HONEYWELL KHF-1050 HF COMMUNICATION SYSTEM - ADJUSTMENT/TEST

1. General

A. This section gives the procedures to check the optional Honeywell KHF-1050 Communication System. For a general description of the HF communication system, refer to Honeywell KHF-1050 HF Communication System - Description and Operation.

2. Tools and Equipment

A. For a list of tools and equipment, refer to Communications - General.

3. HF Antenna Operational Check

A. Prepare to do the HF Antenna Operational Check.

(1) Make sure that the battery is installed.

(2) Connect external power to the airplane.

(3) Make sure that the HF and the HF PA RESET circuit breakers on the copilot's circuit breaker panel are engaged.

(4) Set the POWER switch, on the left switch panel, to the ON position.

(5) Set the AVIONICS POWER switch, on the left switch panel, to the ON position.

B. Do the HF Antenna Operational Check (Refer to Figure 501 for G1000 System Software versions up to (v.2499.03) and Figure 502 for G1000 System Software version (v.2499.08 and On).

WARNING: Make sure that no personnel touch the airplane or on the ground adjacent to the airplane during the check. You can possibly receive an electrical shock if you touch the airplane or if you go into or out of the airplane during an HF transmission. Do not operate the HF system while you refuel the airplane.

(1) Push the COM3 MIC button on the pilot's and the copilot's GMA 1347, or push the AUX MIC button on the pilot's and the copilot's GMA/1360D audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or AUX (GMA 1360D) and the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) buttons are illuminated.

(2) Turn the function selector knob (left outer knob) on the HF control unit to the OPT position.

(a) Make sure that the clarifier offset frequency shows.

(b) Push and release the FUNC button again and again as necessary to select P MIN (50 watts), P MED (100 watts), and P MAX (200 watts).

(c) Select P MIN and turn the function selector knob to the CHAN position.

(3) With the HF control unit, refer to Table 501 and do the steps that follow:

Table 501. Preset Frequencies

CHANNEL NUMBER	FREQUENCY (MHz)	TX ENABLE	MODE
01	8.8220	Yes	USB V
02	13.3120	Yes	USB V
03	17.9640	Yes	USB V
04	21.9310	Yes	USB V

(a) Push and hold the FUNC button until the channel number flashes (approximately three seconds).

(b) Use one of the TUNE knobs and select the necessary channel to be set.

(c) Push the ENT button (right TUNE inner knob). The channel is stored and the frequency display starts to flash.

1 Select the receive frequency and make sure that RX is illuminated on the right side of the display.

NOTE: This sets the receive frequency.

(d) Push the ENT button. The frequency is stored and the mode starts to flash.

1 Select the modulation type.

(e) Press ENT button. The mode is stored and the frequency starts to flash, TX comes on, and RX goes off.

1 Select the transmit frequency, if it is different from the receive frequency.

(f) Push the ENT button. The data is updated and the next channel number will show.

(g) Do the above steps again to set the frequencies for channels 02 thru 04.

(h) When the four channels and frequencies are set, push and hold the FUNC button for approximately three seconds to exit the channel programming mode.

(4) Refer to Table 501 and select CH 01 (8822.0 kHz).

(a) Make sure that the HF receiver squelch is open.

(b) Listen to the HF audio to make sure that CH 01 is open.

WARNING: Make sure that no personnel touch the airplane or on the ground adjacent to the airplane during the check. You can possibly receive an electrical shock if you touch the airplane or if you go into or out of the airplane during an HF transmission. Do not operate the HF system while you refuel the airplane.

(c) Push and release the push-to-talk (PTT) button on the pilot's control wheel for approximately one second. While the HF antenna coupler tunes, monitor the items that follow:

- The green light below the TEST button on the HF control unit flashes
- A tone is heard in the audio
- The frequency digits go out.

(d) Make sure that the HF antenna coupler can tune the antenna system in approximately 30 seconds or less.

NOTE: The system is tuned when the green light goes out, audio tone stops, and frequency digits show and do not flash.

(5) Set the AVIONICS POWER switch to the OFF position.

(6) Set the POWER switch to the OFF position.

CAUTION: Disconnect external power when not in use to prevent an accidental discharge of the battery.

(7) Remove external power from the airplane.

4. KHF-1050 HF Communication System Functional Test

NOTE: Do the KHF-1050 HF Communication System Functional Test when a new or repaired unit is installed.

A. Prepare to do the HF Communication System Functional Test.

(1) Make sure that the pilot's and the copilot's GMA 1347/1360D audio panels are installed and serviceable.

(2) Make sure that the pilot's and the copilot's GIA 63W/64W integrated avionics units are installed and serviceable.

(3) Make sure that the pilot's and the copilot's GDU 1040A/1050A primary flight displays (PFD's) are installed and serviceable.

(4) Connect external power to the airplane.

(5) Open the aft baggage compartment door.

(6) Make sure that the HF SYSTEM NORMAL/MAINT switch is set to the NORMAL position.

(7) Close the aft baggage compartment door.

(8) Make sure that the HF and the HF PA RESET circuit breakers on the copilot's circuit breaker panel are engaged.

(9) Set the POWER switch, on the left switch panel, to the ON position.

(10) Set the AVIONICS POWER switch, on the left switch panel, to the ON position.

B. Do the HF Communication System Functional Test (Refer to Figure 501).

(1) Push and release the VOL/PUSH PWR inner knob on the HF control unit to start the KHF-1050 HF communication system and do a built-in test (BIT).

(a) Make sure that the number 1 shows in the upper left corner of the HF control unit display.

(2) After approximately one to three seconds, the indications that follow will show:

- The HF control unit display window display segments will show
- The RX (receive) and the 1 (#1 HF) message will show on the display.

NOTE: Let the BIT operate for at least 30 seconds to complete.

(a) When the HF control unit has failed (internal fault), the bottom row of the display will show the PANEL message.

(b) When a different part of the system is not serviceable, the top part of the display will show the FAIL message or the ACP message followed on the bottom row of the display with one of the messages that follow:

- RXEX (Receiver/Exciter Fail)
- PA (Power Amplifier Fail)
- CPLR (Antenna Coupler Fail)
- PRS W (Antenna Coupler Pressure Warning)
- PRS F (Antenna Coupler Pressure Failure).

(3) Push and hold the VOL/PUSH PWR inner knob for approximately three seconds and make sure that the HF system goes off.

(4) Disengage the HF PA RESET circuit breaker.

(5) Push and release the VOL/PUSH PWR inner knob.

(a) After the BIT is completed, make sure that the FAIL message shows on the top line of the display and the PA message shows on the bottom line.

(6) Engage the HF PA RESET circuit breaker and disengage the HF circuit breaker.

(a) Make sure that the HF system goes off.

(b) Push the VOL/PUSH PWR inner knob. Make sure that the system does not start.

(7) Engage the HF circuit breaker.

(8) Push and release the VOL/PUSH PWR inner knob to start the HF system.

(9) After the BIT is completed, set the function selector knob (left outer knob) on the HF control unit to the FREQ position.

(a) Make sure that the frequency display format is XX.YYYY, where XX is one or two digits between 2 and 29 MHz, and YYYY is four digits to the right of the decimal point.

NOTE: This examines the 100 hertz (Hz) channel spacing and the display mode. If you do not strap the HF control unit electrical connector (P1526), pin contact DD to ground, only three digits to the right of the decimal point will show.

