COLLINS RADIO COMPANY

Cedar Rapids, Iowa 52406 telephone : area code 319, 365-8411 cable : COLINRAD

AMATEUR SERVICE AGENCY BULLETIN NO. 1016

DATE: 10-12-65

EQUIPMENT TYPE: KWM-2/2A TRANSCEIVER

SUBJECT:
A. CRYSTAL CALIBRATION
B. "YELP" PROBLEM
C. REDUCE LOW-FREQUENCY SPURIOUS
D. HIGH-FREQUENCY TWEETS
E. ELIMINATE 0.455-KC SIGNAL BYPASSING TRANSMIT MIXER
F. IMPROVE CARRIER BALANCE

The purpose of this bulletin is to provide information concerning updating changes (product improvements) and changes to correct problems experienced in the field with the KWM-2/2A.

A. Crystal Calibration

It has been found that in some units the crystal calibrator trimmer capacitor does not have sufficient range to allow the crystal to be properly calibrated. For transceivers exhibiting this problem it is suggested that the 5-pf capacitor, C267, be replaced with a 10-pf capacitor (912-2754-000).

ITEM	DESCRIPTION	COLLINS PART NUMBER
C267	Capacitor, 10-pf ±10%, fixed mica, 50 vdc	912-2754-000

B. "Yelp" Problem

In some cases a "yelp" is emitted from the speaker immediately after the transceiver returns from transmit to receive. This undesirable sound usually occurs when the rf gain is at maximum and the audio gain is set high. The mike gain has no apparent effect on the problem.

For those units experiencing this problem, it is suggested that the following changes be made: (Refer to schematic section F).

1. Disconnect the end of the 4.7K resistor, R176, connected to L9-4, and reconnect it to L9-3.

2. Install a 1N1490 diode, CR10 (353-1659-000), with the anode to L9-4 and the cathode to L9-3.

ITEM	DESCRIPTION	COLLINS PART NUMBER
CR10	Semiconductor device 1N1490	353-1659-000

C. Reduce Low-Frequency Spurious

A low-frequency spurious oscillation caused by the mutual inductance of coils L3 (2 mh) and L33 (10 mh) can be reduced by relocating capacitor C238 (0.1 uf) to the junction of coil L3 and resistor R169.

D. High-Frequency Tweets

Occurring high-frequency tweets are the result of excessive vfo injection. Resistor R22, if properly selected, will eliminate this problem. This component is selected by production and has been a 56-ohm resistor. To eliminate the tweets and for better operation, it is suggested that this resistor be replaced with a 100-ohm, 1/2-watt resistor (745-1310-000).

ITEM	DESCRIPTION	COLLINS PART NUMBER
R22	Resistor, 100-ohm ±5%, 1/2-watt fixed, composition	745-1310-000

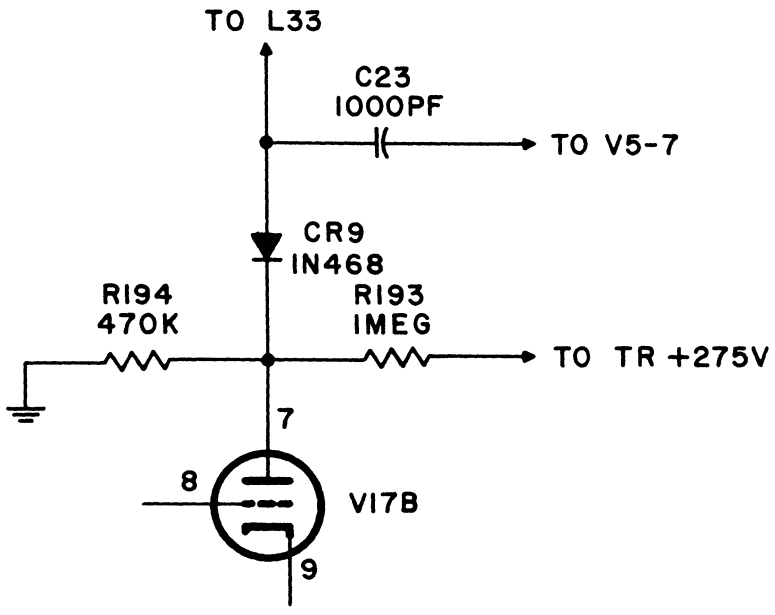
E. Eliminate 455-KC Signal Bypassing Transmit Mixer

In some units, a "sneak" circuit has allowed a portion of the 455-kc signal to bypass the first transmit mixer. This can be eliminated by performing the following changes:

