

Functional Tests

The following functional tests are intended to give a test procedure to the technician in case the aircraft manufacturer has not provided test procedures for the avionic equipment. The functional tests for the VHF COM, VOR, LOC and G/S Receiver are based on the use of a IFR NAV 401 or IFR NAV 402 Test set. The DME Test procedure is based on the use of a IFR ATC600A test set. If other test sets are to be used, refer to the manufacturer instructions of the test set on how to perform the test as listed in this procedure.

VHF COM Test:

Setup:

1. Set the test set antenna on the MOD IN/CTR IN connector. Deploy antenna to full height. Position test set within the cockpit so that antenna can radiate freely.
2. Power Up the test set

1 Display function

1. Verify COM Display brightness, dimming and readability of the display.

2 Frequency deviation

1. Set MOD Selector on test set to MOD IN
2. Set DISPLAY selector on test set to KHZ Range and push in to switch on display
3. Set COM to 118.000 MHZ and press PTT
4. Test set will display transmitted Frequency. Note deviation
5. Set COM to 136.975 MHZ and press PTT
6. Test set will display transmitted Frequency. Note deviation
7. Record the bigger of the 2 deviations to the test record

2 Sensitivity and Squelch

1. Remove test set antenna from IN Connector and place it on the OUT Connector
2. Set test set MODE selector to COMM XTL
3. Set test set MOD Selector to 400
4. Set COM Frequency to 126.900. Make sure squelch function is active.
5. Verify 400 Hz tone is heard thru audio system. Adjust for clear volume
6. Reduce output by increasing output attenuation at the test set until tone is muted.
7. Record this value in test record under squelch
8. Deactivate squelch at the COM. Verify tone is heard again.
9. Reduce output further by increasing output attenuation at the test set until the loudness of the tone equals the noise.
10. Record the value on the test record under Sensitivity

3 Adjacent channel suppression

1. Increase output level to 60 db above sensitivity
2. Set COM Squelch back to on (active)
3. Set COM to 126.925, then to 126.950
4. Make sure that no signal is heard and speaker is muted
5. Set COM to 126.875, then to 126.850
6. Make sure that no signal is heard and speaker is muted
7. Set COM Frequency to 126.900

4 Automatic gain control

1. While increasing signal level from sensitivity level to lowest possible attenuation monitor Signal
2. Make sure that the Signal level does not vary by more than 3 db
3. Record the value

5 760 Channel/8,33 kHz

1. If the upper frequency Limit is 136.975 then note O.K. in the line 760 Channels.

- 2 If the upper frequency Limit is 135.975 then note “720 only” in the line 760 Channels
- 3 If the COM is 8.33 KHz Channel spacing capable note a Yes in the 8.33 line, otherwise note NO.

7 FM Immunity

Check that the unit is FM immune acc. to ICAO ANNEX 10 by comparing Part number and MOD Status of the Receiver with manufacturer Annex 10 Compliance statement .

DME Test:

Setup:

1. Set up the remote test antenna on the tripod. Adjust test antenna height to be equal to aircraft DME antenna. (Test antenna is usually positioned for convenience,)
2. Horizontally position test antenna the distance from aircraft antenna indicated on test antenna’s coaxial cable, approximately 21 inches (53.34 cm) .
3. Route loose end of coaxial cable into the aircraft via a vent window, door or other opening.
4. Connect remote test antenna coaxial cable to RF INPUT/OUTPUT Connector.
5. Power Up the test set.
6. Power up the aircraft as necessary to power the Avionic Equipment.
7. Power-up airborne DME and allow several minutes for warm-up.

CAUTION: DAMAGE TO THE TEST SET COULD RESULT WHEN THE REMOTE TEST ANTENNA IS POSITIONED CLOSER THAN 15 INCHES (38.1 CM) TO THE AIRCRAFT ANTENNA WHEN THE TEST SET IS ON.

