AIRBORNE AUDIO SYSTEM - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

   A. This section gives these tasks:

   - Audio System Emergency Mode - Operational Check;
   - Audio System - Operational Test.

   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*
23-51-00-700-801-A ♦	AUDIO SYSTEM EMERGENCY MODE - OPERATIONAL CHECK	ALL
23-51-00-700-802-A	AUDIO SYSTEM - OPERATIONAL TEST	ALL

TASK 23-51-00-700-801-A
EFFECTIVITY: ALL

2. AUDIO SYSTEM EMERGENCY MODE - OPERATIONAL CHECK

A. General

(1) This task gives the procedures to do the operational check of the Audio System in the Emergency Mode.

(2) This check can be done with GSE 126 or GSE 301 or GSE 474 or with the VOR local ground station.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 23-12-00/1	
AMM SDS 23-31-00/1	
AMM SDS 23-51-00/1	
AMM SDS 23-81-00/1	
AMM SDS 34-32-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 126	Test Set - COMM/VOR/ILS, Ramp and Bench	To transmit an audio ident code	

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 (Figure 501)

SUBTASK 841-002-A

(1) Energize the aircraft with the External DC Power Supply (AMM TASK 20-40-01-860-801-A/200).

(2) Make sure that the COMM/VOR/ILS Ramp Test Set (GSE 126 or GSE 301 or GSE 474) is operational.

(3) Make sure that the Systems below are operational and ON:

– VHF System (AMM SDS 23-12-00/1).

– Passenger Address & Cabin Interphone System (AMM SDS 23-31-00/1).

– Airborne Audio System (AMM SDS 23-51-00/1).

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

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

(4) Connect the Pilot and Copilot headsets.

J. Operationally Check Audio System - Emergency Mode (Figure 502) (Figure 503) (Figure 504)

SUBTASK 710-002-A

(1) Do the check of the Emergency Communication and Navigation Modes, on the Pilot Digital Audio Panel (DAP), on the instrument panel, as follows:

(a) Set RMU 1 to the COM 1 window (AMM SDS 23-81-00/1).

(b) Tune in the COMM 1 system, on RMU 1, on an operative frequency (AMM SDS 23-12-00/1).

(c) On the DAP, push the button EMER.

(d) Momentarily set the PTT/HOT mic switches, on the pilot control yoke, to the PTT position.

Result:

1 RMU 1 shows the TX indication, on the COM 1 window.

(e) Momentarily push the PTT mic switch, on the pilot glareshield panel.

Result:

1 RMU 1 shows the TX indication, on the COM 1 window.

(f) Speak to the local ground station, and make sure that the transmission and reception of audio are good.

NOTE: If you use BOOM, put the BOOM/MASK switch in the BOOM position. If you use MASK, put the BOOM/MASK switch in the MASK position.

(g) Change the master volume HDPH, on the DAP.

Result:

1 There are volume variations in the headphone.

(h) Listen to the sidetone while you listen to your speech in the headphones, during the transmission.

NOTE: To receive a VOR ident code, use GSE 126 or GSE 301 or GSE 474 or use the VOR local ground station.

(i) (With GSE 126 or GSE 301 or GSE 474) Tune in the COMM/VOR/ILS Ramp Test Set (GSE 126 or GSE 301 or GSE 474), at a frequency of 108.00 MHz, with a bearing of 0 degrees to the station.

(j) (With GSE 126 or GSE 301 or GSE 474) Set up the COMM/VOR/ILS Ramp Test Set (GSE 126 or GSE 301 or GSE 474) to transmit an audio ident code.

(k) Set RMU 1 to the NAV 1 window (AMM SDS 23-81-00/1).

(l) Tune the NAV 1 system, on RMU 1, at an operational VOR frequency of the ground station or, if you use GSE 126 or GSE 301 or GSE 474, at a frequency of 108.00 MHz (AMM SDS 34-32-00/1).

(m) Make sure that the reception of the ident code in the headphones is good.

(n) Push the COM 1 button, on the DAP.

(2) Push the NAV AUDIO key on CDH.

NOTE: The inscription AUDIO on the CDH display comes on.

