



# SERVICE BULLETIN

Collins Telecommunications Products Division/Rockwell International

• 350483

KWM-380 TRANSCEIVER (622-5093-001)  
HF-380 TRANSCEIVER (622-3580-001)  
RECEIVER-EXCITER ASSEMBLY A3 (638-6908-002)

## SERVICE BULLETIN NO 14

### TRANSMIT AUDIO FREQUENCY RESPONSE AND MIC CARRIER CONTROL NOISE

This service bulletin applies to the following:

| EQUIPMENT               | APPLIES TO SERIAL NUMBERS | PRODUCTION CUT-IN SERIAL NUMBERS |
|-------------------------|---------------------------|----------------------------------|
| KWM-380<br>622-5093-001 | 2099 and below            | 2100                             |
| HF-380<br>622-3580-001  | 206 and below             | 207                              |

Production cut-in for receiver-exciter assembly A3 (638-6908-001, -002) is REV P.

Some radios may exhibit restricted transmit audio response. This modification extends the frequency range of the mic preamplifiers to ensure proper audio frequency response in transmit. After this service bulletin is installed, there should be no more than 5 dB variation in rf output over the audio frequency range of 300 to 2400 Hz.

When the mic carrier control is rotated, it may produce noise in the transmit audio output. This modification adds a dc blocking capacitor in series with the top of the mic carrier control potentiometer to prevent noise generation.

Estimated time required is 1.0 man-hour.

The modification parts are itemized in the material information paragraph. For additional information concerning parts, contact Collins Telecommunications Products Division/Rockwell International, Service Parts Department, Cedar Rapids, Iowa 52498. Reference KWM-380/HF-380 Service Bulletin No 14 in all correspondence.

The following test equipment is required to align the passband tuning oscillator after completion of the modification.

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| ITEM             | SUGGESTED TYPE            | MINIMUM SPECIFICATIONS        |
|------------------|---------------------------|-------------------------------|
| Audio oscillator | Hewlett-Packard 204C      | 300 - 3000 Hz, 0 - 50 mV      |
| Dummy load       | Bird 813T                 | 150 watts continuous, 50 ohms |
| Rf wattmeter     | Bird 43 with 250H element | 0 to 150 watts                |

## MODIFICATION PROCEDURE

- A. Disconnect the transceiver from primary power.
- B. Set the transceiver on its side with the power transformer on top. Remove the dust cover by removing four screws adjacent to the four feet on the bottom of the transceiver.

**CAUTION:** THIS EQUIPMENT CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. SPECIAL HANDLING METHODS AND MATERIALS MUST BE USED TO PREVENT EQUIPMENT DAMAGE. THE MAINTENANCE OPERATOR AND ALL TOOLS SHOULD BE GROUNDED.

- C. Place the transceiver on a workbench with the bottom side up.

**NOTE:** Refer to figure 1 for location of C500 and C509.

Use a 25- to 30-watt soldering iron with a tip designed for use with printed circuits. The tip should be clean to ensure proper melting of the solder prior to component removal or when securing new components to the card. Take care to avoid application of excessive heat.

- D. Remove 470-pF capacitor C500 and replace it with a 2200-pF capacitor (913-5019-120).
- E. Remove 1- $\mu$ F capacitor C509 and replace it with a 4.7- $\mu$ F capacitor (184-9102-390).

**NOTE:** Refer to figure 2 while performing steps F through H. Capacitor C553 is part of receiver-exciter assembly A3 but is mounted on front panel assembly A10. If C553 were mounted on the A3 card, a circuit trace cut on the bottom of the card would be required making it necessary to remove the card from the radio. Refer to figure 3 for a schematic diagram which shows the location of C553.

- F. Install an insulated terminal (306-1018-000) on the S4 mounting screw nearest potentiometer R6. If not enough threads are available, remove the nut.
- G. At R6B-1, remove the white wire and reconnect it to the new terminal installed in step F.



