



product support

SERVICE BULLETIN

COLLINS RADIO COMPANY

SERVICE BULLETIN NO. 1

EQUIPMENT SERIES: 32S-3

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EQUIPMENT TYPE: 32S-3 TRANSMITTER

SUBJECT: IMPROVE VOX CIRCUIT TO ELIMINATE INTERMITTENT DROPOUT, AND IMPROVE OPERATION OF FIRST AUDIO AMPLIFIER

NOTE This service bulletin supersedes 32S-3 Service Bulletin No. 5, dated 6-11-63, and 32S-3 Service Bulletin No. 6, dated 7-10-64, and revised 8-28-64.

The modification described in this service bulletin has two purposes. First, an improvement is made to the vox circuit to eliminate intermittent dropout of the vox relay. For this modification, alteration of VOX/ANTI-VOX circuit gain, and changes in the associated time constants are required. It is suggested that this modification be made to all units experiencing vox relay dropout difficulties.

The second purpose of this modification is to improve the overall performance of the first audio amplifier. It has been established that choke L1 in the grid circuit of tube V1 is self-resonant at random frequencies, which sometimes results in various unrelated malfunctions. These malfunctions usually occur when accessories (phone patch, linear amplifier, etc.) are employed. Choke L1 is replaced with a resistor, and the circuit for V1 is altered to perform this modification.

These changes have been incorporated in production units. To determine whether your transmitter has them included, examine the circuits to check the components for the modification values listed in the procedures below.

Only experienced persons who are active in the electronics field and who have access to adequate test bench facilities should attempt to perform this modification. Others may send transmitters to an Authorized Service Agency or to the Collins Radio Company, Product Repair and Maintenance (PRM) Department.

All changes described in this service bulletin, except that described in step 9, are covered in the fourth edition of the 32S-3 Transmitter Instruction Book, dated November 15, 1966. The fifth edition of the 32S-3 Transmitter Instruction Book will cover the change described in step 9.

The estimated time required to complete this modification is 2.0 hours.

MODIFICATION PROCEDURE

1. Remove 32S-3 from cabinet as follows:
 - a. Disconnect all power and external connections.
 - b. Remove the four cabinet feet, and remove the screw located in the cabinet midway between the rear feet.
 - c. Lift the cabinet lid and remove the two unpainted screws fastening the chassis to the cabinet at the front rim.
 - d. Apply pressure from the rear of the unit and push the transmitter chassis forward within the cabinet until the front panel protrudes about an inch from the cabinet.
 - e. Grip the front panel at the edges, and slide the transmitter chassis forward and out of the cabinet. Turn the transmitter upside down and place it on a suitable work bench.

NOTE Refer to the figure below for component locations, and pin and terminal designations of components.

2. Substitute new 47K resistor R138 (745-1422-000) for choke L1. The choke is connected between tube socket XV1, pin 9, and terminal strip TB1.
3. Substitute new 100K resistor R101 (745-1436-000) for 1-megohm resistor R101. This resistor is located on terminal strip TB1.
4. Connect new 0.1-uf capacitor C188 (913-3152-000) between XV1, pin 8, and the ground terminal of terminal strip TB5.
5. Substitute new 0.02-uf capacitor C119 (913-2142-000) for 0.1-uf capacitor C119. Capacitor C119 is located between tube socket XV10, pin 5, and terminal 11 of relay K1.
6. Connect two new 0.1-uf capacitors C186 and C190 (both 913-3152-000) in parallel between XV10 pins 5 and 7.
7. Connect new 20-uf capacitor C184 (183-1165-000) between XV14, pin 8 (positive lead), and TB7, terminal 3 (negative lead).
8. Connect new 20-uf capacitor C185 (183-1165-000) between XV14, pin 3 (positive lead), and TB5, terminal 2 (negative lead).
9. Substitute a new 220K resistor (745-1450-000) for 680K resistor R73. Resistor R73 is connected between XV2, pin 9, and TB3, terminal 2. Transmitters that have a shield around XV2 do not have a terminal board TB3, and R73 is connected

between XV2, pin 9, and XV2, terminal F. To remove the shield, disconnect the choke L2 lead from XV2, terminal E, and the capacitor C92 lead from XV2, terminal D. Remove the three screws that secure the shield in place. These screws are removed from the top of the chassis. After R73 has been replaced, reconnect the component leads to the original terminals, and replace the shield.