(3) Do step (1) again for the copilot DAP, on the instrument panel. Tune in the COMM 2 system, on RMU 2.

NOTE: For the copilot DAP emergency mode, the NAV Audio ident code is only received in the headphones.

K. Follow-on (Figure 501)

SUBTASK 842-002-A

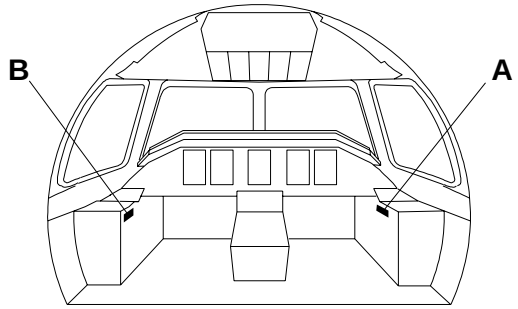
(1) Disconnect the pilot and copilot headsets.

(2) Disconnect the COMM/VOR/ILS Ramp Test Set (GSE 126 or GSE 301 or GSE 474).

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

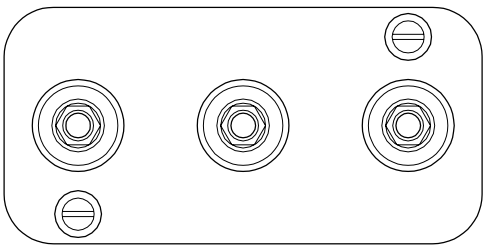
EFFECTIVITY: ALL

Pilot and Copilot Headset Jacks
Figure 501

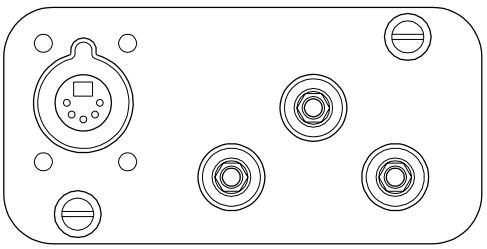


PHONE	BOOM MIC	HAND MIC

HEADSET ANR	HEAD PHONE	BOOM MIC	HAND MIC



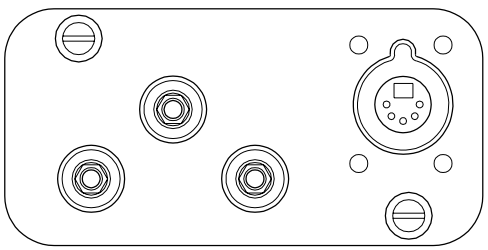
DET. A 1



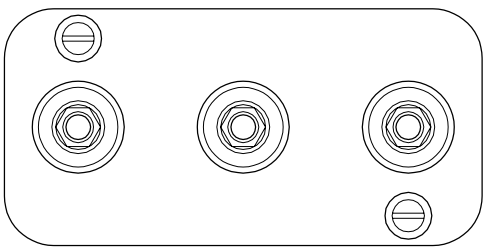
DET. A 2

HAND MIC	BOOM MIC	HEAD PHONE	HEADSET ANR

HAND MIC	BOOM MIC	PHONE



DET. B 2



DET. B 1

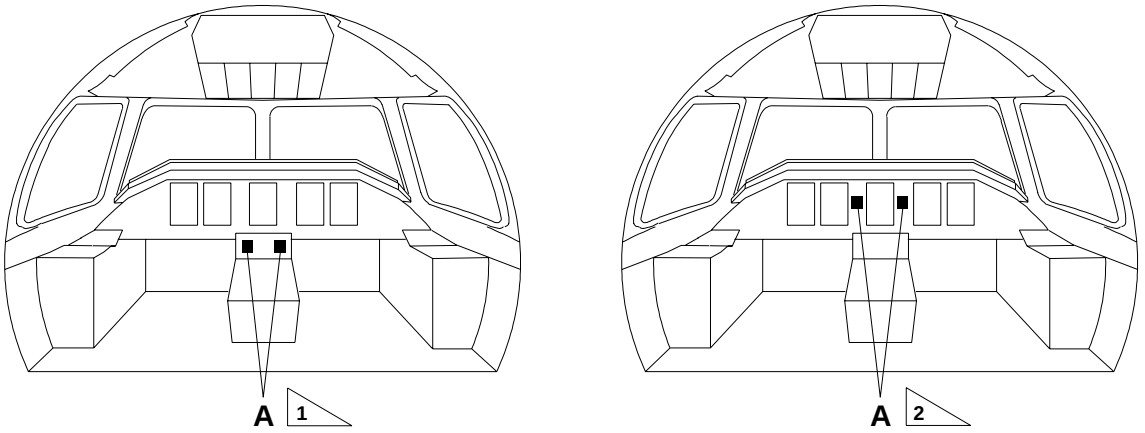
1 AIRCRAFT WITHOUT ACTIVE−NOISE−REDUCTION HEADSET.