(10) Push the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) and the SPKR buttons on the pilot's and the copilot's GMA 1347/1360D audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or the AUX (GMA 1360D), COM3 MIC (GMA 1347) or AUX MIC (GMA 1360D), and SPKR buttons are illuminated.

(11) Push and release the TEST button on the HF control unit.

(a) Make sure that all of the display messages show after a few seconds and a short "tune" tone is heard in the HF receiver audio through the cockpit speakers.

(b) Make sure that the green light on the HF control unit shows.

(12) Push and release the TEST button again to exit the test mode.

(13) Turn the function selector knob to the FREQ position.

(14) Turn the TUNE knobs to select 29.990 MHz.

(15) Turn the function selector knob to the MOD position.

(16) Push the FUNC button again and again as necessary to select USB V (upper sideband " voice) on the HF control unit display.

(17) Turn the function selector knob to the SQL position.

(18) Push the FUNC button again and again as necessary to select SBH (syllabic squelch high) on the HF control unit display.

(19) Turn the TUNE ENT inner knob to change the squelch mode and monitor the HF audio heard through the cockpit speakers (the channel is not being used, only noise is heard) as follows:

- OPN (The squelch is open and background noise is heard)
- MIN (The squelch will stay open only if the channel has a lot of noise)
- MED (The squelch will stay open only if the channel has too much noise)
- MAX (The squelch will close independent of the channel noise).

(20) Push the FUNC button to select SBL (syllabic squelch low) on the HF control unit display.

(21) Turn the TUNE ENT inner knob to change the squelch mode and monitor the HF audio heard through the cockpit speakers as follows:

- OPN (The squelch is open and background noise is heard)
- MIN (The squelch will not close if the channel has a small quantity of noise)
- MED (The squelch will not close if the channel has a moderate quantity of noise)
- MAX (The squelch will close independent of the channel noise).

(22) Push the FUNC button to select SQH (signal strength squelch high) on the HF control unit display. A value from 1 to 32 will show on the HF control unit display.

(23) Turn the TUNE ENT inner knob to change the squelch level to 32.

(a) Make sure that the squelch is closed.

(24) Turn the TUNE ENT inner knob to change the squelch level to 1.

(a) Make sure that the squelch is open.

(25) Turn the TUNE ENT inner knob to increase the squelch level until the squelch closes.

(26) Push the FUNC button to select SQL (signal strength squelch low) on the HF control unit display. A value from 1 to 32 will show on the on the HF control unit display.

(27) Turn the TUNE ENT inner knob to change the squelch level to 32.

(a) Make sure that the squelch is closed.

(28) Turn the TUNE ENT inner knob to change the squelch level to 1.

(a) Make sure that the squelch is open.

(29) Turn the TUNE ENT inner knob to increase the squelch level until the squelch closes.

(30) Select SBH squelch mode on the HF control unit display.

(31) Turn the function selector knob to the MOD position.

(32) Push the FUNC button again and again to show all of the possible modulation modes as follows:

NOTE: Not all of the modes that follow will show.

- USB V (Upper Sideband • Voice)
- RC (USB + Reduced Carrier)
- AM (Amplitude Modulation)
- USB D (Upper Sideband • Data)
- LSB D (Lower Sideband • Data)
- LSB V (Lower Sideband • Voice).

(33) Push the FUNC button again and again to select USB V on the HF control unit display.

(34) Tune the HF radio to radio station WWV (Ft. Collins, CO) or WWVH (Kehaha, HI) on the frequencies that follow (select the frequency with the best signal):

NOTE: You can do this test in a hangar if the airplane is near the open hangar doors. If the signal strength is not sufficient, you can use a signal generator (IFR 4000 or equivalent). Set the signal generator to radiate a 10 MHz, AM signal, modulated with a 1000 Hz (approximate) continuous tone. Do not directly couple the signal generator to the KPA-1052 HF power amplifier, KAC-1052 HF antenna coupler, or HF antenna wire. Tune the HF for 10000.0 kHz, instead of the below frequencies.

(a) 2500.0 kHz

(b) 5000.0 kHz

(c) 10000.0 kHz

(d) 15000.0 kHz

(e) 20000.0 kHz

(35) If the AM modulation mode is available, do as follows:

(a) Turn the function selector knob to the MOD position.

(b) Push the FUNC button again and again to show the AM modulation mode.

(c) Record the tone of the voice.

(36) Turn the function selector knob to the SQL position.

(37) Push the FUNC button again and again as necessary to select SBH.

(38) Turn the TUNE ENT inner knob to change the squelch mode to OPN.

NOTE: Use the VOL/PUSH PWR inner knob to adjust the HF volume.

(39) Make sure that the HF audio is heard on the two cockpit speakers and the two flight crew headsets.

(40) Push the SPKR button on the two audio panels as necessary to isolate each cockpit speaker while you test the other speaker.

(41) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) button on the two audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or AUX (GMA 1360D) and the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) buttons go out.

(b) Make sure that the SPKR buttons on the two audio panels are selected.

(42) Turn the VOL/PUSH PWR inner knob clockwise for maximum volume.

(a) Make sure that the HF audio is not heard on the two cockpit speakers or the two flight crew headsets.

(43) Turn the VOL/PUSH PWR inner knob counterclockwise for minimum volume.

(44) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) and the SPKR buttons on the pilot's audio panel.

(a) Make sure that the COM3 (GMA 1347) or the AUX (GMA 1360D) button on the copilot's audio panel does not illuminate.

(45) Turn the VOL/PUSH PWR inner knob clockwise for maximum volume and make sure that the audio from the pilot's cockpit speaker is loud and clear, with no apparent distortion.

(46) Push the SPKR button on the pilot's audio panel.

(a) Make sure that the HF audio in the pilot's headset is loud and clear, with no apparent distortion.

(47) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) and the SPKR buttons on the copilot's audio panel.

(a) Make sure that the HF audio from the copilot's cockpit speaker is loud and clear, with no apparent distortion.

(48) Push the SPKR button on the copilot's audio panel.

(a) Make sure that HF audio in the copilot's headset is loud and clear, with no apparent distortion.

(49) Turn the VOL/PUSH PWR inner knob counterclockwise for minimum volume.

(50) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) and the SPKR buttons on the two audio panels.

(51) Turn the VOL/PUSH PWR inner knob clockwise to increase the volume to a satisfactory level.

(52) Turn the function selector knob to the MOD position.

(53) Push the FUNC button again and again as necessary to select USB V on the HF control unit display.

(a) Make sure that the tone of the voice is the same as it was in AM mode.

NOTE: There will be a noticeably different background sound when the signal is not modulated (no voice announcements or tones and between one second clock ticks) because of the difference in the filters. The tone (or frequency) of the voice, tones, and clock ticks should be the same.

(54) Turn the function selector knob to the OPT position.

(a) Make sure that the bottom line of the HF control unit display shows C + 000 (no clarifier offset frequency).

(55) Turn the TUNE ENT inner knob to C + 250 (clarifier offset is 250 Hz).

(a) Make sure that as the clarifier frequency is changed, a tone that is approximately equal to the clarifier frequency is heard.

(56) Turn the function selector knob to the FREQ position.

(57) Record the current frequency and change it to a different frequency.

(58) Change the frequency back to the recorded frequency.

(59) Turn the function selector knob to the OPT position.

