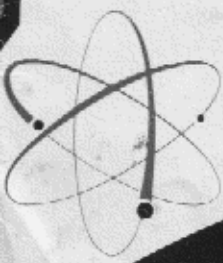




MODEL 345 SKY SWEEP- INSTRUCTION BOOK



TAPETONE, INC. 10 ARDLOCK PLACE, WEBSTER, MASS. U.S.A.

SKY SWEEP INSTRUCTIONS

SECTION I—DESCRIPTION

GENERAL:

The Tapetone Model 345 is a 6 meter amateur band receiver utilizing the latest in modern design techniques to provide the most for the serious VHF operator. Designed with VHF in mind, the Tapetone 345 is a compact, efficient receiver with all the quality features Tapetone is famous for. For maximum utility, the receiver uses a high frequency crystal lattice filter, an S-Meter, variable IF and RF gain and linear heterodyne detector for CW and SSB. In addition to these operational features, basic design improvements result in high sensitivity, exceptional selectivity and excellent oscillator stability.

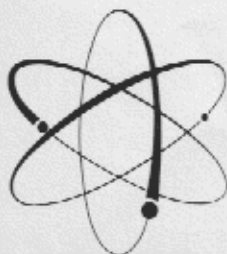
The Sky Sweep receiver features a single-conversion superheterodyne circuit employing 9 tubes plus the rectifier and voltage regulator. Through the use of a high frequency IF and crystal lattice filter, excellent selectivity and image rejection have been achieved. Direct frequency coverage is 49-54 mc with calibration provided for the 144, 220 and 432 mc bands which may be covered with external converters. Band scanning is facilitated through the use of a free-moving gear train driven by a heavily weighted tuning knob. Modern design techniques have been used in producing a tuning system completely free of any form of backlash.

The outward appearance of the receiver is modern and functional in every respect. Complete ventilation is provided through the use of perforated aluminum top and bottom plates. The rugged end bells of deep drawn aluminum provide complete mechanical stability and maximum shielding of critical receiver circuits.

FREQUENCY COVERAGE:

The Tapetone 345 is designed for the serious VHF enthusiast. Basic frequency coverage is 49-54 mc with calibration provided for 143-148, 220-225 and 431-436 mc. The extra megacycle at the bottom of the 6 meter band permits monitoring of commercial stations when the band may open for long or short skip contacts. Converters are available for the three higher VHF bands. The use of a 50 mc tunable IF, band-pass tuned circuits in the converters and complete shielding throughout the system minimizes the IF feedthrough and spurious response problems inherent in most common VHF receiving systems. The following is a handy tabulation of the frequency coverage afforded by the Tapetone Sky Sweep and its accessories.

Band	Frequency Range	Converter Required
6 Meters	49-54 mc	None
2 Meters	143-148 mc	Tapetone TC-144-6
1 1/4 Meters	220-225 mc	Tapetone TC-220-6
3/4 Meters	431-436 mc	Tapetone TC-432-6



CONTROLS:

The following controls appear on the front panel of the Sky Sweep receiver:

Tuning	Off-Volume
Antenna	Xmt-Rec.
R.F. Gain — AVC in	B.F.O. Pitch
I.F. Gain	
A.M. — A.M. Lim.- CW-SSB	

TUBE FUNCTIONS:

The following table lists the types and functions of all tubes used in the Sky Sweep receiver:

Designation	Tube Type	Function
V ₁	6BQ7A	Cascode RF Amplifier
V ₂	6AU6	HF Oscillator
V ₃	6CB6	Mixer
V ₄	6BA6	1st IF Amplifier
V ₅	6BA6	2nd IF Amplifier
V ₆	6AL5	AM Detector, Noise Limiter
V ₇	6BA6	CW Oscillator — Heterodyne Detector
V ₈	12AT7	S-Meter Amplifier — AF Amplifier
V ₉	6AQ5	AF Output
V ₁₀	0B2	Voltage Regulator
V ₁₁	5Y3GT	Rectifier

POWER REQUIREMENTS:

The Tapetone 345 requires a 105-125 volt 60 cycle AC source of supply. Power consumption is approximately 70 watts.

