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REV LTR XB	TITLE: INTEGRATED TEST SPECIFICATION FOR THE NV-875 VOR/ILS DATA LINK (VIDL), PART NO. 7526202 1. SCOPE This Integrated Test Specification establishes the manufacturing and operational requirements that the VOR/ILS Data Link (VIDL) must meet to insure the units are in proper operating condition. This specification also contains detailed test procedures, which apply to the test equipment listed in paragraph 5. Appendix A provides a recommended method of achieving calibration to meet these requirements. Appendix B provides final test report data sheets. Appendix C provides functional tests over temperature that the VIDL module must meet to ensure proper operating condition. Appendix D contains field adjustment and alignment procedures. Appendix E contains the field test procedure for the VIDL module. 2. REFERENCE DOCUMENTS These reference documents are not required for performance of the test procedure. However, these documents provide an aid for troubleshooting should any discrepancies occur during performance of the test procedure. They are also useful for the development of test equipment and test procedures. 2.1 Assembly Prints <table> <tr> <td>Circuit Card Assembly – Power Supply, CPU</td> <td>7026230-90X</td> </tr> <tr> <td>Circuit Card Assembly – Mezzanine, I/O</td> <td>7026232-90X</td> </tr> <tr> <td>Circuit Card Assembly – VHF Receiver</td> <td>7026234-90X</td> </tr> <tr> <td>Circuit Card Assembly – Marker/Glideslope Receiver</td> <td>7026238-90X</td> </tr> <tr> <td>Assembly – VIDL</td> <td>7026202</td> </tr> </table>			Circuit Card Assembly – Power Supply, CPU	7026230-90X	Circuit Card Assembly – Mezzanine, I/O	7026232-90X	Circuit Card Assembly – VHF Receiver	7026234-90X	Circuit Card Assembly – Marker/Glideslope Receiver	7026238-90X	Assembly – VIDL	7026202
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REV LTR	2.2 <u>Regulatory and Specification</u> Product Specification for NV-875 VOR: Minimum Operational Performance Standards for Airborne VOR Receiving Equipment Operating within the Radio Frequency Range of 108 - 117.95 MHz, RTCA/DO-196 LOCALIZER: Minimum Operational Performance Standards for Airborne ILS Localizer Receiving Equipment operating within the Radio Frequency Range of 108 - 112 MHz, RTCA/DO-195 GLIDESLOPE: Minimum Operational Performance Standards for Airborne ILS Glideslope Receiving Equipment Operating within the Radio Frequency Range of 329.15 - 335.4 MHz, RTCA/DO-192 MARKER BEACON: Minimum Operational Performance Standards - Airborne Radio Marker Receiving Equipment Operating on 75 MHz, RTCA/DO-143. VDB: Minimum Operational Performance Standards for GPS Local Area Augmentation System Airborne, RTCA/DO-253.				
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REV LTR	3. GENERAL INFORMATION 3.1 All tests shall be performed under conditions of $25 \pm 10^{\circ}\text{C}$ and less than 90 percent relative humidity, unless otherwise specified. 3.2 All input signals shall be applied between the designated terminal and ground, unless otherwise stated. All output voltages shall be measured with respect to ground, unless otherwise stated. 3.3 No warm-up period is required for UUT. 3.4 The signal generator output impedance shall have a resistance of 50 ± 5 ohms and a reactance of not more than 5 ohms. 3.5 Unless otherwise specified, all tests shall be performed with the equipment antenna jack connected to a 50-ohm load. 3.6 The Standard on channel RF signal is an RF input signal generated at the selected radio frequency. 3.7 All alphanumeric symbols bracketed by greater-than/less-than "< >" symbols will require the characters be typed, followed by "ENTER" or "Return". 3.8 Burn-in requirements are specified in the Test Engineering Bulletin TEB-9501. 3.9 <u>Bus Errors</u> The test equipment may continuously monitor the RCB port of the VIDL. If such monitoring is provided, the VIDL shall generate no bus errors except when the power is off or being cycled off or on. Instructions to set up test equipment or configure the radio will occur before measurements are taken. The test parameter measurement will have a test number assigned. Taking the measurement is the end of that test section and subsequent instructions belong to the next test parameter 3.10 Tests are normally done in sequence and the test steps are written for this purpose. If tests are performed out of sequence the tester is responsible for insuring the correct mechanical and software setups are performed. 3.11 In cases where timing is required, be sure to read the entire instruction before performing the test. The test setup and sequence is completed when the measurement paragraph is performed. Any instructions after this measurement are for the following test setup.				
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REV LTR	XB 3.12 VIDL Error Codes 3.13 Allow test equipment a 15 minute warm-up period 3.14 Receiver RF Signal Levels Modern RF Signal Generators are usually calibrated in dBm (decibels with respect to 1 milliwatt), volts, millivolts, or microvolts into a 50 ohm termination. The unit of measurement will be used throughout this document will be dBm. Variations in signal generator output impedance can cause measurement inconsistencies between different generators. Therefore, a 6 dB attenuator shall be used on the output of all signal generators used for performing the steps in this document. Use of a 6 dB pad will create better consistency between different test set-ups. 3.15 All RF levels specified in this document shall be the RF level at the appropriate antenna connector of the VIDL. 3.16 Perform Appendix A for loading unit software 3.17 Perform Appendix B for calibrating unit. 3.18 Use Appendix C FTR when performing tests manually. 3.19 Refer to Appendix D for performing automated tests.					

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REV LTR	4. POWER AND SIGNAL REQUIREMENTS Unless otherwise specified, all tests shall be conducted with the power-input voltage adjusted to 27.5 ± 0.5 V dc. This voltage shall be measured between the power-input terminals of the U.U.T. 4.1 Standard Input Signals Standard Marker Beacon Test Signals Frequency: 75.00 MHz ± 0.001 MHz Modulation: Amplitude Modulation Modulation Percentage: 95 ± 1% Frequency of Modulation 400 Hz ± 1%, 1300 Hz ± 1%, 3000 Hz ± 1% Magnitude The magnitude of the signal applied to the receiver input is specified as the power available from the signal generator measured in decibels below one milliwatt (dBm) Standard Glideslope Test Signal Frequency: 329.15 MHz to 335.00 MHz ± 0.003 MHz (40 channels at 150 kHz spacing; paired to localizer channels). Modulation: Amplitude Modulation Modulation Percentage: 40 ± 2% each of 90 Hz and 150 Hz Frequency of Modulation: 90 Hz ± 0.3%, 150 Hz ± 0.3% sine wave Magnitude: The magnitude of the signal applied to the receiver input is specified as the power available from the signal generator measured in decibels below one milliwatt (dBm) Standard Localizer Test Signals Frequency: 108.10 MHz to 111.95 MHz ± 0.001 MHz (40 channels). Modulation: Amplitude Modulation Modulation Percentage: 20 ± 1% each of 90 Hz and 150 Hz. Frequency of Modulation: 90 Hz ± 0.3%, 150 Hz ± 0.3% sine wave Magnitude: The magnitude of the signal applied to the receiver input is specified as the power available from the signal generator measured in decibels below one milliwatt (dBm)				
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REV LTR XB	Standard VOR Test Signal Frequency: 108.00 MHz to 117.95 MHz $\pm$ 0.001 MHz Modulation: Amplitude Modulation Modulation Percentage: 30 $\pm$ 1% of 30 Hz and 9960 Hz sub-carrier Sub-carrier Modulation: Frequency modulated at a deviation ratio of 16 by a 30 Hz $\pm$ 0.1% sine wave. Frequency of Modulation: 30 Hz $\pm$ 0.1%, 9960 Hz $\pm$ 480 Hz Magnitude: The magnitude of the signal applied to the receiver input is specified as the power available from the signal generator measured in decibels below one milliwatt (dBm)																																										
	4.2 Test Equipment or Equivalent <table border="1"> <thead> <tr> <th>Description</th> <th>Manufacturer</th> <th>MFG Part Number/Description</th> </tr> </thead> <tbody> <tr> <td>Signal Generator</td> <td>IFR</td> <td>NAV-750B or equivalent</td> </tr> <tr> <td>Signal Generator</td> <td>Agilent</td> <td>HP8648 or equivalent</td> </tr> <tr> <td>Audio Analyzer</td> <td>Agilent</td> <td>HP8903 or equivalent</td> </tr> <tr> <td>Digital Multi-Meter</td> <td>Fluke</td> <td>8840A or equivalent</td> </tr> <tr> <td>Oscilloscope</td> <td>Tektronix</td> <td>TDS460 or equivalent</td> </tr> <tr> <td>Power Supply</td> <td></td> <td>0 to 40 V dc variable, 25 Amp, with output current and voltage meter.</td> </tr> <tr> <td>Radio Test Interface Unit (RTIU)</td> <td>Honeywell</td> <td>7511400-902</td> </tr> <tr> <td>RTIU Software</td> <td></td> <td>7512001-XYZ Where X = media code as specified on drawing 7512001 and YY = 17 or greater (software version). NOTE: RTIU P/N 7511409-902 is equipped with software version 7512001-109 or higher.</td> </tr> <tr> <td>Personal Computer</td> <td></td> <td>80X86 or greater processor.</td> </tr> <tr> <td>RTIU Test Cable</td> <td>Honeywell</td> <td>T337297-9002</td> </tr> <tr> <td>ARINC 429 Test Set</td> <td>JcAir</td> <td>JcAir 429 or equivalent</td> </tr> <tr> <td>Gain Phase Meter</td> <td>Agilent</td> <td>HP3575A</td> </tr> </tbody> </table>					Description	Manufacturer	MFG Part Number/Description	Signal Generator	IFR	NAV-750B or equivalent	Signal Generator	Agilent	HP8648 or equivalent	Audio Analyzer	Agilent	HP8903 or equivalent	Digital Multi-Meter	Fluke	8840A or equivalent	Oscilloscope	Tektronix	TDS460 or equivalent	Power Supply		0 to 40 V dc variable, 25 Amp, with output current and voltage meter.	Radio Test Interface Unit (RTIU)	Honeywell	7511400-902	RTIU Software		7512001-XYZ Where X = media code as specified on drawing 7512001 and YY = 17 or greater (software version). NOTE: RTIU P/N 7511409-902 is equipped with software version 7512001-109 or higher.	Personal Computer		80X86 or greater processor.	RTIU Test Cable	Honeywell	T337297-9002	ARINC 429 Test Set	JcAir	JcAir 429 or equivalent	Gain Phase Meter	Agilent
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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.					
REV LTR XB	5. TEST WIRING CONNECTIONS AND BLOCK DIAGRAMS				
	5.1 <u>External Interface Pin Definitions for the EPIC VDR VS VIDL</u>				
Table 1. VDR/VIDL External I/O					
Pin No.	SIGNAL NAME	SIGNAL DESCRIPTION	I/O TYPE	MRC VDR	MRC VIDL
1	FAN CONTROL	CONTROL FOR BOTH FANS	DISCRETE INPUT		
2	MICROPHONE HI	MICROPHONE AUDIO INPUT HI	AUDIO INPUT	X	
3	GND	GROUNDING INTERNALLY	GND	X	X
4	SPARE 11 DISCRETE INPUT	WAS LAN ENABLE	DISCRETE INPUT		
5	NAV/COM PHONE AUDIO LO	NAV or COM HEADPHONE-AUDIO-LO	AUDIO OUTPUT	X	X
6	NAV/COM AUX-DATA+	RS-422 AUX DATA BUS FROM CD	BUS INPUT	X	X
7	SIDE-TONE-PHONE AUDIO	TX SIDETONE HEADPHONE AUDIO	AUDIO OUTPUT		
8	TUNE/TEST INHIBIT	TUNE / TEST INHIBITED WHEN GROUNDED	DISCRETE INPUT		X
9	RCB-RTN	GROUNDING INTERNALLY	GND	X	X
10	RCB-RX DATA	RCB DATA INPUT	BUS INPUT	X	X
11	RCB TX DATA	RCB DATA BUS OUTPUT	BUS OUTPUT	X	X
12	RS-422 OUT PORT 1B	CSDB DATA OUT 1B (LO)	BUS OUTPUT		
13	RS-422 OUT PORT 1A	CSDB DATA OUT 1A (HI)	BUS OUTPUT		
14	VOICE/DATA SEL	DISCRETE (ACTIVE), DATA = GND	DISCRETE INPUT	X	
15	DATA-KEY	DISCRETE (ACTIVE), KEY = GND	DISCRETE INPUT	X	
16	A429 FREQ/FUNC SEL IN PORT 2B	ARINC 429 LS BUS (CONTROL)	BUS INPUT	X	X
17	A429 FREQ/FUNC SEL IN PORT 1B	ARINC 429 LS BUS (CONTROL)	BUS INPUT	X	X
18	POWER GND	GROUNDING INTERNALLY	GND	X	X
19	SPARE 1 DISCRETE INPUT	Resvd for PS SYNC	DISCRETE INPUT		
20	+28V POWER IN	+28 VDC POWER	POWER INPUT	X	X
21	FAN #1 MONITOR	Fan #1 Monitor Pulsed Input	DISCRETE INPUT		
22	MICROPHONE LO	MICROPHONE AUDIO INPUT LO	AUDIO INPUT	X	
23	POWER ON/OFF	DISCRETE (ACTIVE)	DISCRETE INPUT		
24	MIC PTT	DISCRETE (ACTIVE)	DISCRETE INPUT	X	
25	NAV/COM PHONE AUDIO HI	NAV or COM HEADPHONE-AUDIO-HI	AUDIO OUTPUT	X	X
26	NAV/COM AUX-DATA -	RS-422 AUX DATA BUS FROM CD	BUS INPUT	X	X
27	REC-PHONE AUDIO	RECEIVER HEADPHONE AUDIO	AUDIO OUTPUT		
28	VDR-EMERG SEL	DISCRETE (ACTIVE)	DISCRETE INPUT	X	
Honeywell		AW/CRITICAL NOTATION			
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REV LTR XB	Pin No.	SIGNAL NAME	SIGNAL DESCRIPTION	I/O TYPE	MRC VDR	MRC VIDL		
	29	SPARE 2	SPARE was COM EXTENDED-FREQ-EN	OPEN				
	30	MKR AUDIO LO	MARKER AUDIO Output Low	AUDIO OUTPUT			X	
	31	MKR AUDIO HI	MARKER AUDIO Output High	AUDIO OUTPUT			X	
	32	SYS-POSITION-MS-BIT	DISCRETE (STRAP)	STRAP INPUT				
	33	SYS-POSITION-LS-BIT	DISCRETE (STRAP)	STRAP INPUT				
	34	VOICE/DATA STATUS (or BURN IN TEST FAIL)	DISCRETE (OPEN=V, GND=D)	DISCRETE OUTPUT				
	35	A429 FREQ/FUNC SEL IN PORT 2A	ARINC 429 LS BUS (CONTROL)	BUS INPUT	X		X	
	36	A429 FREQ/FUNC SEL IN PORT 1A	ARINC 429 HS BUS (CONTROL)	BUS INPUT	X		X	
	37	POWER GND	GROUNDING INTERNALLY	GND	X		X	
	38	SPARE 3 DISCRETE INPUT	SPARE DISCRETE INPUT	DISCRETE INPUT				
	39	+28V POWER IN	+28 VDC POWER	POWER INPUT	X		X	
	40	FAN #2 MONITOR	Fan #2 Monitor Pulsed Input	DISCRETE INPUT				
	41	LAN RX-	10 BASE T LAN RECEIVER	BUS INPUT	X		X	
	42	SIMULCOM	DISCRETE (ACTIVE)	DISCRETE O & I	X			
	43	A429 IN PORT 1/2 SEL	DISCRETE (ACTIVE)	DISCRETE INPUT				
	44	A429 BURST-TUNE-ENABLE	DISCRETE (STRAP)	STRAP INPUT				
	45	RNAV VIDEO	CODEC TEST OUTPUT (was CHAN-ANTI-BLOCKING-EN)	AUDIO OUTPUT				
	46	RX-AUDIO-COMP-DIS	DISCRETE (STRAP)	STRAP INPUT				
	47	GND	GROUNDING INTERNALLY (was TX-TIME-OUT-PERIOD-SEL)	GROUNDING INTERNALLY				
	48	SPARE 4 DISCRETE INPUT	RESERVED in MRC COM Slot	DISCRETE INPUT	X			
	49	SPARE 5	RESERVED in MRC COM Slot	OPEN	X			
	50	SPARE 6	RESERVED in MRC COM Slot	OPEN	X			
	51	ACARS-DATA-IN-LO	AUDIO DATA (MSK)	AUDIO INPUT	X			
	52	LAN RX+	10 BASE T LAN RECEIVER	BUS INPUT	X		X	
	53	LAN TX+	10 BASE T LAN TRANSMITTER	BUS OUTPUT	X		X	
	54	LAN TX-	10 BASE T LAN TRANSMITTER	BUS OUTPUT	X		X	
	55	A429 FREQ/FUNC SEL IN PORT 3B or RS-422 CSDB IN PORT B	ARINC 429 LS BUS (CONTROL) or CSDB NAV or COM CDU bus	BUS INPUT	X			
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REV LTR XB	Pin No.	SIGNAL NAME	SIGNAL DESCRIPTION	I/O TYPE	MRC VDR	MRC VIDL		
	56	A429 FREQ/FUNC SEL IN PORT 3A or RS-422 CSDB IN PORT A	ARINC 429 LS BUS (CONTROL) or CSDB NAV or COM CDU bus	BUS INPUT	X			
	57	POWER GND	GROUNDING INTERNALLY	GND	X	X		
	58	SPARE 7	SPARE	OPEN				
	59	+28V POWER IN	+28 VDC POWER	POWER INPUT	X	X		
	60	FAN SUPPLY	28VDC Fan Supply					
	61	SPARE 8 DISCRETE INPUT	SPARE DISCRETE INPUT was AUDIO RTN	DISCRETE INPUT				
	62	NAV/COM AUDIO +	Low level audio to NIM	AUDIO OUTPUT	X	X		
	63	COM AUDIO-EN	COM Audio Enabled	DISCRETE OUTPUT	X			
	64	VDR TRANSMIT	DISCRETE	DISCRETE OUTPUT	X			
	65	VHF AGC	VHF AGC Analog Test output	AUDIO OUTPUT				
	66	SELCAL/ACARS-RTN	GROUNDING INTERNALLY	GND	X			
	67	SELCAL/ACARS DATA OUT	SELCAL AUDIO OR ACARS DATA	AUDIO OUTPUT	X			
	68	FREQ-TONE-TRANSFER-DIS	DISCRETE (STRAP)	STRAP INPUT				
	69	SPARE 10 DISCRETE INPUT	SPARE DISCRETE INPUT was ARINC-429-COMPATIBLE-EN	DISCRETE INPUT				
	70	ACARS-DATA-IN-HI	AUDIO DATA (MSK)	AUDIO INPUT	X			
	71	A429 CMU #1 TO VDR IN PORT B	ARINC 429 HS BUS FROM CMU #1 was (AUX-CDH-BUS-MONITOR-EN)	BUS INPUT	X			
	72	A429 CMU #1 TO VDR IN PORT A	ARINC 429 HS BUS FROM CMU #1 was (DATA-DISABLE)	BUS INPUT	X			
	73	A429 NAVCOM OUT PORT B	ARINC 429 LS BUS (VDR STATUS)	BUS OUTPUT	X	X		
	74	A429 NAVCOM OUT PORT A	ARINC 429 LS BUS (VDR STATUS)	BUS OUTPUT	X	X		
	75	A429 VDR TO CMU OUT PORT B A429 VDB TO GPS OUT PORT B	ARINC 429 HS BUS VDR TO CMUS or A429 VDB TO GPS OUT PORT B	BUS OUTPUT	X		X	
	76	A429 VDR TO CMU OUT PORT A A429 VDB TO GPS OUT PORT A	ARINC 429 HS BUS VDR TO CMUS or A429 VDB TO GPS OUT PORT B	BUS OUTPUT	X		X	
	77	A429 CMU #2 TO VDR IN PORT B	ARINC 429 HS BUS FROM CMU #2	BUS INPUT	X			
	78	A429 CMU #2 TO VDR IN PORT A	ARINC 429 HS BUS FROM CMU #2	BUS INPUT	X			
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REV LTR XB					
5.2	VIDL MODULE PIN ASSIGNMENT DISCRIPTIONS				
	PIN #	Description and Assumptions			
	4	LAN ENABLE – This discrete input is now unused and a spare.			
	5,25	NAV/COM PHONE AUDIO HI/LO – This audio output is COM audio when the unit is a VDR and NAV audio when the unit is a VIDL. When the unit is a NAVCOM the output’s function is switched from COM audio to NAV audio depending on the tuned frequency. This is the high level audio that drives a 600 ohm load.			
	8	TUNE/TEST INHIBIT – This discrete input is required in CAT III installations to prevent the ILS frequency and mode from potentially being disrupted by a non-level A tuning source during the approach (NIM, MCDU etc). TUNE/TEST is inhibited when this line is grounded.			
	9	RCB Return			
	10,11	RCB – The I/O card must be capable of switching the RCB clock frequency and operational software between VDR and VIDL configurations. It does not need to do this dynamically since the NAVCOM does not use RCB. Pin 10 is RCB-RX data, pin 11 is RCB-TX data.			
	6,26	NAV/COM AUX DATA +/- – This bus input is used with the CD-850 Clearance Delivery Head (CDH) to provide emergency and backup tuning. (so far in EPIC, this applies only for Augusta AB-139). This PII legacy bus has had two different interfaces for NAV and COM. For the digital radios there is only a single interface. It is assumed that the CDH must change when used with a VIDL, to provide GLS tuning. Additional changes can then be made to provide the NAV tuning or COM tuning on the same AUX Data Bus in a broadcast format similar to the current COM.			
	32,33	In PII installations, the current COM AUX interface definition will have to be retained in the CDH when only the VIDL is installed as an upgrade. Separate NAV and COM Data outputs will be retained in the CDH for backward compatibility with PII installations. Pin 6 is data + and pin 26 is data -.			
	32,33	SYS POSITION MS, LS BITS – If these inputs are both left open, system position and configuration data for VDR and VIDL is determined from RCB. If both inputs are grounded, system position is No 3. In that case, configuration data is determined by ARINC 429. For NAVCOM software, the unit will always determine configuration from ARINC 429 FREQ/FUNC SEL IN PORTS and respond to system No. 3 SSM words. Pin 32 is the MSB, pin 33 is the LSB.			
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XB																																		
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ENGINEERING SPECIFICATION

