ERICSSON

Mobile Communications

MASTR® II
BASE STATION
806-824 MHz RECEIVER
IF/AUDIO/SQUELCH & RF ASSEMBLY
(25 kHz/12.5 kHz CHANNEL SPACING)

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RF ASSEMBLY, MIXER AND IF FILTER BOARD LBI-30482
OSCILLATOR/MULTIPLIER BOARD LBI-30466
IF AUDIO AND SQUELCH BOARD LBI-38507

Maintenance Manual

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LBI-38506

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SPECIFICATIONS*

Audio Output (to 8-ohm Speaker)	1 Watt at less than 3% distortion
Sensitivity	
12 dB SINAD (EIA Method)	0.25 µV
20 dB Quieting Method	0.35 µV
SELECTIVITY	
EIA Two-Signal Method (25 kHz Spacing)	-80 dB
20 dB Quieting Method (25 kHz Spacing)	-100 dB
EIA NPSPAC Method (12.5 kHz Spacing)	-20 dB
Spurious Response	-100 dB
Intermodulation (EIA)	-70 dB
Squelch Sensitivity	
Critical Squelch	0.18 µV
Maximum Squelch	Greater than 12 dB SINAD
Frequency Stability	±0.0001% (-30°C to +60°C)
Acceptable Frequency Displacement (EIA RS 204C)	±3.5 kHz

Maximum Frequency Separation	Full Specifications	3 dB Degradation
806-824 MHz	1.60 MHz	2.0 MHz

Frequency Response	Within +2 and -8 dB of a standard 6 dB per octave de-emphasis curve from 300 to 3000 Hz (1000 Hz reference)
RF Input Impdedance	50 ohms

*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

WARNING

Although the highest DC voltage in MASTR II receiver is +12 Volts DC, high current may be drawn under short circuit conditions. These currents can possibly heat metal objects such as tools, rings, watchbands, etc., enough to cause burns. Be careful when working near energized circuits!

High-level RF energy in the transmitter Power Amplifier assembly can cause RF burns upon contact. Keep away from these circuits when the transmitter is energized!

LBI-38506

DESCRIPTION

MASTR® II, 806-824 Megahertz base station receivers are double conversion, superheterodyne FM receivers designed for one frequency operation. The solid state receiver utilizes integrated circuits (ICs), monolithic crystal filters and discrete components with each of the crystal filters located between gain stages to provide 80 dB selectivity and maximum protection from de-sensitization and intermodulation.

The receiver consists of the following modules:

- RF Assembly (Includes Mixer and IF-Amplifier)
- Oscillator/Multiplier (Osc/Mult)
- IF/Audio and Squelch (IFAS)

Audio, supply voltages and control functions are connected to the system board through P903 on the Osc/Mult board, and P904 on the IFAS board. The regulated +10 Volts is used for all receiver stages except the audio PA stage which operates from the A+ system supply.

Centralized metering jack J601 on the IFAS board is provided for use with GE Test Set 4EX3A11 or Test Kit 4EX8K12. The test set meters the oscillator, multiplier, IF Detector and IF amplifier stages. Speaker high and low are metered on the system board metering jack.

A block diagram of the complete receiver is shown in Figure 3.

Refer to the appropriate Maintenance Manual for complete details on each receiver module listed in the Table of Contents.

MAINTENANCE

DISASSEMBLY

For a more complete mechanical parts breakdown refer to the station manual. To service the receiver from the front:

1. Turn the two latching knobs (A) counterclockwise to unlatch the Radio Housing Front door. Refer to Figure 1.

2. Swing the Radio Housing Front Door down as shown.

3. Remove the top cover.

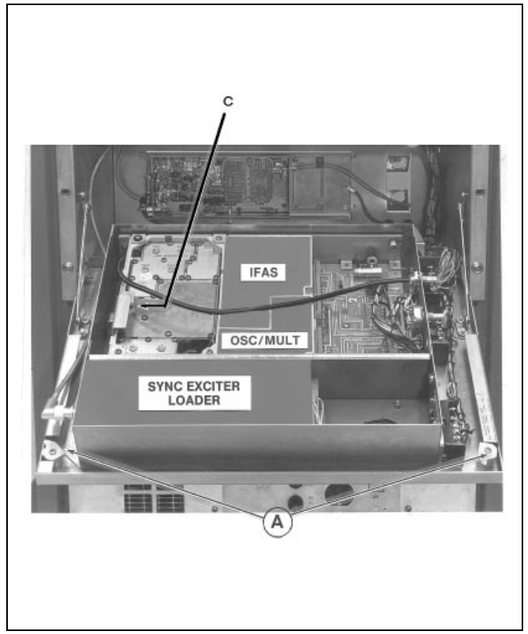


Figure 1 - Access To Receiver (Top & Bottom)