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- H. Install 0.1- $\mu$ F capacitor C553 (913-3331-030) from the new terminal to R6B-1.
- I. Solder and check all new connections.
- J. Perform the following passband tuning oscillator alignment:
  - (1) Set front panel SELECTIVITY BW switch to 2.2 and MODE to LSB.
  - (2) Connect the transceiver to primary power.
  - (3) Connect a wattmeter (with a 250-watt element) and a 50-ohm load to the antenna jack.
  - (4) Connect an audio oscillator to the line AUD IN jack on the chassis rear.
  - (5) Turn transceiver POWER switch on and set tuning knob to a convenient frequency for receiver operation check. Vary PBT control and check for proper operation.
  - (6) Set frequency to 7.0000 MHz.
  - (7) Set audio oscillator frequency to 1000 Hz and output to 50 mV.
  - (8) Push MOX switch in and carefully adjust MIC/CARRIER control for 80-watts rf output. Without changing MIC/CARRIER or audio oscillator level adjustments, change oscillator frequency to 300 Hz.
  - (9) Adjust potentiometer R34 (LSB adjust) on the A4 card to obtain 25-watts output. (5 dB below the 1000-Hz, 80-watt reference).
  - (10) Slowly increase the audio oscillator frequency from 300 to 2400 Hz. Not more than 5 dB variation in rf output should be noted.
  - (11) Unkey the exciter (set MOX switch to the out position) and set MODE switch to USB.
  - (12) Repeat steps (7) and (8).
  - (13) Adjust potentiometer R28 (USB adjust) on the A4 card to obtain 25-watts output.
  - (14) Slowly increase the audio oscillator frequency from 300 to 2400 Hz. Not more than 5 dB variation in rf output should be noted.
  - (15) Unkey exciter (set MOX switch to out position) and disconnect all test equipment.



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(16) Disconnect the transceiver from primary power.

K. Reinstall the transceiver dust cover.

L. Mark SB 14 on the service bulletin information chart. If the transceiver does not have a chart (280-3778-010), order one and attach it near the nameplate.

## MATERIAL INFORMATION

The parts listed below are required to modify one KWM-380 or one HF-380.

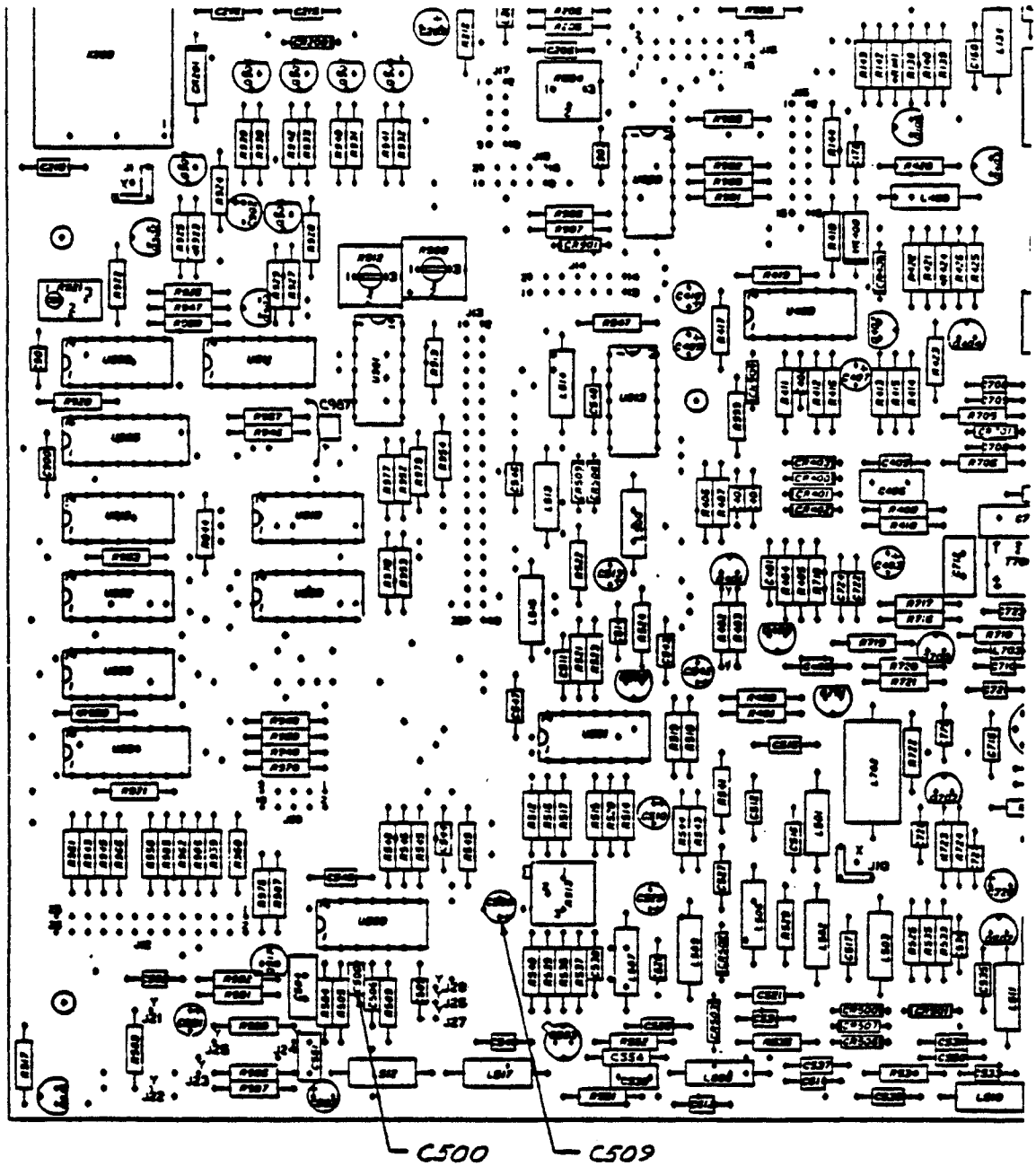
| <u>COLLINS<br/>PART NUMBER</u> | <u>QTY</u> | <u>UNIT<br/>PRICE</u> | <u>DESCRIPTION</u>           |
|--------------------------------|------------|-----------------------|------------------------------|
| 913-5019-120                   | 1          |                       | Capacitor, 2200 pF, C500     |
| 184-9102-390                   | 1          |                       | Capacitor, 4.7 $\mu$ F, C509 |
| 306-1018-000                   | 1          |                       | Terminal, insulated          |
| 913-3331-030                   | 1          |                       | Capacitor, 0.1 $\mu$ F, C553 |
| *280-3778-010                  | 1          |                       | Chart, information           |