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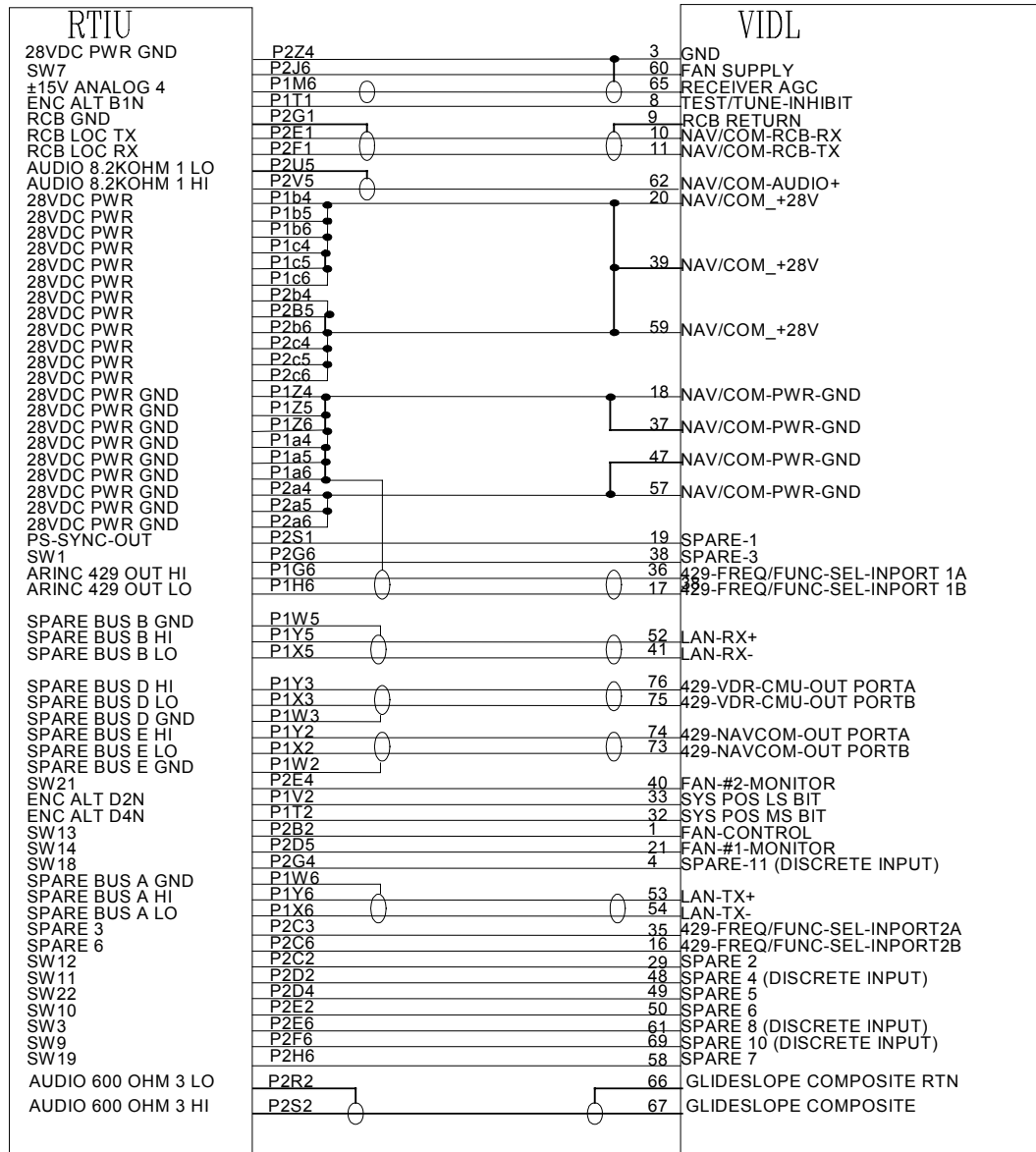
REV LTR