Figure 2 - Access To Wing Nut Holding Receiver Frame

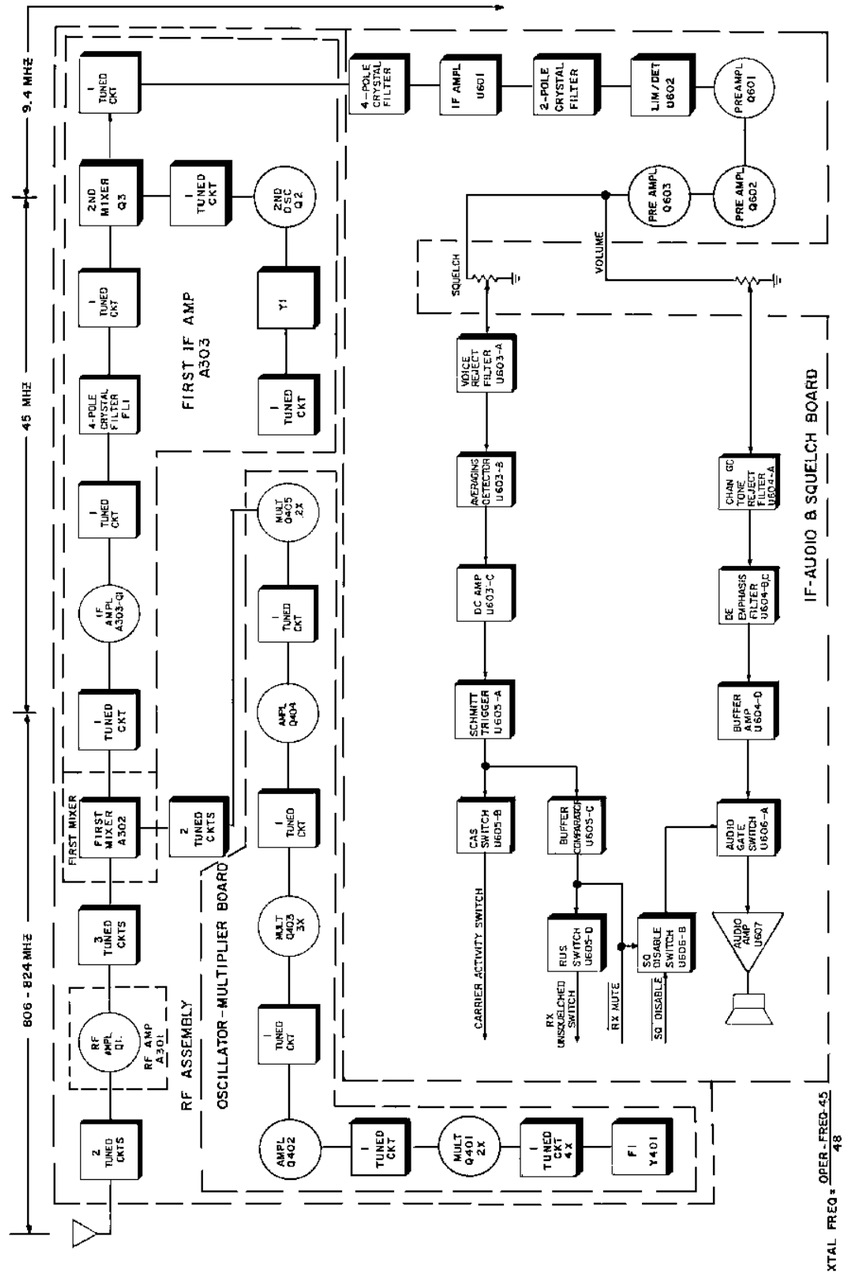


Figure 3 - Receiver Block Diagram

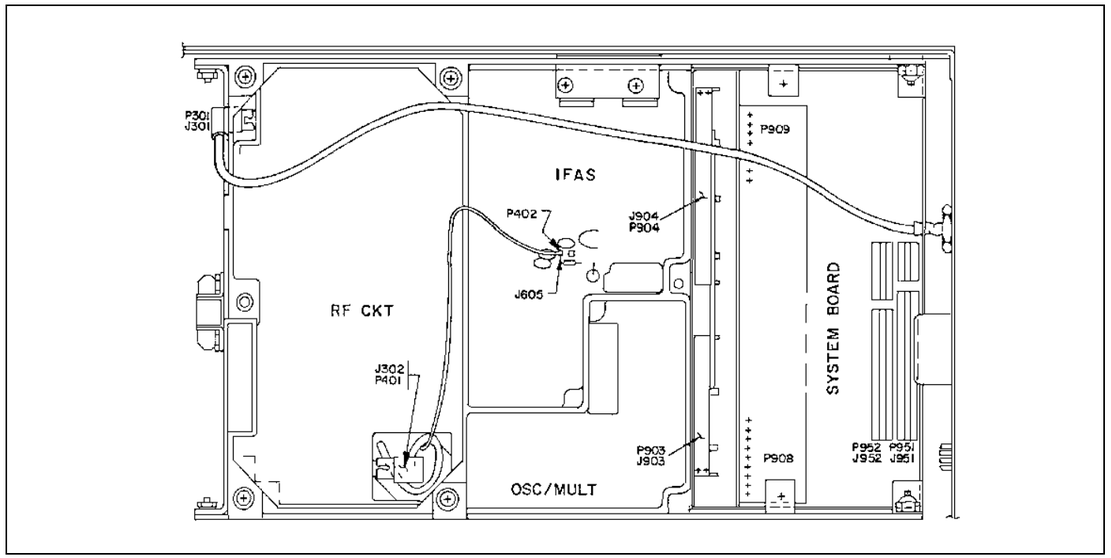


Figure 4 - Receiver Module Location

To service the Receiver from the bottom or to remove any of the receiver boards:

1. Remove the wing nut (B) on the Radio Housing Front door. Refer to Figure 2.

2 Turn the two latching knobs (A) counterclockwise to unlatch the Radio Housing Front Door. Refer to Figure 1.

3. Swing the Radio Housing Front Door down as shown.

4. Remove the top cover.

5. Grasp the Receiver Housing Handle at (C) and swing the Housing out to reveal the bottom side of the receiver.

6. Refer to Figure 4 for Receiver Module location.

FRONT END ALIGNMENT

EQUIPMENT REQUIRED

1. GE Test Set Models 4EX3A11, 4EX8K12, or 20,000 ohms per Volt multimeter with a 1 Volt scale.

2. A 806-824 MHz signal source.

PRELIMINARY CHECKS AND ADJUSTMENTS

1. Connect black plug from Test Set to Receiver centralized metering jack J601, and red plug to System Board metering jack J905. Set meter sensitivity switch to the TEST 1 position (or 1 Volt position on 4EX8K12).