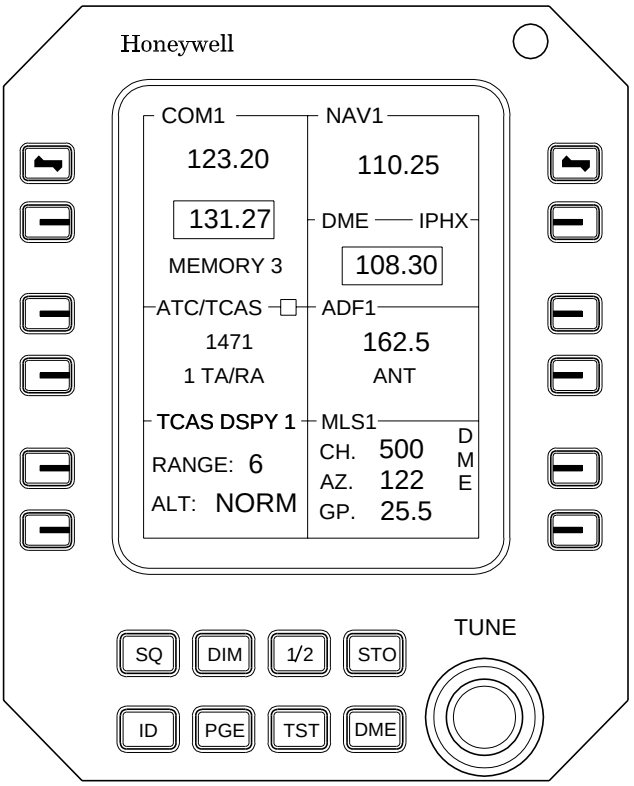
2 AIRCRAFT WITH ACTIVE−NOISE−REDUCTION HEADSET.