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REV
LTR

XB

5.3 RTIU – VIDL Interconnect



Honeywell

AW/CRITICAL NOTATION

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REV

LTR

XB

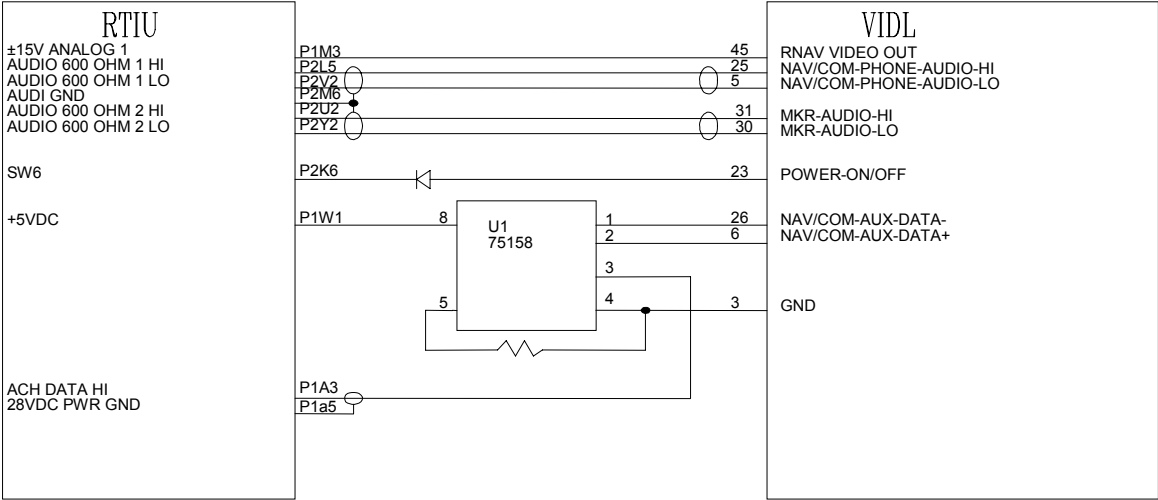


Figure 1. RTIU Interconnect Wiring

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REV
LTR
XB

5.4 VIDL Test Setup Block Diagram

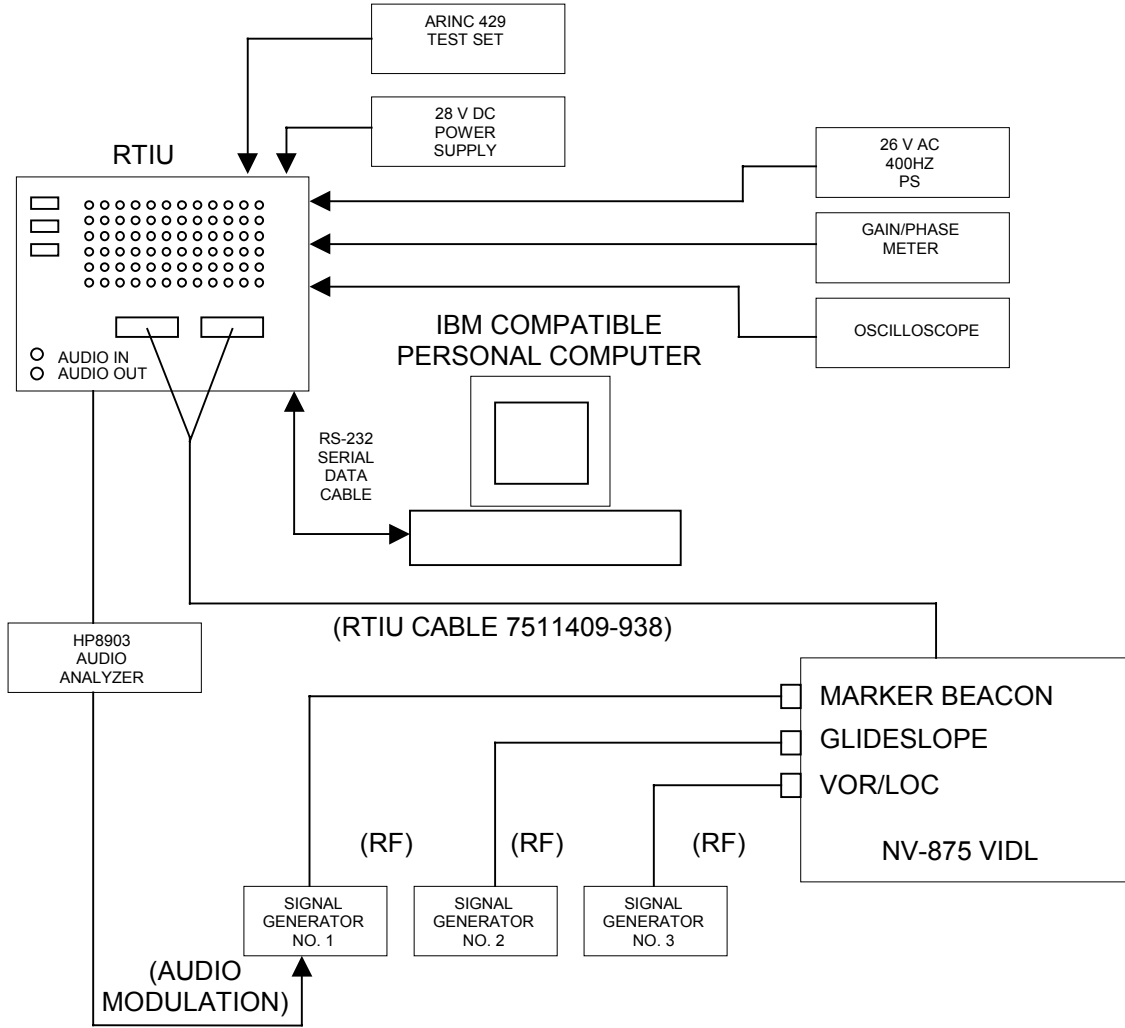


Figure 2. Test Setup Wiring

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REV LTR XB																																																											
6. TEST SETUP																																																											
Connect UUT per paragraph 5.4 Figure 2 (VIDL Test Setup Block Diagram)																																																											
6.1 Test Setup #1																																																											
(IFR NAV 750B SWITCH POSTIONS)																																																											
<table><tr><td colspan="2">SWITCHES</td><td>POSITON</td></tr><tr><td>VOR Bearing Select</td><td></td><td>0 Deg.</td></tr><tr><td>TO/FROM</td><td></td><td>FROM</td></tr><tr><td>Meter Function</td><td></td><td>0-100%</td></tr><tr><td>1020 Hz Tone Mod.</td><td></td><td>FULL CCW (OFF)</td></tr><tr><td>30 Hz Tone Mod.</td><td></td><td>FULL CCW (DETENT: 30% MOD)</td></tr><tr><td>9960 Hz Tone Mod.</td><td></td><td>FULL CCW (DETENT: 30% MOD)</td></tr><tr><td>Master Mod.</td><td></td><td>FULL CCW (DETENT)</td></tr><tr><td>0.01 or 0.05 Degree Bearing</td><td></td><td>0.01</td></tr><tr><td>GS Deviation</td><td></td><td>0 DDM</td></tr><tr><td>LOC Deviation</td><td></td><td>0 DDM</td></tr><tr><td>LOC/GS Frequency Select</td><td></td><td>LOC</td></tr><tr><td>Frequency</td><td></td><td>110.000 MHz</td></tr><tr><td>Auto/Manual</td><td></td><td>MANUAL</td></tr><tr><td>Bearing/FREQ.</td><td></td><td>BEARING</td></tr><tr><td>kHz/0.1 kHz</td><td></td><td>kHz</td></tr><tr><td>Attenuator</td><td></td><td>-53 dBm</td></tr><tr><td>Frequency</td><td></td><td>110 MHz</td></tr></table>						SWITCHES		POSITON	VOR Bearing Select		0 Deg.	TO/FROM		FROM	Meter Function		0-100%	1020 Hz Tone Mod.		FULL CCW (OFF)	30 Hz Tone Mod.		FULL CCW (DETENT: 30% MOD)	9960 Hz Tone Mod.		FULL CCW (DETENT: 30% MOD)	Master Mod.		FULL CCW (DETENT)	0.01 or 0.05 Degree Bearing		0.01	GS Deviation		0 DDM	LOC Deviation		0 DDM	LOC/GS Frequency Select		LOC	Frequency		110.000 MHz	Auto/Manual		MANUAL	Bearing/FREQ.		BEARING	kHz/0.1 kHz		kHz	Attenuator		-53 dBm	Frequency		110 MHz
SWITCHES		POSITON																																																									
VOR Bearing Select		0 Deg.																																																									
TO/FROM		FROM																																																									
Meter Function		0-100%																																																									
1020 Hz Tone Mod.		FULL CCW (OFF)																																																									
30 Hz Tone Mod.		FULL CCW (DETENT: 30% MOD)																																																									
9960 Hz Tone Mod.		FULL CCW (DETENT: 30% MOD)																																																									
Master Mod.		FULL CCW (DETENT)																																																									
0.01 or 0.05 Degree Bearing		0.01																																																									
GS Deviation		0 DDM																																																									
LOC Deviation		0 DDM																																																									
LOC/GS Frequency Select		LOC																																																									
Frequency		110.000 MHz																																																									
Auto/Manual		MANUAL																																																									
Bearing/FREQ.		BEARING																																																									
kHz/0.1 kHz		kHz																																																									
Attenuator		-53 dBm																																																									
Frequency		110 MHz																																																									
6.2 Test Setup #2																																																											
Turn the RTIU main power on.																																																											
Turn the P.C. power on																																																											
When main menu appears on screen:																																																											
Select NAV module (NV-850) <10>																																																											
Select SIN/COS MAX AMPS <I >																																																											
Select ELECTRICAL ZERO <Z>																																																											
Select NAV AUX <A>																																																											
RCB Page <P>																																																											
RTIU 28 VDC SWITCH ON																																																											
DISCRETE Page <N>																																																											
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REV LTR XB	AUDIO Page <N> SELECT AUDIO <A> A VOR/LOC <1> DISCRETE Page <P> RCB PAGE <P> 6.3 Test Setup #3 Channel UUT to 110.3 MHz CHANGE FREQUENCY <F> of ACTIVE <A> to 110.3 MHz <110.3> 6.4 Test Setup #4 Channel UUT to 109.3 MHz CHANGE FREQUENCY <F> of ACTIVE <A> to 109.3 MHz <109.3> 6.5 Test Setup #5 Ensure that the Marker Beacon Sensitivity is set to LOW. Check the MKR SENSE field on the RCB/422 SOURCE DISPLAY. It should read LOW. If not, change it: If necessary: MARKER SENSE <R> 6.6 Test Setup #6 Channel UUT to 110 MHz CHANGE FREQUENCY <F> of ACTIVE <A> to 110 MHz <110>					
Honeywell		AW/CRITICAL NOTATION				
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						CAGE CODE 55939																																																																																												
				SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.																																																																																														
REV LTR XB		7. TEST REQUIREMENTS 7.1 <u>Software Applicability</u> The following table lists the software blocks that shall be loaded into the UUT. This software is to be loaded before final test of the UUT. The table shows the applicable software versions for the listed dash number and MOD status of the UUT. The Modification Status Table on drawing 7026202 specifies the software part numbers to be loaded. The correct software versions will be verified during TEST 3.020. Table 1. Module Modification Status vs. Software Version <table><tr><th colspan="4">Module Part Number</th><th rowspan="2">MOD</th><th colspan="4">Software Version</th></tr><tr><th>-812</th><th>-811</th><th>-802</th><th>-801</th><th>BOOT</th><th>BOOT DEOS</th><th>FLIGHT DEOS</th><th>CPU FIRMWARE</th></tr><tr><td></td><td></td><td></td><td>X</td><td>-</td><td>TT7031394-101</td><td>TT7031395-101</td><td>TT7031396-101</td><td>TT7030601-101</td></tr><tr><td></td><td></td><td></td><td>X</td><td>A</td><td>TT7031394-103</td><td>TT7031395-103</td><td>TT7031396-103</td><td>TT7030601-103</td></tr><tr><td></td><td></td><td></td><td>X</td><td>E</td><td>TT7031394-104</td><td>TT7031395-104</td><td>TT7031396-107</td><td>TT7030601-103</td></tr><tr><td></td><td></td><td></td><td>X</td><td>G</td><td>TT7031394-105</td><td>TT7031395-105</td><td>TT7031396-108</td><td>TT7030601-103</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>								Module Part Number				MOD	Software Version				-812	-811	-802	-801	BOOT	BOOT DEOS	FLIGHT DEOS	CPU FIRMWARE				X	-	TT7031394-101	TT7031395-101	TT7031396-101	TT7030601-101				X	A	TT7031394-103	TT7031395-103	TT7031396-103	TT7030601-103				X	E	TT7031394-104	TT7031395-104	TT7031396-107	TT7030601-103				X	G	TT7031394-105	TT7031395-105	TT7031396-108	TT7030601-103																																				
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-812	-811	-802	-801		BOOT	BOOT DEOS	FLIGHT DEOS	CPU FIRMWARE																																																																																										
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			X	E	TT7031394-104	TT7031395-104	TT7031396-107	TT7030601-103																																																																																										
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REV LTR	8. TEST SPECIFICATION/PROCEDURE DEFINITIONS <table border="0"> <tr> <td>Column</td> <td>Description</td> </tr> <tr> <td>Rev Ltr</td> <td>This column is used to identify revised material.</td> </tr> <tr> <td>Test No.</td> <td>Tests are numbered in sequence in steps of 10. If new tests are added adding 1-9 to the end of the appropriate section will number them e.g. add new test to 1.010 results in 1.011.</td> </tr> <tr> <td>Opr Limits</td> <td>Unit under test (UUT) shall meet these limits whenever tested at other than the manufacturing facility. When an item is marked OPTIONAL in this column, the corresponding test is not required except as an aid in troubleshooting.</td> </tr> <tr> <td>Test Description</td> <td>These items are the parameters to which the unit under test was designed. In addition, these items aid in troubleshooting by specifying the input and output signal terminals. For brevity, all conditions required are not repeated for each test. Conditions established in previous tests will also apply.</td> </tr> <tr> <td>Switch Pos</td> <td>Perform switch settings in order specified. When an item is entered in Work Steps Column opposite a switch setting other than the first or when there is additional space between switches, perform this item before setting any other switches.</td> </tr> <tr> <td>Work Steps</td> <td>When work step items are entered opposite first Switch Pos, perform all switch settings first. When items are entered opposite switch setting other than first setting or when there is additional space between switches, perform work step item before setting any other switches.</td> </tr> <tr> <td>Mfg Limits</td> <td>Unit under test shall meet these limits prior to customer delivery.</td> </tr> <tr> <td>Code</td> <td>A "1" in the column indicates that the material in the next column applies only to manual test procedures. A "2" in the column indicates that the material in the next column applies only to Automatic Test Equipment procedures. A blank column indicates that the material in the next column applies equally to manual and automated test procedures.</td> </tr> </table>					Column	Description	Rev Ltr	This column is used to identify revised material.	Test No.	Tests are numbered in sequence in steps of 10. If new tests are added adding 1-9 to the end of the appropriate section will number them e.g. add new test to 1.010 results in 1.011.	Opr Limits	Unit under test (UUT) shall meet these limits whenever tested at other than the manufacturing facility. When an item is marked OPTIONAL in this column, the corresponding test is not required except as an aid in troubleshooting.	Test Description	These items are the parameters to which the unit under test was designed. In addition, these items aid in troubleshooting by specifying the input and output signal terminals. For brevity, all conditions required are not repeated for each test. Conditions established in previous tests will also apply.	Switch Pos	Perform switch settings in order specified. When an item is entered in Work Steps Column opposite a switch setting other than the first or when there is additional space between switches, perform this item before setting any other switches.	Work Steps	When work step items are entered opposite first Switch Pos, perform all switch settings first. When items are entered opposite switch setting other than first setting or when there is additional space between switches, perform work step item before setting any other switches.	Mfg Limits	Unit under test shall meet these limits prior to customer delivery.	Code	A "1" in the column indicates that the material in the next column applies only to manual test procedures. A "2" in the column indicates that the material in the next column applies only to Automatic Test Equipment procedures. A blank column indicates that the material in the next column applies equally to manual and automated test procedures.
Column						Description																	
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XB																							
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	1.000			<u>POWER UP</u> Apply +27.5 V dc to P3- 20, 39, 59 (H) and P3 – 18, 37, 47, 57 (L).	Test Setup #1 Test Setup #2		<u>POWER UP</u> <u>RTIU</u> 28 V dc: ON	
	1.010	Less than or equal to 1.2 amp		The current drawn by the VOR/ILS module shall be as specified.			The current drawn by the VOR/ILS module shall be as specified.	Less than or equal to 1.1 amp
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	2.000	VOR PASS		<u>PILOT ACTIVATED SELF TEST (PAST)</u> (FOR -812 ONLY) Initiate PAST test on the controller.	Test Setup #1 Test Setup #2 <S> <A>		<u>PILOT ACTIVATED SELF TEST (PAST)</u> (FOR -812 ONLY) TEST PAST	VOR PASS
	2.010			Controller shall display "VOR TEST". On conclusion of the test, the radio message shall read. Terminate PAST Test on the controller.	<S>		Observe the RTIU screen. After several seconds the message shall display as specified. TEST	
Honeywell				AW/CRITICAL NOTATION				
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
XB	3.000			BENCH PAGE, SOFTWARE VERSION AND ON/OFF (FOR -812 ONLY)	Test Setup #1 Test Setup #2		BENCH PAGE, SOFTWARE VERSION AND ON/OFF (FOR -812 ONLY)		
	3.010	10-60°		The temperature of the module shall be as specified. Verify Software Version	<H> <S> <A>		Bench Page Observe the RTIU screen. The "TEMP" reading shall be as specified. Display SW-VER/POC SOFTW #	15-55°	
	3.020	PASS		Verify software version and module modification status agree per table 1 Clear Maintenance Log Clear Power On Count Turn VOR/ILS OFF. <u>-875:</u> Apply a ground to P1-23 Wait at least 5 seconds. Turn VOR/ILS ON. Remove ground applied above. Go to Maintenance Source Display.	<M> <C> <P> <O> <O> <M>		Observe the RTIU screen. The data displayed at "VOR DATA" position shall agree per table 1. NOTE: Compare Module MOD status with the Software Version, See Table 1. AGREE = PASS DISAGREE = FAIL Clear Log Clear POC RCB Page VOR/ILS:OFF [RTIU J2K6 grounded] Wait at least 5 seconds. VOR/ILS:ON [RTIU J2K6 TTL HI] MAINTENANCE PAGE	PASS	
	3.030	1		The CUR POC shall be as specified.			The CUR POC shall be as specified.	1	
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	3.040	END LIST		Maintenance Log shall contain no errors. The only read out shall be as specified. Go to RCB/422 Source Display.		<P>	Maintenance Log shall contain no errors. RCB PAGE	END LIST
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	4.000			<u>VOR SCALLOPING</u> Tune the receiver to 111.00 MHz. Connect signal generator to P1(VOR/LOC Antenna connector). Set signal generator: RF level - 6 dBm, Frequency 111.00 MHz, 30 Hz MOD: 30%. 9960 Hz MOD: 30%	Test Setup #1 Test Setup #2 <F> <A> <111>		<u>VOR SCALLOPING</u> Change Frequency Active 111 MHz Connect the NAV 750 RF output to P1 (VOR/LOC Antenna Connector) <u>NAV-750:</u> 9960 Hz: MOD: – VARIABLE: 0% (FULL CCW NOT IN DETENT) 30 Hz MOD:– VARIABLE: 0% (FULL CCW NOT IN DETENT) 30 Hz MOD: – VARIABLE: Set for 30% on the meter. 9960 MOD Hz: – VARIABLE: Set for a total of 60% on the meter. Freq.: 111.00 MHz RF level.: -6 dBm	
	4.010	REFERENCE		Check the Controller Bearing. Note this reading and use as Reference Bearing. Increase 30 Hz modulation until controller bearing changes from the REFERENCE by ±0.50 degrees		RTIU: Observe the VOR BRG record as a reference. NAV 750: Increase the 30 Hz percent modulation until the RTIU VOR BRG changes by ± 0.50 degrees.	REFERENCE	
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	5.000			<u>VOR AUDIO OUTPUT</u> Connect signal generator to P1(VOR/LOC Antenna connector). Apply an RF signal at: Frequency 110.00 MHz, RF level -6 dBm, 1020 Hz MOD :30% AM, 9960 Hz MOD: 0%, 30 Hz MOD: 0%	Test Setup #1 Test Setup #2 Test Setup #6 <N> <N> <A> <3>		<u>VOR AUDIO OUTPUT</u> Connect the NAV 750 RF output to P1 (VOR/LOC Antenna Connector) NAV 750: 9960 Hz MOD – VARIABLE: 0% (FULL CCW NOT IN DETENT) 30 Hz MOD:– VARIABLE: 0% (FULL CCW NOT IN DETENT) 1020 Hz MOD: Adjust the variable pot until the meter reads 30%. Freq.: 110.00 MHz RF level: -6 dBm Discrete Page Audio Page Audio D VOR/LOC	
	5.010	0.7 to 1.5 Vrms		Measure the audio output level at J1-62(H) and J1-3 (L). [RTIU J2V5] and [RTIU J2U5] The reading shall be as specified. Apply an RF signal level of -53 dBm to P1 (VOR/LOC antenna connector)	<A> <1>		RTIU: Observer the AUD LEVEL display. The reading shall be as specified. AUDIO A VOR/LOC NAV 750: RF LEVEL –53 dBm.	0.7 to 1.5 Vrms
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB								
	5.020	5.5 ± 1.0 Vrms		Measure the audio output level at J1-25(H) and J1-5 (L). [RTIU J2-L5](H) and [RTIU J2V2](L) The reading shall be as specified. NOTE: The limit specified is a factory setting. A customer is allowed to change this setting. <u>Measure the audio distortion.</u>			RTIU: Observer the AUD LEVEL display. The reading shall be as specified. <u>Measure the audio distortion.</u> Connect Distortion Analyzer to RTIU audio output port.	5.5 ± .75 Vrms
	5.030	Less than or equal to 25%		Measure the audio distortion level at P1-25(H) and P1-5 (L). [RTIU J2-L5](H) and [RTIU J2V2](L). The distortion shall be as specified.	<P> <P>		The distortion analyzer shall read as specified. Discrete Page RCB Page	Less than or equal to 10%
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	6.000			<u>VOR AUDIO FREQUENCY RESPONSE</u> Set signal generator: RF level -53 dBm, Frequency 110.00 MHz, 30 Hz MOD: OFF, 9960 Hz MOD: OFF, 1020 Hz MOD: OFF MOD 1020 Hz 30% AM Measure the audio level between P1-25(H) and P1-5 (L). [RTIU J2-L5](H) and [RTIU J2V2](L).	Test Setup #1 Test Setup #2 Test Setup #6		<u>VOR AUDIO FREQUENCY RESPONSE</u> NOTE: This test requires an external audio oscillator. NAV 750: RF LEVEL: -53 dBm Freq. 110.00 MHz 30 Hz MOD: 0% 9960 MOD: 0% 1020 Hz MOD: 0% AUDIO ANALYZER: Freq.: 1020 Hz Amp: 1.414 Vrms Impedance: 600 ohms AUDIO ANALYZER: Connect audio output to NAV 750 external mod input. NAV 750: Adjust the MASTER MOD for 30% modulation on the meter. Connect AUDIO ANALYZER to RTIU audio output port [RTIU J2L5 (HI) and J2V2 (LO)]. Measure the audio level. Note: Formula for dB dB = 20 log ₁₀ (Vout/Vref) Vout = measured output voltage Vref = reference voltage	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	6.010	0 dB REFERENCE		Use this dB measurement as a reference. Modulate the RF generator with 150 Hz, 30% AM.			Record reading of the Audio Analyzer. The reading will be the 0-dB reference. AUDIO ANALYZER: Freq.: 150 Hz. NAV 750: Adjust the MASTER MOD for 30% modulation on the meter.	0 dB REFERENCE
	6.020	Less than or equal to -20 dB		The audio level reading shall be as specified, relative to reference established in 8.010. Modulate the RF generator with 350 Hz, 30% AM.			AUDIO ANALYZER: The audio level reading shall be as specified, relative to reference established in 8.010. AUDIO ANALYZER: Freq.: 350 Hz. NAV 750: Adjust the MASTER MOD for 30% modulation on the meter.	Less than or equal to -21 dB
	6.030	Greater than or equal to -6dB		The audio level reading shall be as specified, relative to reference established in 8.010. Modulate the RF generator with 2500 Hz, 30% AM.			AUDIO ANALYZER: The audio level reading shall be as specified, relative to reference established in 8.010. AUDIO ANALYZER: Freq.: 2500 Hz. NAV 750: Adjust the MASTER MOD for 30% modulation on the meter.	Greater than or equal to -5dB
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	6.040	Greater than or equal to -6dB		The audio level reading shall be as specified, relative to reference established in 8.010. Modulate the RF generator with 9000 Hz, 30% AM.			AUDIO ANALYZER: The audio level reading shall be as specified, relative to reference established in 8.010. AUDIO ANALYZER: Freq.: 9000 Hz. NAV 750: Adjust the MASTER MOD for 30% modulation on the meter.	Greater than or equal to -4dB
	6.050	Less than or equal to -20dB		The audio level relative to the reference established in 8.010 shall be as specified. Remove external modulation to signal generator.			AUDIO ANALYZER: The audio level reading shall be as specified, relative to reference established in 8.010. AUDIO ANALYZER: Remove audio output from NAV 750 external modulation input.	Less than or equal to -21dB
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	7.000			<u>VOR AUDIO OUTPUT NOISE LEVEL</u> Set RF signal generator: RF level -73 dBm, Frequency 110.00 MHz, MOD 1020 Hz 30% AM. Measure the audio level between J1-25(H) and J1-5 (L). [RTIU J2L5 (HI) and J2V2 (LO)].	Test Setup #1 Test Setup #2 Test Setup #6		<u>VOR AUDIO OUTPUT NOISE LEVEL</u> NAV 750: 9960 Hz MOD: 0% 30 Hz MOD: 0% MASTER MOD: DETENT Adjust the 1020 Hz MOD: for 30% on the meter. RF LEVEL: -73 dBm Freq.: 110.00 MHz AUDIO ANALYZER: Connect audio input to RTIU audio output port. [RTIU J2L5 (HI) and J2V2 (LO)].	
	7.010	0 dB REFERENCE		Use this dB measurement as a reference. Remove all modulation from the RF carrier.			Record audio level reading of the Distortion analyzer. The reading will be the 0-dB reference. NAV 750: 1020 Hz MOD: 0%	0 dB REFERENCE
	7.020	Less than or equal to -30 dB.		The audio level relative to the reference established in test 9.010 shall be as specified. Apply a RF LEVEL of -83 dBm with NO modulation.			Read the audio level on the AUDIO ANALYZER . The level shall be as specified relative to the in reference established in 9.010. NAV 750: RF LEVEL: -83 dBm	Less than or equal to -30 dB.
	7.030	Less than or equal to -15 dB		The audio level relative to the reference established in test 9.010 shall be as specified.			Read the audio level on the AUDIO ANALYZER . The level in reference to 9.010 shall be as specified.	Less than or equal to -15 dB.
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	8.000			<u>VOR RECEIVER SENSITIVITY</u> Apply an RF signal at: RF level -90 dBm, Frequency 110.00 MHz, 1020 Hz MOD: 30% AM. NOTE: No 30 Hz or 9960 Hz MOD should be present. Measure the audio level between J1-25 (H) and J1-5 (L). [RTIU J2L5 (HI) and J2V2 (LO)].	Test Setup #1 Test Setup #2 Test Setup #6		<u>VOR RECEIVER SENSITIVITY</u> NAV 750: 9960 Hz MOD: 0% 30 Hz MOD: 0% MASTER MOD: DETENT Adjust the 1020 Hz MOD to 30% Freq.: 110.00 MHz RF LEVEL: -90 dBm AUDIO ANALYZER: Connect the audio input to the RTIU audio output port.	
	8.010	0 dB REFERENCE		Use this audio measurement as a reference. [RTIU J2L5 (HI) and J2V2 (LO)]. Apply the same RF signal with NO modulation.			Record the AUDIO ANALYZER audio level. This level will be the 0-dB reference level. NAV 850: 1020 Hz MOD: 0%	0 dB REFERENCE
	8.020	Less than or equal to -6 dB		The audio level reading shall be as specified, relative to reference established in 10.010. Apply an RF signal at: RF level -90 dBm, Frequency 108.00 MHz, MOD 1020 Hz 30% AM.	<F> <A> <108.00>		Record the AUDIO ANALYZER audio level. This level will be as specified relative to reference established in 10.010. Change Frequency Active 108 MHz NAV 750: Freq.: 108.00 MHz RF LEVEL: -90 dBm 1020 Hz MOD: 30% MASTER MOD: DETENT	Less than or equal to -6 dB
	8.030	0 dB REFERENCE		Establish a audio REFERENCE level.			AUDIO ANALYZER: Record the audio level as 0 dB REFERENCE.	0 dB REFERENCE.
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	8.040	Less than or equal to -6 dB		Apply an RF signal with NO modulation. The reading shall be as specified, relative to reference established in 10.030.			NAV 750: 1020 Hz MOD: 0% AUDIO ANALYZER: Observe the audio level. The audio level shall be as specified in reference to 10.030.	Less than or equal to -6 dB
	8.050	0 dB REFERENCE		Tune the receiver to 117.90 MHz. Apply a RF signal at: RF level of -90 dBm, Frequency 117.90 MHz, 1020 Hz modulation 30%. Establish a 0-dB reference for the applied signal.	<F> <A> <117.9>		Change Frequency Active 117.9 MHz NAV 750: RF LEVEL: -90 dBm Freq.: 117.90 MHz 1020 Hz MOD: 30% AUDIO ANALYZER Record the audio level as a 0 dB REFERENCE.	0 dB REFERENCE
	8.060	Less than or equal to -6 dB		Apply a RF signal with NO modulation. The audio level reading shall be as specified, relative to reference established in 10.050.			NAV 750: 1020 Hz MOD: 0% AUDIO ANALYZER: Observe the audio level. The audio level shall be as specified in reference to 10.050.	Less than or equal to -6 dB
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	9.000			<u>VOR FLAG SENSITIVITY</u> Apply an RF signal at: RF level -120 dBm, Frequency 117.90 MHz, VOR Bearing 0 degree, TO/FROM: "FROM"; NO 1020 Hz Modulation; 30% 9960 Hz Modulation; 30% 30 Hz Modulation. Tune the receiver to 117.90 MHz NOTE: There is a 7-second delay on the flag circuit. The adjustment of the RF level should be slow enough to give the circuit time to respond. "Slowly" increase the RF input level until, simultaneously the Digital BRG begins to change and the RCB VOR valid bit shows valid data.	Test Setup #1 Test Setup #2 Test Setup #6 <F> <A> <117.9>		<u>VOR FLAG SENSITIVITY</u> NAV 750: RF LEVEL: -120 dBm Freq.: 117.90 MHz Bearing: 0 degrees TO/FROM: FROM 1020 Hz MOD: 0% 9960 Hz MOD: 30% 30 Hz MOD: 30% MASTER MOD: DETENT Change Frequency Active 117.9 MHz NOTE: There is a 7-second delay on the flag circuit. The adjustment of the RF level should be slow enough to give the circuit time to respond. NAV 750: Slowly increase the RF level until the "V" on the RTIU "FLAGS" display disappears.	
	9.010	Less than or equal to -90 dBm		The RF level shall be as specified. Apply a RF signal at: RF level -120 dBm, Frequency 108.00 MHz Tune the receiver to 108.00 MHz.	<F> <A> <108>		The RF level shall be as specified. NAV 750: RF LEVEL: -120 dBm Freq.: 108.00 MHz Change Frequency Active 108 MHz	Less than or equal to -90 dBm
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB				NOTE: There is a 7 second delay on the flag circuit. The adjustment of the RF level should be slow enough to give the circuit time to respond. "Slowly" increase the RF input level until, simultaneously the Digital BRG begins to change and the RCB VOR valid bit shows valid data. The RF level shall be as specified. Apply a RF signal at: RF level -120 dBm, Frequency 110.00 MHz Tune the receiver to 110.00 MHz. NOTE: There is a 7 second delay on the flag circuit. The adjustment of the RF level should be slow enough to give the circuit time to respond. "Slowly" increase the RF input level until, simultaneously the Digital BRG begins to change and the RCB VOR valid bit shows valid data. The RF level shall be as specified.			NOTE: There is a 7 second delay on the flag circuit. The adjustment of the RF level should be slow enough to give the circuit time to respond. NAV 750: Slowly increase the RF level until the "V" on the RTIU "FLAGS" display disappears. The RF level shall be as specified. NAV 750: RF LEVEL: -120 dBm Freq.: 110.00 MHz Change Frequency Active 110 dBm NOTE: There is a 7 second delay on the flag circuit. The adjustment of the RF level should be slow enough to give the circuit time to respond. NAV 750: Slowly increase the RF level until the "V" on the RTIU "FLAGS" display disappears. The RF level shall be as specified.	
	9.020	Less than or equal to -90 dBm						Less than or equal to -90 dBm
	9.030	Less than or equal to -90 dBm			<F> <A> <110>			Less than or equal to -90 dBm
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	10.000			<u>VOR AGC CHARACTERISTICS</u> Apply an RF signal at: RF level -93 dBm, Frequency 110.00 MHz, MOD 1020 Hz 30% AM; 9960 Hz modulation 0%; 30 Hz modulation 0%. Measure the audio level between J1-25(H) and J1-5 (L). [RTIU J2L5 (HI) and J2V2 (LO)].	Test Setup #1 Test Setup #2 Test Setup #6		<u>VOR AGC CHARACTERISTICS</u> NAV 750: RF LEVEL: -93 MHz Freq.: 110.00 dBm 1020 Hz MOD: 30% 9960 Hz MOD: 0% 30 Hz MOD: 0% MASTER MOD: DETENT AUDIO ANALYZER: Connect audio input to the RTIU audio output. Set to measure audio level.	
	10.010	0 dB REFERENCE		The output is a reference level for 0 dB. Slowly increase RF power level from -93 to -6 dBm while monitoring the level of the audio output at J1-25(H) and J1-5 (L). [RTIU J2L5 (HI) and J2V2 (LO)]. NOTE: Allow the meter to settle before taking a reading.			AUDIO ANALYZER: Record reading as a 0-dB reference level. NAV 750: Slowly (3 dBm/s maximum) increase the RF LEVEL to -6 dBm while monitoring the AUDIO ANALYZER audio level. NOTE: Allow meter to settle before taking a reading.	0 dB REFERENCE
XC	10.020	Less than or equal to 6 dB		The variation in audio level shall be as specified, relative to reference established in 12.010.			The audio level shall not vary more than the amount specified relative to the reading in test 12.010.	Less than or equal to 2 dB
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	11.000			<u>VOR BEARING ACCURACY</u> NOTE: Before this test the calibration procedure in Appendix A must be done. Apply an RF signal to P1 (VOR/LOC antenna connector) at: RF level -53 dBm, Frequency 110.00 MHz, VOR Bearing 0 degree, TO/FROM: "FROM" .	Test Setup #1 Test Setup #2 Test Setup #6		<u>VOR BEARING ACCURACY</u> NOTE: Before this test the calibration procedure in Appendix A must be done. NAV 750: Bearing: 0 1020 Hz MOD: 0% 9960 Hz MOD: 30% 30 Hz MOD: 30% TO/FROM: FROM FREQ: 110.00 MHz RF LEVLEL: -53 dBm	
	11.010	180 ± 0.80 degrees		The Controller bearing (digital) shall be as specified. Apply an RF signal with a VOR bearing signal of 180 degrees.			RTIU: Observe the VOR BRG display on the RTIU screen. The display shall be as specified. NAV 750: BRG = 180°	180 ± 0.60 degrees
	11.020	0 ± 0.80 degrees		The Controller bearing (digital) shall be as specified. Apply an RF signal with a VOR bearing signal of 210 degrees.			RTIU: Observe the VOR BRG display on the RTIU screen. The display shall be as specified. NAV 750: BRG = 210°	0 ± 0.60 degrees
	11.030	30 ± 0.80 degrees		The Controller bearing (digital) shall be as specified. Apply an RF signal with a VOR bearing signal of 270 degrees.			RTIU: Observe the VOR BRG display on the RTIU screen. The display shall be as specified. NAV 750: BRG = 270°	30 ± 0.60 degrees
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	11.040	90 ± 0.80 degrees		The Controller bearing (digital) shall be as specified.			RTIU: Observe the VOR BRG display on the RTIU screen. The display shall be as specified.	90 ± 0.60 degrees
	11.050	270 ± 0.80 degrees		Apply an RF signal with a VOR bearing signal of 90 degrees. The Controller bearing (digital) shall be as specified.			NAV 750: BRG = 90° RTIU: Observe the VOR BRG display on the RTIU screen. The display shall be as specified.	270 ± 0.60 degrees
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	
XB	12.000			<u>VOR WARNING FLAGS</u> Apply an RF signal to P1 (VOR/LOC antenna connector) at: RF level -53 dBm Frequency 110.00 MHz Bearing 180 degree, TO/FROM "FROM"	Test Setup #1 Test Setup #2 Test Setup #6		<u>VOR WARNING FLAGS</u> NAV 750: RF LEVEL:-53 dBm FREQ: 110.00 MHz BEARING: 180 TO/FROM: FROM	
	12.010	"V" out of view		The RCB VOR valid bit shall show as indicated. Remove the RF signal from the VOR/LOC antenna connector (P1). (Remove the RF cable or set the RF output level to -120 dBm.) NOTE: VOR flag circuitry has a 7-second delay.			RTIU: Observe the RTIU screen. The FLAGS shall display as specified. NAV 750: Remove the RF cable from the VOR/LOC antenna connector (P1). Wait 7 seconds.	"V" out of view.
	12.020	"V" in view		The RCB VOR valid bit shall show as indicated. Reconnect RF cable to the VOR/LOC antenna connector (P1) Apply an RF signal to P1 (VOR/LOC antenna connector) at: RF level -27 dBm 9960 Hz MOD: 0% 30 Hz MOD: 30%			RTIU: Observe the RTIU screen. The FLAGS shall display as specified. Reconnect RF cable to the VOR/LOC antenna connector (P1) NAV 750: RF LEVEL:-27 dBm 9960 Hz MOD: 0% 30 Hz MOD: 30%	"V" in view.
	12.030	"V" in view		The RCB VOR valid bit shall show as indicated.			RTIU: Observe the RTIU screen. The FLAGS shall display as specified.	"V" in view.
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	12.040	"V" in view		Apply an RF signal to P1 (VOR/LOC antenna connector) at: RF level -27 dBm 9960 Hz MOD: 30% 30 Hz MOD: 0% The RCB VOR valid bit shall show as indicated.			NAV 750: RF LEVEL:-27 dBm 9960 Hz MOD: 30% 30 Hz MOD: 0% RTIU: Observe the RTIU screen. The FLAGS shall display as specified.	"V" in view.
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
XB	13.000			RNAV VIDEO <u>(FOR -812 ONLY)</u> Apply an RF signal to P1 (VOR/LOC antenna connector) at: RF level -53 dBm Frequency 110.00 MHz Bearing 180 degrees, 30 Hz MOD: 0%. 9960 Hz MOD: 30% Measure the voltage at J1-45 (+) and J1-3 (-) [RTIU JIM3 (+) and GND (-)]	Test Setup #1 Test Setup #2 Test Setup #6		RNAV VIDEO <u>(FOR -812 ONLY)</u> NAV 750: RF LEVEL:-53 dBm FREQ: 110.00 MHz BEARING: 180 deg. 30 Hz MOD: 0% 9960 Hz MOD: 30% AUDIO ANALYZER: Connect the audio input to RTIU JIM3 (HI) and GND (LO). Set to measure 1 Vrms.		
	13.010	0.5 ± 0.2 Vrm		The voltage measured shall be as specified. Apply an RF signal P1 (VOR/LOC antenna connector) at: 30 Hz MOD: 30%. 9960 Hz MOD: 0%			The voltage measured shall be as specified. NAV 750: 30 Hz MOD: 30% 9960 Hz MOD: 0%	0.5 ± 0.15 Vrm	
	13.020	0.5 ± 0.2 Vrm		The voltage measured shall be as specified. Measure the DC component of RNAV VIDEO.	<N>		The voltage measured shall be as specified. Discrete Page	0.5 ± 0.15 Vrm	
	13.030	+5.0 ± 0.5 V dc		The DC voltage shall be as specified.			RTIU: The RNAV dc OUT on the RTIU display shall indicate as specified.	+5.0 ± 0.3 V dc	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	13.040	0.0 ± 0.5 degree		Measure the phase of the 30 Hz variable at J1-45 (+) and J1-3 (-) [RTIU JIM3 (+) and GND (-)] referenced to the 30 Hz variable from the NAV-750. DEMOM output, shall be as specified	<P>		Connect Gain/Phase Meter Channel A to NAV-750 DEMOD output and Channel B to J1M3 (HI) and GND (LO). NAV-750: 30 Hz MOD: 30% 9960 Hz MOD: 0% HP-3575A: Phase Reference: "A" Frequency Range: "1-1k" Channel A: "2 mV-20V" Channel B: "0.2 mV-2V" The reading on the GAIN /PHASE meter shall be as specified. RCB Page	0.0 ± 1.5 degrees.
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	14.000			<u>VOR BEARING CHANGE WITH RF LEVEL</u> <u>(FOR ALL DASH NO'S)</u> Apply an RF signal at: RF level -56 dBm, Bearing 180 degree, TO/FROM "FROM", Frequency 110.00 MHz, 30 Hz MOD: 30%, 9960 Hz MOD: 30%	Test Setup #1 Test Setup #2 Test Setup #6		<u>VOR BEARING CHANGE WITH RF LEVEL</u> <u>(FOR ALL DASH NO'S)</u> NAV 750: 30 Hz MOD: DETENT 9960 Hz MOD: DETENT RF LEVEL: -56 dBm FREQ: 110.00 MHz.	
	14.010	Reference		Record the VOR RCB bearing. This bearing shall be used as a reference Vary the RF level from: -93 to -6 dBm while monitoring the VOR RCB bearing.			RTIU: Observe the VOR BRG on the PC screen. Record this bearing for reference. NAV 750: RF LEVEL: -93 dBm. While monitoring the VOR BRG (PC) slowly (2 dBm/sec) increase the signal generator RF level from -93 dBm to -6 dBm). Find the maximum positive variation from the reference in 16.010. NOTE: Wait at least 10 seconds at each step before making the measurement.	Reference
	14.020	0 to +1.0 degree		Record maximum positive variation from the reference.			The maximum positive variation from 16.010 shall be as specified.	0 to + 1.0 degree
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	14.030	0 to -1.0 degree		Vary the RF level from: -93 to -6 dBm while monitoring the VOR RCB bearing. Record maximum negative variation from the reference. Tune the receiver to 110.30 MHz	<F> <A> <110.3>		NAV 750: RF LEVEL: -93 dBm. While monitoring the VOR BRG (PC) slowly (2 dBm/sec) increase the signal generator RF level from -93 dBm to -6 dBm) find the maximum negative variation from the reference in 16.010. NOTE: Wait at least 10 seconds at each step before making the measurement. The maximum negative variation from 17.010 shall be as specified. Change Frequency of Active to 110.30 MHz	0 to - 1.0 degree
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	15.000			<u>LOC FLAG SENSITIVITY</u> Apply an RF signal to P1 (VOR/LOC antenna connector). Set the signal for: Frequency: 110.30 MHz RF level: -120 dBm LOC DDM: left 0.155. Tune the receiver to 110.30 MHz. Slowly increase RF input level until the RCB LOC valid bit shows valid data.	Test Setup #1 Test Setup #2 <F> <A> <110.3>		<u>LOC FLAG SENSITIVITY</u> NAV 750: Freq.: 110.30 MHz RF LEVEL: -120 dBm LOC DDM: 0.155 Left LOC/GS Freq. Sel: LOC Change Frequency Active 110.3 NAV 750: RF LEVEL: -120 dBm. While monitoring the FLAGS (PC) slowly (2 dBm/sec) increase the signal generator RF level from -120 dBm until the "L" disappears.	
	15.010	Less than or equal to -90 dBm		The RF level shall be as specified			The RF level shall be as specified.	Less than or equal to -90 dBm
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	16.000			<u>LOC CENTERING ACCURACY</u> Apply an RF signal to P1 (VOR/LOC antenna connector). Set the signal for: Frequency: 110.30 MHz RF level: -53 dBm LOC DDM: 0	Test Setup #1 Test Setup #2 Test Setup #3		<u>LOC CENTERING ACCURACY</u> NAV 750: Freq.: 110.30 MHz RF LEVEL: -53 dBm LOC DDM: 0 LOC/GS Freq. Sel: LOC	
	16.010	0 ± 0.0026 VDC		The localizer deviation shall be as specified.			RTIU: Observe the LOC DEV (PC) reading. The reading shall be as specified.	0.000 ± 0.002 DDM
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LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	17.000			<u>LOC COURSE DEVIATION</u> Apply an RF signal to PI (VOR/LOC antenna connector). Set the signal for: Frequency: 110.30 MHz RF level: -53 dBm LOC DDM: 0.155 LEFT	Test Setup #1 Test Setup #2 Test Setup #3		<u>LOC COURSE DEVIATION</u> NAV 750: Freq.: 110.30 MHz RF LEVEL: -53 dBm LOC DDM: 0.155 LEFT LOC/GS Freq. Sel: LOC	
	17.010	-0.155 ± 0.015 DDM		Controller deviation shall be as specified. Apply a LOC DDM of 0.093 LEFT			RTIU: Observe the LOC DEV (PC). The reading shall be as specified. NAV 750: LOC DDM: 0.093 LEFT	-0.155 ± 0.011 DDM
	17.020	-0.093 ± 0.009 DDM		Controller deviation shall be as specified. Apply a LOC DDM of 0.093 RIGHT			RTIU: Observe the LOC DEV (PC). The reading shall be as specified. NAV 750: LOC DDM: 0.093 RIGHT	-0.093 ± 0.006 DDM
	17.030	0.093 ± 0.009 DDM		Controller deviation shall be as specified. Apply a LOC DDM of 0.155 RIGHT			RTIU: Observe the LOC DEV (PC). The reading shall be as specified. NAV 750: LOC DDM: 0.155 RIGHT	0.093 ± 0.006 DDM
	17.040	0.155 ± 0.015 DDM		Controller deviation shall be as specified.			RTIU: Observe the LOC DEV (PC). The reading shall be as specified.	0.155 ± 0.011 DDM
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	18.000			<u>LOC WARNING FLAGS</u> Apply an RF signal to P1 (VOR/LOC antenna connector). Set the signal for: Frequency: 110.30 MHz RF level: -105 dBm LOC DDM: 0.0	Test Setup #1 Test Setup #2 Test Setup #3		<u>LOC WARNING FLAGS</u> NAV 750: Freq.: 110.30 MHz RF LEVEL: -105 dBm LOC DDM: 0.0 LOC/GS Freq. Sel: LOC	
	18.010	"L" out-of-view		The RCB LOC valid bit shows TTL high. Remove the RF signal from the VOR/LOC antenna connector (P1).			RTIU: Observe the FLAGS (PC). The "L" shall be as specified. NAV 750: Remove antenna cable from P1.	"L" out-of-view
	18.020	"L" in-view		The RCB LOC valid bit shows TTL low. Apply an RF signal to P1 (VOR/LOC antenna connector). Set the signal for : RF LEVEL of -120 dBm, 20% 90 Hz modulation and 0% 150 Hz modulation. NOTE: During the following test the flag may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped.			RTIU: Observe the FLAGS (PC). The "L" shall be as specified. NAV 750: RF LEVEL: -120 dBm 90 Hz MOD: 20%, 150 Hz MOD: 0% (OFF) NOTE: During the following test the flag "L" may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped.	"L" in-view
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB				Vary the RF LEVEL from -120 dBm to -6 dBm while monitoring the LOC flag output.			NAV 750: Slowly (2 dBm/sec) adjust the RF LEVEL from -120 to -6 dBm while monitoring the RTIU FLAG "L" position.	
	18.030	"L" in-view		The RCB LOC valid bit shows TTL low. Apply an RF signal to P1 (VOR/LOC antenna connector). Set the signal for: RF LEVEL OF -120 dBm, 90 Hz modulation: OFF and 20% 150 Hz modulation. NOTE: During the following test the flag may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped. Vary the RF LEVEL from -120 dBm to -6 dBm while monitoring the LOC flag output.			The "L" on the FLAG position shall be as specified. NAV 750: RF LEVEL: -120 dBm 90 Hz MOD: 0% (OFF) 150 Hz MOD: 20% NOTE: During the following test the flag "L" may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped.	"L" in-view
	18.040	"L" in-view		The RCB LOC valid bit shows TTL low. Tune receiver to 109.30 MHz.	<F> <A> <109.30>		The "L" on the FLAG position shall be as specified. Change Frequency Active 109.30 MHz	"L" in-view
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS
XB	19.000			<u>GS COURSE DEVIATION</u> Apply an RF signal to P2 (Glideslope antenna connector) at: Frequency 109.30/332 MHz, RF level -56 dBm, total modulation 80%, deviation to 0.0 DDM.	Test Setup #1 Test Setup #2 Test Setup #4		<u>GS COURSE DEVIATION</u> NAV 750: Freq.: 109.30 MHz RF LEVEL: -56 dBm Total MOD: 80% DDM: 0.0 LOC/GS Freq. Sel: GS
	19.010	0.0 ± 0.006 DDM		The GS deviation shall be as specified. Change the difference in depth modulation to 0.175 DDM, 90 Hz.			RTIU: Observe the GS DEV (PC). The reading shall be as specified. NAV 750: GS DDM: 0.175 DOWN
	19.020	-0.175 ± 0.018 DDM		The GS deviation shall be as specified. Change the difference in depth modulation to 0.091 DDM, 90 Hz.			RTIU: Observe the GS DEV (PC). The reading shall be as specified. NAV 750: GS DDM: 0.091 DOWN
	19.030	-0.091 ± 0.009 DDM		The GS deviation shall be as specified. Change the difference in depth modulation to 0.091 DDM, 150 Hz.			RTIU: Observe the GS DEV (PC). The reading shall be as specified. NAV 750: GS DDM: 0.091 UP
	19.040	0.091 ± 0.009 DDM		The GS deviation shall be as specified. Change the difference in depth modulation to 0.175 DDM, 150 Hz.			RTIU: Observe the GS DEV (PC). The reading shall be as specified. NAV 750: GS DDM: 0.175 UP
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	19.050	0.175 ± 0.018 DDM		The GS deviation shall be as specified.			RTIU: Observe the GS DEV (PC). The reading shall be as specified.	0.175 ± 0.013 DDM
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	20.000			<u>GS ADJACENT CHANNEL REJECTION</u> Apply an RF signal to P2 (Glideslope antenna connector) at: Frequency 109.30/332 MHz, RF level -120 dBm. Total modulation 80%, 0.175 DDM, up. Slowly increase the RF input level until the RCB GS valid bit shows valid data.	Test Setup #1 Test Setup #2 Test Setup #4		<u>GS ADJACENT CHANNEL REJECTION</u> NAV 750: Freq.: 109.30 MHz RF LEVEL: -120 dBm Total MOD: 80% DDM: 0.175 UP LOC/GS Freq. Sel: GS NAV 750: Slowly (2dBm/sec) increase the RF LEVEL from -120 until the "G" disappears in the RTIU FLAGS position.	
	20.010	REFERENCE dBm		Record the RF level for reference. Apply an RF signal to P2 (Glideslope antenna connector) at: Freq. 111.35/332.15 MHz, RF LEVEL -120 dBm. Total modulation 80%, 0.175 DDM, up.. Slowly increase the RF input level until the RCB GS valid bit shows valid data.			Record the RF level for reference. NAV 750: Freq.: 111.35 MHz RF LEVEL: -120 dBm Total MOD: 80% DDM: 0.175 UP LOC/GS Freq. Sel: GS NAV 750: Slowly (2dBm/sec) increase the RF LEVEL from -120 until the "G" disappears in the RTIU FLAGS position.	REFERENCE dBm
	20.020	Greater than or equal to 60 dB.		The change from the reading taken in 22.010 shall be as specified.			The change in RF level from the reading in 22.010 shall be as specified.	Greater than or equal to 62 dB.
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	21.000			<u>GS RECEIVER AGC</u> Apply an RF signal to P2 (Glideslope antenna connector) at: Freq. 109.30/332 MHz, RF level -93 dBm. Total modulation 80%, 0.091 DDM (90 Hz) down. <u>NOTE:</u> Connect a distortion analyzer between J1-67 (Glideslope Composite) and J1-66 (Glideslope Composite RTN) [RTIU J2-S2 (H) and J2-R2 (L)]. If an RTIU is used no "T" connector can be on the AUDIO OUTPUT jack.	Test Setup #1 Test Setup #2 Test Setup #4		<u>GS RECEIVER AGC</u> NAV 750: Freq.: 109.30 MHz RF LEVEL: -93 dBm Total MOD: 80% DDM: 0.091 LEFT LOC/GS Freq. Sel: GS AUDIO ANALYZER: Connect the AUDIO INPUT to J1-67 (Glideslope Composite) and J1-66 (Glideslope Composite RTN) [RTIU J2-S2 (H) and J2-R2 (L)]. Set equipment to measure audio level Insure no "T" connector is on the RTIU AUDIO OUTPUT jack.	
	21.010	REFERENCE dB		Record the dB level as a reference. Slowly adjusting the RF level for -6 dBm while monitoring the distortion analyzer.			Record the dB level as a reference. NAV 750: Slowly (2dBm/sec) adjusting the RF level for -6 dBm while monitoring the distortion analyzer.	REFERENCE dB
	21.020	0 + 3.0 dB		The change in audio level shall not exceed the limits specified.			The change in audio level shall not exceed the limits specified.	0 + 2.0 dB
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	22.000			<u>GS FLAG SENSITIVITY</u> Apply an RF signal to P2 (Glideslope antenna connector) at: Freq: 109.30/332 MHz, RF level -120 dBm. Total modulation 80%, 0.175 DDM (150 Hz) up Slowly increase the RF signal level until the GS valid bit shows valid.	Test Setup #1 Test Setup #2 Test Setup #4		<u>GS FLAG SENSITIVITY</u> NAV 750: Freq.: 109.30 MHz RF LEVEL: -120 dBm Total MOD: 80% DDM: 0.175 UP NAV 750: Slowly (2dBm/sec) increase the RF level while monitoring the "G" in the RTIU FLAGS position. Increase the level until the "G" disappears.	
	22.010	Less than or equal to -99 dBm		The RF level shall be as specified. Apply an RF signal to P2 (Glideslope antenna connector) at: Freq: 108.90/329.30 MHz, RF level -120 dBm. Total Modulation 80%, 0.175 DDM (150 Hz) up. Slowly increase the RF signal level until the GS valid bit shows valid	<F> <A> <108.9>		The RF level shall be as specified. NAV 750: Freq.: 108.90 MHz RF LEVEL: -120 dBm Total MOD: 40% DDM: 0.175 UP Change Frequency Active 108.9 NAV 750: Slowly (2dBm/sec) increase the RF level while monitoring the "G" in the RTIU FLAGS position. Increase the level until the "G" disappears.	Less than or equal to -106 dBm
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	22.020	Less than or equal to -99 dBm		The RF level shall be as specified. Apply an RF signal to P2 (Glideslope antenna connector) at: Freq: 110.30/335.00 MHz, RF level -120 dBm. Total Modulation 80%, 0.175 DDM (150 Hz) up.			The RF level shall be as specified. NAV 750: Freq.: 110.30 MHz RF LEVEL: -120 dBm Total MOD: 80% DDM: 0.175 UP Change Frequency Active 110.3 NAV 750: Slowly (2dBm/sec) increase the RF level while monitoring the "G" in the RTIU FLAGS position. Increase the level until the "G" disappears.	Less than or equal to -106 dBm
	22.030	Less than or equal to -99 dBm		The RF level shall be as specified. Calculate the differences in RF threshold readings for 109.3 MHz, 108.9 MHz, and 110.3 MHz.			The RF level shall be as specified.	Less than or equal to -106 dBm
	22.040	Less than or equal to 10 dB		The maximum difference between any two channels shall be as specified. Tune the receiver to 109.30 MHz.	<F> <A> <110.3>		Calculate the differences between tests 21.010, 24.020, and 24.030. The maximum difference between any two channels shall be as specified. Change Frequency Active 109.3	Less than or equal to 5 dBm
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	23.000			<u>GS WARNING FLAGS</u> Apply an RF signal to P2 (Glideslope antenna connector) at: Freq: 109.30/332 MHz, RF level -56 dBm. Total modulation 80%, 0.175 DDM (150 Hz) up	Test Setup #1 Test Setup #2 Test Setup #4		<u>GS WARNING FLAGS</u> NAV 750: Freq.: 109.30 MHz RF LEVEL: -56 dBm TOTAL MOD: 80% DDM: 0.175 UP RTIU: Observe the FLAGS position.	
	23.010	"G" out-of-view		The GS valid bit shall indicate as specified. Remove the RF signal from the Glideslope antenna connector (P2).			The FLAGS position shall indicate as specified. NAV 750: Remove the cable the Glideslope antenna Connector (P2). RF LEVEL: -120 dBm [OFF]	"G" out-of-view
	23.020	"G" in-view		The GS valid bit shall indicate a TTL HIGH. Apply an RF signal to P2 (Glideslope antenna connector) with an RF LEVEL OF -120 dBm, 40% 90 Hz modulation and 0% 150 Hz modulation. NOTE: During the following test the flag may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped.			The FLAGS position shall indicate as specified. NAV 750: RF LEVEL: -120 dBm 90 Hz MOD: 40%, 150 Hz MOD: 0% (OFF) NOTE: During the following test the flag "G" may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped.	"G" in-view
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB				Vary the RF LEVEL from -120 dBm to -13 dBm while monitoring the GS flag output.			NAV 750: Slowly (2 dBm/sec) Vary the RF LEVEL from -120 to -13 dBm while monitoring the RTIU FLAG "G" position.	
	23.030	"G" in-view		The GS valid bit shall indicate a TTL HIGH. Apply an RF signal to P1 (Glideslope antenna connector) with an RF LEVEL OF -120 dBm, 0% 90 Hz modulation and 40% 150 Hz modulation. NOTE: During the following test the flag may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped. Vary the RF LEVEL from -120 dBm to -13 dBm while monitoring the GS flag output.			The FLAGS position shall indicate as specified. NAV 750: RF LEVEL: -120 dBm 90 Hz MOD: 0% (OFF) 150 Hz MOD: 40% NOTE: During the following test the flag "G" may momentarily go out-of-view as the RF level is increased. This is normal, but the flag must go in-to-view when the RF level adjustment has stopped. NAV 750: Slowly (2 dBm/sec) Vary the RF LEVEL from -120 to -13 dBm while monitoring the RTIU FLAG "G" position.	"G" in-view
	23.040	"G" in-view		The GS valid bit shall indicate a TTL HIGH.			The FLAGS position shall indicate as specified.	"G" in-view
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	
XB	24.000			<u>MKR HIGH SENSITIVITY</u> NOTE: The Marker Beacon High Sensitivity RF Threshold can be adjusted in an installation. The Limit specified is a factory setting. A customer is allowed to change this setting. Place the radio in High Sense mode. Apply an RF signal to P3 (MARKER antenna connector) with: Frequency: 75.00 MHz, RF level of - 70 dBm. 95% AM modulated at 400 Hz. Slowly increase the RF input until the RCB Marker Lamp indicates an "O" on the controller.	Test Setup #1 Test Setup #2 Test Setup #5 <R>		<u>MKR HIGH SENSITIVITY</u> NOTE: The Marker Beacon High Sensitivity RF Threshold can be adjusted in an installation. The Limit specified is a factory setting. A customer is allowed to change this setting. Marker Sense SIGNAL GENERATOR: RF LEVEL: -70 dBm EXT AM MOD: 95% FREQ.: 75 MHz AUDIO ANALYZER: FREQ: 400 Hz Amplitude: 1.414 VAC NOTE: Adjust the AUDIO ANALYZER output, if necessary, until the hi/low lamps on the SIGNAL GENERATOR are out. Slowly (2 dBm/sec) increase the RF level while monitoring the RTIU MARKER LAMP field. Adjust the RF level until a "O" appears. The RF level on the SIGNAL GENERATOR shall be as specified.	
	24.010	-61 ± 6 dBm		The RF level shall be as specified.			-61 ± 3 dBm	
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB				Apply an RF signal to P3 (MARKER antenna connector) with: Frequency: 75.00 MHz, RF level of - 70 dBm 95% AM modulated at 1300 Hz. Slowly increase the RF input until the RCB Marker Lamp indicates an "M" on the controller.			SIGNAL GENERATOR: RF LEVEL: -70 dBm EXT AM MOD: 95% FREQ.: 75 MHz AUDIO ANALYZER: FREQ: 1300 Hz Amplitude: 1.414 VAC NOTE: Adjust the HP 8903 voltage output, if necessary, until the hi/low lamps on the HP 8656 are out. Slowly (2 dBm/sec) increase the RF level while monitoring the RTIU MARKER LAMP field. Adjust the RF level until a "M" appears.	
	24.020	- 61 ± 6 dBm		The RF level shall be as specified. Apply an RF signal to P3 (MARKER antenna connector) with: Frequency: 75.00 MHz, RF level of - 70 dBm 95% AM modulated at 3000 Hz.			The RF level on the SIGNAL GENERATOR shall be as specified. SIGNAL GENERATOR: RF LEVEL: -70 dBm EXT AM MOD: 95% FREQ.: 75 MHz AUDIO ANALYZER: FREQ: 3000 Hz Amplitude: 1.414 VAC NOTE: Adjust the AUDIO ANALYZER voltage output, if necessary, until the hi/low lamps on the SIGNAL GENERATOR are out.	-61 ± 3 dBm
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	24.030	- 61 ± 6 dBm		Slowly increase the RF input until the RCB Marker Lamp indicates an "I" on the controller. The RF level shall be as specified. Place the radio into LOW Sense Mode	<R>		Slowly (2 dBm/sec) increase the RF level while monitoring the RTIU MARKER LAMP field. Adjust the RF level until a "I" appears. The RF level on the SIGNAL GENERATOR shall be as specified. MARKER SENSE	-61 ± 3 dBm
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	25.000			<u>MKR LOW SENSITIVITY</u> NOTE: The Marker Beacon Low Sensitivity RF Threshold can be adjusted in an installation. The limit specified is a factory setting. A customer is allowed to change this setting. Apply an RF signal to P3 (MARKER antenna connector) with: Frequency: 75.00 MHz, RF level of – 55 dBm. 95% AM modulated at 1300 Hz. Slowly increase the RF input until the RCB Marker Lamp indicates an “M” on the controller.	Test Setup #1 Test Setup #2 Test Setup #5		<u>MKR LOW SENSITIVITY</u> NOTE: The Marker Beacon Low Sensitivity RF Threshold can be adjusted in an installation. The limit specified is a factory setting. A customer is allowed to change this setting. SIGNAL GENERATOR: RF LEVEL: -55 dBm EXT AM MOD: 95% FREQ.: 75 MHz AUDIO ANALYZER: FREQ: 1300 Hz Amplitude: 1.414 VAC NOTE: Adjust the HP 8903 voltage output, if necessary, until the hi/low lamps on the HP 8656 are out. Slowly (2 dBm/sec) increase the RF level while monitoring the RTIU MARKER LAMP field. Adjust the RF level until a “M” appears.	
	25.010	- 47 ± 6 dBm		The RF level shall be as specified.			The RF level on the SIGNAL GENERATOR shall be as specified.	-47 ± 3 dBm
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	26.000			<u>MKR AUDIO OUTPUT</u> Apply an RF signal to P3 (MARKER antenna connector) with: Frequency: 75.00 MHz, RF level of - 18 dBm , 95% AM modulated at 1300 Hz.	Test Setup #1 Test Setup #2 Test Setup #5 <N> <N> <A> <2>		<u>MKR AUDIO OUTPUT</u> SIGNAL GENERATOR: RF LEVEL: -18 dBm EXT AM MOD: 95% FREQ.: 75 MHz AUDIO ANALYZER: FREQ: 1300 Hz Amplitude: 1.414 VAC NOTE: Adjust the HP 8903 voltage output, if necessary, until the hi/low lamps on the HP 8656 are out. Discrete Page Audio Page Audio A MARKER Read "AUD LEVEL" on the PC. [RTIU: J2U2] (HI) and [RTIU J2T2] (LO)]	
	26.010	6.5 ± 1.0 Vrms		Measure the audio output at J1-31 (H) and J1-30 (L) [RTIU: J2U2] (HI) and [RTIU J2T2] (LO)] The reading shall be as specified. Measure the percent of Harmonic Distortion by connecting a distortion analyzer to J1-31 (H) and J1-30 (L)			The reading shall be as specified. HP 8903: Connect the audio input terminals to the RTIU tip jacks [RTIU J2U2 (HI) and J2T2 (LO)]. Set the analyzer to measure distortion.	6.5 ± 0.75 Vrms
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	26.020	Less than or equal to 30%		The distortion shall be as specified.	<A> <1> <P> <P>		The distortion shall be as specified. Audio Select A VOR/LOC Discrete Page RCB page	Less than or equal to 20%
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	27.000			<u>MKR RF SELECTIVITY</u> Apply an RF signal to P3 (MARKER antenna connector) with: Frequency: 75.00 MHz, 95% AM modulated at 1300 Hz, RF level of - 70 dBm. Set marker sense to HIGH.	Test Setup#1 Test Setup #2 Test Setup #5 <R> <N> <N> <A> <2>		<u>MKR RF SELECTIVITY</u> SIGNAL GENERATOR: RF LEVEL: -70 dBm EXT AM MOD: 95% FREQ.: 75.00 MHz AUDIO ANALYZER: FREQ: 1300 Hz Amplitude: 1.414 VAC NOTE: Adjust the HP 8903 voltage output, if necessary, until the hi/low lamps on the HP 8656 are out. Marker Sense Discrete Page Audio Page Audio A Marker AUDIO ANALYZER: Connect the audio input terminal to the RTIU jacks [RTIU J2-U2 (HI) and J2T2 (LO)]. Set the audio analyzer to measure AC level Record the audio level as a reference.	
	27.010	Reference		Record the audio level as a reference. Apply an RF signal to P3 (MARKER antenna connector) with: RF Amplitude: 0 dBm, Frequency: 74.600 MHz, 95% modulated with a 1300 Hz signal.			Reference HP 8656: FREQ.: 74.600 MHz AMPLITUDE: 0 dBm	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB	27.020	Equal to or less than the reference voltage in step 29.010		The voltage measured at J1-31 (H) and J1-30 (L) [RTIU: J2U2] (HI) and [RTIU J2T2] (LO)] shall be as specified. Apply an RF signal to P3 (MARKER antenna connector) with: RF Amplitude: 0 dBm, Fequency: 75.400 MHz, 95% modulated with a 1300 Hz signal			The voltage shall be as specified. SIGNAL GENERATOR: FREQ.: 75.400 MHz AMPLITUDE: 0 dBm	Equal to or less than the reference voltage in step 29.010
	27.030	Equal to or less than the reference voltage in step 29.010		The voltage measured at J1-31 (H) and J1-30 (L) [RTIU: J2U2] (HI) and [RTIU J2T2] (LO)] shall be as specified. Set marker sense to LOW.	<R>		The voltage shall be as specified. Marker Sense	Equal to or less than the reference voltage in step 29.010
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	
XB	28.000			<u>ARINC BUS TEST</u> <u>RADIO ARINC 429 RX BUS</u> FREQ/FUNC SEL IN PORT 1 Set ARINC test set to transmit label 33, Data = 109.1, LOW SPEED. Send label 33, Data = 113.45, LOW SPEED to J1-36 (H) and J1-17 (L). [RTIU P1-G6 (HI) and P1-H6 (LO)].	Test Setup #1 Test Setup #2		<u>ARINC BUS TEST</u> <u>RADIO ARINC 429 RX BUS</u> FREQ/FUNC SEL IN PORT 1 <u>JcAir 429 TEST SET:</u> TX SPEED: LOW PARITY: ODD DISPLAY: ENG LABEL: 33 TX DATA: 109.1 ACTIVE: CH1 SDI: 01 Connect 429 Transmitter Output to J1-36 (H) and J1-17 (L). [RTIU P1G6 (HI) and P1H6 (LO)].	
XC								
XC	28.010	109.1		The radio frequency ACTIVE channel shall be as specified. FREQ/FUNC SEL IN PORT 2			Verify the following change to ACTIVE CHANNEL. The RTIU shall indicate as specified. FREQ/FUNC SEL IN PORT 2 <u>JcAir 429 TEST SET:</u> TX SPEED: LOW PARITY: ODD DISPLAY: ENG LABEL: 33 TX DATA: 110.1 ACTIVE: CH1 SDI: 01	109.1
XC								