2. With Test Set in Position J, check for regulated +10 Volts. If using multimeter, measure between J905-3 (+) and J905-9 (-).

3. If using multimeter, connect the negative lead to J601-9 (A-).

4. Disable Channel Guard.

ALIGNMENT PROCEDURE

STEP	METERING POSITION: GE TEST SET	METERING POSITION: MULTIMETER -AT J601-9	TUNING CONTROL	METER READING	PROCEDURE
OSCILLATOR/MULTIPLIER					
1.	C (MULT-1)	Pin 3	L401, L403 & L404	Maximum	Tune L401, L403 & L404 for maximum meter reading.
2.	D (MULT-2)	Pin 4	Z401 & Z402	See Procedure	Tune Z401 for a peak then tune Z402 for a dip. Repeak Z401 for a maximum meter reading.
3.	F (MULT-2)	Pin 7	C306, V307, Z401 & Z402	See Procedure	Tune C307 for a peak and then C306 for a dip (C306 & C307 on RF Assembly). Readjust Z401 and Z402 for a peak.
RF SELECTIVITY NOTE: IF AMP meter range is 0-700 mVdc with a high impedance DC voltmeter.					
4.	B IF AMP	Pin 1	C301 thru C305, A303-L1	Maximum	Apply an on frequency signal to the antenna jack. Increase the generator level until about 10 dB of noise quieting occurs, then tune C301 through C305 and L1 (IF AMP) for best quieting, decreasing the level of the generator as the quieting improves to maintain about 10-20 dB of noise quieting. Repeat these adjustments until no further noise quieting improvement can be achieved.
5.	B IF AMP	Pin 1	C306 & C307	Maximum Quieting	Tune capacitors C306 and C307 for maximum quieting. Set tuning midway in quieting range.

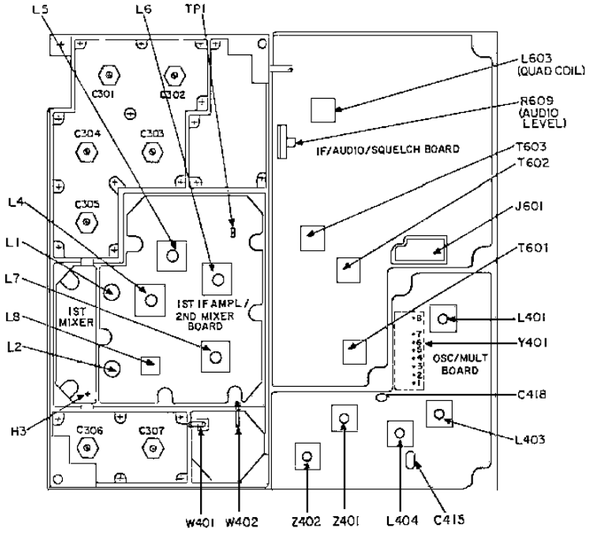


Figure 5 - Test Points and Alignment Controls

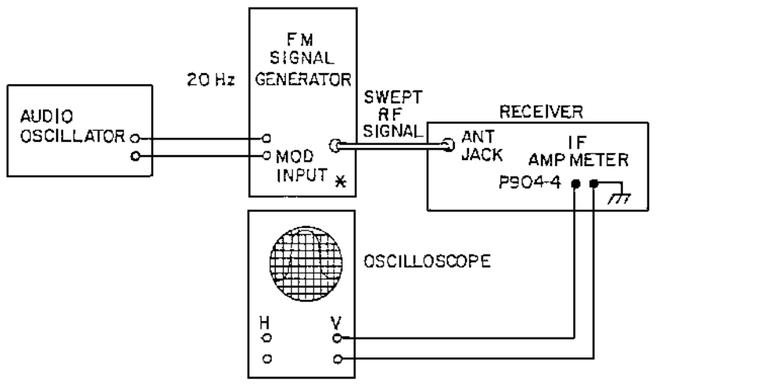


Figure 6 - Test Setup for 20 Hz Double-Trace Sweep Alignment

ICOM FREQUENCY ADJUSTMENT

First, check the frequency to determine if any adjustment is required. The frequency should be set with a frequency meter or counter with an absolute accuracy which is 5 to 10 times better than the tolerance to be maintained, and with the entire radio as near as possible to an ambient temperature of 27.5°C (81.5°F).

MASTR II ICOMs should be reset only when the frequency shows deviation in excess of the following limits:

A. ±0.2 PPM, when the radio is at 27.5°C (81.5°F).

B. 1 PPM at any other temperature within the range -30°C to +85°C (-22°F to +185°F.

If an adjustment is required, pry up the cover on the top of the ICOM to expose the trimmer, and use one of the following procedures:

If the radio is at an ambient temperature of 27.5°C (81.5°C), set the oscillator for the correct operating frequency.

