

TABLE I

REF. SYM.	TUBE TYPE	FUNCTION	REF. SYM.	TUBE TYPE	FUNCTION
V1	6BA6	RF Amplifier	V6	6BE6	CW Oscillator and SSB Demodulator
V2	6BE6	Mixer	V7	6C4	HF Oscillator
V3	6BA6	1st IF Amplifier	V8	5Y3GT	Rectifier
V4	6BA6	2nd IF Amplifier	V9	0B2	Voltage Regulator
V5A	1/2 6AL5	Detector and AGC	V10A	1/2 12AT7	S-meter Amplifier
V5B	1/2 6AL5	Noise Limiter	V10B	1/2 12AT7	Audio Amplifier
			V11	6AQ5	Audio Output Amplifier

A superheterodyne circuit is used in which signals from the RF amplifier and local oscillator are heterodyned in the mixer producing a 455 kc IF signal. This mixer product is then amplified by two stages of IF amplification and demodulated in the detector. The resulting intelligence is amplified by two audio amplifier stages to a sufficiently high level to drive a loudspeaker or headphones.

The crystal filter provides six degrees of selectivity

as shown in the IF selectivity chart, figure 3-3. Bandwidth of the crystal filter varies from 3.8 kc to 50 cycles at 6 db points over the six positions of the SELECTIVITY switch.

A product detector is used for single sideband and CW reception. An extremely stable CW oscillator is used for carrier injection. Sufficient oscillator stability for single sideband reception is ensured by power supply regulation and careful circuit design.

#### CAUTION

YOUR NC109 IS DESIGNED TO OPERATE FROM A 105 TO 130 VOLT 50 TO 60 CYCLE AC SOURCE ONLY. CONNECTION TO A DC POWER SOURCE WILL RESULT IN SERIOUS DAMAGE.

## SECTION 2 INSTALLATION

### 2.0 UNPACKING

To prevent damaging your receiver when unpacking, the procedure outlined below should be followed:

- Remove top pad and cover insert.
- Remove rear insert.
- Slide receiver back in the carton.
- Remove front insert.
- Your receiver will now be free of packing material and may be taken from its carton.

### 2.1 INITIAL SETUP

Your NC109 has been carefully inspected and tested before shipment and is ready to put into operation. Location of your NC109 should be such that the rear of the receiver is at least two inches from any obstruction to allow adequate ventilation.

Terminal strips, for connection of a loud-speaker and antenna, are provided as illustrated in figure 2-1. Receiver output is designed to match a 3.2 ohm loud-

speaker. A National NTS-1 matching speaker is recommended for use with your NC109.

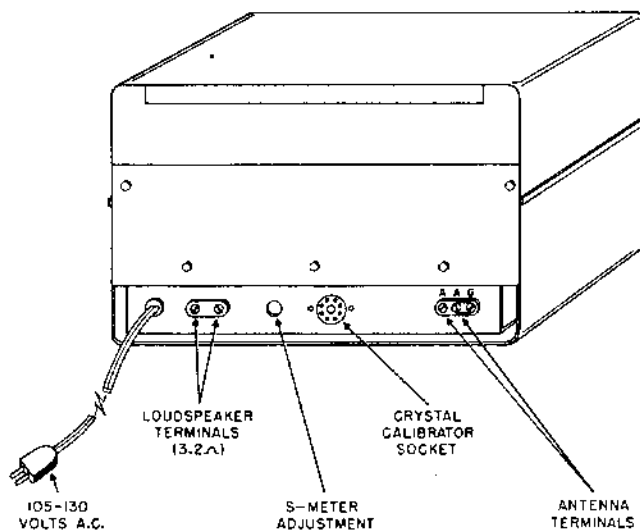


Figure 2-1. Rear View of NC109 Receiver