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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB				Send label 33, Data = 114.55, LOW SPEED to J1-35 (H) and J1-16 (L). [RTIU P2-C3 (HI) and P2-C6 (LO)].			Connect 429 Transmitter Output to J1-35 (H) and J1-16 (L). [RTIU P2-C3 (HI) and P2-C6 (LO)].	
XC	28.020	110.1		The radio frequency ACTIVE channel shall be as specified. <u>RADIO ARINC TX BUS</u> <u>VIDL-GPS 429 OUTPORT</u> <u>(FOR -811 AND -812 ONLY)</u>			Verify the following change to ACTIVE CHANNEL. The RTIU shall indicate as specified. <u>RADIO ARINC TX BUS</u> <u>VIDL-GPS 429 OUTPORT</u> <u>(FOR -811 AND -812 ONLY)</u>	110.1
XC				Tune the receiver to 111.1 MHz.	<F> <A> <111.1>		Change Frequency Active 111.1 MHz	
XC				Measure the LOW SPEED 429 output from the radio on J1-76 (H) and J1-75 (L) [RTIU P1-Y3 (HI) and P1-X3 (LO)], with radio channeled to 111.1 MHz.			<u>JcAir 429 TEST SET:</u> Connect 429 Test Set Receiver Input to J1-76 (H) and J1-75 (L) [RTIU P1-Y3 (HI) and P1-X3 (LO)]. RX SPEED: LOW DISPLAY: ENG	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
XB XC	28.030	111.1		Verify the COM is transmitting the specified frequency on the 429 BUS Label 033. The frequency shall be as specified. <u>(FOR ALL DASH NO'S)</u> NAVCOM 429 OUTPORT			The test set shall receive the value specified on Label 033. <u>(FOR ALL DASH NO'S)</u> NAVCOM 429 OUTPORT	111.1
XC				Channel the radio to 112.1 MHz	<F> <A> <112.1>		Frequency 112.1 MHz	
XC				Measure the LOW SPEED 429 output from the radio on J1-74 (H) and J1-73 (L) [RTIU P1-Y2 (HI) and P1-X2 (LO) with radio channeled to 112.1 MHz.			<u>JcAir 429 TEST SET:</u> Connect 429 Test Set Receiver Input to J1-74 (H) and J1-73 (L) [RTIU P1-Y2 (HI) and P1-X2 (LO). RX SPEED: LOW DISPLAY: ENG	
XC	28.040	112.1		Verify the COM is transmitting the specified frequency on the 429 BUS Label 033. The frequency shall be as specified. Channel the radio to 110.0 MHz	<F> <A> <110>		The test set shall receive the value specified on Label 033. Frequency 110.0 MHz	112.1
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APPENDIX A SOFTWARE LOADING PROCEDURE						
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REV LTR	APPENDIX A SOFTWARE LOADING PROCEDURE A1. INTRODUCTION The NV-87X VOR/ILS Data Link (VIDL) has been designed so that the unit software can be programmed without disassembling the unit or unsoldering EPROM's. This includes the initial factory software load and any subsequent field updates to the software. There are four software blocks that will need to be loaded into the unit in order for it to function correctly. These software blocks are the FIRMWARE BLOCK, BOOT BLOCK, BOOT DEOS BLOCK and FLIGHT DEOS BLOCK. After the software has been loaded, software updates can be accomplished by changing any of the above listed blocks either individually or as a group. There must be some version of the Boot Block resident in the product in order to program the rest of the blocks. The Boot Block is initially loaded into the CPU/PS CCA during card level testing in the factory. A2. SETUP This section describes the test equipment needed and the required setup needed to perform software loading. A2.1 <u>Required Test Equipment</u> <table border="1"> <thead> <tr> <th>Description</th> <th>Manufacturer</th> <th>MFG Part Number/Description</th> </tr> </thead> <tbody> <tr> <td>Power Supply</td> <td></td> <td>0 to 40 V dc variable, 25 Amp, with output current and voltage meter.</td> </tr> <tr> <td>Radio Test Interface Unit (RTIU)</td> <td>Honeywell</td> <td>7511400-902</td> </tr> <tr> <td>RTIU Software</td> <td></td> <td>7512001-XYX Where X = media code as specified on drawing 7512001 and YY = 17 or greater (software version). NOTE: RTIU P/N 7511409-902 is equipped with software version 7512001-109 or higher.</td> </tr> <tr> <td>Personal Computer</td> <td></td> <td>80X86 or greater processor.</td> </tr> <tr> <td>RTIU Test Cable</td> <td>Honeywell</td> <td>T337297-9002</td> </tr> <tr> <td>ARINC 429 Test Set</td> <td>JcAir</td> <td>JcAir 429 or equivalent</td> </tr> <tr> <td>Windows 98</td> <td>Microsoft</td> <td></td> </tr> </tbody> </table>					Description	Manufacturer	MFG Part Number/Description	Power Supply		0 to 40 V dc variable, 25 Amp, with output current and voltage meter.	Radio Test Interface Unit (RTIU)	Honeywell	7511400-902	RTIU Software		7512001-XYX Where X = media code as specified on drawing 7512001 and YY = 17 or greater (software version). NOTE: RTIU P/N 7511409-902 is equipped with software version 7512001-109 or higher.	Personal Computer		80X86 or greater processor.	RTIU Test Cable	Honeywell	T337297-9002	ARINC 429 Test Set	JcAir	JcAir 429 or equivalent	Windows 98	Microsoft	
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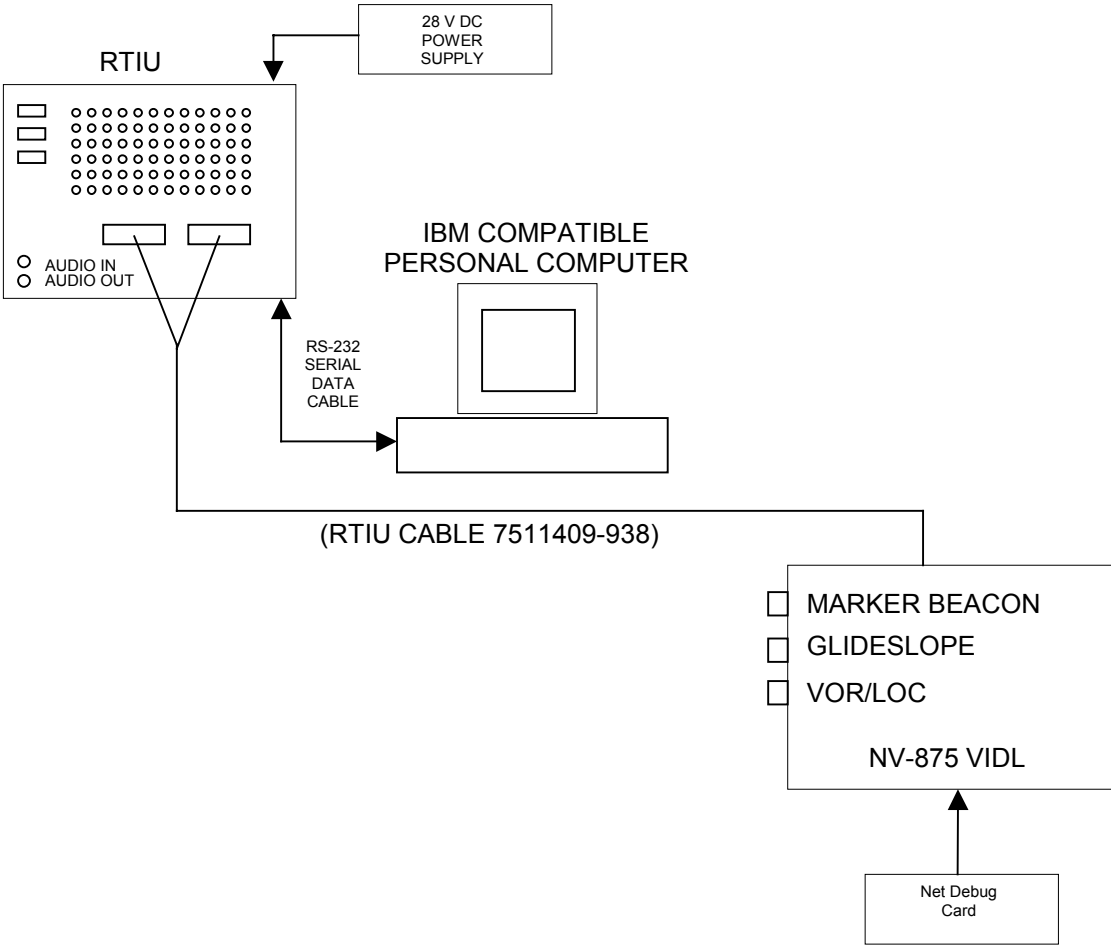
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A2.2