1 Display function

1. Verify Display brightness and readability of the display.

2 Transmitter Peak Power and Frequency

1. Set DME to Distance Display Mode in desired range scale.
2. Set DME Frequency to **108.00**.
3. Set MODE Switch to **DME**..
4. Set FREQ/PWR Switch to **PWR**.
5. Verify RF peak power is displayed on FREQ/PWR Meter in W.
6. Record the value in the test record.
7. To check crystal tolerance:
 - Set FREQ/PWR Switch to FREQ.
 - Adjust FREQ GAIN Control for midscale deflection on FREQ/PWR Meter.
 - Adjust XMTR FREQ Control for peak reading on FREQ/PWR Meter.
 - Record the value in the test record

NOTE: The Plus (+) and minus (-) signs on the XMTR FREQ Control are reversed in DME operation (positive values are left of zero and negative values are right of zero).

3 DME Transmitted PRF and Memory time

1. Lock DME to desired range or velocity.
 2. Set Test Set DME PRF Switch to **0-30**.
 3. Verify XPDR % RPLY/DME PRF Meter indicates **Track PRF**.
 4. Record track PRF on test record.
 5. Increase Test Set range rapidly by 50 Miles.
 6. Set Test Set DME PRF Switch to **0-300**.
 7. Verify XPDR % RPLY/DME PRF Meter indicates **Search PRF** as DME searches for the new range or velocity.
 8. Record Search PRF
- NOTE:** DME “memory time” should hold the last displayed range for 8 to 10 seconds before unlocking the the range and searching for the new range.
9. Record DME Memory time.

4 Squitter Lock-Out

1. Set SQUITTER ON/OFF Switch to **OFF**.

2. Slew range to desired position.
3. Set DME to appropriate channel:

17X	108.00
17Y	108.05
4. Verify after DME memory time, the DME drops out without searching.
NOTE: Most DME Systems are equipped with a Squitter Lock- Out to prevent searching until the Squitter is received.
5. Set SQUITTER ON/OFF Switch to **SQTR**.
6. Verify DME begins searching.

5 IDENT Tone

1. Set IDENT/50% RPLY Switch to **IDENT**.
2. Verify 1350 Hz tone is heard through the audio system.
NOTE: Addition of the IDENT Tone is a good check of memory time, as the IDENT Tone supersedes all range and squitter pulses.

6 50 Percent Reply

1. Set IDENT/50% RPLY Switch to **50% RPLY**.
2. Verify 50% of all replies to the DME are deleted.
3. Verify DME stays in track mode.
NOTE: Deleting half of all replies to the DME checks the ability of the DME to lock-on or to track under poor signal conditions.

7 Y Channel Operation

1. Set Aircraft Frequency Control to 108.05.
2. Set Test Set DME CHANNEL Switch to **17Y/108.05**.
3. Verify DME lock-on and tracking.

8 DME Range or Distance Operation

1. Set DME to Distance Display Mode in desired range scale.
2. Set DME Frequency to **108.00**.
3. Set DME RANGE/VELOCITY Switch to **RANGE**.
4. Set SQUITTER ON/OFF Switch to **SQTR**.
5. Set FAST SLEW Switch and SLOW SLEW Switch to **IN** then to **OUT** (to obtain a desired distance in nautical miles).
6. Verify DME locks on at the precise range programmed.
7. Record difference in range display

NOTE: Any number of different distances from 0 to 399 NM may be similarly checked in 1 NM increments.

9 DME Velocity Operation

1. Set DME Frequency to **108.00**.
2. Set MODE Switch to **DME**.
3. Set DME RANGE/VELOCITY Switch to desired velocity setting.
4. Set VELOCITY HI/LO RANGE Switch to **HI** (selects upper value) or to **LO** (select lower value).
5. Set FAST SLEW Switch and SLOW SLEW Switch to **IN** then to **OUT** (to set a desired starting range).
6. Set VELOCITY IN/OUT Switch to **IN** then to **OUT** (to track the distance toward or away from the ground station).
7. Verify DME locks on and displays the correct range and velocity.
8. Record difference in indicated velocity

NOTE: If the DME is set to display distance in nautical miles (NM), the distance should equal the instantaneous range indicated on the Test Set NUMERICAL Readout in 0.1 NM.