If the radio is at an ambient temperature of 27.5°C, setting errors can be minimized as follows:

To hold the setting error to ±0.1 PPM (which is considered reasonable for 1 PPM ICOMs):

1. Maintain the radio at 27. 5°C (±5°C) and set the oscillator to desired frequency, or -

2. Maintain the radio at 27.5°C (±10°C) and offset the oscillator, as a function of actual temperature by the amount shown in the chart (see Figure 7).

For example: Assume the ambient temperature of the radio is 18.5°C (65.4°F). At that temperature, the curve shows a correction factor of 0.44 PPM. (At 806 MHz, 1 PPM is 761 Hz. At 824 MHz, 1 PPM is 779 Hz).

With an operating frequency of 824 MHz, set the oscillator for a reading of 343 Hz (0.44 x 779 Hz) higher than the licensed operating frequency. If a negative correction factor is obtained (at temperatures above 27.5°C) set the oscillator for the indicated PPM lower than the licensed operating frequency.

This example assumes the measurement is made at the injection frequency (FR -45) at H3 on the 1st mixer.

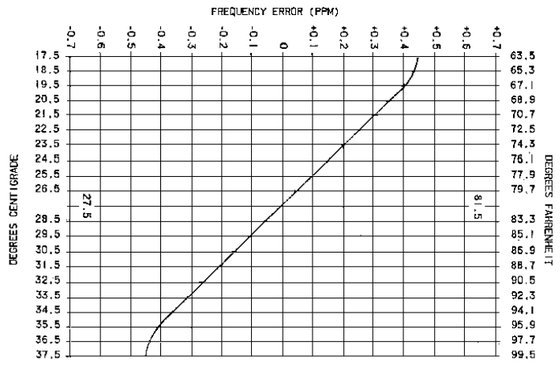


Figure 7 - Frequency Characteristics Vs. Temperature

COMPLETE RECEIVER ALIGNMENT

EQUIPMENT REQUIRED

1. GE Test Set Models 4EX3A11, 4EX8K12, (or 20,000 ohms-per Volt multimeter with a 1- Volt scale).

2. A 806-824 MHz signal source HP8640 or equivalent.

3. DVM.

4. Distortion Analyzer.

5. Frequency Counter.

6. RF Voltmeter.

PRELIMINARY CHECKS AND ADJUSTMENTS

1. Connect the black plug from the Test Set to Receiver metering jack J601, and the red plug to System Board metering jack J905. Set the meter sensitivity switch to the Test 1 (or 1- Volt position on the 4EX8K12).

2. With the Test Set in position J, check for regulated +10 Volts. With multimeter, measure from J905-3 to J905-9.

3. If using multimeter, connect the negative lead to J601-9 (A-)

4. Disable the Channel Guard.

ALIGNMENT PROCEDURE

STEP	METERING POSITION: GE TEST SET	METERING POSITION: MULTIMETER -AT J601-9	TUNING CONTROL	METER READING	PROCEDURE
FM DETECTOR					
1.	A (FM DET)	Pin 2	L603	0.38 Volt	With no signal applied, adjust L603 for a meter reading of approximately 0.38 Volt.
OSCILLATOR/MULTIPLIER					
2.	C (MULT-1)	Pin 3	L401, L403 & L404	Maximum	Tune L401, L403 & L404 for maximum meter reading.
3.	D (MULT-2)	Pin 4	Z401 & Z402	See Procedure	Tune Z401 for a peak then tune Z402 for a dip. Repeak Z401 for a maximum meter reading.
4.	F (MULT-3)	Pin 7	C306, C307, Z401 & Z402	See Procedure	Tune C307 for a peak and then C306 for a dip (C306 & C307 on RF assembly). Re-adjust Z401 and Z402 for a peak.
RF SELECTIVITY NOTE: IF AMP meter range is 0-700 mVDC with a high impedance DC voltmeter.					
5.			L6	See Procedure	Connect RF voltmeter to TP1. Adjust L6 for maximum meter reading.
6.			L5	See Procedure	Connect counter to TP1. Adjust L5 for 35.600 MHz (±100 Hz).
7.	B IF AMP	Pin 1	C301 thru C305, A303-L1	Maximum	Apply an on frequency signal to the antenna jack. Increase the generator level until about 10 dB of noise quieting occurs. Then tune C301 through C305 and L1 (IF AMP) for best quieting, decreasing the level of the generator as the quieting improves to maintain about 10-20 dB of noise quieting. Repeat these adjustments until no further noise quieting improvement has been achieved.

Cont'd.

ALIGNMENT PROCEDURE (Cont'd.)

STEP	METERING POSITION: GE TEST SET	METERING POSITION: MULTIMETER -AT J601-9	TUNING CONTROL	METER READING	PROCEDURE
8.			L603, R609	See Procedure	Remove the Test set metering plug from J601. Apply a 1000 microvolt signal with 1 kHz modulation and 3 kHz deviation (2.4 kHz deviation for NPSPAC Systems) to the antenna jack. Tune L603 for maximum voltage at 1.0 kHz and adjust R609 for 1 Volt RMS measured with a DVM at P904-11 (VOL/SQ HI) and P904-17 (A-).
MIXER & IF					
The mixer and IF circuits have been aligned at the factory and will normally require no further adjustment. If adjustment is necessary, use the procedure outlined in STEP 9. **NOTE** Refer to DATAFILE BULLETIN 1000-6 (IF Alignment of Two-Way Radio FM Receivers) for helpful suggestions on how to determine when IF Alignment is required.					
9.			L2, L4, L8 T601, T602, and T603		Connect scope, signal generator, and probe as shown in Figure 7. Set signal generator level for 3 to 5 µV and modulate wih 20 Hz at 12 kHz deviation. With probe between J601-1 and A-, tune L2, L4, L8, T601, T602 and T603 for double trace as shown on scope pattern. NOTE: Two traces should be coincident on the skirts. Top should be tuned for maximum width without creating a dip in the middle of the passband.
10.				See Procedure	Check to see that modulation acceptance bandswidth is greater than ±7 kHz.
SQUELCH ADJUST					
11.			R953		Set SQUELCH ADJUST control (R953) to open with a 6dB SINAD signal. (12 dB SINAD signal when receiver is used in GE-MARC V Applications). (Approximately 30° counterclockwise of critical squelch position).