EM145AMM230096D.DGN

EFFECTIVITY: ALL

Radio Management Units (RMU) 1 and 2
Figure 502





DET. A

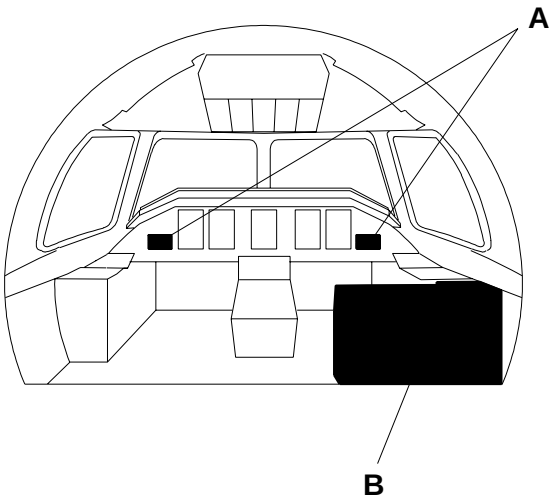
1 AIRCRAFT WITH RMU INSTALLED ON CONTROL PEDESTAL

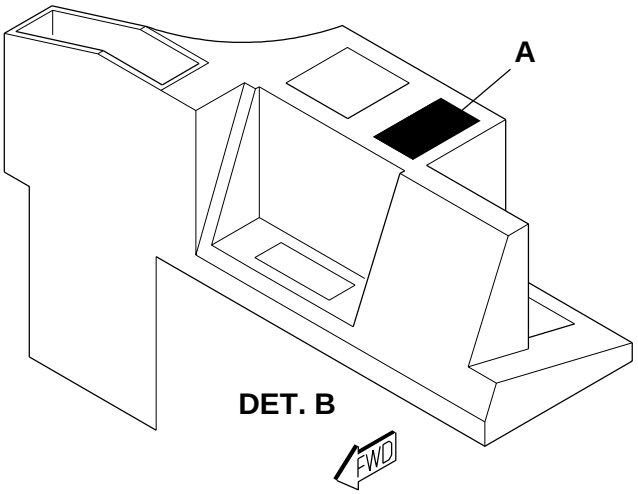
2 AIRCRAFT WITH RMU INSTALLED ON MAIN INSTRUMENT PANEL

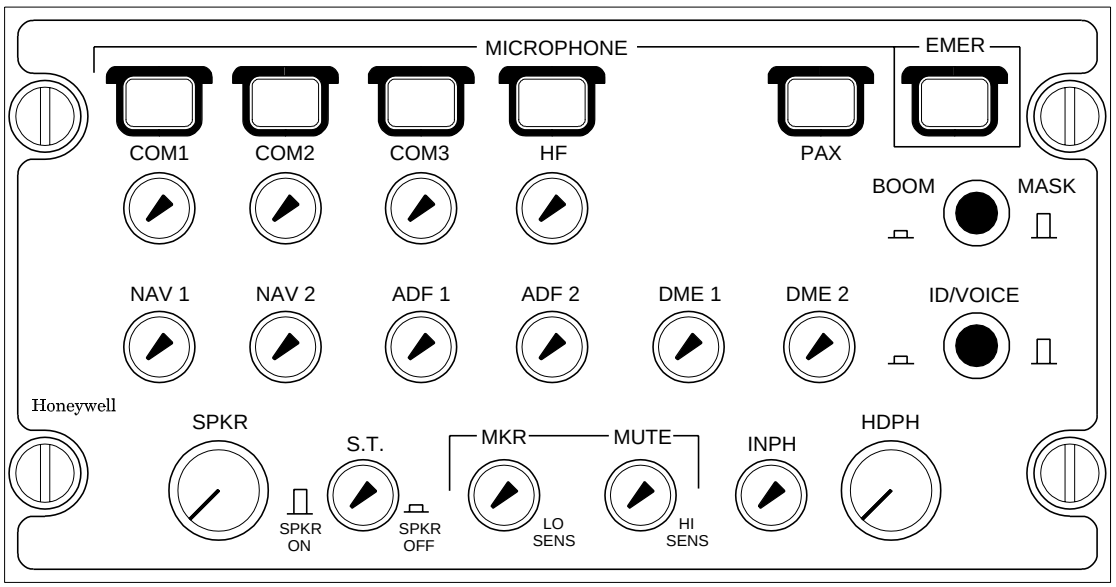
145AMM230092.MCE A

EFFECTIVITY: ALL

Pilot, Copilot, and Observer Digital Audio Panels
Figure 503





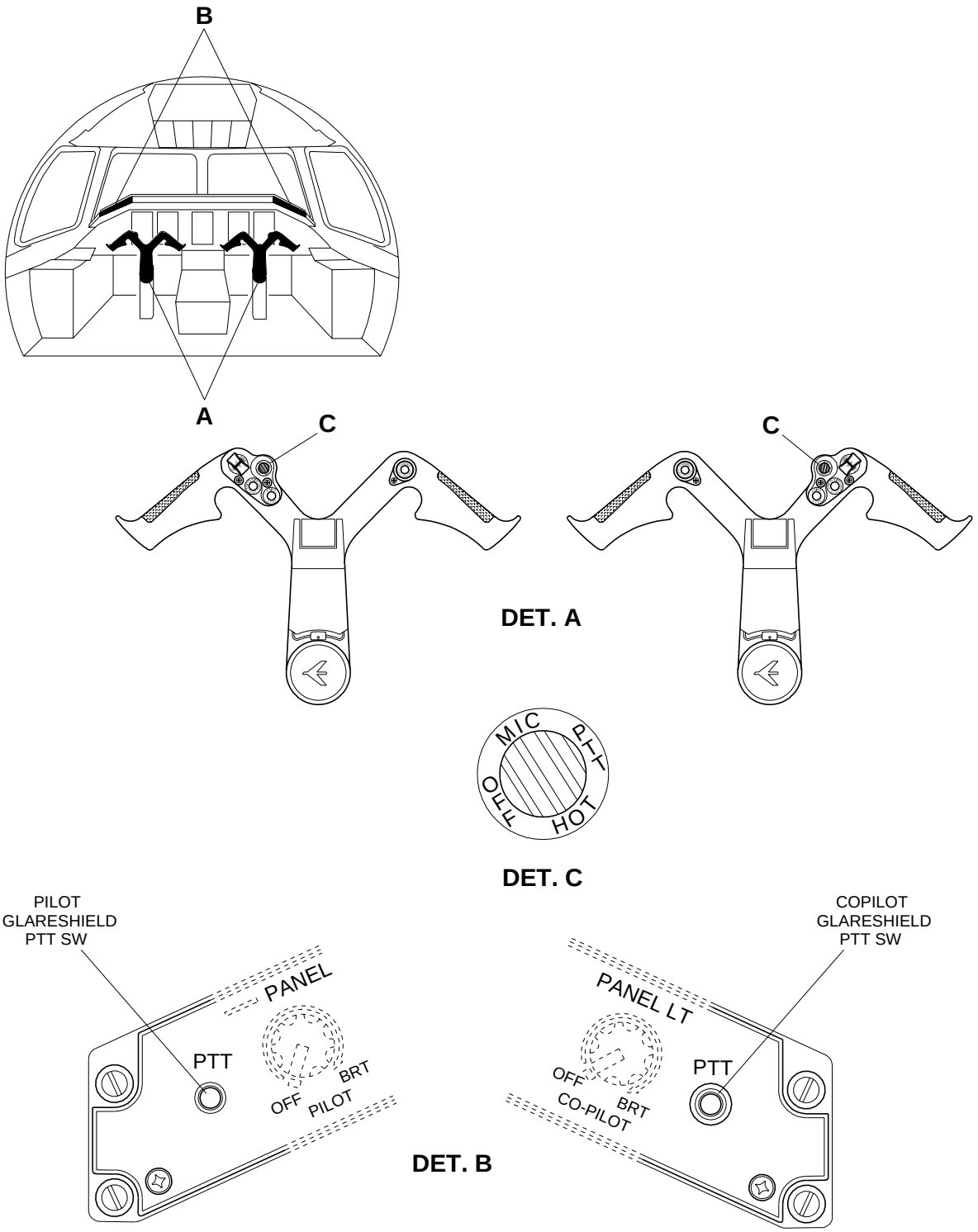


DET. A

145AMM230093.MCE B

EFFECTIVITY: ALL

Pilot and Copilot PTT/HOT Mic Switches
Figure 504



145AMM230094.MCE B

TASK 23-51-00-700-802-A
EFFECTIVITY: ALL

3. AUDIO SYSTEM - OPERATIONAL TEST

A. General

(1) This task gives the procedures to do the operational test of the Audio System.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 23-12-00/1	
AMM SDS 23-31-00/1	
AMM SDS 23-51-00/1	
AMM SDS 23-81-00/1	
AMM SDS 34-32-00/1	
AMM SDS 34-51-00/1	
AMM SDS 34-53-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 044	Head-Set Ramp	To do the test	
GSE 126	COMM/VOR/ILS Ramp Test Set	To do the test	
GSE 127	Test Set - Transponder and DME, Ramp	To do the test	
GSE 132	Adapter	To do the test	
GSE 197	Station-PTT Belt	To do the test	

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 (Figure 501)

SUBTASK 841-003-A

NOTE: For the audio system operational test, it is not necessary to use GSE 126 or GSE 301 and GSE 127 or GSE 302 or GSE 475, if the COMM/VOR/ILS and DME signals are available at the local base station.