NOTE: Any number of velocities and instantaneous distances may be similarly checked.

10 Frequency selector and Hold function

1. Use the built in Frequency selector to tune the DME to one of the test frequencies
2. Verify lock on and tracking
3. Use the Remote Frequency tuning via COM1 and tune in a frequency
4. Verify lock on and tracking

5. Use the Remote Frequency tuning via COM2 and tune in a frequency
6. Verify lock on and tracking
7. switch DME to Hold and change frequency of COM 2
8. Verify DME stays in track mode

VHF NAV TEST:

Setup:

1. Set the test set antenna on the OUT connector. Deploy antenna to full height. Position test set within the cockpit so that antenna can radiate freely.
2. Power Up the test set.

VOR Test:

1 Display function

1. Verify Display brightness, dimming and readability of the display.

2 Sensitivity and Audio function

1. Set VOR Frequency to 108.00.
2. Set Test set MODE Switch to **VOR XTL**. Verify Test set frequency is 108.00
3. Set VOR BRG to 000
4. Set VOR Indicator in Aircraft to Course 005 for half scale deflection
5. Verify Signal reception and Flag is out of view.
6. Reduce output by increasing output attenuation at the test set until flag comes in view
7. Record the value on the test record.
8. Increase signal level . Set MOD Selector to 400
9. With NAV Audio switch in VOICE or BOTH Position verify 400 Hz Audio is received via the Aircraft audio System
10. With NAV Audio switch set to IDENT verify tone is muted.
11. Set MOD Selector to 1020
12. With NAV Audio switch in IDENT or BOTH Position verify 1020 Hz Audio is received via the Aircraft audio System
13. With NAV Audio switch set to Voice verify tone is muted.

3 Standard Deviation and centering error

1. Increase output level to 20 db above sensitivity
2. Set VOR BRG to 000
3. Set Indicator Course to 000
4. Note deviation
5. Set VOR BRG to 030
6. Set Indicator Course to 030
7. Note deviation
8. Repeat Step 5 to 7 for every 30 degrees further up to 360 degrees
9. Record maximum deviation as centering error
10. Adjust Indicator for centered needle
11. set +10 degrees on VOR BRG
12. Record percentage of full scale deflection
13. set -10 degrees on VOR BRG
14. Record percentage of full scale deflection

4 TO / FROM Indication

1. Set VOR BRG to 000
2. Set Indicator to course 000
3. Verify centered needle
4. Turn indicator CCW until to from indicator starts to change direction
5. Record the value
6. Turn indicator CW until to from indicator starts to change direction
7. Record the value

5 Flag Indication

- 1 Set course to display half scale deflection
- 2 Decrease the 9.96 khz signal by rotating outer knob of MOD CTL CCW.
- 3 Verify flag comes into view
- 4 Return knob to full CW position
- 5 Decrease the 30 hz signal by rotating the inner knob of MOD CTL CCW
- 6 Verify flag comes into view

6 RMI and Repeater

Verify during all the tests above that the indication on the RMI corresponds to the VOR BRG Settings of the test set. If a repeater is installed, verify the same indications as on the primary indicator.

7 FM Immunity

Check that the unit is FM immune acc. to ICAO ANNEX 10 by comparing Part number and MOD Status of the Receiver with manufacturer Annex 10 Compliance statement .

LOC Test:

1 Display function

1. Verify Display brightness, dimming and readability of the display.

2 Sensitivity and Audio

1. Set LOC Frequency to 108.10.
2. Set Test set MODE Switch to **LOC XTL**. Verify Test set frequency is 108.10
NOTE: Some test sets maybe adjusted to use a different fixed LOC test frequency. In this case tune the LOC receiver to that frequency.
3. Set LOC DDM to 0,093
4. Verify Signal reception and Flag is out of view.
5. Reduce output by increasing output attenuation at the test set until flag comes in view
6. Record the value on the test record.
7. Increase signal level . Set MOD Selector to 400
8. With NAV Audio switch in VOICE or BOTH Position verify 400 Hz Audio is received via the Aircraft audio System
9. With NAV Audio switch set to IDENT verify tone is muted.
10. Set MOD Selector to 1020
11. With NAV Audio switch in IDENT or BOTH Position verify 1020 Hz Audio is received via the Aircraft audio System
12. With NAV Audio switch set to Voice verify tone is muted.