TEST PROCEDURES

These Test Procedures are designed to help you to service a receiver that is operating---but not properly. The problems encountered could be low power, poor sensitivity, distortion, limiter not operating properly, and low gain. By following the sequence of test steps starting with Step 1, the defect can be quickly localized.

TEST EQUIPMENT REQUIRED

- Distortion Analyzer similar to:
  HP331A, or an equivalent average response meter
- Signal Generator similar to:
  HP8640B
- 6-dB attenuation pad, and 8.0 ohm, 2 Watt resistor

Once the defective stage is pin-pointed, refer to the "Service Check" listed to correct the problem. Additional corrective measures are included in the Troubleshooting Procedure. Before starting with the Receiver Test Procedures, be sure the receiver is tuned and aligned to the proper operating frequency.

PRELIMINARY ADJUSTMENTS

1. Connect the test equipment to the receiver as shown in Figure 8 for all steps of the receiver Test Procedure.

2. Turn the SQUELCH control fully clockwise for all steps of the Test Procedure.

3. Turn on all of the equipment and let it warm up for 20 minutes.

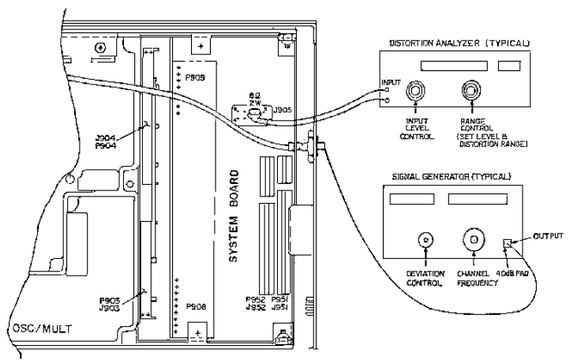


Figure 8 - Receiver Test Setup

STEP 1

AUDIO POWER OUTPUT AND DISTORTION

TEST PROCEDURE

Measure Audio Power Output as follows:

A. Apply a 1,000 microvolt, on frequency test signal modulated by 1,000 Hertz with 3.0 kHz deviation to antenna jack J937. (2.4 kHz deviation for systems with 12.5 kHz Channel Spacing, i.e. 821-824 MHZ).

B. Disconnect speaker lead by unplugging P1102 from J1 on the back of the mother board of the control shelf. If a service speaker is present, put the switch in the OFF position.

Connect an 8.0 ohm, 2 Watt load resistor from J905-1 to J905-2 on the System Jack. Connect the Distortion Analyzer input across the resistor as shown.

Adjust the Volume Control R3 using the Distortion Analyzer as a DVM.

With 1 Watt Service Speaker.

Set the service speaker switch in the OFF position.

Adjust the VOLUME control for 1 Watt output (2.83 VRMS using the Distortion Analyzer as a DVM.)

C. Make distortion measurements according to manufacturer's instructions. Reading should be less than 3%. If the receiver sensitivity is to be measured, leave all controls and equipment as they are.

SERVICE CHECK

If the distortion is more than 3%, or maximum audio output is less than specified above, make the following checks:

D. Regulator voltage---low voltage will cause distortion. (Refer to Receiver Schematic Diagram for voltages.)

E. Audio Gain (Refer to Receiver Troubleshooting Procedure.)

F. FM Detector Alignment (Refer to Receiver Alignment.)

STEP 2

USABLE SENSITIVITY

(12 dB SINAD)

If STEP 1 checks out properly, measure the receiver sensitivity as follows:

A. Apply a 1000 microvolt, on frequency signal modulated by 1000 Hz with 3.0 kHz deviation to A301-J1.

B. With Function Switch on Distortion Analyzer set to VOLTMETER position, adjust volume control for 1.0 Watt (2.83 VRMS across 8 ohm load). Again, verify that audio output is nulled when Function Switch is set to DISTORTION position.

C. Place the RANGE switch to the SET LEVEL position (filter out of the circuit) and adjust the SET LEVEL control for a +2 dB reading on a mid range (30%).

D. While reducing the signal generator output, switch the FUNCTION control from SET LEVEL to DISTORTION until a 12 dB difference (+2 dB to -10 dB) is obtained between the SET LEVEL and DISTORTION positions (filter out and filter in).

E. The 12 dB difference (Signal plus Noise and Distortion to noise plus distortion ratio) is the "usable" sensitivity level. The sensitivity should be less than rated 12 dB SINAD specification with an audio output of 1.0 Watt across the 8.0 ohm load.

F. Leave all controls as they are and all equipment connected if the Modulation Acceptance Bandwidth test is to be performed.

SERVICE CHECK

If the sensitivity level is more than the rated 12 dB SINAD specification, check the alignment of the RF stages as directed in the Alignment Procedure, and make the gain measurements as shown on the Troubleshooting Procedure.