(a) Make sure that the bottom line of the HF control unit display changes back to C + 000.

(60) Turn the TUNE ENT inner knob to change the clarifier offset frequency to C + 250 and monitor the 250 Hz tone in the HF receiver audio.

(61) Turn the function selector knob to the MOD position.

(62) Push the FUNC button again and again to select the USB D mode (if available) and then select the RC mode (if available).

(a) Make sure that the 250 Hz tone stays for each mode.

(63) Turn the TUNE ENT inner knob to change the clarifier offset frequency to C – 250 (250 Hz below the implied carrier frequency).

(64) Push the FUNC button again and again to select the LSB V mode (if available).

(a) Make sure that there is an approximate 250 Hz tone in the HF audio.

(65) Push the FUNC button again and again to select the AM mode (if available).

(a) Make sure that there is not a 250 Hz tone in the HF audio.

(66) Push the FUNC button again and again to select the USB V mode and set the clarifier to C + 000.

(67) Do the HF Antenna Operational Check.

(68) Turn the TUNE ENT inner knob and select one of the four preset frequencies from Table 501.

(69) Make sure that HF radio is in the USB V mode.

(70) Disconnect the pilot's and the copilot's microphone plugs from the headset microphone jacks on the two side console panels. Do not disconnect the pilot's and the copilot's headset phone plugs from the headset phone jacks.

(71) Make sure that COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) is selected on the two audio panels.

(72) Make sure that the squelch is open.

(73) Set the timer on one of the two PFD's to count up.

(a) At the same time, push and hold the PTT button on the pilot's control wheel and start the timer.

(b) While the HF radio transmits, make sure that the green transmit light on the HF control unit is illuminated and the receiver audio is not heard. The transmitter, without the microphone input, supplies almost no power.

(74) When the stuck microphone time-out occurs, continue to hold the pilot's PTT button and stop the PFD timer. The time-out occurs when the transmit light goes out and the receiver audio is heard.

(a) While you continue to hold the pilot's PTT button, push and hold the PTT button on the copilot's control wheel.

(b) Make sure that the HF radio does not transmit.

(c) Release the two PTT buttons.

(75) Set the timer on one of the two PFD's to count up.

(a) At the same time, push and hold the PTT button on the copilot's control wheel and start the timer.

(b) While the HF radio transmits, make sure that the green transmit light on the HF control unit is illuminated and the receiver audio is not heard. The transmitter, without the microphone input, supplies almost no power.

(76) When the stuck microphone time-out occurs, continue to hold the copilot's PTT button and stop the PFD timer. The time-out occurs when the transmit light goes out and the receiver audio is heard.

(a) While you continue to hold the copilot's PTT button, push and hold the PTT button on the pilot's control wheel.

(b) Make sure that the HF radio does not transmit.

(c) Release the two PTT buttons.

(77) Connect the pilot's and the copilot's microphone plugs to the headset microphone jacks on the two side console panels.

(78) Put the AVIONICS POWER switch in the OFF position.

(79) Put the POWER switch in the OFF position.

CAUTION: Disconnect external power when not in use to prevent an accidental discharge of the battery.

(80) Disconnect external power from the airplane.

(81) Tow the airplane out of the hangar and to an area of the airport where you can operate one of the airplane engine. Refer to Chapter 9, Towing - Maintenance Practices.

(82) Set the POWER switch to the ON position.

(83) Set the AVIONICS POWER switch to the ON position.

(84) Start the engine. Refer to the Model 208 Airplane Flight Manual.

(85) If necessary, before you start the test, use either VHF communication or a telephone and speak with the HF radio station that will assist you in the test.

(86) Set the VHF COM1 with an applicable VHF frequency and set the volume to a satisfactory level.

(87) Push the COM1 MIC buttons on the two audio panels. Make sure that COM3 is also selected.

(88) Push the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) buttons on the two audio panels. Make sure that COM1 is also selected.

(89) Turn the function selector knob to the OPT position.

(90) Push and release the FUNC button again and again as necessary to show P MAX (maximum power) on the lower line of the HF control unit display.

(91) Tune the HF radio to preset channel 01 and do the steps that follow:

(a) Push and release the PTT button on the pilot's control wheel for approximately one second. While the HF antenna coupler tunes, monitor the items that follow:

- The green light below the TEST button on the HF control unit flashes
- A tone is heard in the audio
- The frequency digits go out.

(b) Make sure that the HF antenna coupler can tune the antenna system in approximately 30 seconds or less.

NOTE: The system is tuned when the green light goes out, audio tone stops, and frequency digits show and do not flash.

(c) Do the steps again for preset channels 02 thru 04.

(92) Tune the HF radio to the applicable radio test facility HF frequency . If you do not use a preset channel in Table 501, make sure that the HF radio is in the USB V mode.

(93) Use the pilot's audio panel and the pilot's headset and make HF radio contact. Ask about signal strength and the quality of the signal.

(94) Use the copilot's audio panel and the copilot's headset and make HF radio contact. Ask about signal strength and the quality of the signal.

(95) Stop the engine. Refer to the Model 208 Airplane Flight Manual.

(96) Put the AVIONICS master switch (SI007) in the OFF position.

(97) Put the DC POWER battery switch (SI004) in the OFF position.

(98) Tow the airplane back to the hangar. Refer to Chapter 9, Towing - Maintenance Practices.

5. KHF-1050 HF Communication System Operational Check

NOTE: Do the KHF-1050 HF Communication System Operational Check when the same unit is installed.

A. Prepare to do the HF Communication System Operational Check.

(1) Connect external power to the airplane.

(2) Open the aft baggage compartment door.

(3) Make sure that the HF SYSTEM NORMAL/MAINT switch is set to the NORMAL position.

(4) Close the aft baggage compartment door.

(5) Make sure that the HF and the HF PA RESET circuit breakers on the copilot's circuit breaker panel are engaged.

(6) Set the POWER switch, on the left switch panel, to the ON position.

(7) Set the AVIONICS POWER switch, on the left switch panel, to the ON position.

B. Do the HF Communication System Operational Check (Refer to Figure 501).

(1) Push and release the VOL/PUSH PWR inner knob on the HF control unit to start the KHF-1050 HF communication system and do a BIT.

(a) Make sure that the number 1 shows in the upper left corner of the HF control unit display.

(2) After approximately one to three seconds, the indications that follow will show:

- The HF control unit display window display segments will show
- The RX (receive) and the 1 (#1 HF) message will show on the display.

NOTE: Let the BIT operate for at least 30 seconds to complete.

(a) When the HF control unit has failed (internal fault), the bottom row of the display will show the PANEL message.

(b) When a different part of the system is not serviceable, the top part of the display will show the FAIL message or the ACP message followed on the bottom row of the display with one of the messages that follow:

- RXEX (Receiver/Exciter Fail)
- PA (Power Amplifier Fail)
- CPLR (Antenna Coupler Fail)
- PRS W (Antenna Coupler Pressure Warning)
- PRS F (Antenna Coupler Pressure Failure).

(3) Push and hold the VOL/PUSH PWR inner knob for approximately three seconds and make sure that the HF system goes off.

(4) Disengage the HF PA RESET circuit breaker.

(5) Push and release the VOL/PUSH PWR inner knob.

(a) After the BIT is completed, make sure that the FAIL message shows on the top line of the display and the PA message shows on the bottom line.