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

(2) (If there are no local COMM/VOR/ILS signals available) Connect the COMM/VOR/ILS Ramp Test Set (GSE 126 or GSE 301).

(3) (Procedure using ATC-600 - GSE 127 or GSE 302) If there is no local DME signal available, connect the DME ramp test set (GSE 127 or GSE 302).

(4) (Procedure using IFR6000 - GSE 475) If there is no local DME signal available, mount the directional Antenna on IFR6000 and connect the short RF coaxial cable between antenna connector and the IFR6000 ANT connector.

(5) Make sure that the systems are operational and on:

– VHF System (AMM SDS 23-12-00/1).

– Passenger Address & Cabin Interphone System (AMM SDS 23-31-00/1).

– Airborne Audio System (AMM SDS 23-51-00/1).

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

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

– DME System (AMM SDS 34-51-00/1).

– ADF System (AMM SDS 34-53-00/1).

(6) Connect the pilot and copilot headsets.

(7) Connect the ramp headset (GSE 044) to the PTT station belt (GSE 197) and the adapter (GSE 132) (only aircraft with jack TJT-120MS) to the ramp stations.

J. Audio System - Operational Test (Figure 502) (Figure 503) (Figure 504)

SUBTASK 710-003-A

(1) Do the test of the Audio System as follows:

(a) Set RMU 1 to the COM 1 window (AMM SDS 23-81-00/1).

(b) Tune in the COM 1 system, on RMU 1, to a local ground station or to a hand-held COM (AMM SDS 23-12-00/1).

(c) On the pilot DAP, select the COM 1 microphone switch and set the COM 1 volume control to mid range.

(d) Momentarily push the PTT switch.

1 RMU 1 shows the TX indication, on the COM 1 window.

(e) Speak to the local ground station, through the boom and hand microphones, and make sure that the transmission and reception of audio are good.

(f) Change the master volume, on the DAP.

1 There are volume variations in the headphone.

(g) Listen to the sidetone while you listen to your speech in the headphones.

(h) Set RMU 1 to the NAV 1 window (AMM SDS 23-81-00/1).

(i) (If a local VOR frequency signal is available) Tune the NAV 1 system, on RMU 1, to a local VOR frequency (AMM SDS 34-32-00/1).

(j) (If a local VOR frequency signal is not available) Set up the ramp test set (GSE 126 or GSE 301) as follows:

1 Tune in the COMM/VOR/ILS ramp test set (GSE 126 or GSE 301) at a VOR frequency of 108.00 MHz, with a bearing of 0 degrees to the station.

2 Set up the COMM/VOR/ILS ramp test set (GSE 126 or GSE 301) to transmit an audio ident code.

(k) Set the NAV 1 button to ON, on the DAP.

(l) Make sure that the reception of the ident code in the headphones is good.

(m) Set the NAV 1 button to OFF, on the DAP.

(n) On the RMU, push and hold the "TST" button.

1 After 2 seconds, marker lamps and tones operate at the order of 400Hz, 1300Hz, 3000Hz.

2 "VOR TEST" shows in the NAV windows.

3 RMU shows "VOR PASS" in green or "VOR ERR" in red.

(o) Set RMU 1 to the ADF 1 window (AMM SDS 23-81-00/1).

(p) Select ADF 1 reception button on the pilot's DAP.

1 Make sure that there is reception of an audio signal in the pilot headphone and on the speaker.

(q) Change the ADF 1 volume control and make sure that it operates correctly.

(r) Tune in the ADF to a strong local broadcast station frequency, select the "Voice" mode, and make sure that there is an extended audio frequency range.

(s) (Procedure using ATC-600 - GSE 127 or GSE 302) If a local DME signal is not available, use GSE 127 or GSE 302 to set up the DME ramp test set to transmit on 108.00 MHz and set it to 35 miles and 200 knots to the station, as follows:

1 Activate the ident tone on the ramp tester.

Listen for a tone on the aircraft audio system, in the headphone, and on the pilot's speaker.