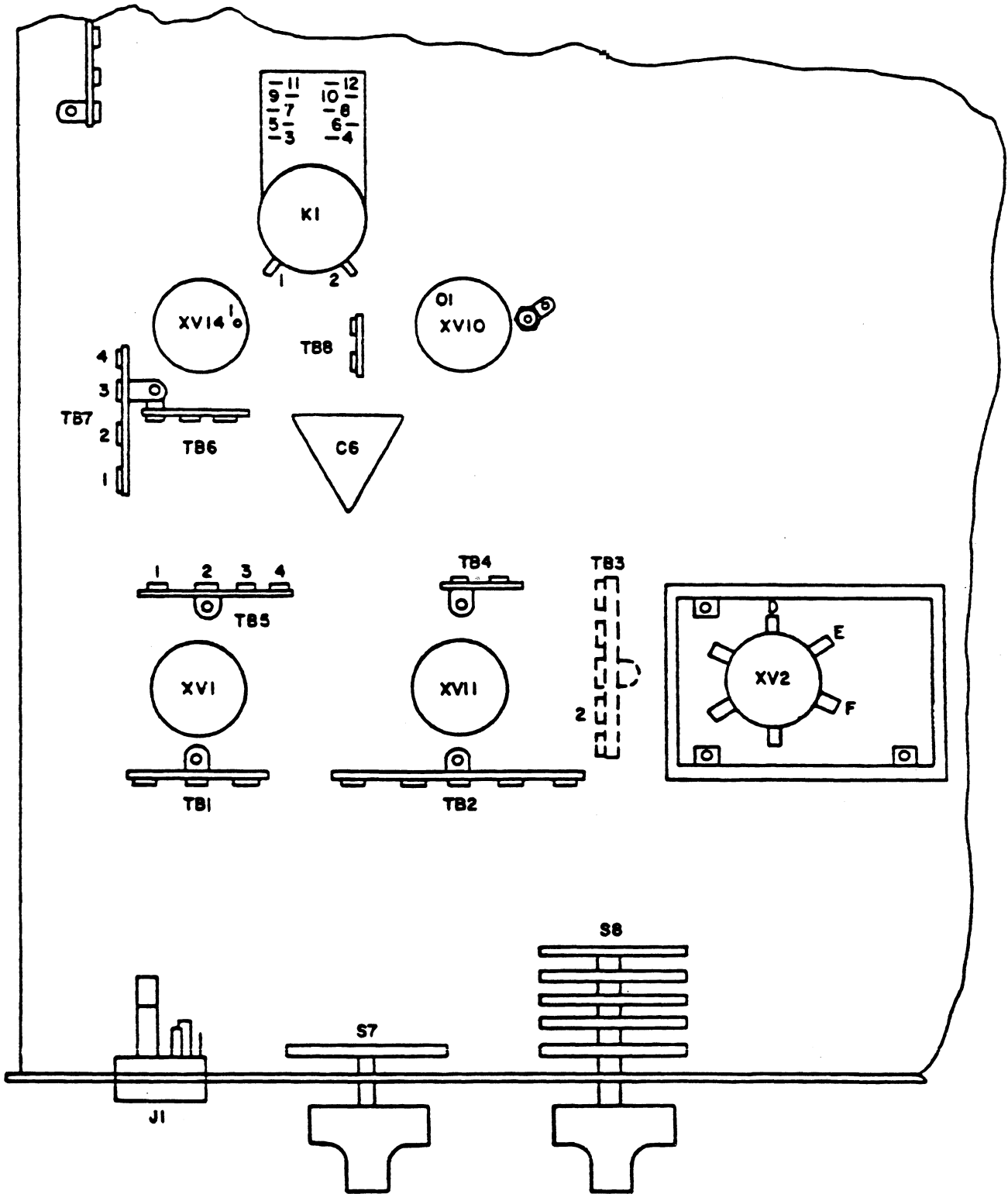
10. Substitute new 6-pf capacitor (916-0122-000) for 3-pf capacitor C28 (see figure 6-8, fourth edition of 32S-3 Transmitter Instruction Book, for location of C28).
11. Replace transmitter chassis in cabinet and secure in place with the hardware removed in step 1.

PARTS REQUIREDPRICE \$2.90

Modification kit 775-4146-001 consists of the following:

<u>QTY</u>	<u>DESCRIPTION</u>	<u>SYMBOL</u>	<u>COLLINS PART NUMBER</u>
1	Resistor, 47K, 1/2-watt, composition	R138	745-1422-000
1	Resistor, 100K, 1/2-watt, composition	R101	745-1436-000
1	Resistor, 220K, 1/2-watt, composition	R73	745-1450-000
2	Capacitor, 20-uf, polar, 500-VDC	C184, C185	183-1165-000
1	Capacitor, 0.02-uf, ceramic, 500-VDC	C119	913-2142-000
3	Capacitor, 0.1-uf, ceramic, 500-VDC	C186, C188 C190	913-3152-000
1	Capacitor, 6-pf, ceramic, 500-VDC	C28	916-0122-000

The above parts may be obtained from Collins Radio Company, Service Parts Department, Cedar Rapids, Iowa 52406 at the price indicated. This price is subject to change without notice. All orders should specify modification kit 775-4146-001 and make reference to 32S-3 Service Bulletin No. 1. Parts are available for immediate shipment.



32S-3 Chassis, Partial View Showing Location of Components Affected by This Modification