



# SERVICE BULLETIN

EQUIPMENT TYPE

KWS-1

BULLETIN NO.

5

DATE 11-15-57

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**SUBJECT: A. TYPE 4X250B TUBES, VARIATION IN INPUT CAPACITY  
B. CHANGE OF F503 AND F504 TO SLOW BLOW TYPE**

**SUBJECT A: TYPE 4X250B TUBES, VARIATION IN INPUT CAPACITY**

The early 4X250B Tubes, having all-glass seals, had an input capacity somewhat higher than the 4X150's which were employed in the original design of the KWS-1. When manufacturing and in-the-field changes were made from the 4X150's to the 4X250B's it was necessary to decrease the inductance of the 11 and 10 meter Driver Tank coil L705. This was done by removing one turn of the coil, leaving three turns instead of four, but having the same spacing between turns. (The Instruction Book incorrectly describes L705 as having five turns.)

The 4X250B Tube is now being manufactured with a ceramic seal. The ceramic-sealed tubes have lower input capacity than those with glass seals. Reports from customers have indicated that in some instances the 10 meter band will not track when the ceramic-sealed 4X250B's are used in KWS-1's having either the original 4-turn close spaced or the later 3-turn close spaced L705's; the former having slightly too much inductance, the latter not quite enough.

Beginning with about serial number 1000, production KWS-1 transmitters have employed a third design of L705 which works satisfactorily with

4X250B's having either the glass or ceramic seals. The current L705 again has four turns, but with wider spacing than the original. Some transmitters up to serial 1100 or so may have the three turn coil due to the transition from one coil design to another in the middle of a production run.

If difficulty is encountered in tracking the 10 meter band after replacement of the Power Amplifier tubes, L705 should be replaced. The new coil has the same Part Number as the earlier design, 540 5672 00. The replacement procedure is as follows:

1. Disconnect the transmitter from primary power.
2. Turn the Exciter Power Amplifier onto its righthand end. Remove the bottom plate.
3. Locate L705. Reference to the Instruction Book, page 6-35. Figure 6-5, "Exciter, Bottom View, Upper Right Corner," is recommended.
4. Carefully unsolder and remove leads from L705.
5. On top side of chassis, use screwdriver or similar tool to depress the tabs of the coil and slug holding clip. Remove the coil, slug and clip assembly from the chassis.

6. Where the "teeth" of the clip bite into the phenolic coil form, lift the "teeth" away and remove the clip and slug assembly from the coil form.
7. In a reverse manner install the clip and slug assembly on a new L705, Collins Part Number 540 5672 00.
8. Place the new assembly in the chassis, being careful to orient the solder loops of the coil so that connections can be restored. Make certain both tabs of the clip snap into a locking position above the chassis.
9. Reconnect and solder the leads to the coil.
10. Replace bottom plate and return the Exciter/Power Amplifier to its normal operating position. Connect primary power.
11. Retrack the Driver tank on the High 10, Low 10, and 11 meter bands as follows: (It is assumed the preceding exciter stages are properly tracked and neutralized.)
  - a. Turn FILAMENTS ON. Leave P.A. PLATE VOLTAGE OFF.
  - b. Set MULTIMETER switch to P.A. GRID position.
  - c. Set MAIN TUNING dial and BAND CHANGE to 29.5 mc on High 10 band.
  - d. Set EMISSION switch to CAL position.
  - e. Adjust CARRIER LEVEL for mid-scale indication of MULTIMETER. Note: If mid-scale indication cannot be obtained, leave CARRIER LEVEL at maximum clockwise position.
- f. Adjust the slug of the newly installed L705 for maximum P.A. GRID current, reducing the CARRIER LEVEL as necessary to maintain mid-scale deflection of the MULTIMETER.
- g. Set MAIN TUNING dial and BAND CHANGE to 28.5 mc on Low 10 band.
- h. Adjust CARRIER LEVEL per step e, above.
- i. Adjust Ten Meter Trimmer C708 for maximum P.A. GRID current, reducing the CARRIER LEVEL as necessary to maintain mid-scale deflection of the MULTIMETER.
- j. Set MAIN TUNING dial and BAND CHANGE to 27.5 mc on 11 meter band.
- k. Adjust CARRIER LEVEL per step e, above.
- m. Adjust Eleven Meter Trimmer C707 for maximum P.A. GRID current, reducing the CARRIER LEVEL as necessary to maintain mid-scale deflection of the MULTIMETER.

## PART REQUIRED:

QTY.	DESCRIPTION	SYMBOL DESIGNATION	PART NUMBER COLLINS
1	Coil, Radio Frequency: 4 turns #26 AWG wire	L705	540 5672 00

## TO OBTAIN PARTS:

For modification parts, price quotations (minimum order charge is \$15.00), and availability contact Collins Radio Company, Service Parts Department, Cedar Rapids, Iowa 52406. All parts orders must specify the Collins modification kit number, or part numbers, quantity required, and reference this service bulletin.

**SUBJECT B. CHANGE OF F503 AND F504  
TO SLOW BLOW TYPE**

There have been several reports, both from customers and from Collins Final Test, of random failure of Filament, Blower and Low Voltage fuses F503 and F504. Investigation has shown that line surges are the probable cause of these failures. To correct this situation, beginning with units built in December, 1957, power supplies for the KWS-1 will have F503 and F504 revised from Collins Part Number 264 4080 00 to 264 0216 00, the latter being a 3.2 amp 125 volt slow blow replacement for the original 3 amp 250 volt fuse. Visually, the differences between a fast blow fuse and a slow blow or time lag fuse are easily noted.

The fast blow fuse has only a single long fusible element running through the glass enclosure, connecting the two end caps. The time lag fuse contains a short fusible element, a heating device (usually appearing as a short piece of black carbon), and a coil spring to pull the elements apart when sustained overload creates enough heat to melt the low temperature solder with which the elements are joined. KWS-1 users who encounter the above described fuse failure in an otherwise properly functioning equipment may obtain replacement fuses from most distributors of radio and electronic parts, or may order from Collins Radio Company, Service Parts Department. Cedar Rapids, Iowa.

**CROSS REFERENCE:**

<b>DESCRIPTION</b>	<b>COLLINS PART NUMBER</b>	<b>BUSSMAN TYPE NUMBER</b>	<b>LITTELFUSE TYPE NUMBER</b>
Fuse, Cartridge, Glass Enclosed, Time Lag, 3-2/10 ampere, 125 volt.	264 0216 00	MDX-3-2/10	3AG "Slo-Blo" Cat. # 31303.2