2 Change the DME 1 volume and make sure that it operates correctly.

(t) If a local DME signal is available, do the DME test as follows:

1 Tune in DME 1 to a local frequency to be interrogated.

Wait 2 minutes for the DME identification signal.

On PFD 1, make sure that the distance from the aircraft to the station is displayed.

2 On the RMU, push and hold the "TST" button.

The "DME TEST" shows in the NAV windows.

RMU shows "DME PASS" in green or "DME ERR" in red.

3 Change the DME 1 volume and make sure that it operates correctly.

(u) (Procedure using IFR6000 - GSE 475) If a local DME signal is not available, use IFR6000 (GSE 475) to set up the DME ramp test set for transmission as follows:

1 Push POWER key to start the test set.

2 Push SETUP Control Key on IFR6000 to display the setup screens. Continue to press the SETUP Control Key to cycle to the SETUP-DME screen.

3 Set the paramenters that follow:

a RF PORT: ANTENNA

b ANT RANGE: Range from IFR6000 antenna to aircraft's DME antenna (6 to 250 ft or 2.0 to 75.0 m).

NOTE: SETUP-GENERAL Screen determines if the UNITS parameter is given in feet or meters.

c IDENT TONE: Set the three letter ident tone. Default is IFR.

d ANT CABLE LOSS: Enter the cable loss marked on the supplied RF coaxial cable.

e ANT GAIN: Enter the gains marked on the IFR6000 Directional Antenna.

4 Press DME Mode Key to display DME Test Screen.

5 Set up the equipment to transmit at 108.00 MHz and set to 35 nm and 200 kts to the station.

6 Press the RUN TEST soft key to start the simulation.

NOTE: You must point the IFR6000 antenna to the aircraft's DME antenna.

(2) Do step (1) again for the Copilot DAP, on the instrument panel; select the COM 2, NAV 2, ADF 2, DME 2 systems, on RMU 2.

(3) Do the test of audio system for observer station as follows:

(a) Set RMU 1 to the COM 1 window (AMM SDS 23-81-00/1).

(b) Tune in the COM 1 system, on RMU 1, to a local ground station or to a hand-held COM (AMM SDS 23-12-00/1).

(c) On the observer DAP, select the COM 1 microphone switch and set the COM 1 volume control to mid range.

(d) On the observer audio panel, momentarily push the PTT switch.

1 RMU 1 shows the TX indication, on the COM 1 window.

(e) Speak to the local ground station, through the boom and hand microphones, and make sure that the transmission and reception of audio are good and there is sidetone on the speaker headphone.

(f) Change the master volume, on the DAP.

1 There are volume variations in the headphone.

(4) Do the Interphone tests as follows:

(a) On the pilot, copilot and observer DAP, deselect all COM microfone switches.

(b) On the pilot, copilot and observer DAP, deselect all COM audio switches.

(c) Set the INPH switch, on the pilot, copilot, and observer audio panels to ON and set its volume control to mid range.

(d) Set the BOOM/MASK microphone switch, on the pilot, copilot, and observer audio panels to BOOM.

(e) On the pilot and copilot control wheels and on the observer's jack panel, set the PTT/HOT/OFF microphone switch to HOT position.

(f) With the boom microphones, establish communication between the pilot, copilot, observer, and the ramp stations.

Result:

1 Make sure that the communication is clear in the headphone of each station.

2 Make sure that there is sidetone on the speaker headphone.

(g) Set the BOOM/MASK microphone switch, on the pilot, copilot, and observer audio panels, to MASK.

(h) Do item (e) again with the oxygen mask microphones.

K. Follow-on (Figure 501)

SUBTASK 842-003-A

(1) Disconnect the pilot and copilot headsets.

(2) If the COMM/VOR/ILS ramp test set (GSE 126 or GSE 301) was used, disconnect it.

(3) If the ATC-600 Transponder and DME ramp test set (GSE 127 or GSE 302) was used, disconnect it.

(4) If the IFR6000 Transponder and DME ramp test set (GSE 475) was used, press POWER key to power down the unit, disconnect the short RF coaxial cable from IFR6000 and its antenna and dismount the directional Antenna from IFR6000

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