



SERVICE BULLETIN

COLLINS RADIO COMPANY

Cedar Rapids, Iowa 52406

EQUIPMENT TYPE	KWS-1	BULLETIN NO.	3	DATE	6-30-57
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SUBJECT: A. IMPROVED SPARK SUPPRESSION OF CONTACTS OF VOX RELAY K101

B. ALC MODIFICATION

SUBJECT A. IMPROVED SPARK SUPPRESSION OF CONTACTS OF VOX RELAY K101

An improved spark suppression circuit for the contacts of VOX Relay K101 has been designed. Production models of the KWS-1 with serial numbers from 695 through 1248 employ a 100-ohm resistor, R246, and a 0.01 mf capacitor, C315, connected across the relay contacts to provide this suppression. Service Bulletin No. 2A outlined the incorporation of these components into units in the field. A small selenium rectifier, now available, will accomplish the suppression more effectively than the resistor-capacitor network. The rectifier effectively shorts the counter-EMF developed by the collapsing field in the relay coil before it gets to the VOX relay contacts.

Production units carrying serial numbers above 1248 have this modification incorporated. The following procedure outlines the incorporation of this modification into units below serial number 1249.

MODIFICATION PROCEDURE

1. Remove interconnecting plugs P102 and P103 from the rear of the transmitter.

2. Remove the blower hose.
3. Remove the six screws holding the cover on the filter box directly under the blower hose connection. Remove this cover.
4. If resistor-capacitor network R246 and C315 is connected across the contacts of K101, remove these components.
5. Mount Selenium Rectifier CR201 (353 0153 00) in an existing hole using washer (310 0056 00), lock washer (310 0071 00) and nut (313 0053 00).
6. Connect a short piece of #22 insulated wire from the rectifier terminal marked 1 to pin 4 of J102.
7. Connect another short piece of #22 insulated wire from the other rectifier terminal to pin 9 of J102.
8. Bend over the rectifier terminals sufficiently to clear the filter box cover when it is replaced.
9. Replace the filter box cover with its six screws, blower hose and connectors.

PARTS REQUIRED

QTY.	DESCRIPTION	SYMBOL NUMBER	COLLINS PART NUMBER
1	Rectifier, Selenium	CR201	353 0153 00
1	Washer		310 0056 00
1	Washer, Lock		310 0071 00
1	Nut		313 0053 00

SUBJECT B. ALC MODIFICATION

The Automatic Load Control circuit of the KWS-1 has been changed in order to eliminate "tails" on the ends of transmissions because of the ALC action. The tail is caused by rapid decay of the ALC voltage, which allows the gain of the transmitter to come up before the VOX relay drops out. This causes background room noise to produce the tail between the time the operator quits talking (ALC stops) and the VOX relay drops out.

To eliminate this problem a two-speed time constant has been added in the ALC circuit. One section is fast, allowing normal ALC action during speech. The other section is slow. The resultant is a rapid decay of ALC voltage down to a certain level, then a very slow decay from that point on. This keeps the gain of the transmitter down to a reasonable level until the VOX relay drops out, eliminating the tail. Transmitters bearing serial numbers 1083 and higher include factory-built circuitry which, although not identical with the modification described here, accomplishes the same result in a manner more convenient to production methods. The following procedure outlines the incorporation of the two-speed time constant into the ALC circuit of equipments having serial numbers 1082 and below.

PARTS REQUIRED

QTY.	DESCRIPTION	COLLINS PART NUMBER
1	Tie point	306 9032 00
1	Capacitor, .0033 mf, $\pm 10\%$, 400 v.	931 0283 00
1	Capacitor, .47 mf, $\pm 10\%$, 100 v.	931 0500 00
1	Resistor, 680 K, $\pm 10\%$, 1/2 w.	745 1471 00
1	Resistor, 3.3 mg, $\pm 10\%$, 1/2 w.	745 1499 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.

MODIFICATION PROCEDURE

1. Remove bottom plate of transmitter.
2. Mount a tie point (305 9032 00) on the screw which holds shield in r-f chassis beside K101 near C297. C297 is the 1000 mmf capacitor mounted beside sideband filter FL101.
3. Using this tie point, connect a .0033 mf capacitor (931 0283 00) in parallel with a 680 K resistor (745 1471 00). Also connect a .47 mf capacitor (931 0500 00) in parallel with 3.3 megohm resistor (745 1499 00). Connect these two circuits in series with each other from C297 to ground.
4. Replace bottom plate.
5. Remove the top cover from the power amplifier.
6. Remove the shield from the base of V403.
7. Remove R407, 470K 1/2-watt resistor connected from pins 1 and 6 of V403 to insulated terminal post.
8. Replace shield on base of V403.
9. Replace cover on power amplifier box.