DOCUMENT NUMBER: TP1910119 REV. B

DESCRIPTION: PB-3 TEST PROCEDURE

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Proj Eng._____

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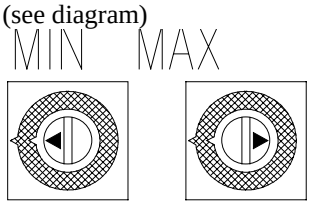
Transmitter Alignment

Test Equipment Required

- DC power supply: 4.0-6.0 volts, metered current 0-500 mA
- DC voltmeter: 10 Megohm input impedance, 0-10 volt range
- Marconi 2955 test set
- 50-Ohm attenuator pads: as required
- Spectrum analyzer: 10 MHz - 2.0 GHz

Procedure

1. Preset the power supply to **5.0 VDC**, and turn off the supply. Connect the power supply to the transmitter, carefully observing correct polarity.
2. Temporarily short the TEST terminals (with tweezers) and apply **5.0 VDC** to the transmitter. Remove the short.
3. Monitor the voltage at TP1. Adjust C17 and C21 for maximum voltage.
4. Connect the RF output from the PA driver at JMP1 to the power meter
5. Adjust C26 and C29 for maximum RF power at JMP1.
6. Adjust C17, and C21 for maximum RF power at JMP1.
7. Repeat steps 5 and 6 as necessary to peak the power at JMP1.
8. Remove DC power from the circuit.
9. Short the pads at JMP1 with a solder bridge, connecting the PA Driver to the PA.
10. Connect the RF output at J1 to the power meter using the MMCX-to-BNC cable (#4044348).
11. Set C50 for maximum capacitance (see diagram)



12. Temporarily short the TEST terminals (with tweezers) and apply **5.0 VDC** to the transmitter. Remove the short.
13. Adjust C46 for maximum power output.
14. Adjust C26 and C29 for maximum power output.
15. Repeat steps 13 and 14 as necessary to peak the power at J1.
16. Remove DC power from the circuit.

NOTE: The following steps must be accomplished within 2 minutes of constant transmit. If more time is needed allow 2 minutes of cooling for every 2 minutes of transmit time.

NOTE: C50 is used to set output power, C49 is always peaked for maximum power.

17. Set the power supply for **6.0 VDC**.
18. Temporarily short the TEST terminals (with tweezers) and apply **6.0 VDC** to the transmitter. Remove the short.
19. Peak C49 for maximum power.
20. Adjust C50 so the power output is 1.0W +0% /- 5%.
21. Repeat 19 and 20 until the output power is within specifications with C49 peaked.
22. Verify current is below 400 mA.
23. Remove DC power from the circuit.

Transmitter Deviation

24. Connect the RF output to an appropriate 50-ohm load.
25. Set the power supply to **5.0 VDC**.

26. Temporarily short the TEST terminals (with tweezers) and apply **5.0 VDC** to the transmitter. Remove the short
27. A 1 kHz tone should be heard in the monitored audio.
28. Adjust RV1 for a peak deviation of +/-4.5 kHz

28a. Adjust C11 to net unit on frequency.

29. Remove DC power from the circuit.
30. Take 50 ohm data for # 1 - 5.

Spectrum Check

NOTE: The following steps must be accomplished within 2 minutes of constant transmit. If more time is needed allow 2 minutes of cooling for every 2 minutes of transmit time.

Connect the transmitter under test to the spectrum analyzer via appropriate attenuator pads. Perform a frequency sweep from 10 MHz to 2.0 GHz, and verify that the conducted spurious emissions are attenuated greater than 45 dB below the level of the carrier.

Vary the supply voltage over the range of 4.0 - 9.0 volts. Verify that the output spectrum is clean and the conducted spurious emissions remain 45 dB or more below the carrier.

Conditions of DC Current and RF Output Power

The following conditions should exist as a result of proper alignment:

Supply voltage	Current	Power
6.0 VDC	< 400 mA	1.0 W +0% /- 5%

Bird-dog Mode:

31. Remove power from the Tx for 10 seconds.
32. Set the power supply to **5.0 VDC**
33. Apply 5.0 VDC to the transmitter
34. Verify when power is applied to the TX it comes up in the stationary (2 second) mode
35. Monitor the TX on the service receiver and listen for a clearly audible pulse.
36. Temporally short the Breakwire terminal of the beacon to Ground (pin 3 to pin 4)
37. Verify the TX is transmitting alarm tones approx. 2 per second
38. Monitor the TX on the service receiver and listen for a clearly audible tones.
39. Remove power from the Tx for 10 seconds.
40. Apply 5.0 VDC to the transmitter
41. Verify when power is applied to the TX it comes up in the stationary (2 second) mode
42. Monitor the TX on the service receiver and listen for a clearly audible pulse.

42a. Install a jumper between motion enable and ground. (pins 7&8 on terminal strip).

43. Shake the TX and verify motion mode (1 second)
44. Monitor the TX on the service receiver and listen for a clearly audible pulse.
45. After approx. 4 seconds of no motion the unit will return to the stationary mode
46. Monitor the TX on the service receiver and listen for a clearly audible pulse.
47. After approx. 30 minutes of no motion the unit will go to the static mode (4 seconds)
48. Monitor the TX on the service receiver and listen for a clearly audible pulse.
49. Remove power from the TX
50. Take data for # 6 -12

Alarm Transmitter:

51. Remove power from the Tx for 10 seconds.
52. Set the power supply to **5.0 VDC**

53. Connect the Mode terminal to Ground (pins (5 to pin 6)
54. Apply 5.0 VDC to the transmitter
55. Monitor the TX on the service receiver and listen for a clearly audible Confidence tones (1 approx. every 30 seconds)
56. Temporally short the breakwire terminal of the beacon to Ground (pin 3 to pin 4)
57. Verify the TX is transmitting alarm tones approx. 2 per second
58. Monitor the TX on the service receiver and listen for a clearly audible tones.
59. Remove power from the TX
60. Take remaining data
61. Remove the jumper between the Mode terminal and Ground
62. Install the cover on the circuit board using eight screws
63. Install label on back of pcb
64. Attach antenna and make sure unit does not show any signs of instability.
65. Add white paint dot to depression on cover.
66. Send the unit to packaging