STEP 3

MODULATION ACCEPTANCE

BANDWIDTH (IF BANDWIDTH)

If STEPS 1 and 2 check out properly, measure the bandwidth as follows:

A. Adjust output power for 0.1 Watts (894 mVRMS across 8 ohm load). Measure 12 dB SINAD.

B. Set the Signal Generator output for twice the microvolt reading obtained in the 12 dB SINAD measurement..

C. While increasing the deviation of the Signal Generator, switch the Function Switch from SET LEVEL to DISTORTION until a 12 dB difference is obtained between the SET LEVEL and DISTORTION range readings (from +2 dB to -10 dB).

D. The deviation control reading for the 12 dB difference is the Modulation Acceptance Bandwidth of the receiver. It should be more than ±7 kHz.

SERVICE CHECK

If the Modulation Acceptance Bandwidth test does not indicate the proper width, make gain measurements as shown on the Receiver Troubleshooting Procedure.

STEP 1 - QUICK CHECKS

TEST SET CHECKS

These checks are typical readings measured with GE Test Set Model 4EX3A11 in the Test 1 position, or Model 4EX8K12 in the 1-Volt position.

METERING POSITION		READING WITH NO SIGNAL IN
A	(FM DET)	Approximately 0.38 VDC
B	(IF Amp)	0.0
C	(MULT-1)	0.9 VDC
D	(MULT-2)	0.7 VDC
F	(MULT-3)	0.5 VDC
J	(Reg. +10 Volts at System	+10 VDC

SYMPTOM CHECKS

SYMPTOM	PROCEDURE
NO SUPPLY VOLTAGE	• Check power connections, continuity of supply leads. Check fuse and replace if blown. Check receiver for short circuits.
NO REGULATED 10-VOLTS	• Check the 120 Volt supply. Then check 10 Volt regulator circuit. (See Troubleshooting Procedure for 10 Volt Regulator).
LOW IF AMP READING	• Check supply voltages and then check oscillator reading at P904-1 & -2 as shown in STEP 2. • Make SIMPLIFIED DVM GAIN CHECKS from Mixer through IF Amplifier stages as shown in STEP 2.
LOW OSCILLATOR/MULTIPLIER READINGS	• Check alignment of Oscillator/Multiplier chain. (Refer to Front End Alignment Procedure). • Check voltage readings of Oscillator/Multiplier chain (Q401, Q402, Q403, Q404, Q405).
LOW RECEIVER SENSITIVITY	• Check Front End Alignment. (Refer to Receiver Alignment Procedure). • Check antenna connections, cable and antenna switch. • Check both Oscillator injection voltages. • Check voltage readings of IF Amplifiers. • Make SIMPLIFIED GAIN CHECKS (STEP 2).
IMPROPER SQUELCH OPERATION	• Check voltages on Schematic Diagram. • Check voltages as shown in the table below. • Make gain and waveform checks with 6 kHz signal as shown in Step 4. • Check discrete components in the squelch circuit.
LOW OR DISTORTED AUDIO	• Check voltages on Schematic Diagram. • Make gain and waveform checks.

SQUELCH CHECKS

		SQUELCHED	UNSQUELCHED
NOISE SQ OUTPUT	U605-2	0.2 VDC	9.9V
CAS	U605-1	0.1 VDC	9.9V
$\overline{\text{RX MUTE}}$	U605-14	0.2 VDC	9.9V
RUS	U605-13	0.2 VDC	4.9V
SQ DISABLE SW. INPUT	U606-1	0.2 VDC	9.9V
AUDIO GATE SW. CONTROL	U606-11	0.2 VDC	9.9V

If Exteral Decoder is used (CG, DCG, Type 99, etc.), $\overline{\text{RX Mute}}$ will remain low (regardless of noise squelch output), until proper response is decoded. $\overline{\text{RX Mute}}$ = Noise Sq Output • Decoder Output.

In above cases, $\overline{\text{Sq Disable}}$ is assumed high (9.9V). If $\overline{\text{Sq Disable}}$ is grounded, U606-10 = 0.2 Vdc, U606-11 = 9.9 Vdc and Unit is unsquelched for all conditions.

STEP 3-VOLTAGE RATIO READINGS →

EQUIPMENT REQUIRED.

1. RF VOLTMETER (SIMILAR TO BOONTON MODEL 91-CA OR MILLIVAC TYPE MV-18 C.
2. SIGNAL ON RECEIVER FREQUENCY (BELOW SATURATION). CORRECT FREQUENCY CAN BE DETERMINED BY FM DET READING OF 0.38 VDC. USE 1,000 HERTZ SIGNAL WITH 3.0 KHz DEVIATION.

PROCEDURE:

1. APPLY PROBE TO INPUT OF STAGE (FOR EXAMPLE, SOURCE OF RF AMP). PEAK RESONANT CIRCUIT OF STAGE BEING MEASURED AND TAKE VOLTAGE READING (E_1).
2. MOVE PROBE TO INPUT OF FOLLOWING STAGE (MIXER). REPEAK FIRST RESONANT CIRCUIT THEN PEAK CIRCUIT BEING MEASURED AND TAKE READING (E_2).
3. CONVERT READINGS BY MEANS OF THE FOLLOWING FORMULA.