1. Replace the 220K resistor R193 with a megohm, 1/4-watt resistor (745-0857-000).

2. Replace the 0.1-megohm resistor R194 with a 470K, 1/2-watt resistor (745-1464-000).

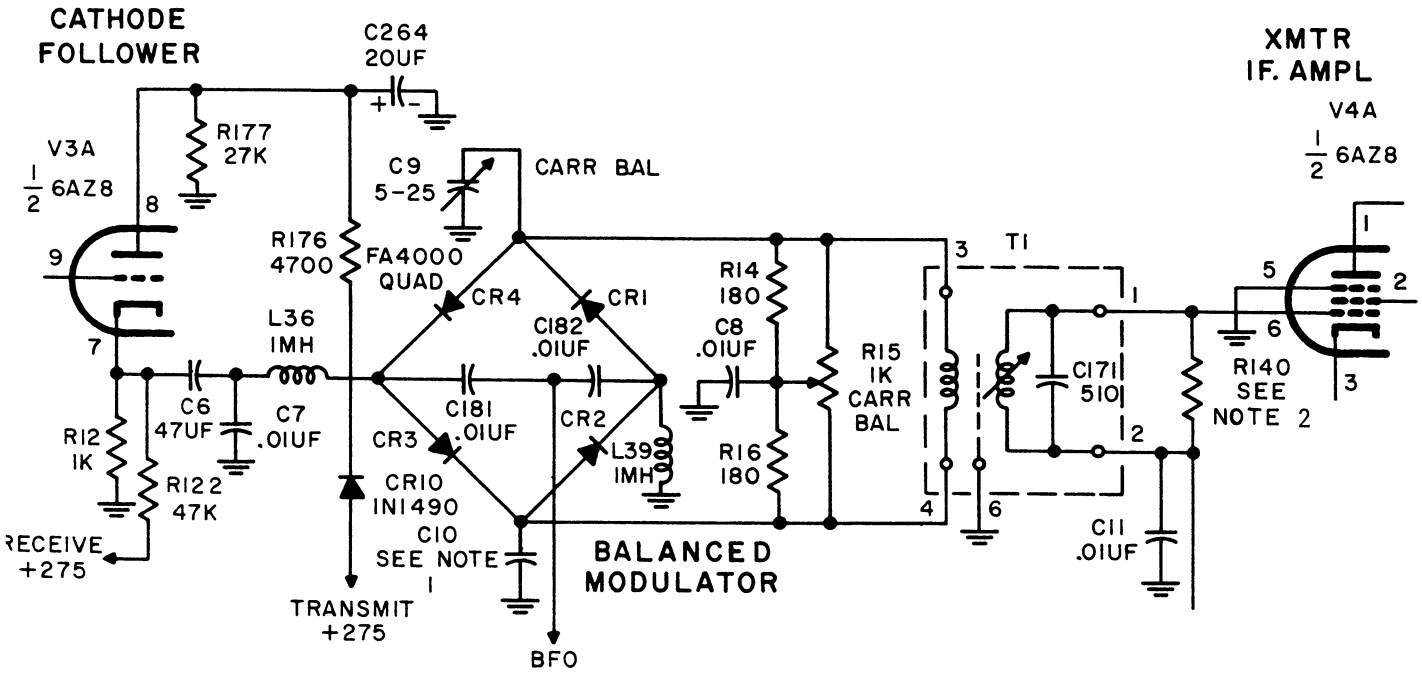
3. Relocate the 1N458 diode, CR9, to the position shown below:



ITEM	DESCRIPTION	COLLINS PART NUMBER
R193	Resistor, 1 megohm ±10%, 1/4-watt fixed, composition	745-0857-000
R194	Resistor, 470K ±10%, 1/2-watt, fixed, composition	745-1464-000

F. Improve Carrier Balance

A number of changes have been made in the balanced modulator circuitry to improve the carrier balance. The current production version is shown below:



NOTES:
1. Capacitor, C10, value varies from 20-pf to 150-pf.
2. Resistor, R140, selected in production, value varies from 560-ohms to 1.2K.
3. Capacitor, C171, is a part of T1.

ITEM	DESCRIPTION	COLLINS PART NUMBER
C6	Capacitor, 0.47 uf, 25 vdc, fixed, ceramic	913-3804-000
C7	Capacitor, 0.01 uf, 500 vdc, fixed, ceramic	913-3013-000
C8	Capacitor, 0.01 uf, 500 vdc, fixed, ceramic	913-3013-000
C9	Capacitor, 5.0 to 37.5 pf, 350 vdc, variable	917-1073-000
C11	Capacitor, 0.01 uf, 500 vdc, fixed, ceramic	913-3013-000
C181	Capacitor, 0.01 uf, 500 vdc, fixed, ceramic	913-3829-000
C182	Capacitor, 0.01 uf, 500 vdc, fixed, ceramic	913-3829-000
C264	Capacitor, 20 uf, 350 vdc, fixed electrolytic	183-1049-000
CR1-4	Semiconductor device set FA-4000	353-3271-000
CR10	Semiconductor device, 1N1940	353-1659-000
L38	Coil, 1 mh ±5%, radio frequency	240-2540-000
L39	Coil, 1 mh ±5%, radio frequency	240-2540-000
R12	Resistor, 1K ±10%, 1/2-watt, fixed, composition	745-1352-000
R14	Resistor, 180-ohm ±10%, 1/4-watt, fixed, composition	745-0722-000
R15	Resistor, 1K ±20%, variable, composition	376-4623-000
R16	Resistor, 180-ohm ±10%, 1/4-watt, fixed, composition	745-0722-000
R122	Resistor, 47K ±10%, 2-watt, fixed, composition	745-5722-000
R176	Resistor, 4.7K ±10%, 1-watt, fixed, composition	745-3380-000
R177	Resistor, 27K ±10%, 2-watt, fixed, composition	745-5712-000
T1	Transformer, intermediate frequency, 440 kc to 470 kc	278-0696-000