BROWNING LABORATORIES, INC. - 1269 UNION AVENUE - LACONIA, N. -H. O.

## SERVICE HINTS - S-NINE and 23/S-NINE

(Rev. 3/15/63)

I LOW AUDIO

Check microphone - 12AX7, 12AU7, 6BQ5

II DISTORTED AUDIO

(If barrel audio) change to 270K instead of 10 Meg in audio input. Values all the way from 100K to 10 Meg could be substituted to please an individual customer (the lower the resistor the more highs in the audio.)

III LOW RF POWER OR NO RF POWER

Poor drive from oscillator or buffer - change 6EA8 - 6V grid of buffer - 30-50V grid of final.
Change 5763, leaky screen bypass.
Change 220 mmf to ground. Shorted RF choke.
The final tube (when peaked up) should run quite close to 250V on the plate and 150 on the screen.
Check relay contacts. 6BQ5 draws excessive current.

IV GOOD AUDIO BUT LOW INDICATION ON METER

Change IN67 diode in meter circuit and look for defective audio filter.

POOR OR NO V.O.X.

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Check threshold pot. check microphone and check for adequate audio to drive this circuit (see \* voltage drive chart at different points in this circuit.) Be sure microphone is open in the off position. Hum in receiver audio preventing VOX from operating. Check item 1 in ReceiverHints. Check for leaky condenser in this circuit (C13, C14, 15 or 16).

VI CRYSTALS INTERMITTENT WITH ADAPTER ON S-NINE

Check for old set - modify by grounding cathodes and switching B+ as in latest schematic. Be sure buffer grid is - 6VDC VTVM. Tuning buffer and final will help stabilize this condition. On 23/S-Nine, if crystals are unstable, tune buffer to favor the low end of the band slightly.

VII RELAY CHÂTTERS

Contacts dirty, or not adjusted properly. Wires too heavy going to relay post which makes relay bind mechanically. (Use flexible multistrand wire).

VIII BLOWING FUSES

Refer to R2700 Hints, Item XI and use same methods. Check for shorted final with OHM meter (antenna and plate tuning.)

\* <u>VOX TEST POINTS</u>...With a 1000 cycle whistle close to the microphone Read the following DC volts on a VTVM:

Pin 6 V6 (6BV8) -12V peak PIN 2 V6 (6BV8) + 10 swing up to +40 volts

Pin 3 V6 (6BV8) Down swing 300-230 PIN 9 V6 (6BV8) -.5 Swing to volts when relay pulls

Junction of C14 Up to -3 volts PIN 1 V6 (6BV8) +20 to 40 volts & C15

X RF FEEDBACK

This can be determined by hearing a squeal on the air. Corrections:
Add a .01 condenser from the B+ side of the buffer coil to ground. Be sure
and solder this ground side of the condenser directly to the chassis with
as short a lead length from the capacitor as possible. Add a .001 condenser from pin 4 to ground of the 5763. Add a 100 mmf condenser from
pin 2 to ground of the 12AU7. Add a .001 cap.from pin 485 to grnd.of 12AX7.

(I It has been noted in the past that occasionally the 1N67 diode in the modulation meter circuit in your transmitter has become weak; low indication on the meter - replace the 1N67 diode with F6 type, which is now

being added in our current production.