3 Standard Deviation

1. Increase output level to 20 db above sensitivity
2. Set LOC DDM to 0
3. Record deviation at 0
4. Set LOC DDM to 0,093 left and right
5. Record deviation at 0,093 DDM (1 dot on 2 dot scale, 3 dots on 5 dot scale)
6. Set LOC DDM to 0,155 left and right
7. Verify 2 dots deflection
8. Set LOC DDM to 0,200 left and right
9. Verify full scale deflection

4 Flag function

- 1 Set LOC DDM to 150
- 2 Verify Flag comes into view
- 3 Set LOC DDM to 90
- 4 Verify Flag comes into view

5 Expanded Scale

If an expanded LOC Scale is installed on the Aircraft (will be visible when LOC DDM 0 is selected) verify the function of the scale by selecting LOC DDM to Manual and adjusting the deviation with the manual knob around the 0 value. Scale limit will be lower than 1 dot.

6 Repeater

Verify during all the tests above that the indication on the repeater corresponds to the indications on the primary indicator.

7 FM Immunity

Check that the unit is FM immune acc. to ICAO ANNEX 10 by comparing Part number and MOD Status of the Receiver with manufacturer Annex 10 Compliance statement .

G/S Test:

1 Sensitivity

1. Set LOC Frequency to 108.10.
2. Set PEAK LOC/AVG Switch to PEAK LOC
3. Set Test set MODE Switch to **G/S XTL**.
4. **NOTE:** The LOC Frequency to be set in the aircraft is the same as before.
5. Set G/S DDM to 0,091
6. Verify Signal reception and Flag is out of view.
7. Reduce output by increasing output attenuation at the test set until flag comes in view
8. Record the value on the test record.

2 Standard Deviation

1. Increase output level to 20 db above sensitivity
2. Set G/S DDM to 0
3. Record deviation at 0
4. Set G/S DDM to 0,091 up and down
5. Record deviation at 0,091 DDM (1 dot on 2 dot scale, 3 dots on 5 dot scale)
6. Set G/S DDM to 0,175 up and down
7. Verify 2 dots deflection
8. Set G/S DDM to 0,400 up and down
9. Verify full scale deflection

3 Flag function

1. Set G/S DDM to 150
2. Verify Flag comes into view
3. Set G/S DDM to 90
4. Verify Flag comes into view

4 Repeater

Verify during all the tests above that the indication on the repeater corresponds to the indications on the primary indicator.

Marker Receiver Test:

1 Self test

1. Set Marker switch to self test.
2. Verify proper self test indication on Marker Indicators and Audio

1 Sensitivity

NOTE: On some installations, the Marker Antenna is located far aft on the fuselage. When this occurs, and receiver sensitivity is low (-35 to -45 dBm), the Test Set situated in the cockpit radiates RF insufficient to operate the Receiver. Moving the Test Set outside the aircraft normally provides more than enough signal strength to completely check Marker audio and lights.

1. Locate the Test set outside near the Marker Antenna
2. Set Test set MODE Switch to **MKR XTL**.
3. Set MOD selector to 400
4. Set Marker Switch to High Sensitivity
5. Switch Audio Panel to Marker
6. Amplify output by decreasing output attenuation at the test set until Outer Marker Beacon light is lit
7. Verify Audio Signal reception of 400 Hz.
8. Switch MOD selector to 1300
9. Verify 1300 Hz Audio and Middle Marker beacon light lit
10. Switch MOD selector to 3000
11. Verify 3000 Hz Audio and Airway Marker beacon light lit
12. Set Marker Switch to Low Sensitivity and repeat for all 3 frequencies

Note: In some installations the Power of the test set may not be sufficient to generate the lights in LOW. In that case verify that the audio level decrease significantly when switching from high to low.