Programming Setup Block Diagram



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REV LTR XB	A2.3 <u>Programming Setup</u> Connect the VIDL as shown above in the Programming Setup Block Diagram. In order to program the VIDL, a net debug card must be attached to J3 of the CPU/PS CCA (P/N 7026230-902) or subsequent with switches 1 and 5 down and switches 2,3 and 4 up. Turn on the RTIU and PC main power (top switch on the RTIU) and load the RTIUMAIN program into the PC. After the RTIU has been initialized, the PRIMUS II MAIN MENU will appear on the screen. Turn on the Power Supply and verify that the voltage is set to 27.5 ± 0.5 Vdc. On the RTIU, set the MAIN POWER switch to the ON position, and the 28V dc switch to the ON position.					
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A3. PROGRAMMING PROCEDURE

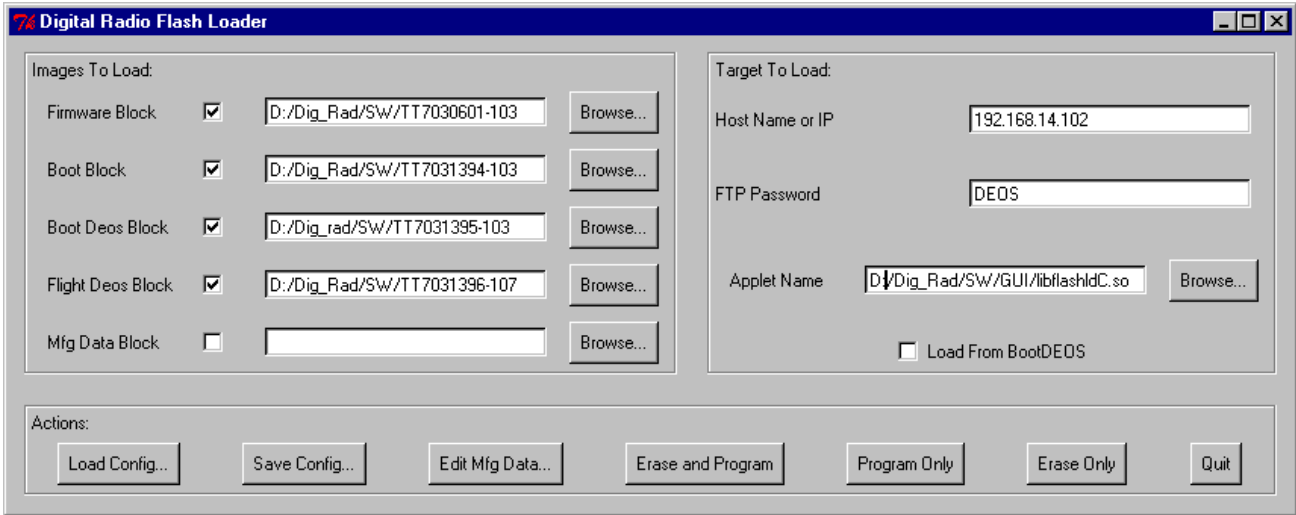
A3.1 Start the Digital Radio Flash Loader by double clicking its icon on the computer display.

