

COLLINS RADIO COMPANY

CEDAR RAPIDS, IOWA

EQUIPMENT TYPE KWS-1 **BULLETIN NO.** 2A **DATE** 1-25-57
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SUBJECT: A. USE OF CRYSTAL MICROPHONE WITH KWS-1
 B. PREVENT ARCING OF CONTACTS ON VOX RELAY
 C. HEAT REDUCING TUBE SHIELDS

This Bulletin is being reissued to include Type 66J tube shields used in the power supply of the KWS-1, and revise the ordering procedure of Section C. Therefore Service Bulletin #2 becomes obsolete and should be discarded.

SUBJECT A: USE OF CRYSTAL MICROPHONE WITH KWS-1.

Recent engineering investigation has shown that the value of R102 in the grid of the audio amplifier, V101, caused a serious low frequency attenuation when a crystal microphone is used with the KWS-1.

In order to improve the quality of transmission this resistor has been changed to a value of 1 megohm effective with serial number 714. R102 may be replaced in prior built exciters as described below.

1. Remove bottom plate by removing 24 screws.
2. Remove 100K ohm 1/2 watt resistor. R102 connected from pin 2 of V101 to grounded lug on terminal strip.
3. Replace with 1 megohm, 1/2 watt $\pm 10\%$, R102 (CPN 745 1478 00) between pin 2 of V101 and grounded lug on terminal strip.

ADDITIONAL PARTS REQUIRED:

<u>Qty.</u>	<u>Description</u>	<u>Circuit Symbol</u>	<u>Collins Part Number</u>	<u>Price</u>
1	Resistor, 1 megohm, 1/2 w $\pm 10\%$	R102	745 1478 00	\$.10

The above resistor kit may be obtained by ordering from Collins Radio Company, Service Parts Department, Cedar Rapids, Iowa after January 30, 1957 at no charge for a period of six (6) months from the date of this Service Bulletin. All orders for this part should make reference to this Service Bulletin.

SUBJECT B: PREVENT ARCING OF CONTACTS ON VOX RELAY

It has been discovered that some arcing is taking place at contacts 4 and 5 on the voice operate relay, K101, in the KWS-1. To prevent this arcing and increase the life of the relay contacts an arc suppression filter has been incorporated in production of the exciter effective with serial number 695. It is recommended that this filter be installed on all units below the above serial number and may be accomplished as described below.

1. Mount resistor R246, 100 ohm 1 watt \pm 10% (CPN 745 3310 00) and capacitor C315, .01 mfd 500V (CPN 913 1188 00) on tie point (CPN 306 2230 00) as shown in Figure 1. Do not solder.
2. Mount above assembly under existing screw which fastens shield to RF chassis as shown in Figure 2.
3. Remove DA936, white with orange and blue tracers, wire from terminal 5 of K101 and connect to tie point assembly as shown in Fig. 2.
4. Remove DA913, white with orange and brown tracers, wire from terminal 4 of K101 and connect to tie point assembly as shown in Fig. 2.
5. Connect terminals 4 and 5 of K101 to the tie points using #22 buss wire (CPN 421 2220 00) as shown in Figure 2. Solder all connections.
6. Replace bottom plate onto exciter.

ADDITIONAL PARTS REQUIRED:

MODIFICATION KIT 542 3158 00.

<u>Qty.</u>	<u>Description</u>	<u>Circuit Symbol</u>	<u>Collins Part Number</u>
1	Tie Point		306 2230 00
1	Resistor, 100 ohm 1 watt \pm 10%	R246	745 3310 00
1	Capacitor, .01 mfd 500V	C315	913 1188 00
0.5	Wire, #22 buss (ft)		421 2220 00

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 C: HEAT REDUCING TUBE SHIELDS

A heat reducing tube shield and liner has been developed by Collins that can lower bulb hot spot temperature rise above ambient to 55 percent of former values. Current information indicates that the 66J shields can reduce tube failures to less than 1/2 of failures encountered using the nickel plated JAN tube shields or black shield with opening in the walls that are not 66J type. The 66J provides longer tube life by conducting heat from the glass tube to the metal shield, socket, and chassis which then radiates the heat into the air. The common nickel plated tube shield actually raises the tube glass temperature higher than glass temperature would be if the tube was run without a shield. Therefore, on tubes V105, V106, and RT101 where shielding is not necessary, the life of these tubes can be increased by removing the nickel plated JAN tube shields. However, if the 66J series tube shield is used, removal of the shield on these tubes will cause them to run hotter. The presence of this new shield can be noted by its black finish whereas JAN shields are nickel plated.

In keeping with the policy of incorporating new designs into production of equipment, these type 66J are now being used in the production of the KWS-1. Customers having the KWS-1 employing the use of these new shields SHOULD NOT remove the shield from the tubes V105, V106 and RT101.

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.

PARTS REQUIRED: MODIFICATION KIT 542 3177 00

Kit consists of:

<u>Qty.</u>	<u>Tube</u>	<u>Shield Type No.</u>	<u>Collins Part Number</u>
2	V107, V509	66J-1	522 0441 003
7	V001, V202, V203, V205, V208, V209, V507	66J-2	522 0442 003
4	V105, V106, V403, V506	66J-3	522 0443 003
7	V101, V102, V103, V104, V201, V204, V505	66J-5	522 0445 003
3	V206, V207, RT101	66J-6	522 0446 003

FIGURE 1
Mounting of component on terminal strip

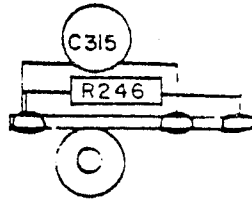


FIGURE 2

