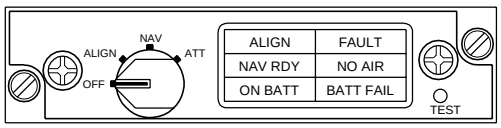
DET. B



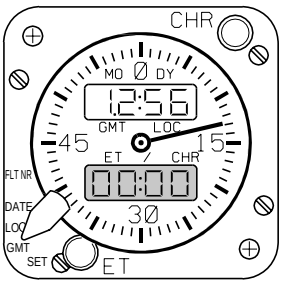
DET. C



DET. D



DET. E



DET. F

1 AIRCRAFT WITH RMU INSTALLED ON CONTROL PEDESTAL

2 AIRCRAFT WITH RMU INSTALLED ON MAIN INSTRUMENT PANEL

3 AIRCRAFT WITH DUAL IRS INSTALLED ON MAIN INSTRUMENTS PANEL

4 AIRCRAFT AHRS INSTALLED ON THE MANUTENCE PANEL

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