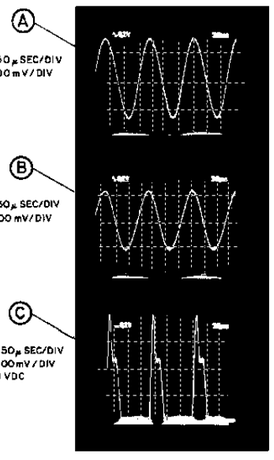
   VOLTAGE RATIO = $\frac{E_2}{E_1}$

4. CHECK RESULTS WITH TYPICAL VOLTAGE RATIOS SHOWN ON DIAGRAM.

STEP 4- SQUELCH WAVEFORMS

PRELIMINARY STEPS

1. QUIET RECEIVER WITH 1000 μV MODULATED SIGNAL
2. SET MODULATION FREQUENCY TO 6 KHz
3. SET DEVIATION TO 3 KHz
4. ADJUST SQUELCH POT (R901 IN SYSTEMS AREA) FOR 120 mVpp AT SQ ARM (P904-10)
5. USE 10 M ohm PROBE



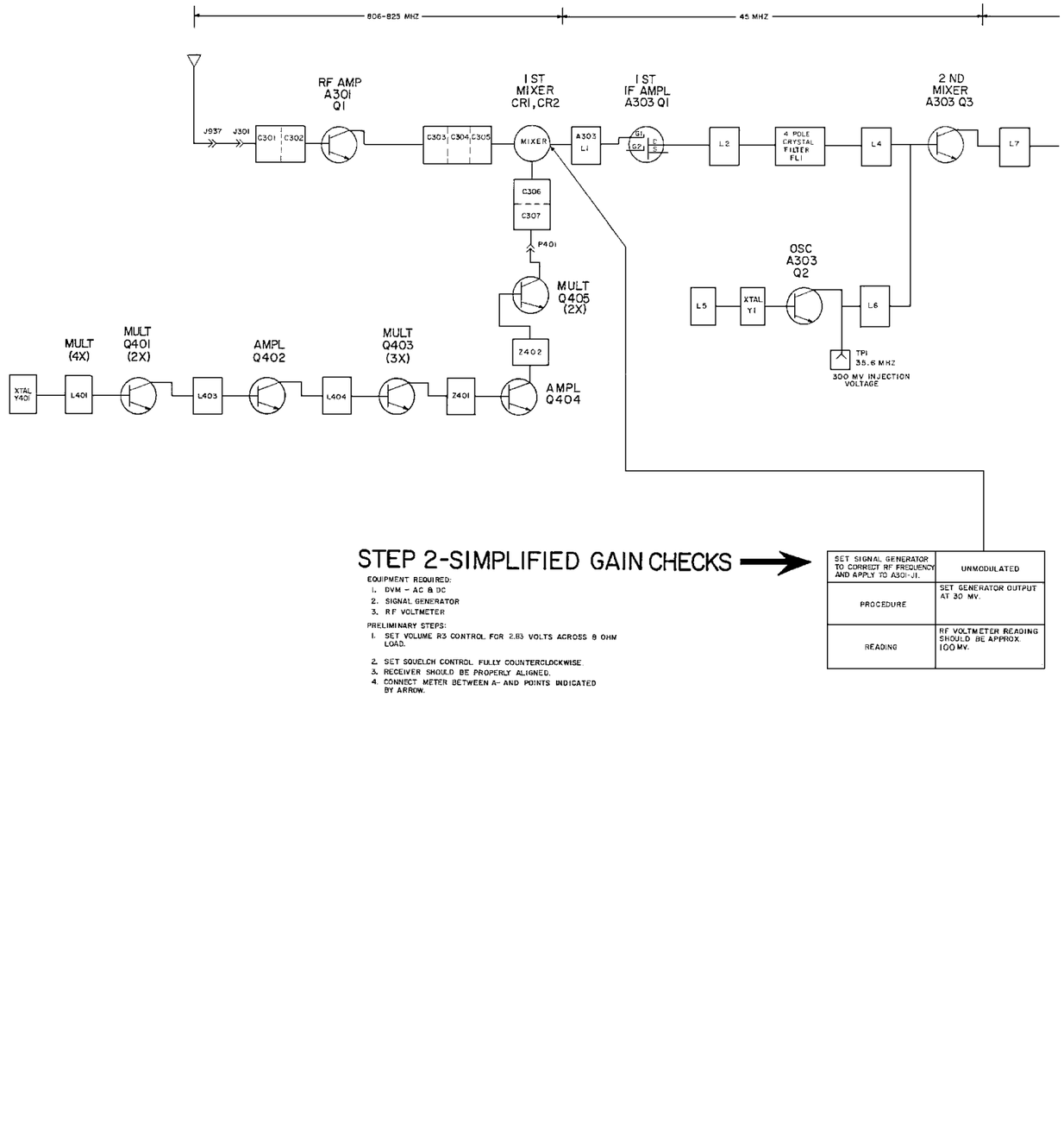
Ⓐ HORIZONTAL 50 μ SEC/DIV
VERTICAL 200 mV/DIV