Operational Tests

The following operational tests are intended to give a test procedure to the technician in case the aircraft manufacturer has not provided test procedures for the avionics equipment. These tests can be performed without the need for special test equipment (with the exception of the FDR). Note that these procedures are very generic and may not test all functions of your equipment.

ELT:

Note: The following test is required for all automatic fixed and automatic portable ELT's. If a 406 MHz ELT is installed and the instructions for continued airworthiness for that installation require a code verification then refer to the manufacturers instructions of the required test set for the applicable test procedure.

Caution: This test is time sensitive. It may only be done during the first five minutes of every hour for maximum of 3 sweeps.

1. Set VHF COM to 121.5 Mhz
2. Verify reception of Audio by opening the squelch and listen for noise
3. Switch ELT switch on ELT remote Panel to On
4. Verify reception of a loud sweeping tone
5. After max 3 sweeps switch ELT switch to OFF
6. Repeat for ELT Switch on ELT direct.
7. Record Battery Replacement date (direct on battery)

HF COM and SELCAL:

Caution: The test of a HF COM radiates high energy from the HF Antenna. When performing this test make sure that the aircraft is not in a Hangar and there are no people or Equipment in the area of the HF Antenna.

1. Set the HF COM to a frequency in the lower frequency band
2. Momentarily press PTT and listen for a side tone while the HF coupler tunes.
3. Repeat for a frequency in the higher band
4. Tune in a Frequency for a radio check. Refer to the applicable frequency list of that station (Berner Radio, Radio Stockholm)
5. Perform a Radio Check with that station
6. Note: When a SELCAL Decoder is installed then also ask for a SELCAL Check!

Interphone:

1. Set the interphone to On
2. While speaking in the headset microphone verify side tone in the headset
3. While speaking in the left headset microphone verify audio in the right headset
4. While speaking in the right headset microphone verify audio in the left headset

Headsets, Boom Mike's and Speakers, Audio Control Panels:

By using them for the VHF COM Tests or interphone tests verify proper operation

PA:

Select PA on Audio Control Panel

1. Make an announcement and verify the following parameters:
2. It is heard loud and clear at:
 - a. Every passenger seat
 - b. Every cabin crew seat
 - c. Every toilet and galley
3. It is operational within 10 seconds

Cabin crew interphone system:

1. Make a call from every attendant station to every other attendant station and to the cockpit
2. Verify that all connections are loud and clear
3. Make an Emergency call from every station.
4. Verify that the crew can discern a normal call from an emergency call

Caution: for the following tests the aircraft must be out of the Hangar!

Weather radar:

CAUTION: Do not turn radar on within 15 feet of ground personnel, or containers holding flammable or explosive materials. The radar should never operate during fueling operations. Do not operate radar system when beam may intercept larger metallic objects closer than 150 feet, as crystal damage might occur.

1. Perform Self test on control panel
2. Verify that self test pattern is shown on radar indicator
3. Switch to normal ops and tilt radar up to display weather targets
4. Try tilt knob thru full range. Observe Picture
5. Switch thru all possible ranges. Observe Picture
6. Vary Power/Sensitivity thru full range . Observe Picture
7. Switch on Stabilization .
8. Switch off Radar after test.
9. Perform RADOME INSPECTION. Inspection of aircraft having weather radar installations should include a visual check of the radome surface for signs of surface damage, holes, cracks, chipping, and peeling of paint, etc. Attach fittings and fastenings, neoprene erosion caps, and lightning strips, when installed, should also be inspected.

Stormscope:

1. Turn on stormscope
2. Perform self test and verify test pattern
3. Verify display readability and dimming function
4. Switch thru all possible ranges and observe display

Radar Altimeter:

1. Observe Ground indication on RadAlt and record
2. Perform self test and record test altitude
3. Adjust DH down while in self test and record difference between DH and Rad Alt when DH Alert occurs.