A3.2 In the “Images To Load” section of the Flash Loader screen, select the appropriate files to be loaded into each of the 5 blocks. There must be some version of the Boot Block resident in the product in order to program the rest of the blocks. The Boot Block is initially loaded into the CPU/PS CCA during card level testing in the factory.

A3.3 Use the browse button to select the appropriate software blocks to load. The Module Modification vs. Software Version Table (Table 1 in section 7.1 of this IT) specifies the software part numbers that correspond to each MOD letter. This example indicates the software is stored on drive D: in directory Dig_Rad/SW

A3.4 In the “Target To Load” section of the Flash Loader screen, enter 192.168.14.102 into the “Host Name or IP” field. In the “FTP Password” field, enter DEOS. For the “Applet Name,” enter D:/Dig_Rad/SW/GUI/libflashldC.so.

A3.5 Once every thing is selected, click on the “Erase and Program” button. When the “Status” line says “Ready,” click on “QUIT”.



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REV LTR	XB	APPENDIX B CALIBRATION PROCEDURE				
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REV LTR XB	Table of Contents <table><tr><th>Title</th><th>Page</th></tr><tr><td>B1. SCOPE</td><td>B-2</td></tr><tr><td>B2. GENERAL INFORMATION</td><td>B-2</td></tr><tr><td>B3. SETUP</td><td>B-3</td></tr><tr><td>B4. TCXO CALIBRATION.....</td><td>B-7</td></tr><tr><td>B5. VOR BEARING CALIBRATION</td><td>B-8</td></tr><tr><td>B6. VOR ANALOG AUDIO CALIBRATION</td><td>B-9</td></tr><tr><td>B7. VOR DIGITAL AUDIO CALIBRATION</td><td>B-10</td></tr><tr><td>B8. LOC DIGITAL AUDIO CALIBRATION</td><td>B-11</td></tr><tr><td>B9. LOC ANALOG AUDIO CALIBRATION</td><td>B-12</td></tr><tr><td>B10. LOC CENTER CALIBRATION</td><td>B-13</td></tr><tr><td>B11. LOC FLAG CENTER CALIBRATION</td><td>B-14</td></tr><tr><td>B12. LOC POSITIVE DEVIATION CALIBRATION</td><td>B-15</td></tr><tr><td>B13. LOC FLAG POSITIVE DEVIATION CALIBRATION.....</td><td>B-16</td></tr><tr><td>B14. LOC NEGATIVE DEVIATION CALIBRATION</td><td>B-17</td></tr><tr><td>B15. LOC FLAG NEGATIVE DEVIATION CALIBRATION</td><td>B-18</td></tr><tr><td>B16. GLIDESLOPE CENTER CALIBRATION</td><td>B-19</td></tr><tr><td>B17. GLIDESLOPE FLAG CENTER CALIBRATION</td><td>B-20</td></tr><tr><td>B18. GLIDESLOPE POSITIVE DEVIATION CALIBRATION</td><td>B-21</td></tr><tr><td>B19. GLIDESLOPE FLAG POSITIVE DEVIATION CALIBRATION</td><td>B-22</td></tr><tr><td>B20. GLIDESLOPE NEGATIVE DEVIATION CALIBRATION.....</td><td>B-23</td></tr><tr><td>B21. GLIDESLOPE FLAG NEGATIVE DEVIATION CALIBRATION.....</td><td>B-24</td></tr><tr><td>B22. MARKER BEACON LOW SENSITIVITY CALIBRATION</td><td>B-25</td></tr><tr><td>B23. MARKER BEACON HIGH SENSITIVITY CALIBRATION.....</td><td>B-26</td></tr><tr><td>B24. MARKER BEACON AUDIO LEVEL CALIBRATION</td><td>B-27</td></tr></table>					Title	Page	B1. SCOPE	B-2	B2. GENERAL INFORMATION	B-2	B3. SETUP	B-3	B4. TCXO CALIBRATION.....	B-7	B5. VOR BEARING CALIBRATION	B-8	B6. VOR ANALOG AUDIO CALIBRATION	B-9	B7. VOR DIGITAL AUDIO CALIBRATION	B-10	B8. LOC DIGITAL AUDIO CALIBRATION	B-11	B9. LOC ANALOG AUDIO CALIBRATION	B-12	B10. LOC CENTER CALIBRATION	B-13	B11. LOC FLAG CENTER CALIBRATION	B-14	B12. LOC POSITIVE DEVIATION CALIBRATION	B-15	B13. LOC FLAG POSITIVE DEVIATION CALIBRATION.....	B-16	B14. LOC NEGATIVE DEVIATION CALIBRATION	B-17	B15. LOC FLAG NEGATIVE DEVIATION CALIBRATION	B-18	B16. GLIDESLOPE CENTER CALIBRATION	B-19	B17. GLIDESLOPE FLAG CENTER CALIBRATION	B-20	B18. GLIDESLOPE POSITIVE DEVIATION CALIBRATION	B-21	B19. GLIDESLOPE FLAG POSITIVE DEVIATION CALIBRATION	B-22	B20. GLIDESLOPE NEGATIVE DEVIATION CALIBRATION.....	B-23	B21. GLIDESLOPE FLAG NEGATIVE DEVIATION CALIBRATION.....	B-24	B22. MARKER BEACON LOW SENSITIVITY CALIBRATION	B-25	B23. MARKER BEACON HIGH SENSITIVITY CALIBRATION.....	B-26	B24. MARKER BEACON AUDIO LEVEL CALIBRATION	B-27
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REV LTR XB	APPENDIX B CALIBRATION PROCEDURE B1. SCOPE This Calibration Procedure establishes manufacturing requirements for the VOR/ILS Data Link (VIDL), P/N 7026202-87X. This procedure is the guideline to be followed when aligning newly manufactured VIDL's. Meeting the requirements in this procedure will ensure that the VIDL will meet all manufacturing and operational limits established in the Integrated Test Specification. This procedure must be completed before performing the Integrated Test Specification test steps. B2. GENERAL INFORMATION This alignment procedure applies only to all Primus EPIC VIDL's (P/N 7026202-87X). The alignment sequence is based on functional requirements. It is required that alignment be performed in the order given. All Receiver RF input levels are expressed in dBm. To maintain consistency between generators, a 6 dB pad must be used on the output of the RF signal generator. Therefore, throughout this test procedure, all RF output levels are expressed in dBm at the applicable antenna connector of the VIDL. The signal level at the RF Signal Generator output is 6 dB greater than the RF OUTPUT LEVEL indicated in the test steps. The RF signal generator shall have an output impedance of 50 ± 5 ohms and a reactance of not more than 5 ohms. Unless otherwise specified, all tests shall be performed with the UUT antenna jacks connected to a 50 ohm non-radiating load. Allow the test equipment a 15 minute warm-up period. The UUT requires no warm-up period. No warm-up period is required for UUT. All tests shall be performed under conditions of $25 \pm 10^{\circ}\text{C}$ and less than 90 percent relative humidity, unless otherwise specified. All input signals shall be applied between the designated terminal and ground, unless otherwise stated. All output voltages shall be measured with respect to ground, unless otherwise stated. All alphanumeric symbols bracketed by greater-than/less-than "< >" symbols will require the characters be typed, followed by "ENTER" or "Return".		
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REV LTR	B3. SETUP This section describes the test equipment needed and the required setup needed to perform the calibration steps of this procedure. B3.1 <u>Recommended Test Equipment</u> <table border="1"> <thead> <tr> <th>Description</th> <th>Manufacturer</th> <th>MFG Part Number/Description</th> </tr> </thead> <tbody> <tr> <td>Signal Generator</td> <td>IFR</td> <td>NAV-750B or equivalent</td> </tr> <tr> <td>Signal Generator</td> <td>Agilent</td> <td>HP8648 or equivalent</td> </tr> <tr> <td>Audio Analyzer</td> <td>Agilent</td> <td>HP8903 or equivalent</td> </tr> <tr> <td>Frequency Counter</td> <td>Agilent</td> <td>HP5383A or equivalent</td> </tr> <tr> <td>Oscilloscope</td> <td>Tektronix</td> <td>TDS460 or equivalent</td> </tr> <tr> <td>Power Supply</td> <td></td> <td>0 to 40 V dc variable, 25 Amp, with output current and voltage meter.</td> </tr> <tr> <td>Radio Test Interface Unit (RTIU)</td> <td>Honeywell</td> <td>7511400-902</td> </tr> <tr> <td>RTIU Software</td> <td></td> <td>7512001-XYZ Where X = media code as specified on drawing 7512001 and YY = 17 or greater (software version). NOTE: RTIU P/N 7511409-902 is equipped with software version 7512001-109 or higher.</td> </tr> <tr> <td>Personal Computer</td> <td></td> <td>80X86 or greater processor.</td> </tr> </tbody> </table>					Description	Manufacturer	MFG Part Number/Description	Signal Generator	IFR	NAV-750B or equivalent	Signal Generator	Agilent	HP8648 or equivalent	Audio Analyzer	Agilent	HP8903 or equivalent	Frequency Counter	Agilent	HP5383A or equivalent	Oscilloscope	Tektronix	TDS460 or equivalent	Power Supply		0 to 40 V dc variable, 25 Amp, with output current and voltage meter.	Radio Test Interface Unit (RTIU)	Honeywell	7511400-902	RTIU Software		7512001-XYZ Where X = media code as specified on drawing 7512001 and YY = 17 or greater (software version). NOTE: RTIU P/N 7511409-902 is equipped with software version 7512001-109 or higher.	Personal Computer		80X86 or greater processor.
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Signal Generator						IFR	NAV-750B or equivalent																												
Signal Generator						Agilent	HP8648 or equivalent																												
Audio Analyzer						Agilent	HP8903 or equivalent																												
Frequency Counter						Agilent	HP5383A or equivalent																												
Oscilloscope						Tektronix	TDS460 or equivalent																												
Power Supply							0 to 40 V dc variable, 25 Amp, with output current and voltage meter.																												
Radio Test Interface Unit (RTIU)						Honeywell	7511400-902																												
RTIU Software							7512001-XYZ Where X = media code as specified on drawing 7512001 and YY = 17 or greater (software version). NOTE: RTIU P/N 7511409-902 is equipped with software version 7512001-109 or higher.																												
Personal Computer		80X86 or greater processor.																																	
XB																																			
XC	RTIU Test Cable	Honeywell	T337297-9002																																
	Windows 98	Microsoft																																	
	Digital Radio Flash Loader Software	Honeywell																																	
	Net Debug Card	Honeywell																																	

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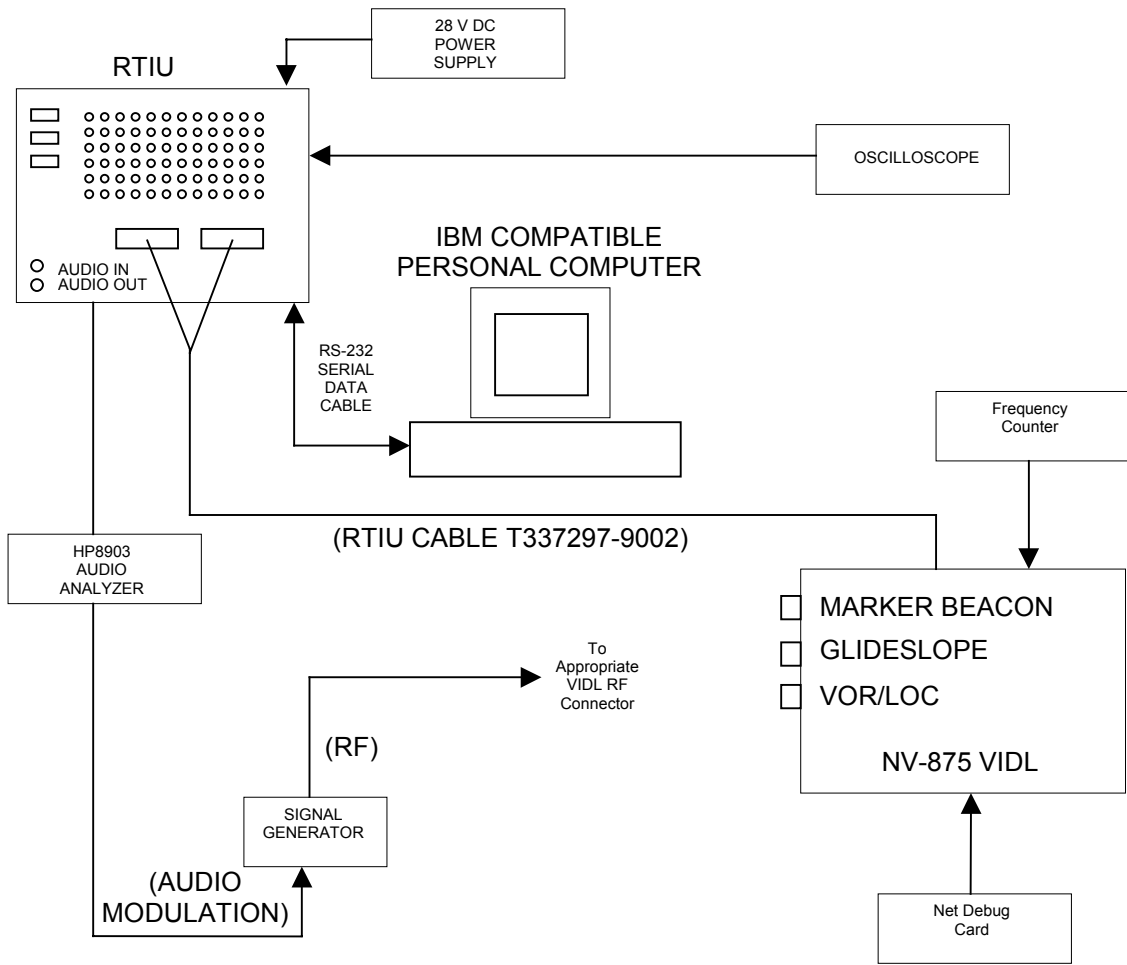
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REV LTR