(6) Engage the HF PA RESET circuit breaker and disengage the HF circuit breaker.

(a) Make sure that the HF system goes off.

(b) Push the VOL/PUSH PWR inner knob. Make sure that the system does not start.

(7) Engage the HF circuit breaker.

(8) Push and release the VOL/PUSH PWR inner knob to start the HF system.

(9) After the BIT is completed, set the function selector knob (left outer knob) on the HF control unit to the FREQ position.

(a) Make sure that the frequency display format is XX.YYYY, where XX is one or two digits between 2 and 29 MHz, and YYYY is four digits to the right of the decimal point.

NOTE: This examines the 100 hertz (Hz) channel spacing and the display mode. If you do not strap the HF control unit electrical connector (PI526), pin contact DD to ground, only three digits to the right of the decimal point will show.

(10) Push the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) and the SPKR buttons on the pilot's and the copilot's GMA 1347/1360D audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or the AUX (GMA 1360D), COM3 MIC (GMA 1347) or the AUX MIC (GMA1360D), and SPKR buttons are illuminated.

(11) Push and release the TEST button on the HF control unit.

(a) Make sure that all of the display messages show after a few seconds and a short "tune" tone is heard in the HF receiver audio through the cockpit speakers.

(b) Make sure that the green light on the HF control unit shows.

(12) Push and release the TEST button again to exit the test mode.

(13) Tune the HF radio to radio station WWV (Ft. Collins, CO) or WWVH (Kehaha, HI) on the frequencies that follow (select the frequency with the best signal):

NOTE: You can do this test in a hangar if the airplane is near the open hangar doors. If the signal strength is not sufficient, you can use a signal generator (IFR 4000 or equivalent). Set the signal generator to radiate a 10 MHz, AM signal, modulated with a 1000 Hz (approximate) continuous tone. Do not directly couple the signal generator to the KPA-1052 HF power amplifier, KAC-1052 HF antenna coupler, or HF antenna wire. Tune the HF for 10000.0 kHz, instead of the below frequencies.

(a) 2500.0 kHz

(b) 5000.0 kHz

(c) 10000.0 kHz
(d) 15000.0 kHz
(e) 20000.0 kHz

(14) If the AM modulation mode is available, do as follows:
(a) Turn the function selector knob to the MOD position.
(b) Push the FUNC button again and again to show the AM modulation mode.
(c) Record the tone of the voice.

(15) Turn the function selector knob to the SQL position.

(16) Push the FUNC button again and again as necessary to select SBH.

(17) Turn the TUNE ENT inner knob to change the squelch mode to OPN.

NOTE: Use the VOL/PUSH PWR inner knob to adjust the HF volume.

(18) Make sure that the HF audio is heard on the two cockpit speakers and the two flight crew headsets.

(19) Push the SPKR button on the two audio panels as necessary to isolate each cockpit speaker while you test the other speaker.

(20) Do the HF Antenna Operational Check.

(21) Set the POWER switch, on the left switch panel, to the OFF position.

(22) Set the AVIONICS POWER switch, on the left switch panel, to the OFF position.

CAUTION: Disconnect external power when not in use to prevent an accidental discharge of the battery.

(23) Disconnect external power from the airplane.

6. PS-440 HF Control Unit Functional Test

NOTE: Do the PS-440 HF Control Unit Functional Test when a new or repaired unit is installed.

A. Prepare to do the HF Control Unit Functional Test.

(1) Make sure that the pilot's and the copilot's GMA 1347/1360D audio panels are installed and serviceable.

(2) Make sure that the pilot's and the copilot's GIA 63W/64W integrated avionics units are installed and serviceable.

(3) Make sure that the pilot's and the copilot's GDU 1040A/1050A PFD's are installed and serviceable.

(4) Connect external power to the airplane.

(5) Open the aft baggage compartment door.

(6) Make sure that the HF SYSTEM NORMAL/MAINT switch is set to the NORMAL position.

(7) Close the aft baggage compartment door.

(8) Make sure that the HF and the HF PA RESET circuit breakers on the copilot's circuit breaker panel are engaged.

(9) Set the POWER switch, on the left switch panel, to the ON position.

(10) Set the AVIONICS POWER switch, on the left switch panel, to the ON position.

B. Do the HF Control Unit Functional Test

(1) Push and release the VOL/PUSH PWR inner knob on the HF control unit to start the KHF-1050 HF communication system and do a BIT.
(a) Make sure that the number 1 shows in the upper left corner of the HF control unit display.

(2) After approximately one to three seconds, the indications that follow will show:
- The HF control unit display window display segments will show
- The RX (receive) and the 1 (#1 HF) message will show on the display.

NOTE: Let the BIT operate for at least 30 seconds to complete.

(a) When the HF control unit has failed (internal fault), the bottom row of the display will show the PANEL message.

(b) When a different part of the system is not serviceable, the top part of the display will show the FAIL message or the ACP message followed on the bottom row of the display with one of the messages that follow:
- RXEX (Receiver/Exciter Fail)
- PA (Power Amplifier Fail)

- CPLR (Antenna Coupler Fail)
- PRS W (Antenna Coupler Pressure Warning)
- PRS F (Antenna Coupler Pressure Failure).

(3) Push and hold the VOL/PUSH PWR inner knob for approximately three seconds and make sure that the HF system goes off.

(4) Disengage the HF PA RESET circuit breaker.

(5) Push and release the VOL/PUSH PWR inner knob.

(a) After the BIT is completed, make sure that the FAIL message shows on the top line of the display and the PA message shows on the bottom line.

(6) Engage the HF PA RESET circuit breaker and disengage the HF circuit breaker.

(a) Make sure that the HF system goes off.

(b) Push the VOL/PUSH PWR inner knob. Make sure that the system does not start.

(7) Engage the HF circuit breaker.

(8) Push and release the VOL/PUSH PWR inner knob to start the HF system.

(9) After the BIT is completed, set the function selector knob (left outer knob) on the HF control unit to the FREQ position.

(a) Make sure that the frequency display format is XX.YYYY, where XX is one or two digits between 2 and 29 MHz, and YYYY is four digits to the right of the decimal point.

NOTE: This examines the 100 hertz (Hz) channel spacing and the display mode. If you do not strap the HF control unit electrical connector (PI526), pin contact DD to ground, only three digits to the right of the decimal point will show.

(10) Push the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) and the SPKR buttons on the pilot's and the copilot's GMA 1347/1360D audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or the AUX (GMA 1360D), COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D), and SPKR buttons are illuminated.

(11) Push and release the TEST button on the HF control unit.

(a) Make sure that all of the display messages show after a few seconds and a short tune tone is heard in the HF receiver audio through the cockpit speakers.

(b) Make sure that the green light on the HF control unit shows.

(12) Push and release the TEST button again to exit the test mode.

(13) Disengage the HF circuit breaker.

(14) Set the HF SYSTEM NORMAL/MAINT switch (ST501) to the MAINT position.

(15) Engage the HF circuit breaker.

(16) Push and release the VOL/PUSH PWR inner knob to start the HF system.

(17) After the BIT is completed, turn the outer TUNE knob until HI L shows in the display.

(18) Refer to Table 502 and turn the TUNE ENT inner knob to set the correct value for HI L.