GPS:

1. Consult AFM or Supplement and verify GPS operational capability (VFR/IFR)
2. Turn on GPS Receiver
3. Verify Nav Data Base Expiration date and record (For IFR GPS must be current)
4. Verify that the display is readable under all possible lighting conditions.
5. For IFR GPS only: Verify Alt input corresponds to px Alt (Altimeter on 1013)
6. Record visible Satellites, used satellites and the calculated Position error (If no position Error is calculated by the GPS, Record the HDOP value given by the GPS.)
7. Insert a known waypoint into the GPS and verify that GPS shows correct Navigation data (Bearing/Distance)

ADF:

1. Turn on the ADF
2. Tune in a nearby ADF Station
3. Verify that the Identification of the station can be heard over the Audio system
4. Check that the BFO is operational
5. Verify the direction to the ADF Station via Calculation or another NAV System
6. Check that the difference between the ADF Indication and the true Bearing to the NDB does not exceed 5 degrees.
7. Repeat Step 6 for at least 4 different Headings (approx spacing 90 degrees). Preferable Directions are the 45 degree Quadrants of the Airplane (45 degrees left and right of the Nose and the tail)
8. If in any direction the ADF shows more then 5 degrees deviation then a full ADF Swing and QEC must be performed.

FMS:

1. Consult AFM or Supplement and verify FMS operational capability (PRNAV/BRNAV/MNPS/RNP rating)
2. Turn on the FMS
3. Verify Nav Data Base Expiration date and record (must be current)
4. Let the NAV Sensors for the FMS align and stabilize . Record the Sensor Systems (IRS/GPS/DME/NAV)
5. Verify the display is readable and dimmable
6. Verify the keyboard is operational
7. Record the current ANP value or Position Error
8. Insert a known waypoint into the FMS and verify that FMS shows correct Navigation data (Bearing/Distance)

Autopilot/Flight director

1. Turn on the Autopilot /Flight director system
2. If installed perform self test of Autopilot/Flight director system
3. Verify that the Basic mode (Roll Attitude/Pitch attitude) is engaged (if applicable)
4. Vary Roll and pitch control and observe Flight director/Control column follows
5. Engage Heading Mode
6. Vary Command HDG and observe Flight director/Control column follows
7. Engage Nav Mode
8. Input a NAV Signal with test set and observe Flight director/Control column captures and tracks the NAV source.
9. Engage Approach Mode
10. Input a ILS Signal with test set and observe Flight director/Control column follows.
11. Engage Alt Hold Mode
12. Verify Flight director/Control column position for level flight
13. Engage Alt Select Mode
14. Verify Flight director/Control column position for climb/descent
15. Engage Speed Mode.
16. Verify Flight director/Control column position according to maintain airspeed

17. Engage V/S Mode
18. Verify Flight director/Control column position according to maintain V/S
19. Engage Yaw Damper
20. Verify Yaw damper operation by inducing yaw oscillation with rudder.
21. Disengage A/P with every Control column disengage button. Verify positive and immediate disengagement and audio
22. Reengage autopilot and verify disconnect when operating the electric trim (if installed)

TCAS (ACAS):

1. Make sure the transponders operate normally
2. Initiate TCAS self test
3. Monitor Display for 4 Targets and Audio Message „Test O.K.“

EGPWS (TAWS) or GPWS:

1. Set flight Display to display Terrain data
2. Verify terrain data is displayed
3. Initiate Self test of the system by pressing test button
4. Monitor Display for Terrain test pattern and database version
5. Monitor display for Pull Up and Wind shear annunciation
6. Monitor Audio Messages of EGPWS(GPWS)

Miscellaneous Operational tests:

Cockpit Lighting:

1. Power up the airplane
2. Verify that all available cockpit lighting controls are operational
3. Verify the available lighting provides sufficient illumination to read all instruments
4. Verify dimming function of all instrument lights
5. Verify function of Map and chart lights
6. Verify function of Dome light

Slaved Compass system:

1. Put Compass system in the automatic (slaved) mode
2. Verify Heading corresponds with magnetic heading
3. Put Compass system in manual (DG) mode
4. Slew heading indicator to the left
5. Verify left motion of the Magnetic direction indicator (compass rose) and magnetic slew indicator shows left deviation
6. Slew heading indicator to the right
7. Verify right motion of the Magnetic direction indicator (compass rose) and magnetic slew indicator shows right deviation
8. Put Heading system back to Automatic (slaved) mode
9. Verify Magnetic directionindicator slews back to actual Magnetic heading and magnetic slew indicator centers