XB

XC

B3.2 Calibration Setup Block Diagram



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REV LTR XB	B3.3Calibration Setup NOTE: Prior to completing the calibration steps of this appendix, the VIDL must be programmed using the procedure outlined in Appendix A (Software Loading Procedure). B3.3.1Connect the VIDL as shown above in the Calibration Setup Block Diagram. In order to calibrate the VIDL, a net debug card must be attached to J3 of the CPU/PS CCA (P/N 7026230-902) with switches 1 and 5 closed and switches 2,3 and 4 open. Turn on the RTIU and PC main power (top switch on the RTIU) and load the RTIUMAIN program into the PC. After the RTIU has been initialized, the PRIMUS II MAIN MENU will appear on the screen. Turn on the Power Supply and verify that the voltage is set to 27.5 ± 0.5 Vdc. B3.3.2On the RTIU, select the following commands: Select the NAV Module for test <10> (The first page that will appear is the NV-850 CONFIGURATION page) ELECTRICAL ZERO (OPEN) <Z> NAV ACH (OPEN) <A> SIN/COS MAX AMP (OPEN) < I > Go to the RCB/422 page <P> On the RTIU, turn on the 28V dc (28V dc switch to the ON position). After approximately 5 seconds the unit will begin communicating with the RTIU and the ERRORS message field on the RTIU RCB/ACH page should be blank. B3.3.3On the computer screen, start the TELNET software by double clicking on its icon. In the TELNET window, click on "Connect". When the Connect window drops down, click on "Remote System...". This will open up the Connect window. In the Connect window, enter the following information: Host Name: 192.168.14.102 Port: 2000 Term Type: VT100 Once this information has been entered, click "OK". This will connect the VIDL to the PC via the LAN. Once this is done, the Telnet COMMAND prompt should appear.				
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REV LTR XB					
	B3.3.4At the Telnet COMMAND prompt, configure the radio as a VIDL by typing: “s radiocapability vidl”. ENTER. Write the configuration to the FLASH by typing: “write”. ENTER. B3.3.5On the RTIU, select the following commands: CHANGE FREQUENCY<F> of ACTIVE channel<A> to 108.00 MHz<108> Set the RF Signal Generator controls as follows: RF FREQUENCY108.000 MHz RF OUTPUT LEVEL-53 dBm MODULATION60% MODULATION FREQUENCY30% 30 Hz, 30% 9960 Hz				
Honeywell		AW/CRITICAL NOTATION			
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REV LTR	B4. TCXO CALIBRATION Adujust RXTCXOLEVEL. B4.1 Remove the 28 V dc from the VIDL (RTIU +28V dc switch OFF). B4.2 Connect the Frequency Counter to TP2 on the VHF Receiver CCA using 50 ohm probe. B4.3 Turn on the 28 V dc to the VIDL (RTIU +28V dc switch ON) B4.4 Read the current TCXO value by typing: “r vdr”. Read the value for <i>RXTCXOLEVEL</i>. This is the baseline setting. B4.5 Read the TCXO Frequency Offset from the Frequency Offset Label on the VHF Receiver CCA. B4.6 Calculate the Calibrated TCXO frequency by using the equation: Calibrated TCXO frequency = 52.50000 MHz ± TCXO Frequency Offset B4.7 Re-connect the VIDL to the LAN using TELNET as described in section 3.3.3 above. B4.8 Read the TCXO frequency displayed on the frequency counter. B4.9 Adjust the TCXO frequency to the Calibrated TCXO frequency by increasing or decreasing value of RXTCXOLEVEL. To do this, type: “s rxtcxolevel XXX”. Enter “write”. Enter In order for the VIDL to accept this new value, either the active frequency must be changed or the power must be cycled. Change the active frequency and monitor the TCXO frequency displayed on the frequency counter. Repeat these steps as many times as necessary until the TCXO frequency is as close as it can get to the Calibrated TCXO frequency.				
XB					
Honeywell		AW/CRITICAL NOTATION			
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REV LTR	B5. VOR BEARING CALIBRATION Adjust VORLAGGARD. B5.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B5.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>108.000 MHz</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>60%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>30% 30 Hz, 30% 9960 Hz</td> </tr> <tr> <td>TO/FROM</td> <td>TO</td> </tr> <tr> <td>BEARING</td> <td>0 deg.</td> </tr> </table> B5.3 At the TELNET Command prompt: “r vor” Read the current <i>VORLAGGARD</i> setting. B5.4 On the RTIU RCB Page, read the VOR BEARING. B5.5 Adjust the <i>VORLAGGARD</i> until the VOR BEARING reads 0.0 degrees. “ s vorlaggard XXX” NOTE: Changing the <i>VORLAGGARD</i> by 100 will change the VOR Bearing by 1.0 degree. B5.6 Once the VOR BEARING is calibrated, write the new value of <i>VORLAGGARD</i> into the VIDLs flash memory: “write”					RF FREQUENCY	108.000 MHz	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	60%	MODULATION FREQUENCY	30% 30 Hz, 30% 9960 Hz	TO/FROM	TO	BEARING	0 deg.
RF FREQUENCY						108.000 MHz											
RF OUTPUT LEVEL	-53 dBm																
TOTAL MODULATION	60%																
MODULATION FREQUENCY	30% 30 Hz, 30% 9960 Hz																
TO/FROM	TO																
BEARING	0 deg.																
XB																	
Honeywell		AW/CRITICAL NOTATION															
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REV LTR	B6. VOR ANALOG AUDIO CALIBRATION Adjust VORAUDIOLEVEL. B6.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B6.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>108.000 MHz</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>30%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>30% 1020 Hz</td> </tr> </table> B6.3 Connect the Audio Analyzer input and the Oscilloscope input to the VOR/LOC Analog Audio output (RTIU J2-L5 (H) and J2-V2 (L)). Set the Audio Analyzer to measure AC Level. B6.4 At the TELNET Command prompt: “r vor” Read the current <i>VORAUDIOLEVEL</i> setting. B6.5 Adjust the <i>VORAUDIOLEVEL</i> until the Audio Analyzer reads 5.5 ± 0.1 Vac. “ s voraudiolevel XXX” NOTE: Changing the <i>VORAUDIOLEVEL</i> by 100 will change the VOR Analog Audio output by approximately 0.25 V. B6.6 Once the VOR Analog Audio output is calibrated, write the new value of <i>VORAUDIOLEVEL</i> into the VIDLs flash memory: “write”					RF FREQUENCY	108.000 MHz	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	30%	MODULATION FREQUENCY	30% 1020 Hz
RF FREQUENCY						108.000 MHz							
RF OUTPUT LEVEL	-53 dBm												
TOTAL MODULATION	30%												
MODULATION FREQUENCY	30% 1020 Hz												
XB													
Honeywell		AW/CRITICAL NOTATION											
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REV LTR XB	B7. VOR DIGITAL AUDIO CALIBRATION Adjust <i>VORNIMAUDIOLEVEL</i>. B7.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B7.2 Set the RF Signal Generator controls as follows: RF FREQUENCY108.000 MHz RF OUTPUT LEVEL-53 dBm TOTAL MODULATION30% MODULATION FREQUENCY30% 1020 Hz B7.3 Connect the Audio Analyzer input and the Oscilloscope input to the VOR/LOC Digital Audio output (RTIU J2-V5 (H) and J2-U5 (L)). Set the Audio Analyzer to measure AC Level. B7.4 At the TELNET Command prompt: “r vor” Read the current <i>VORNIMAUDIOLEVEL</i> setting. B7.5 Adjust the <i>VORNIMAUDIOLEVEL</i> until the Audio Analyzer reads 1.1 ± 0.1 Vac. “ s vornimaudiolevel XXX” B7.6 Once the VOR Digital Audio output is calibrated, write the new value of <i>VORNIMAUDIOLEVEL</i> into the VIDLs flash memory: “write”					
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REV LTR	B8. LOC DIGITAL AUDIO CALIBRATION Adjust <i>LOCAUDIONIM</i>. B8.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B8.2 On the RTIU, select the following commands: CHANGE FREQUENCY <F> of ACTIVE channel <A> to 108.10 MHz <108.1> B8.3 Set the RF Signal Generator controls as follows: RF FREQUENCY 108.100 MHz RF OUTPUT LEVEL -53 dBm TOTAL MODULATION 30% MODULATION FREQUENCY 30% 1020 Hz LOC/GS LOC B8.4 Connect the Audio Analyzer input and the Oscilloscope input to the VOR/LOC Digital Audio output (RTIU J2-V5 (H) and J2-U5 (L)). Set the Audio Analyzer to measure AC Level. B8.5 At the TELNET Command prompt: “r ils” Read the current <i>LOCAUDIONIM</i> setting. B8.6 Adjust the <i>LOCAUDIONIM</i> until the Audio Analyzer reads 1.1 ± 0.1 Vac. “ s locaudionim XXX” B8.7 Once the LOC Digital Audio output is calibrated, write the new value of <i>LOCAUDIONIM</i> into the VIDLs flash memory: “write”				
XB					
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REV LTR XB	B9. LOC ANALOG AUDIO CALIBRATION Adjust LOCAUDIOPHONE. B9.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B9.2 Set the RF Signal Generator controls as follows: RF FREQUENCY108.100 MHz RF OUTPUT LEVEL-53 dBm TOTAL MODULATION30% MODULATION FREQUENCY30% 1020 Hz B9.3 Connect the Audio Analyzer input and the Oscilloscope input to the VOR/LOC Digital Audio output (RTIU J2-L5 (H) and J2-V2 (L)). Set the Audio Analyzer to measure AC Level. B9.4 At the TELNET Command prompt: “r ils” Read the current LOCAUDIOPHONE setting. B9.5 Adjust the LOCAUDIOPHONE until the Audio Analyzer reads 5.5 ± 0.1 Vac. “s locaudiophone XXX” NOTE: Changing the LOCAUDIOPHONE by 100 will change the LOC Analog Audio output by approximately 0.25 V. B9.6 Once the LOC Analog Audio output is calibrated, write the new value of LOCAUDIOPHONE into the VIDLs flash memory: “write”					
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			CAGE CODE 55939		REV LTR											
	SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.															
REV LTR XB	B10 LOC CENTER CALIBRATION Adjust <i>LOCZEROCAL</i>. B10.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B10.2 Set the RF Signal Generator controls as follows: <table> <tr> <td>RF FREQUENCY</td> <td>108.100 MHz</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>40%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>20% 90 Hz, 20% 150 Hz</td> </tr> <tr> <td>DDM</td> <td>0 ddm</td> </tr> <tr> <td>LOC/GS</td> <td>LOC</td> </tr> </table> B10.3 At the TELNET Command prompt: “r ils” Read the current <i>LOCZEROCAL</i> setting. B10.4 On the RTIU RCB Page, read the LOC DEVIATION. B10.5 On the Telnet window, read and record the value of <i>LOC90RAWDM</i> and <i>LOC150RAWDM</i>. B10.6 Calculate the value for <i>LOCZEROCAL</i> using the following equation: <i>LOCZEROCAL</i> = <i>LOC90RAWDM</i> - <i>LOC150RAWDM</i> B10.7 Enter the calculated for <i>LOCZEROCAL</i> at the Telnet Command Prompt: “ s loczerocal XXX” B10.8 Verify that the LOC DEVIATION on the RTIU RCB Page is 0.000 ± 0.0015 ddm. B10.9 Once the LOC Centering is calibrated, write the new value of <i>LOCZEROCAL</i> into the VIDLs flash memory: “write”				RF FREQUENCY	108.100 MHz	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	40%	MODULATION FREQUENCY	20% 90 Hz, 20% 150 Hz	DDM	0 ddm	LOC/GS	LOC
	RF FREQUENCY	108.100 MHz														
RF OUTPUT LEVEL	-53 dBm															
TOTAL MODULATION	40%															
MODULATION FREQUENCY	20% 90 Hz, 20% 150 Hz															
DDM	0 ddm															
LOC/GS	LOC															
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	AW/CRITICAL NOTATION															
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REV LTR	B11. LOC FLAG CENTER CALIBRATION Adjust <i>LOCFLAGZEROCAL</i>. B11.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B11.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>108.100 MHz</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>24%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>12% 90 Hz, 12% 150 Hz</td> </tr> <tr> <td>DDM</td> <td>0 ddm</td> </tr> <tr> <td>LOC/GS</td> <td>LOC</td> </tr> </table> B11.3 At the TELNET Command prompt: “r ils” Read the current <i>LOCFLAGZEROCAL</i> setting. B11.4 On the Telnet window, read and record the value of <i>LOC90RAWDM</i> and <i>LOC150RAWDM</i>. B11.5 Calculate the value for <i>LOCFLAGZEROCAL</i> using the following equation: <i>LOCFLAGZEROCAL</i> = <i>LOC90RAWDM</i> + <i>LOC150RAWDM</i> - 2400 B11.6 Enter the calculated for <i>LOCFLAGZEROCAL</i> at the Telnet Command Prompt: “ s locflagzerocal XXX” B11.7 Once the LOC Centering is calibrated, write the new value of <i>LOCFLAGZEROCAL</i> into the VIDLs flash memory: “write”					RF FREQUENCY	108.100 MHz	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	24%	MODULATION FREQUENCY	12% 90 Hz, 12% 150 Hz	DDM	0 ddm	LOC/GS	LOC
RF FREQUENCY						108.100 MHz											
RF OUTPUT LEVEL	-53 dBm																
TOTAL MODULATION	24%																
MODULATION FREQUENCY	12% 90 Hz, 12% 150 Hz																
DDM	0 ddm																
LOC/GS	LOC																
XB																	
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REV LTR	B12. LOC POSITIVE DEVIATION CALIBRATION Adjust <i>LOCPOSCAL</i>. B12.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B12.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>108.100 MHz</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>40%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>24.65% 90 Hz, 15.35% 150 Hz</td> </tr> <tr> <td>DDM</td> <td>0.093 ddm</td> </tr> <tr> <td>LEFT/RIGHT</td> <td>RIGHT</td> </tr> <tr> <td>LOC/GS</td> <td>LOC</td> </tr> </table> B12.3 At the TELNET Command prompt: “r ils” Read the current <i>LOCPOSCAL</i> setting. B12.4 On the RTIU RCB Page, read the LOC DEVIATION. B12.5 On the Telnet window, read and record the value of <i>LOC90RAWDM</i> and <i>LOC150RAWDM</i>. B12.6 Calculate the value for <i>LOCPOSCAL</i> using the following equation: $LOCPOSCAL = (0.093) / (LOC90RAWDM - LOC150RAWDM - LOCZEROCAL)$ B12.7 Enter the calculated for <i>LOCPOSCAL</i> at the Telnet Command Prompt: “ s locposcal XXX” B12.8 Verify that the LOC DEVIATION on the RTIU RCB Page is 0.093 ± 0.002 ddm. B12.9 Once the LOC Positive Deviation is calibrated, write the new value of <i>LOCPOSCAL</i> into the VIDLs flash memory: “write”					RF FREQUENCY	108.100 MHz	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	40%	MODULATION FREQUENCY	24.65% 90 Hz, 15.35% 150 Hz	DDM	0.093 ddm	LEFT/RIGHT	RIGHT	LOC/GS	LOC
RF FREQUENCY						108.100 MHz													
RF OUTPUT LEVEL	-53 dBm																		
TOTAL MODULATION	40%																		
MODULATION FREQUENCY	24.65% 90 Hz, 15.35% 150 Hz																		
DDM	0.093 ddm																		
LEFT/RIGHT	RIGHT																		
LOC/GS	LOC																		
XB																			
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REV LTR XB	B13. LOC FLAG POSITIVE DEVIATION CALIBRATION Adjust <i>LOCFLAGPOSCAL</i>. B13.1 Enter the 0.0001 for <i>LOCFLAGPOSCAL</i> at the Telnet Command Prompt: “ s locflagposcal 0.0001” B13.2 Once the LOC Flag Positive Deviation is calibrated, write the new value of <i>LOCFLAGPOSCAL</i> into the VIDLs flash memory: “write”					
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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.																			
REV LTR	B14. LOC NEGATIVE DEVIATION CALIBRATION Adjust <i>LOCNEGCAL</i>. B14.1 Connect the RF Signal Generator to the VOR/LOC antenna connector. B14.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>108.100 MHz</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>MODULATION</td> <td>40%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>15.35% 90 Hz, 24.65% 150 Hz</td> </tr> <tr> <td>DDM</td> <td>0.093 ddm</td> </tr> <tr> <td>LEFT/RIGHT</td> <td>LEFT</td> </tr> <tr> <td>LOC/GS</td> <td>LOC</td> </tr> </table> B14.3 At the TELNET Command prompt: “r ils” Read the current <i>LOCNEGCAL</i> setting. B14.4 On the RTIU RCB Page, read the LOC DEVIATION. B14.5 On the Telnet window, read and record the value of <i>LOC90RAWDM</i> and <i>LOC150RAWDM</i>. B14.6 Calculate the value for <i>LOCNEGCAL</i> using the following equation: $LOCNEGCAL = (-0.093) / (LOC90RAWDM - LOC150RAWDM - LOCZEROCAL)$ B14.7 Enter the calculated for <i>LOCNEGCAL</i> at the Telnet Command Prompt: “s locnegcal XXX” B14.8 Verify that the LOC DEVIATION on the RTIU RCB Page is -0.093 ± 0.002 ddm. B14.9 Once the LOC Negative Deviation is calibrated, write the new value of <i>LOCNEGCAL</i> into the VIDLs flash memory: “write”					RF FREQUENCY	108.100 MHz	RF OUTPUT LEVEL	-53 dBm	MODULATION	40%	MODULATION FREQUENCY	15.35% 90 Hz, 24.65% 150 Hz	DDM	0.093 ddm	LEFT/RIGHT	LEFT	LOC/GS	LOC
RF FREQUENCY						108.100 MHz													
RF OUTPUT LEVEL	-53 dBm																		
MODULATION	40%																		
MODULATION FREQUENCY	15.35% 90 Hz, 24.65% 150 Hz																		
DDM	0.093 ddm																		
LEFT/RIGHT	LEFT																		
LOC/GS	LOC																		
XB																			
Honeywell		AW/CRITICAL NOTATION																	
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REV LTR XB	B15. LOC FLAG NEGATIVE DEVIATION CALIBRATION Adjust <i>LOCFLAGNEGCAL</i>. B15.1 Enter the 0.0001 for <i>LOCFLAGNEGCAL</i> at the Telnet Command Prompt: “ s locflagnegcal 0.0001” B15.2 Once the LOC Flag Negative Deviation is calibrated, write the new value of <i>LOCFLAGNEGCAL</i> into the VIDLs flash memory: “write”					
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REV LTR XB	B16. GLIDESLOPE CENTER CALIBRATION Adjust GSCZEROCAL. B16.1 Connect the RF Signal Generator to the Glideslope antenna connector. B16.2 On the RTIU, select the following commands: CHANGE FREQUENCY <F> of ACTIVE channel <A> to 109.30 MHz <109.3> B16.3 Set the RF Signal Generator controls as follows: RF FREQUENCY 109.3 MHz ILS Pair (332.00 MHz) RF OUTPUT LEVEL -53 dBm TOTAL MODULATION 80% MODULATION FREQUENCY 40% 90 Hz, 40% 150 Hz DDM 0 ddm LOC/GS GS B16.4 At the TELNET Command prompt: “r ils” Read the current GSZEROCAL setting. B16.5 On the RTIU RCB Page, read the GS DEVIATION. B16.6 On the Telnet window, read and record the value of GS90RAWDM and GS150RAWDM. B16.7 Calculate the value for GSZEROCAL using the following equation: GSZEROCAL = GS150RAWDM – GS90RAWDM B16.8 Enter the calculated for GSZEROCAL at the Telnet Command Prompt: “ s gszerocal XXX” B16.9 Verify that the GS DEVIATION on the RTIU RCB Page is 0.000 ± 0.0015 ddm. B16.10 Once the Glideslope Centering is calibrated, write the new value of GSZEROCAL into the VIDLs flash memory: “write”				
Honeywell		AW/CRITICAL NOTATION			
		SECURITY NOTATION	SUPPLEMENTS	B-19 PAGE	

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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.																	
REV LTR	B17. GLIDESLOPE FLAG CENTER CALIBRATION Adjust <i>GSFLAGZEROCAL</i>. B17.1 Connect the RF Signal Generator to the Glideslope antenna connector. B17.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>109.3 MHz ILS Pair (332.00 MHz)</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>47%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>23.5% 90 Hz, 23.5% 150 Hz</td> </tr> <tr> <td>DDM</td> <td>0 ddm</td> </tr> <tr> <td>LOC/GS</td> <td>GS</td> </tr> </table> B17.3 At the TELNET Command prompt: “r ils” Read the current <i>GSFLAGZEROCAL</i> setting. B17.4 On the Telnet window, read and record the value of <i>GS90RAWDM</i> and <i>GS150RAWDM</i>. B17.5 Calculate the value for <i>GSFLAGZEROCAL</i> using the following equation: $GSFLAGZEROCAL = GS150RAWDM + GS90RAWDM - 4700$ B17.6 Enter the calculated for <i>GSFLAGZEROCAL</i> at the Telnet Command Prompt: “ s gsflagzerocal XXX” B17.7 Once the Glideslope Flag Centering is calibrated, write the new value of <i>GSFLAGZEROCAL</i> into the VIDLs flash memory: “write”					RF FREQUENCY	109.3 MHz ILS Pair (332.00 MHz)	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	47%	MODULATION FREQUENCY	23.5% 90 Hz, 23.5% 150 Hz	DDM	0 ddm	LOC/GS	GS
RF FREQUENCY						109.3 MHz ILS Pair (332.00 MHz)											
RF OUTPUT LEVEL	-53 dBm																
TOTAL MODULATION	47%																
MODULATION FREQUENCY	23.5% 90 Hz, 23.5% 150 Hz																
DDM	0 ddm																
LOC/GS	GS																
XB																	
Honeywell		AW/CRITICAL NOTATION															
		SECURITY NOTATION	SUPPLEMENTS		B-20 PAGE												

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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.																			
REV LTR	B18. GLIDESLOPE POSITIVE DEVIATION CALIBRATION Adjust <i>GSPOSCAL</i>. B18.1 Connect the RF Signal Generator to the Glideslope antenna connector. B18.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>109.3 MHz ILS Pair (332.00 MHz)</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>80%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>35.45% 90 Hz, 44.55% 150 Hz</td> </tr> <tr> <td>DDM</td> <td>0.091 ddm</td> </tr> <tr> <td>UP/DOWN</td> <td>UP</td> </tr> <tr> <td>LOC/GS</td> <td>GS</td> </tr> </table> B18.3 At the TELNET Command prompt: “r ils” Read the current <i>GSPOSCAL</i> setting. B18.4 On the RTIU RCB Page, read the GS DEVIATION. B18.5 On the Telnet window, read and record the value of <i>GS90RAWDM</i> and <i>GS150RAWDM</i>. B18.6 Calculate the value for <i>GSPOSCAL</i> using the following equation: $GSPOSCAL = (0.091) / (GS150RAWDM - GS90RAWDM - GSZEROCAL)$ B18.7 Enter the calculated for <i>GSPOSCAL</i> at the Telnet Command Prompt: “ s gsposcal XXX” B18.8 Verify that the GS DEVIATION on the RTIU RCB Page is 0.091 ± 0.002 ddm. B18.9 Once the Glideslope Positive Deviation is calibrated, write the new value of <i>GSPOSCAL</i> into the VIDLs flash memory: “write”					RF FREQUENCY	109.3 MHz ILS Pair (332.00 MHz)	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	80%	MODULATION FREQUENCY	35.45% 90 Hz, 44.55% 150 Hz	DDM	0.091 ddm	UP/DOWN	UP	LOC/GS	GS
RF FREQUENCY						109.3 MHz ILS Pair (332.00 MHz)													
RF OUTPUT LEVEL	-53 dBm																		
TOTAL MODULATION	80%																		
MODULATION FREQUENCY	35.45% 90 Hz, 44.55% 150 Hz																		
DDM	0.091 ddm																		
UP/DOWN	UP																		
LOC/GS	GS																		
XB																			
Honeywell		AW/CRITICAL NOTATION																	
		SECURITY NOTATION	SUPPLEMENTS		B-21 PAGE														

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				CAGE CODE 55939		
		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV LTR XB	B19. GLIDESLOPE FLAG POSITIVE DEVIATION CALIBRATION Adjust <i>GSFLAGPOSCAL</i>. B19.1 Enter the 0.0001 for <i>GSFLAGPOSCAL</i> at the Telnet Command Prompt: “ s gsflagposcal 0.0001” B19.2 Once the Glideslope Flag Positive Deviation is calibrated, write the new value of <i>GSFLAGPOSCAL</i> into the VIDLs flash memory: “write”					
Honeywell		AW/CRITICAL NOTATION				
		SECURITY NOTATION		SUPPLEMENTS		B-22 PAGE

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		CAGE CODE	55939		REV LTR													
	SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.																	
REV LTR XB	B20. GLIDESLOPE NEGATIVE DEVIATION CALIBRATION Adjust <i>GSNEGCAL</i>. B20.1 Connect the RF Signal Generator to the Glideslope antenna connector. B20.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>109.3 MHz ILS Pair (332.00 MHz)</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-53 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>80%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>44.55% 90 Hz, 35.45% 150 Hz</td> </tr> <tr> <td>DDM</td> <td>0.091 ddm</td> </tr> <tr> <td>UP/DOWN</td> <td>DOWN</td> </tr> <tr> <td>LOC/GS</td> <td>GS</td> </tr> </table> B20.3 At the TELNET Command prompt: “r ils” Read the current <i>GSNEGCAL</i> setting. B20.4 On the RTIU RCB Page, read the GS DEVIATION. B20.5 On the Telnet window, read and record the value of <i>GS90RAWDM</i> and <i>GS150RAWDM</i>. B20.6 Calculate the value for <i>GSNEGCAL</i> using the following equation: $GSNEGCAL = (-0.091) / (GS150RAWDM - GS90RAWDM - GSZEROCAL)$ B20.7 Enter the calculated for <i>GSNEGCAL</i> at the Telnet Command Prompt: “ s gsnegcal XXX” B20.8 Verify that the Glideslope DEVIATION on the RTIU RCB Page is -0.091 ± 0.002 ddm. B20.9 Once the Glideslope Negative Deviation is calibrated, write the new value of <i>GSNEGCAL</i> into the VIDLs flash memory: “write”				RF FREQUENCY	109.3 MHz ILS Pair (332.00 MHz)	RF OUTPUT LEVEL	-53 dBm	TOTAL MODULATION	80%	MODULATION FREQUENCY	44.55% 90 Hz, 35.45% 150 Hz	DDM	0.091 ddm	UP/DOWN	DOWN	LOC/GS	GS
RF FREQUENCY	109.3 MHz ILS Pair (332.00 MHz)																	
RF OUTPUT LEVEL	-53 dBm																	
TOTAL MODULATION	80%																	
MODULATION FREQUENCY	44.55% 90 Hz, 35.45% 150 Hz																	
DDM	0.091 ddm																	
UP/DOWN	DOWN																	
LOC/GS	GS																	
Honeywell	AW/CRITICAL NOTATION																	
	SECURITY NOTATION	SUPPLEMENTS		B-23 PAGE														

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		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV LTR XB	B21. GLIDESLOPE FLAG NEGATIVE DEVIATION CALIBRATION Adjust <i>GSFLAGNEGCAL</i>. B21.1 Enter the 0.0001 for <i>GSFLAGNEGCAL</i> at the Telnet Command Prompt: “ s gsflagnegcal 0.0001” B21.2 Once the Glideslope Flag Negative Deviation is calibrated, write the new value of <i>GSFLAGNEGCAL</i> into the VIDLs flash memory: “write”					
Honeywell		AW/CRITICAL NOTATION				
		SECURITY NOTATION		SUPPLEMENTS	B-24 PAGE	

