

MESSENGER 109 TEST PROCEDURE

OPERATION

- 101 Preset adjustments as follows:
- T13 slug 1/4" from top of form.
L2 slug 1/8" from top of form.
L3 slug 3/16" from top of form.
R16 approximately mid range.
T12 slug 1/4" from top of form.
- 201 With 50 ohm load connected, power supply at 12.6 VDC, key transmitter on channel 12 and peak T13, L3, and L2 for maximum power out. L2 to be adjusted for maximum 350 MA total current.
- 202 Adjust T12 for oscillator starting on channel 1, 12, & 23.
- 203 Power output on channel 1, 12, and 23 to be a minimum of 1.4 watts.
- 204 With -38 dB audio input (audio generator set at INT load-1000 Hz) modulation must be approximately 50%. Apply 20 dB additional audio for a minimum of 70% upward modulation.
- 205 Check for normal, undistorted modulation on all channels at 11, 12.6, and 15 VDC with and without a 3:1 VSWR fixture (all phase angles) across the antenna terminals. Adjust
T12, T13, and L3 to remove any distortion present.
- 301 Unkey transmitter and connect RF signal generator (30% modulated at 1000 Hz). Peak T-3 for maximum audio on channel 12 with lowest signal practical.
- 302 Adjust T1 for maximum gain with best S/N ratio while peaking T2 through T9 for maximum audio gain.
- 303 AGC rolloff with 1000 μ V to 1 μ V at 0 dB reference to be 20 ± 5 dB. Adjust R16 as required.
- 304 S/N to be a minimum of 8 dB at 0 dB reference.
- 305 With input level of 1 μ V, audio gain to be a minimum of 8 dB with balance on channel 1, 12, and 23 of ± 3 dB.
- 306 Tight squelch should squelch out 30 μ V minimum and open by 300 μ V maximum.
- 307 With power supply at 11 VDC, adjust R50 for battery indicator meter to read on silver line.

OPERATION

- 401 With unit in the case, fully extend antenna and position unit in place on antenna test jig. Tune L4 for maximum power output indication on scope while keeping total current less than 400 MA.
- 402 Check transmit on 11, 12.6, and 15 VDC for starting and clean signal. Check for normal modulation while speaking into speaker.
- 403 Check receiver for gain and normal operation on 11, 12.6, and 15 VDC.
- 404 Recheck battery meter for proper reading at 11 VDC.