Table 502. HF Control Unit Lighting Set Up

TUNE OUTER KNOB POSITION	TUNE ENT INNER KNOB POSITION VALUE
HI L	010
LO L	000 (NOTE)
HI P	050
LO P	001
HI A	020
LO A	093

NOTE: The HF control unit display can show to not be on.

(19) Turn the outer and inner TUNE knobs to set the other lighting values included in Table 502.

(20) Disengage the HF circuit breaker.

(21) Set the HF SYSTEM NORMAL/MAINT switch to the NORMAL position.

(22) Engage the HF circuit breaker.

(23) Turn the DISPLAYS knob (RI002), found on the center switch panel, clockwise and counterclockwise.

(a) Make sure that the HF control unit display lighting intensity increases and decreases the same as the PFD's and the MFD lighting.

(24) Turn the DISPLAYS knob fully counterclockwise to the DAY detent.

(a) Make sure that the display backlighting goes to maximum intensity.

(25) With the HF control unit , refer to Table 501 and do the steps that follow:

(a) Push and hold the FUNC button until the channel number flashes (approximately three seconds).

(b) Use one of the TUNE knobs and select the necessary channel to be set.

(c) Push the ENT button (right TUNE inner knob). The channel is stored and the frequency display starts to flash.

1 Select the receive frequency and make sure that RX is illuminated on the right side of the display.

NOTE: This sets the receive frequency.

(d) Push the ENT button. The frequency is stored and the mode starts to flash.

1 Select the modulation type.

(e) Press ENT button. The mode is stored and the frequency starts to flash, TX comes on, and RX goes off.

1 Select the transmit frequency, if it is different from the receive frequency.

(f) Push the ENT button. The data is updated and the next channel number will show.

(g) Do the above steps again to set the frequencies for channels 02 thru 04.

(h) When the four channels and frequencies are set, push and hold the FUNC button for approximately three seconds to exit the channel programming mode.

WARNING: Make sure that no personnel touch the airplane or on the ground adjacent to the airplane during the check. You can possibly receive an electrical shock if you touch the airplane or if you go into or out of the airplane during an HF transmission. Do not operate the HF system while you refuel the airplane.

(26) Turn the function selector knob (left outer knob) on the HF control unit to the OPT position.

(27) Push the FUNC key again and again as necessary to select P MIN.

(28) Turn the function selector knob to the FREQ position.

(29) Push the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) buttons on the pilot's and the copilot's audio panels.

(30) Push and hold the EMER button on the HF control unit for approximately two seconds.

(a) Make sure that the HF control unit display shows 2.1820 on the top row and EMR 1 on the bottom row.

(31) Push the ENT button (right TUNE inner knob).

(a) Make sure that the HF control unit display continues to show 2.1820.

(32) Turn the inner or outer TUNE knob to select the subsequent EMR channel and do as follows:

(a) Make sure that the frequency shown on the HF control unit display is the same as the related RX frequency in the SIMPLEX column of Table 503.

Table 503. Emergency Channels (Factory Default Programming)

CHANNEL	FREQUENCY (MHz)		ITU CHANNEL	ASSIGNMENT
	SIMPLEX (DEFAULT)	SEMI-DUPLEX (SPLIT TX/RX)		
EMR 1	2.1820	RX: 2.1820	- - - -	International Distress and Calling
		TX: 2.1820		
EMR 2	4.1250	RX: 4.4170	421	International Distress and Calling
		TX: 4.125		

EMR 3	6.2150	RX: 6.5160 TX: 6.2150	606	Maritime Distress and Calling
EMR 4	8.2910	RX: 8.2910 TX: 8.2910	833	Maritime Distress and Calling
EMR 5	12.2900	RX: 13.1370 TX: 12.2900	1221	Maritime Distress and Calling
EMR 6	16.4200	RX: 17.3020 TX: 16.4200	1621	Maritime Distress and Calling

The typical SIMPLEX operation is used to speak with other airplanes, ships, or emergency ground stations. The SEMI-DUPLEX operation can be used to speak with maritime radiotelephone network ground stations. The UPPER SIDEBAND VOICE is the only emission mode available when using emergency channels.

(b) Push the ENT button (right TUNE inner knob). The SPLT message will show on the bottom line of the HF control unit display for approximately two seconds.

1 Make sure that the frequency shown is the same as the RX frequency in the SEMI DUPLEX column of Table 503.

NOTE: The EMR 1 and EMR 4 channels are only Simplex channels. The TX and RX frequencies are the same.

(c) Push and release the push-to-talk (PTT) button on the pilot's or the copilot's control wheel to tune the antenna.

1 When the tune cycle is complete, push and hold one of the two PTT buttons and record the frequency shown on the HF control unit display of the.

2 Make sure that the frequency is the same as the TX frequency in the SEMI DUPLEX column of Table 503.

(d) Release the PTT button.

(33) Do step (32) again for the remaining EMR channels in Table 503.

(34) If an emergency channel is not set in accordance with Table 503, set the channel as follows:

(a) Push and hold the EMER button on the HF control unit for approximately two seconds.

1 The display will show EMR 1 as the default channel.

(b) Push and hold the FUNC button HF control unit for approximately three seconds.

1 The channel window will start to flash.

NOTE: This shows that the programming mode is started.

(c) Turn the inner or the outer TUNE knobs to select the applicable channel number.

(d) Push the ENT button on the end of the TUNE knob.

1 The channel is stored and the receive frequency will start to flash.

(e) Turn the inner and the outer TUNE knobs to select the applicable receive frequency.

(f) Push the ENT button on the end of the TUNE knob.

1 The receive frequency is stored and the mode will start to flash.

NOTE: Only the USB V (upper sideband voice) mode is available when you set an emergency channel.

(g) Push the ENT button on the end of the TUNE knob.

1 The mode is stored and the transmit frequency will start to flash.

(h) If the simplex operation is necessary with the emergency channel, do the steps that follow:

1 Push the ENT button again to record the transmit frequency that is automatically shown.

2 The channel window now shows the subsequent emergency channel number that is available.

(i) If the semi-duplex operation is necessary with the emergency channel, do the steps that follow:

1 Push the inner and the outer TUNE knobs to select the applicable transmit frequency.

2 Push the ENT button.

3 The transmit frequency is set and the channel window now shows the subsequent available emergency channel number.

(j) Push the EMER button to stop the procedure.

(35) Turn the function selector knob to the FREQ position.

(36) Turn the TUNE knobs to select 29.990 MHz.

(37) Turn the function selector knob to the MOD position.

(38) Push the FUNC button again and again as necessary to select USB V (upper sideband • voice) on the HF control unit display.

(39) Turn the function selector knob to the SQL position.

(40) Push the FUNC button again and again as necessary to select SBH (syllabic squelch high) on the HF control unit display.

(41) Turn the TUNE ENT inner knob to change the squelch mode and monitor the HF audio heard through the cockpit speakers (the channel is not being used, only noise is heard) as follows:

- OPN (The squelch is open and background noise is heard)
- MIN (The squelch will stay open only if the channel has a lot of noise)
- MED (The squelch will stay open only if the channel has too much noise)
- MAX (The squelch will close independent of the channel noise).

(42) Push the FUNC button to select SBL (syllabic squelch low) on the HF control unit display.

(43) Turn the TUNE ENT inner knob to change the squelch mode and monitor the HF audio heard through the cockpit speakers as follows:

- OPN (The squelch is open and background noise is heard)
- MIN (The squelch will not close if the channel has a small quantity of noise)
- MED (The squelch will not close if the channel has a moderate quantity of noise)
- MAX (The squelch will close independent of the channel noise).