Ⓑ HORIZONTAL 50 μ SEC/DIV
VERTICAL 200 mV/DIV

Ⓒ HORIZONTAL 50 μ SEC/DIV
VERTICAL 200 mV/DIV
BASELINE = 0 VDC

Ⓓ APPROX 3.2 VDC

Ⓔ APPROX 10.0 VDC



STEP 2-SIMPLIFIED GAIN CHECKS →

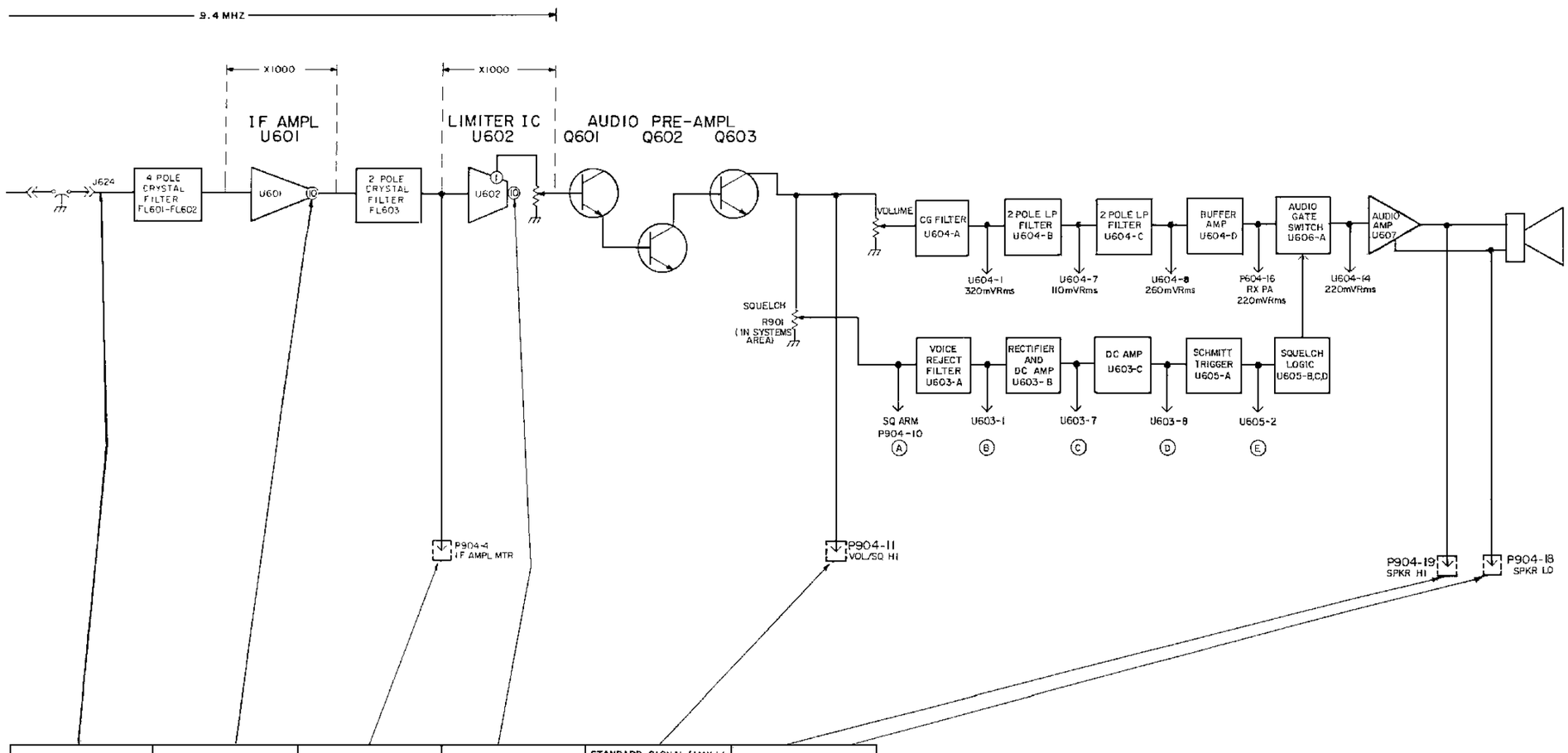
EQUIPMENT REQUIRED:

1. DVM – AC & DC
2. SIGNAL GENERATOR
3. RF VOLTMETER

PRELIMINARY STEPS:

1. SET VOLUME R3 CONTROL FOR 2.83 VOLTS ACROSS 8 OHM LOAD.
2. SET SQUELCH CONTROL FULLY COUNTERCLOCKWISE.
3. RECEIVER SHOULD BE PROPERLY ALIGNED.
4. CONNECT METER BETWEEN A– AND POINTS INDICATED BY ARROW.

SET SIGNAL GENERATOR TO CORRECT RF FREQUENCY AND APPLY TO A301-J1.	UNMODULATED
PROCEDURE	SET GENERATOR OUTPUT AT 30 MV.
READING	RF VOLTMETER READING SHOULD BE APPROX. 100 MV.



UNMODULATED	UNMODULATED	UNMODULATED	NO SIGNAL INPUT	STANDARD SIGNAL (1 MILLIVOLT AT RECEIVER FREQ MODULATED BY 1 KHz WITH 3.0 KHz DEVIATION)	MODULATED
SET GENERATOR OUTPUT AT 1000 MICROVOLTS	INCREASE GENERATOR OUTPUT FROM ZERO UNTIL U601 SATURATES AS MEASURED WITH RF VOLTMETER	INCREASE GENERATOR OUTPUT FROM ZERO TO 40 MICROVOLTS	SHOULD BE IN SATURATION AT ALL TIMES		WITH SPEAKER DISCONNECTED, CONNECT VOLTMETER OR SCOPE ACROSS 8-OHM LOAD CONNECTED BETWEEN P904-18 AND P904-19
RF VOLTMETER READING SHOULD BE APPROX 200 MILLIVOLTS	GENERATOR OUTPUT SHOULD BE APPROX 20 MICROVOLTS	VOLTMETER READING SHOULD BE APPROX 0.2 VDC	RF VOLTMETER READING SHOULD BE APPROX 0.6 V RMS	VOLTMETER READING SHOULD BE APPROX 1.0 VRMS	VOLTMETER READING SHOULD BE APPROX. 2.83 VRMS