\*Order if needed.



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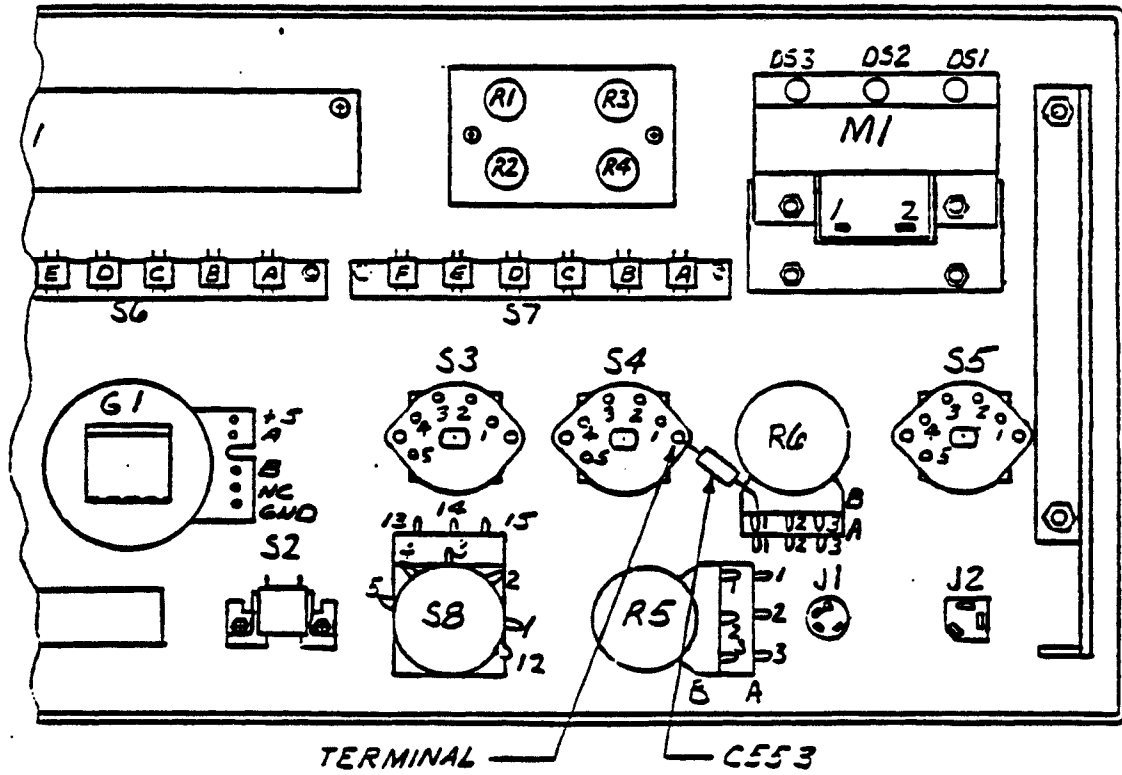