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		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV LTR XB	B22. MARKER BEACON LOW SENSITIVITY CALIBRATION Adjust <i>MKRLOTHRESHOLD</i>. B22.1 Connect the RF Signal Generator to the Marker Beacon antenna connector. B22.2 On the RTIU, select the following commands: If necessary to ensure that Marker Sense is set to LOW MARKER SENSE <R> B22.3 Set the RF Signal Generator controls as follows: RF FREQUENCY 75.00 MHz RF OUTPUT LEVEL -47 dBm TOTAL MODULATION 95% MODULATION FREQUENCY 1300 Hz (Middle Marker) B22.4 Set the Marker LOW Sense threshold value to 0. At the TELNET Command prompt: “s markerlothreshold 0” B22.5 At the TELNET Command prompt: “r marker” B22.6 In the TELNET window, read the value of <i>MARKERGAIN</i>. Enter the value from <i>MARKERGAIN</i> for <i>MARKERLOTHRESHOLD</i> at the Telnet Command Prompt: “ s markerlothreshold (value from <i>MARKERGAIN</i>)” B22.7 Set the RF Signal Generator controls as follows: RF FREQUENCY 75.00 MHz RF OUTPUT LEVEL -55 dBm TOTAL MODULATION 95% MODULATION FREQUENCY 1300 Hz (Middle Marker) B22.8 Slowly increase the RF Output Level until an M appears in the MKR LAMP field of the RTIU RCB page. Verify that the M appears at an RF level of -47 ± 1.5 dBm. B22.9 Once the Marker Beacon LOW threshold is calibrated, write the new value of <i>MKRLOTHRESHOLD</i> into the VIDLs flash memory: “write”					
Honeywell		AW/CRITICAL NOTATION				
		SECURITY NOTATION		SUPPLEMENTS		B-25 PAGE

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		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV LTR XB	B23. MARKER BEACON HIGH SENSITIVITY CALIBRATION Adjust MKRHITHRESHOLD. B23.1 Connect the RF Signal Generator to the Marker Beacon antenna connector. B23.2 On the RTIU, select the following commands: Change the Marker Sense to HIGH MARKER SENSE <R> B23.3 Set the RF Signal Generator controls as follows: RF FREQUENCY 75.00 MHz RF OUTPUT LEVEL -61 dBm TOTAL MODULATION 95% MODULATION FREQUENCY 1300 Hz (Middle Marker) B23.4 Set the Marker HIGH Sense threshold value to 0. At the TELNET Command prompt: “s markerhithreshold 0” B23.5 At the TELNET Command prompt: “r marker” B23.6 In the TELNET window, read the value of MARKERGAIN. Enter the value from MARKERGAIN for MARKERHITHRESHOLD at the Telnet Command Prompt: “ s markerhithreshold (value from MARKERGAIN)” B23.7 Set the RF Signal Generator controls as follows: RF FREQUENCY 75.00 MHz RF OUTPUT LEVEL -70 dBm TOTAL MODULATION 95% MODULATION FREQUENCY 1300 Hz (Middle Marker) B23.8 Slowly increase the RF Output Level until an M appears in the MKR LAMP field of the RTIU RCB page. Verify that the M appears at an RF level of −61 ± 1.5 dBm. B23.9 Once the Marker Beacon HIGH threshold is calibrated, write the new value of MKRHITHRESHOLD into the VIDLs flash memory: “write”					
Honeywell		AW/CRITICAL NOTATION				B-26 PAGE
		SECURITY NOTATION		SUPPLEMENTS		

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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.													
REV LTR	B24. MARKER BEACON AUDIO LEVEL CALIBRATION Adjust <i>MKRAUDIOLEVEL</i>. B24.1 Connect the RF Signal Generator to the Marker Beacon antenna connector. B24.2 Set the RF Signal Generator controls as follows: <table border="0"> <tr> <td>RF FREQUENCY</td> <td>75.00 MHz</td> </tr> <tr> <td>RF OUTPUT LEVEL</td> <td>-30 dBm</td> </tr> <tr> <td>TOTAL MODULATION</td> <td>95%</td> </tr> <tr> <td>MODULATION FREQUENCY</td> <td>1300 Hz (Middle Marker)</td> </tr> </table> B24.3 Connect the Audio Analyzer input and the Oscilloscope input to the MARKER Audio output (RTIU J2-U2 (H) and J2-T2 (L)). Set the Audio Analyzer to measure AC Level. B24.4 At the TELNET Command prompt: “r marker” Read the current <i>MARKERAUDIOLEVEL</i> setting. B24.5 Adjust the <i>MARKERAUDIOLEVEL</i> until the Audio Analyzer reads 6.5 ± 0.1 Vac. “ s markeraudiolevel XXX” B24.6 Once the MARKER Audio output is calibrated, write the new value of <i>MARKERAUDIOLEVLE</i> into the VIDLs flash memory: “write” B24.7 Turn off the 28 Vdc to the unit and disconnect from the RTIU Cable and Net Debug card.					RF FREQUENCY	75.00 MHz	RF OUTPUT LEVEL	-30 dBm	TOTAL MODULATION	95%	MODULATION FREQUENCY	1300 Hz (Middle Marker)
RF FREQUENCY						75.00 MHz							
RF OUTPUT LEVEL	-30 dBm												
TOTAL MODULATION	95%												
MODULATION FREQUENCY	1300 Hz (Middle Marker)												
XB													
Honeywell		AW/CRITICAL NOTATION											
		SECURITY NOTATION	SUPPLEMENTS	B-27 PAGE									

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		REV LTR				
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REV LTR XB		APPENDIX C QUALITY CONTROL FUNCTIONAL TEST REPORT				
Honeywell		AW/CRITICAL NOTATION				
		SECURITY NOTATION		SUPPLEMENTS		C-0 PAGE

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REV LTR XB	QUALITY CONTROL FUNCTIONAL TEST REPORT						
	PART NO. 7026202			SERIAL			
	TEST FIXTURES AND SUPPORT EQUIPMENT						
	TEST FIXTURE OR TYPE	SERIAL	MODEL	SPC/ID	REV	CAL DUE DATE	
	RTIU						
	RTIU SOFTWARE						
	PC						
	OSCILLOSCOPE						
	AUDIO ANALYZER						
	SIGNAL GENERATOR						
	DVM						
	GAIN/PHASE METER						
	POWER SUPPLY						
	P/N 7026202		REV.	C.O.		DATE	
	IT NO. 7026202		REV.	C.O.		DATE	
	APPROVED						
	TESTER			DATE		FTR SHEET 1 OF 3	
Honeywell		AW/CRITICAL NOTATION					
		SECURITY NOTATION		SUPPLEMENTS		C-1 PAGE	

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REV LTR XB	QUALITY CONTROL FUNCTIONAL TEST REPORT <table><tr><td colspan="4">PART NO. 7026202</td><td colspan="4">SERIAL NO.</td></tr><tr><td colspan="4">1.000 POWER ON CURRENT TEST</td><td colspan="4">8.000 VOR RECEIVER SENSITIVITY</td></tr><tr><td colspan="4">1.010</td><td colspan="4">8.010 REF LVL</td></tr><tr><td colspan="4"></td><td colspan="4">8.020 dB</td></tr><tr><td colspan="4"></td><td colspan="4">8.030 REF LVL</td></tr><tr><td colspan="4"></td><td colspan="4">8.040 dB</td></tr><tr><td colspan="4">2.000 PILOT ACTIVATED SELF TEST (PAST)</td><td colspan="4">8.050 REF LVL</td></tr><tr><td colspan="4">2.010 DATA</td><td colspan="4">8.060 dB</td></tr><tr><td colspan="4"></td><td colspan="4"></td></tr><tr><td colspan="4">3.000 BENCH PAGE, SOFTWARE VERSION & ON/OFF</td><td colspan="4">9.000 VOR FLAG SENSITIVITY</td></tr><tr><td colspan="4">3.010 DEG. C</td><td colspan="4">9.010 dBm</td></tr><tr><td colspan="4">3.020 SFT VER</td><td colspan="4">9.020 dBm</td></tr><tr><td colspan="4">3.030 CUR POC</td><td colspan="4">9.030 dBm</td></tr><tr><td colspan="4">3.040 END LIST</td><td colspan="4"></td></tr><tr><td colspan="4"></td><td colspan="4"></td></tr><tr><td colspan="4"></td><td colspan="4">10.000 VOR AGC CHARACTERISTICS</td></tr><tr><td colspan="4">4.000 VOR SCALLOPING</td><td colspan="4">10.010 REF LVL</td></tr><tr><td colspan="4">4.010 REF BRG</td><td colspan="4">10.020 dB</td></tr><tr><td colspan="4">4.020 %</td><td colspan="4"></td></tr><tr><td colspan="4"></td><td colspan="4"></td></tr><tr><td colspan="4">5.000 VOR AUDIO OUTPUT</td><td colspan="4">11.000 VOR BEARING ACCURACY</td></tr><tr><td colspan="4">5.010 VRMS</td><td colspan="4">11.010 DEG.</td></tr><tr><td colspan="4">5.020 VRMS</td><td colspan="4">11.020 DEG.</td></tr><tr><td colspan="4">5.030 %</td><td colspan="4">11.030 DEG.</td></tr><tr><td colspan="4"></td><td colspan="4">11.040 DEG.</td></tr><tr><td colspan="4"></td><td colspan="4">11.050 DEG.</td></tr><tr><td colspan="4"></td><td colspan="4"></td></tr><tr><td colspan="4">6.000 VOR AUDIO FREQUENCY RESPONSE</td><td colspan="4">12.000 VOR WARNING FLAGS</td></tr><tr><td colspan="4">6.010 REF LVL</td><td colspan="4">12.010 V FLAG</td></tr><tr><td colspan="4">6.020 dB</td><td colspan="4">12.020 V FLAG</td></tr><tr><td colspan="4">6.030 dB</td><td colspan="4">12.030 V FLAG</td></tr><tr><td colspan="4">6.040 dB</td><td colspan="4">12.040 V FLAG</td></tr><tr><td colspan="4">6.050 dB</td><td colspan="4"></td></tr><tr><td colspan="4"></td><td colspan="4"></td></tr><tr><td colspan="4">7.000 VOR AUDIO OUTPUT NOISE LEVEL</td><td colspan="4">13.000 RNAV VIDEO</td></tr><tr><td colspan="4">7.010 REF LVL</td><td colspan="4">13.010 VRMS</td></tr><tr><td colspan="4">7.020 dB</td><td colspan="4">13.020 VRMS</td></tr><tr><td colspan="4">7.030 dB</td><td colspan="4">13.030 VDC</td></tr><tr><td colspan="4"></td><td colspan="4">13.040 DEG.</td></tr><tr><td colspan="4">TESTER</td><td colspan="2">DATE</td><td colspan="2">FTR SHEET 2 OF 3</td></tr></table>							PART NO. 7026202				SERIAL NO.				1.000 POWER ON CURRENT TEST				8.000 VOR RECEIVER SENSITIVITY				1.010				8.010 REF LVL								8.020 dB								8.030 REF LVL								8.040 dB				2.000 PILOT ACTIVATED SELF TEST (PAST)				8.050 REF LVL				2.010 DATA				8.060 dB												3.000 BENCH PAGE, SOFTWARE VERSION & ON/OFF				9.000 VOR FLAG SENSITIVITY				3.010 DEG. C				9.010 dBm				3.020 SFT VER				9.020 dBm				3.030 CUR POC				9.030 dBm				3.040 END LIST																				10.000 VOR AGC CHARACTERISTICS				4.000 VOR SCALLOPING				10.010 REF LVL				4.010 REF BRG				10.020 dB				4.020 %																5.000 VOR AUDIO OUTPUT				11.000 VOR BEARING ACCURACY				5.010 VRMS				11.010 DEG.				5.020 VRMS				11.020 DEG.				5.030 %				11.030 DEG.								11.040 DEG.								11.050 DEG.												6.000 VOR AUDIO FREQUENCY RESPONSE				12.000 VOR WARNING FLAGS				6.010 REF LVL				12.010 V FLAG				6.020 dB				12.020 V FLAG				6.030 dB				12.030 V FLAG				6.040 dB				12.040 V FLAG				6.050 dB																7.000 VOR AUDIO OUTPUT NOISE LEVEL				13.000 RNAV VIDEO				7.010 REF LVL				13.010 VRMS				7.020 dB				13.020 VRMS				7.030 dB				13.030 VDC								13.040 DEG.				TESTER				DATE		FTR SHEET 2 OF 3	
PART NO. 7026202				SERIAL NO.																																																																																																																																																																																																																																																																																																																																			
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3.020 SFT VER				9.020 dBm																																																																																																																																																																																																																																																																																																																																			
3.030 CUR POC				9.030 dBm																																																																																																																																																																																																																																																																																																																																			
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REV LTR XB						
QUALITY CONTROL FUNCTIONAL TEST REPORT						
PART NO. 7026202				SERIAL NO.		
14.000 VOR BEARING CHANGE WITH RF LEVEL				22.000 GS FLAG SENSITIVITY		
14.010 REF DEG				22.010 dBm		
14.020 DEG.				22.020 dBm		
14.030 DEG.				22.030 dBm		
				22.040 dBm		
15.000 LOC FLAG SENSITIVITY				23.000 GS WARNING FLAGS		
15.010 dBm				23.010 G FLAG		
				23.020 G FLAG		
16.000 LOC CENTERING ACCURACY				23.030 G FLAG		
16.010 DDM				23.040 G FLAG		
17.000 LOC COURSE DEVIATION				24.000 MKR HIGH SENSITIVITY		
17.010 DDM				24.010 dBm		
17.020 DDM				24.020 dBm		
17.030 DDM				24.030 dBm		
17.040 DDM						
18.000 LOC WARNING FLAGS				25.000 MKR LOW SENSITIVITY		
18.010 L FLAG				25.010 dBm		
18.020 L FLAG						
18.030 L FLAG				26.000 MKR AUDIO OUTPUT		
18.040 L FLAG				26.010 VRMS		
				26.020 %		
19.000 GS COURSE DEVIATION				27.000 MKR RF SELECTIVITY		
19.010 DDM				27.010 VRMS		
19.020 DDM				27.020 VRMS		
19.030 DDM				27.030 VRMS		
19.040 DDM						
19.050 DDM				28.000 ARINC BUS TEST		
				28.010 DATA		
20.000 GS ADJACENT CHANNEL REJECTION				28.020 DATA		
20.010 dBm				28.030 DATA		
20.020 dB				28.040 DATA		
21.000 GS RECEIVER AGC				29.000 CLEAR LOG		
21.010 REF LVL				29.010 POC		
21.020 dB				29.020 END LIST		
TESTER				DATE	FTR SHEET 3 OF 3	
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REV LTR XB		APPENDIX D IT7026202-801 TO IT7510134-855 CROSS REFERENCE				
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REV LTR
XB

The VOR/ILS/Data Link (VIDL), part no. 7026202-801 may be tested as a Primus EPIC NAV module, part no 7510134-855 using MT7510134-8X1, Rev D. This allows the VIDL to be tested on the automatic test equipment that has been developed for the 7510134-855. Table D1 below lists the correlation between the IT7026202 test numbers and the IT7510134-8X1 test numbers.

In some cases there are tests which are required for the 7510134-855 that are not required for the 7026202-801. In these cases, "No Test Required" has been entered into Table D1 for the 7026202-801 test number. In some cases there are tests required for the 7026202-801 that do not have a corresponding test for the 7510134-855. These tests must be performed manually on the 7026202-801. The Manual FTR in APPENDIX B must be filled out for these sections.

Table D1

IT7026202 Test Number	IT7510134-8x1 Test Number
1.00 POWER ON CURRENT TEST	1.00 POWER ON CURRENT TEST
1.01 SEE NOTE1	1.01
2.00 PILOT ACTIVATED SELF TEST	2.00 PILOT ACTIVATED SELF TEST
No Test Required	2.01
No Test Required	2.02
3.00 BENCH PAGE & ON/OFF	3.00 BENCH PAGE & ON/OFF
No Test Required	3.01
No Test Required	3.02
No Test Required	3.03
No Test Required	3.04
	5.00 ILS MODE OC
No Test Required	5.01
No Test Required	5.02
4.0 VOR SCALLOPING	6.0 VOR SCALLOPING
4.01 SEE NOTE2	6.01
4.02 SEE NOTE2	6.02
5.00 VOR AUDIO OUTPUT	7.00 VOR AUDIO OUTPUT
5.01	7.01
5.02	7.02
5.03	7.03
No Test Required	7.04

NOTE 1: The current draw limit of test 1.01 is different for the VIDL than it is for the EPIC NAV module. The limit for the VIDL is 1.1 amps.

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REV LTR XB	<table border="1"> <tr> <td>IT7026202 Test Number</td> <td>IT7510134-8X1 Test Number</td> </tr> <tr> <td>6.00 VOR AUDIO FREQUENCY RESPONSE</td> <td>8.00 VOR AUDIO FREQUENCY RESPONSE</td> </tr> <tr> <td>6.01</td> <td>8.01</td> </tr> <tr> <td>6.02</td> <td>8.02</td> </tr> <tr> <td>6.03</td> <td>8.03</td> </tr> <tr> <td>6.04</td> <td>8.04</td> </tr> <tr> <td>6.05</td> <td>8.05</td> </tr> <tr> <td>7.00 VOR AUDIO OUTPUT NOISE LEVEL</td> <td>9.00 VOR AUDIO OUTPUT NOISE LEVEL</td> </tr> <tr> <td>7.01 SEE NOTE2</td> <td>9.01</td> </tr> <tr> <td>7.02 SEE NOTE2</td> <td>9.02</td> </tr> <tr> <td>7.03 SEE NOTE2</td> <td>9.03</td> </tr> <tr> <td>8.00 VOR RECEIVER SENSITIVITY</td> <td>10.00 VOR RECEIVER SENSITIVITY</td> </tr> <tr> <td>8.01 SEE NOTE2</td> <td>10.01</td> </tr> <tr> <td>8.02 SEE NOTE2</td> <td>10.02</td> </tr> <tr> <td>8.03 SEE NOTE2</td> <td>10.03</td> </tr> <tr> <td>8.04 SEE NOTE2</td> <td>10.04</td> </tr> <tr> <td>8.05 SEE NOTE2</td> <td>10.05</td> </tr> <tr> <td>8.06 SEE NOTE2</td> <td>10.06</td> </tr> <tr> <td>9.00 VOR FLAG SENSITIVITY</td> <td>11.00 VOR FLAG SENSITIVITY</td> </tr> <tr> <td>9.01 SEE NOTE2</td> <td>11.01</td> </tr> <tr> <td>9.02 SEE NOTE2</td> <td>11.02</td> </tr> <tr> <td>9.03 SEE NOTE2</td> <td>11.03</td> </tr> <tr> <td>10.00 VOR AGC CHARACTERISTICS</td> <td>12.00 VOR AGC CHARACTERISTICS</td> </tr> <tr> <td>10.01</td> <td>12.01</td> </tr> <tr> <td>10.02</td> <td>12.02</td> </tr> <tr> <td>11.00 VOR BEARING ACCURACY</td> <td>13.00 VOR BEARING ACCURACY</td> </tr> <tr> <td>11.01</td> <td>13.01</td> </tr> <tr> <td>11.02</td> <td>13.02</td> </tr> <tr> <td>11.03</td> <td>13.03</td> </tr> <tr> <td>11.04</td> <td>13.04</td> </tr> <tr> <td>11.05</td> <td>13.05</td> </tr> </table> NOTE 2: Due to differences in levels/limits, this test must be performed manually.					IT7026202 Test Number	IT7510134-8X1 Test Number	6.00 VOR AUDIO FREQUENCY RESPONSE	8.00 VOR AUDIO FREQUENCY RESPONSE	6.01	8.01	6.02	8.02	6.03	8.03	6.04	8.04	6.05	8.05	7.00 VOR AUDIO OUTPUT NOISE LEVEL	9.00 VOR AUDIO OUTPUT NOISE LEVEL	7.01 SEE NOTE2	9.01	7.02 SEE NOTE2	9.02	7.03 SEE NOTE2	9.03	8.00 VOR RECEIVER SENSITIVITY	10.00 VOR RECEIVER SENSITIVITY	8.01 SEE NOTE2	10.01	8.02 SEE NOTE2	10.02	8.03 SEE NOTE2	10.03	8.04 SEE NOTE2	10.04	8.05 SEE NOTE2	10.05	8.06 SEE NOTE2	10.06	9.00 VOR FLAG SENSITIVITY	11.00 VOR FLAG SENSITIVITY	9.01 SEE NOTE2	11.01	9.02 SEE NOTE2	11.02	9.03 SEE NOTE2	11.03	10.00 VOR AGC CHARACTERISTICS	12.00 VOR AGC CHARACTERISTICS	10.01	12.01	10.02	12.02	11.00 VOR BEARING ACCURACY	13.00 VOR BEARING ACCURACY	11.01	13.01	11.02	13.02	11.03	13.03	11.04	13.04	11.05	13.05
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IT7026202 Test Number	IT7510134-8X1 Test Number
26.00 MKR AUDIO OUTPUT	28.00 MKR AUDIO OUTPUT
26.01	28.01
26.02	28.02
27.00 MKR RF SELECTIVITY	29.00 MKR RF SELECTIVITY
27.01 SEE NOTE 3	29.01
27.02 SEE NOTE 3	29.02
27.03 SEE NOTE 3	29.03
	30.00 MKR LAMP FALSE RESPONSE
No test Required	30.01
No test Required	30.02
No test Required	30.03
No test Required	30.04
No test Required	30.05
No test Required	30.06
No test Required	30.07
No test Required	30.08
No test Required	30.09
	32.00 CLEAR LOG
No test Required	32.01
No test Required	32.02
28.00 ARINC BUS TEST	
28.01 SEE NOTE 4	
28.02 SEE NOTE 4	
28.04 SEE NOTE 4	

NOTE 3: This test must be performed manually. The I/O pins on the 7510134-855 that are used for the test do not exist on the 7026202-801.

NOTE 4: This test must be performed manually. This test does not exist in IT7510134-8X1.

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