(44) Push the FUNC button to select SQH (signal strength squelch high) on the HF control unit display. A value from 1 to 32 will show on the HF control unit display.

(45) Turn the TUNE ENT inner knob to change the squelch level to 32.

(a) Make sure that the squelch is closed.

(46) Turn the TUNE ENT inner knob to change the squelch level to 1.

(a) Make sure that the squelch is open.

(47) Turn the TUNE ENT inner knob to increase the squelch level until the squelch closes.

(48) Push the FUNC button to select SQL (signal strength squelch low) on the HF control unit display. A value from 1 to 32 will show on the on the HF control unit display.

(49) Turn the TUNE ENT inner knob to change the squelch level to 32.

(a) Make sure that the squelch is closed.

(50) Turn the TUNE ENT inner knob to change the squelch level to 1.

(a) Make sure that the squelch is open.

(51) Turn the TUNE ENT inner knob to increase the squelch level until the squelch closes.

(52) Select SBH squelch mode on the HF control unit display.

(53) Turn the function selector knob to the MOD position.

(54) Push the FUNC button again and again to show all of the possible modulation modes as follows:

NOTE: Not all of the modes that follow will show.

- USB V (Upper Sideband • Voice)
- RC (USB + Reduced Carrier)
- AM (Amplitude Modulation)
- USB D (Upper Sideband • Data)
- LSB D (Lower Sideband • Data)

- LSB V (Lower Sideband – Voice).

(55) Push the FUNC button again and again to select USB V on the HF control unit display.

(56) Tune the HF radio to radio station WWV (Ft. Collins, CO) or WWVH (Kehaha, HI) on the frequencies that follow (select the frequency with the best signal):

NOTE: You can do this test in a hangar if the airplane is near the open hangar doors. If the signal strength is not sufficient, you can use a signal generator (IFR 4000 or equivalent). Set the signal generator to radiate a 10 MHz, AM signal, modulated with a 1000 Hz (approximate) continuous tone. Do not directly couple the signal generator to the KPA-1052 HF power amplifier, KAC-1052 HF antenna coupler, or HF antenna wire. Tune the HF for 10000.0 kHz, instead of the below frequencies.

(a) 2500.0 kHz

(b) 5000.0 kHz

(c) 10000.0 kHz

(d) 15000.0 kHz

(e) 20000.0 kHz

(57) If the AM modulation mode is available, do as follows:

(a) Turn the function selector knob to the MOD position.

(b) Push the FUNC button again and again to show the AM modulation mode.

(c) Record the tone of the voice.

(58) Turn the function selector knob to the SQL position.

(59) Push the FUNC button again and again as necessary to select SBH.

(60) Turn the TUNE ENT inner knob to change the squelch mode to OPN.

NOTE: Use the VOL/PUSH PWR inner knob to adjust the HF volume.

(61) Make sure that the HF audio is heard on the two cockpit speakers and the two flight crew headsets.

(62) Push the SPKR button on the two audio panels as necessary to isolate each cockpit speaker while you test the other speaker.

(63) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) button on the two audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or the AUX (GMA 1360D) and the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) buttons go out.

(b) Make sure that the SPKR buttons on the two audio panels are selected.

(64) Turn the VOL/PUSH PWR inner knob clockwise for maximum volume.

(a) Make sure that the HF audio is not heard on the two cockpit speakers or the two flight crew headsets.

(65) Turn the VOL/PUSH PWR inner knob counterclockwise for minimum volume.

(66) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) and the SPKR buttons on the pilot's audio panel.

(a) Make sure that the COM3 (GMA 1347) or the AUX (GMA 1360D) button on the copilot–s audio panel does not illuminate.

(67) Turn the VOL/PUSH PWR inner knob clockwise for maximum volume and make sure that the audio from the pilot's cockpit speaker is loud and clear, with no apparent distortion.

(68) Push the SPKR button on the pilot–s audio panel.

(a) Make sure that the HF audio in the pilot–s headset is loud and clear, with no apparent distortion.

(69) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) and the SPKR buttons on the copilot–s audio panel.

(a) Make sure that the HF audio from the copilot's cockpit speaker is loud and clear, with no apparent distortion.

(70) Push the SPKR button on the copilot–s audio panel.

(a) Make sure that HF audio in the copilot–s headset is loud and clear, with no apparent distortion.

(71) Turn the VOL/PUSH PWR inner knob counterclockwise for minimum volume.

(72) Push the COM3 (GMA 1347) or the AUX (GMA 1360D) and the SPKR buttons on the two audio panels.

(73) Turn the VOL/PUSH PWR inner knob clockwise to increase the volume to a satisfactory level.

(74) Turn the function selector knob to the MOD position.

(75) Push the FUNC button again and again as necessary to select USB V on the HF control unit display.

(a) Make sure that the tone of the voice is the same as it was in AM mode.

NOTE: There will be a noticeably different background sound when the signal is not modulated (no voice announcements or tones and between one second clock ticks) because of the difference in the filters. The tone (or frequency) of the voice, tones, and clock ticks should be the same.

(76) Turn the function selector knob to the OPT position.

(a) Make sure that the bottom line of the HF control unit display shows C + 000 (no clarifier offset frequency).

(77) Turn the TUNE ENT inner knob to C + 250 (clarifier offset is 250 Hz).

(a) Make sure that as the clarifier frequency is changed, a tone that is approximately equal to the clarifier frequency is heard.

(78) Turn the function selector knob to the FREQ position.

(79) Record the current frequency and change it to a different frequency.

(80) Change the frequency back to the recorded frequency.

(81) Turn the function selector knob to the OPT position.

(a) Make sure that the bottom line of the HF control unit display changes back to C + 000.

(82) Turn the TUNE ENT inner knob to change the clarifier offset frequency to C + 250 and monitor the 250 Hz tone in the HF receiver audio.

(83) Turn the function selector knob to the MOD position.

(84) Push the FUNC button again and again to select the USB D mode (if available) and then select the RC mode (if available).

(a) Make sure that the 250 Hz tone stays for each mode.

(85) Turn the TUNE ENT inner knob to change the clarifier offset frequency to C 250 (250 Hz below the implied carrier frequency).

(86) Push the FUNC button again and again to select the LSB V mode (if available).

(a) Make sure that there is an approximate 250 Hz tone in the HF audio.

(87) Push the FUNC button again and again to select the AM mode (if available).

(a) Make sure that there is not a 250 Hz tone in the HF audio.

(88) Push the FUNC button again and again to select the USB V mode and set the clarifier to C + 000.

(89) Set the POWER switch, on the left switch panel, to the OFF position.

(90) Set the AVIONICS POWER switch, on the left switch panel, to the OFF position.

CAUTION: Disconnect external power when not in use to prevent an accidental discharge of the battery.

(91) Disconnect external power from the airplane.

7. PS-440 HF Control Unit Operational Check

NOTE: Do the PS-440 HF Control Unit Operational Check when the same unit is installed.

A. Prepare to do the HF Control Unit Operational Check.

(1) Connect external power to the airplane.

(2) Open the aft baggage compartment door.

(3) Make sure that the HF SYSTEM NORMAL/MAINT switch is set to the NORMAL position.