P/O Receiver-Exciter Assembly A3  
Figure 1



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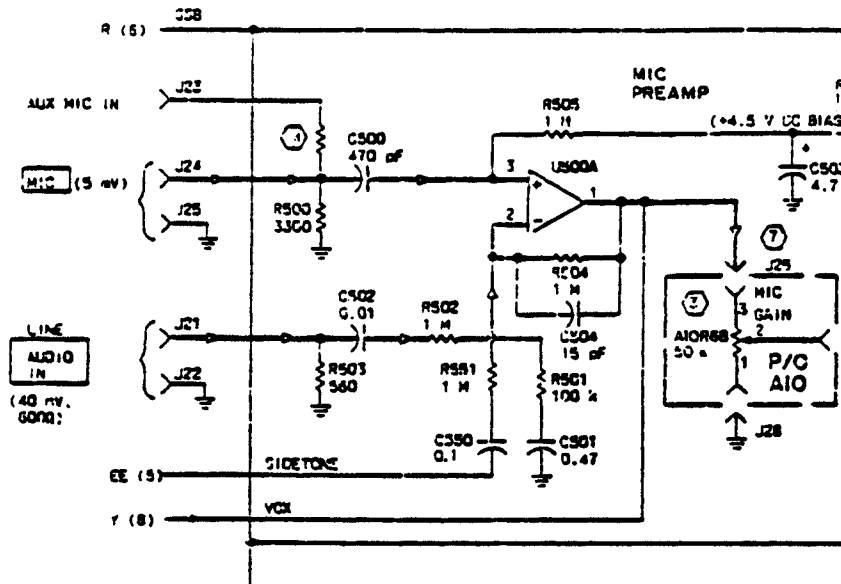


P/O Front Panel Assembly A10  
Figure 2

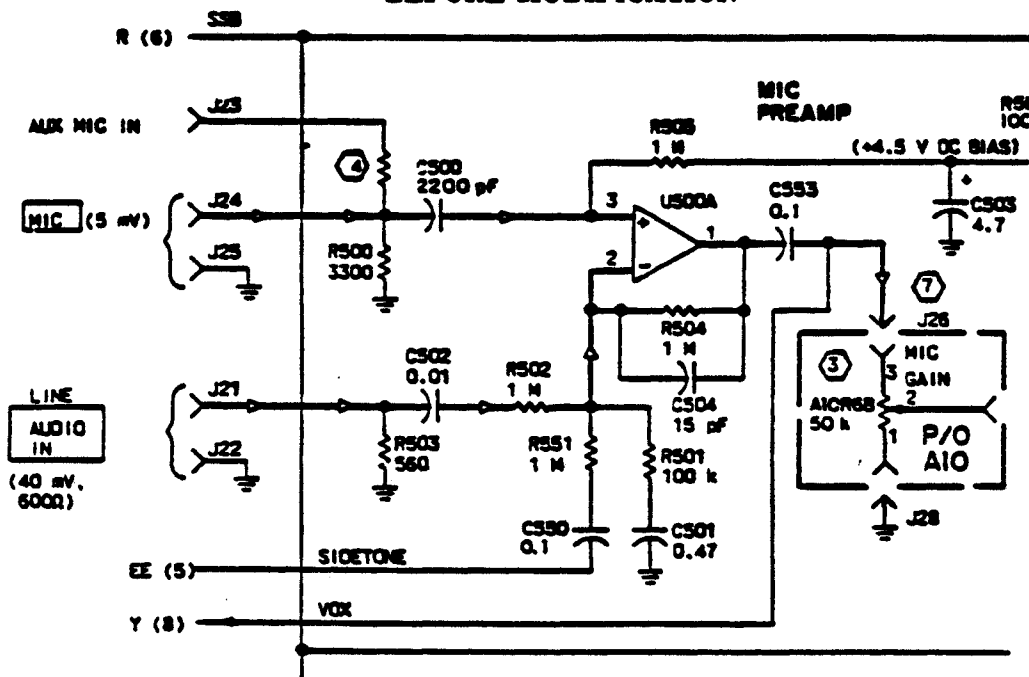


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BEFORE MODIFICATION



AFTER MODIFICATION

P/O Receiver-Exciter Assembly A3,  
Schematic Diagram  
Figure 3