AHARS/IRS:

1. Verify that the indicated Heading corresponds to the actual Heading
2. Verify that the indicated I attitude of the aircraft corresponds to the actual attitude
3. Perform Self test and verify correct indication of self test values

EFIS Backup switching:

1. When the possibility exist to use alternate NAV/Air Data/ATT sources then try to switch to the alternate source for every Parameter and side.
2. Verify that alternative Parameter is present and accurate
3. Verify that Indication for alternate Parameter is present

Stby Attitude indicator:

1. Verify STBY ATT Indicator is powered.
2. Remove normal Power from the aircraft.
3. Verify STBY ATT Indicator stays powered.
4. Verify STBY ATT Indicator is adequately illuminated
5. Verify STBY ATT Indicator has indicator to indicate it is using emergency power

Emergency Lights:

1. Power up the Aircraft
2. Let the Emergency lights being charged for at least 30 minutes
3. Put Emergency lights switch to on and verify operation of all emergency lights (interior and exterior)
4. Put the switch back to off then to ARM
5. Remove Power from the Aircraft
6. Make sure that the emergency lights come on
7. Put power back on and switch Emergency lights to OFF

Emergency Power Units:

4. With normal avionic power on perform Slef test of the EPU
5. Set Avionic Power to Off
6. Set Emergency Power switch to on.
7. Verify all units conneted to the EPU operate correctly.

Visual Inspections:

Antennas:

Inspect All Antennas for:

1. broken or missing antenna insulators
2. lead through insulators
3. springs
4. safety wires
5. cracked antenna housing
6. missing or poor sealant at base of antenna
7. correct installation
8. signs of corrosion, and
9. the condition of paint/bonding and grounding.

General visual inspection Cockpit and Avionics bay:

In the Cockpit and in Avionic bays inspect for the following:

- (1) Inspect the condition and security of equipment including the proper security of wiring bundles.
- (2) Check for indications of overheating of the equipment and associated wiring.
- (3) Check to assure that the radios and instruments are secured to the instrument panel.
- (4) Check that all avionics are free of dust, dirt, lint, or any other airborne contaminates. If there is a forced air cooling system, it must be inspected for proper operation. Equipment ventilation openings must not be obstructed.
- (5) Check all avionics instruments for placards.
- (6) The circuit breaker panel must be inspected for the presence of placarding for each circuit breaker installed.

Alternative Testprocedures

For the following Systems as an alternative to the above listed operational checks the following flight test procedure may be used.

ADF:

1. 2 procedures are available: the first one uses a VOR as a known Point of reference, the second one use an onboard GPS System to generate a reference line to the NDB. Both procedures provide a known bearing to the NDB Station which will then be overflown with different headings to provide a relative Bearing of the station to the aircraft of 0, 45, 90, 135, 180, 225, 270 and 315 degrees.
2. Establish the reference Point: If you are using a VOR calculate the bearing from the VOR Station to the NDB. If you are using installed GPS: establish direct course to NDB. This will give you directly the bearing to the NDB station
3. Calculate 8 Headings by starting with the bearing to the NDB and adding every time 45 degrees. Note that headings down.
4. Tune ADF to the selected NDB.
5. Using each of that headings to fly over your reference point or line. When exactly on the reference monitor the ADF indication and note the deviation from the true bearing.

Autopilot:

1. Use each of the available pitch modes and monitor Autopilot for following the correct settings and operating smooth and stable.
2. Use each of the available Roll modes and monitor correct capture and tracking
3. Perform coupled ILS approach and monitor Autopilot capture and ILS tracking is O.K.

Weather radar:

1. In flight operate weather radar to display weather information
2. Verify that information visuall if possible.
3. Try tilt and range adjustment to produce different displays
4. Try mapping function

Rad Alt:

1. During approach monitor Radio Altimeter and verify correct and smooth operation