(4) Close the aft baggage compartment door.

(5) Make sure that the HF and the HF PA RESET circuit breakers on the copilot's circuit breaker panel are engaged.

(6) Set the POWER switch, on the left switch panel, to the ON position.

(7) Set the AVIONICS POWER switch, on the left switch panel, to the ON position.

B. Display Backlight and dimming Operational test

(1) Push and release the VOL/PUSH PWR inner knob on the HF control unit to start the KHF-1050 HF communication system.

(2) Turn the AVIONICS DIMMING knob fully clockwise. (CW)

(a) The control unit will go to maximum brightness.

(3) Turn the AVIONICS DIMMING knob fully counter clockwise. (CCW)

(a) The control unit will dim until a point, then will change to maximum brightness.

(4) Rotate the AVIONICS DIMMING knob CW.

(a) Make sure the KHF-1050 control unit switches back over to manual brightness before the rest of the Garmin equipment switches over to manual brightness.

C. Do the HF Control Unit Operational Check.

(1) Push and release the VOL/PUSH PWR inner knob on the HF control unit to start the KHF-1050 HF communication system and do a BIT.

(a) Make sure that the number 1 shows in the upper left corner of the HF control unit display.

(2) After approximately one to three seconds, the indications that follow will show:

- The HF control unit display window display segments will show
- The RX (receive) and the 1 (#1 HF) message will show on the display.

NOTE: Let the BIT operate for at least 30 seconds to complete.

(a) When the HF control unit has failed (internal fault), the bottom row of the display will show the PANEL message.

(b) When a different part of the system is not serviceable, the top part of the display will show the FAIL message or the ACP message followed on the bottom row of the display with one of the messages that follow:

- RXEX (Receiver/Exciter Fail)
- PA (Power Amplifier Fail)
- CPLR (Antenna Coupler Fail)
- PRS W (Antenna Coupler Pressure Warning)
- PRS F (Antenna Coupler Pressure Failure).

(3) Push and hold the VOL/PUSH PWR inner knob for approximately three seconds and make sure that the HF system goes off.

(4) Disengage the HF PA RESET circuit breaker.

(5) Push and release the VOL/PUSH PWR inner knob.

(a) After the BIT is completed, make sure that the FAIL message shows on the top line of the display and the PA message shows on the bottom line.

(6) Engage the HF PA RESET circuit breaker and disengage the HF circuit breaker.

(a) Make sure that the HF system goes off.

(b) Push the VOL/PUSH PWR inner knob. Make sure that the system does not start.

(7) Engage the HF circuit breaker.

(8) Push and release the VOL/PUSH PWR inner knob to start the HF system.

(9) After the BIT is completed, set the function selector knob (left outer knob) on the HF control unit to the FREQ position.

(a) Make sure that the frequency display format is XX.YYYY, where XX is one or two digits between 2 and 29 MHz, and YYYY is four digits to the right of the decimal point.

NOTE: This examines the 100 hertz (Hz) channel spacing and the display mode. If you do not strap the HF control unit electrical connector (PI526), pin contact DD to ground, only three digits to the right of the decimal point will show.

(10) Push the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) and the SPKR buttons on the pilot's and the copilot's GMA 1347/1360D audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or the AUX (GMA 1360D), COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D), and SPKR buttons are illuminated.

(11) Push and release the TEST button on the HF control unit.

(a) Make sure that all of the display messages show after a few seconds and a short "tune" tone is heard in the HF receiver audio through the cockpit speakers.

(b) Make sure that the green light on the HF control unit shows.

(12) Push and release the TEST button again to exit the test mode.

(13) Turn the DISPLAYS knob (RI002), found on the center switch panel, clockwise and counterclockwise.

(a) Make sure that the HF control unit display lighting intensity increases and decreases the same as the PFD's and the MFD lighting.

(14) Turn the DISPLAYS knob fully counterclockwise to the DAY detent.

(a) Make sure that the display backlighting goes to maximum intensity.

(15) Set the POWER switch, on the left switch panel, to the OFF position.

(16) Set the AVIONICS POWER switch, on the left switch panel, to the OFF position.

CAUTION: Disconnect external power when not in use to prevent an accidental discharge of the battery.

(17) Disconnect external power from the airplane.

8. HF Remote Control Circuit Breaker Operational Check

A. Prepare to do the HF Remote Control Circuit Breaker Operational Check.

(1) Make sure that the pilot's and the copilot's GMA 1347/1360D audio panels are installed and serviceable.

(2) Make sure that the pilot's and the copilot's GIA 63W/64W integrated avionics units are installed and serviceable.

(3) Make sure that the pilot's and the copilot's GDU 1040A/1050A primary flight displays (PFD's) are installed and serviceable.

(4) Connect external power to the airplane.

(5) Open the aft baggage compartment door.

(6) Make sure that the HF SYSTEM NORMAL/MAINT switch is set to the NORMAL position.

(7) Close the aft baggage compartment door.

(8) Make sure that the HF and the HF PA RESET circuit breakers on the copilot's circuit breaker panel are engaged.

(9) Set the POWER switch, on the left switch panel, to the ON position.

(10) Set the AVIONICS POWER switch, on the left switch panel, to the ON position.

B. Do the HF Remote Control Circuit Breaker Operational Check.

(1) Push and release the VOL/PUSH PWR inner knob on the HF control unit to start the KHF-1050 HF communication system and do a BIT.

(a) Make sure that the number 1 shows in the upper left corner of the HF control unit display.

(2) After approximately one to three seconds, the indications that follow will show:

- The HF control unit display window display segments will show
- The RX (receive) and the 1 (#1 HF) message will show on the display.

NOTE: Let the BIT operate for at least 30 seconds to complete.

(a) When the HF control unit has failed (internal fault), the bottom row of the display will show the PANEL message.

(b) When a different part of the system is not serviceable, the top part of the display will show the FAIL message or the ACP message followed on the bottom row of the display with one of the messages that follow:

- RXEX (Receiver/Exciter Fail)
- PA (Power Amplifier Fail)
- CPLR (Antenna Coupler Fail)
- PRS W (Antenna Coupler Pressure Warning)
- PRS F (Antenna Coupler Pressure Failure).

(3) Push and hold the VOL/PUSH PWR inner knob for approximately three seconds and make sure that the HF system goes off.

(4) Disengage the HF PA RESET circuit breaker.

(5) Push and release the VOL/PUSH PWR inner knob.

(a) After the BIT is completed, make sure that the FAIL message shows on the top line of the display and the PA message shows on the bottom line.

(6) Engage the HF PA RESET circuit breaker and disengage the HF circuit breaker.

(a) Make sure that the HF system goes off.

(b) Push the VOL/PUSH PWR inner knob. Make sure that the system does not start.

(7) Engage the HF circuit breaker.

(8) Push and release the VOL/PUSH PWR inner knob to start the HF system.

(9) After the BIT is completed, set the function selector knob (left outer knob) on the HF control unit to the FREQ position.

(a) Make sure that the frequency display format is XX.YYYY, where XX is one or two digits between 2 and 29 MHz, and YYYY is four digits to the right of the decimal point.

NOTE: This examines the 100 hertz (Hz) channel spacing and the display mode. If you do not strap the HF control unit electrical connector (PI526), pin contact DD to ground, only three digits to the right of the decimal point will show.

(10) Push the COM3 MIC (GMA 1347) or the AUX (GMA 1360D) and the SPKR buttons on the pilot's and the copilot's GMA 1347/1360D audio panels.

(a) Make sure that the lights above the COM3 (GMA 1347) or the AUX (GMA 1360D), COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D), and SPKR buttons are illuminated.

(11) Push and release the TEST button on the HF control unit.

(a) Make sure that all of the display messages show after a few seconds and a short "tune" tone is heard in the HF receiver audio through the cockpit speakers.

(b) Make sure that the green light on the HF control unit shows.

(12) Push and release the TEST button again to exit the test mode.

(13) Set the POWER switch, on the left switch panel, to the OFF position.

(14) Set the AVIONICS POWER switch, on the left switch panel, to the OFF position.

CAUTION: Disconnect external power when not in use to prevent an accidental discharge of the battery.

(15) Disconnect external power from the airplane.

(16) Tow the airplane out of the hangar and to an area of the airport where you can operate one of the airplane engines. Refer to Chapter 9, Towing - Maintenance Practices.

(17) Set the POWER switch, on the left switch panel, to the ON position.

(18) Set the AVIONICS POWER switch, on the left switch panel, to the ON position.

(19) Start the engine. Refer to the Model 208/208B Airplane Flight Manual.

(20) If necessary, before you start the test, use either VHF communication or a telephone and speak with the HF radio station that will assist you in the test.

(21) Set the VHF COM1 with an applicable VHF frequency and set the volume to a satisfactory level.

(22) Push the COM1 MIC buttons on the two audio panels. Make sure that COM3 (GMA 1347) or the AUX (GMA 1360D) is also selected.

(23) Push the COM3 MIC (GMA 1347) or the AUX MIC (GMA 1360D) buttons on the two audio panels. Make sure that COM1 is also selected.

(24) Turn the function selector knob to the OPT position.

(25) Push and release the FUNC button again and again as necessary to show P MAX (maximum power) on the lower line of the HF control unit display.

(26) Tune the HF radio to preset channel 01 and do the steps that follow:

(a) Push and release the PTT button on the pilot's control wheel for approximately one second. While the HF antenna coupler tunes, monitor the items that follow:

- The green light below the TEST button on the HF control unit flashes
- A tone is heard in the audio
- The frequency digits go out.

(b) Make sure that the HF antenna coupler can tune the antenna system in approximately 30 seconds or less.

NOTE: The system is tuned when the green light goes out, audio tone stops, and frequency digits show and do not flash.

(c) Do the steps again for preset channels 02 thru 04.

(27) Tune the HF radio to the applicable radio test facility HF frequency . If you do not use a preset channel in Table 501, make sure that the HF radio is in the USB V mode.

(28) Use the pilot's audio panel and the pilot's headset and make HF radio contact. Ask about signal strength and the quality of the signal.

(29) Use the copilot's audio panel and the copilot's headset and make HF radio contact. Ask about signal strength and the quality of the signal.

(30) Stop the engine. Refer to the Model 208 Airplane Flight Manual.

(31) Set the POWER switch, on the left switch panel, to the OFF position.

(32) Set the AVIONICS POWER switch, on the left switch panel, to the OFF position.

(33) Tow the airplane back to the hangar. Refer to Chapter 9, Towing - Maintenance Practices.

Figure 501 : Sheet 1 : KHF-1050 HF Communication System Adjustment G1000 System Software up to (v.2499.03)

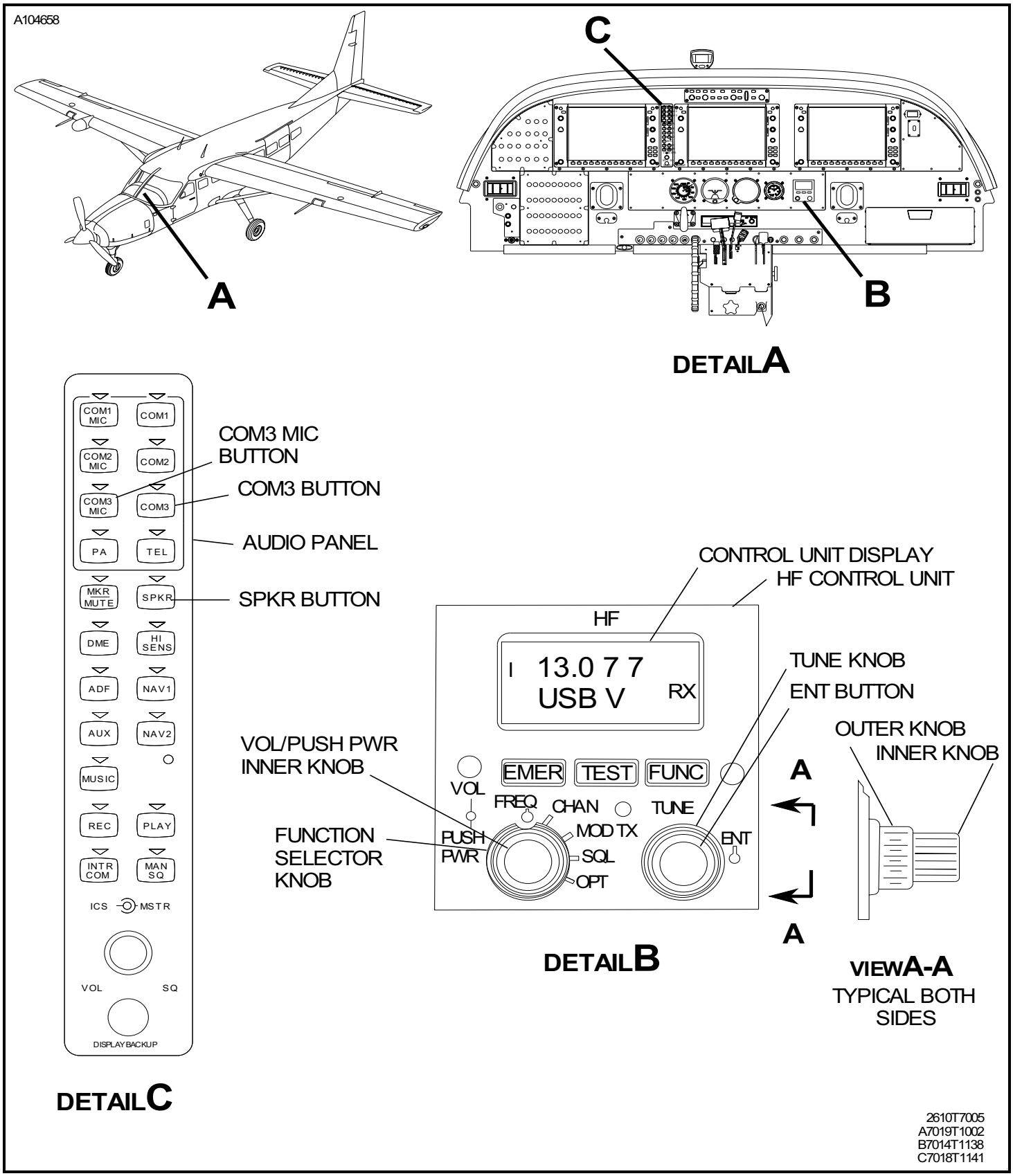

Figure 502 : Sheet 1 : KHF-1050 HF Communication System Adjustment G1000 System Software (v.2499.08 and On)