ACCESSORY SOCKET:

A 4 pin Jones receptacle provided on the rear apron of the chassis is designed to accept the interconnecting cable provided with companion converters. Voltages available at this socket include 6.3 V AC @ 1.3 Amp., + 150 V DC @ 50 ma and + 108 V DC regulated @ 10 ma.

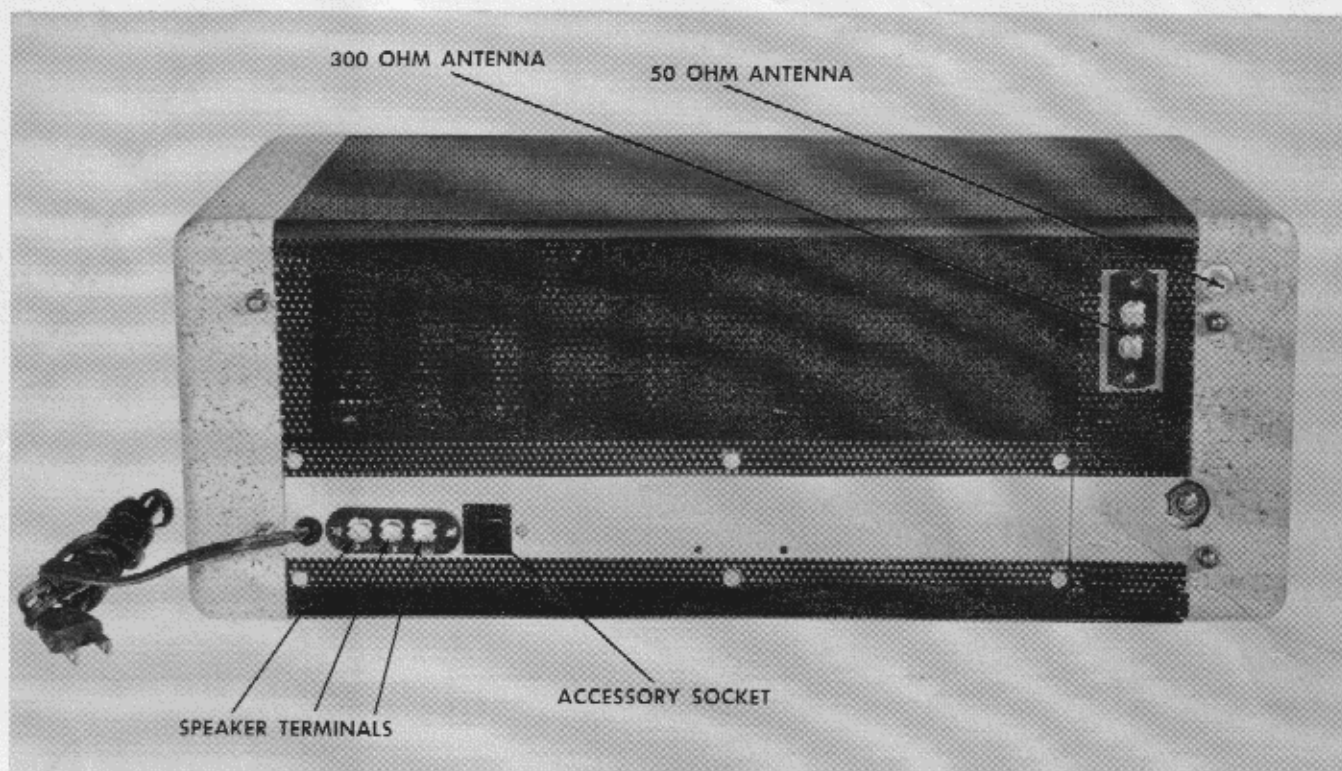


FIG. 1

SECTION II—INSTALLATION

GENERAL:

All installation procedures are described in this section. Fig. 1 locates connection points on the rear of the receiver. Before proceeding with the installation, inspect the receiver carefully to make sure no major damage has occurred in transit.

LOUDSPEAKER:

Any permanent magnet type low impedance speaker may be connected across the 4 ohm terminals on the rear. A 600 ohm output is also provided for any high impedance device such as a pair of headphones or a tape recorder input.

MUTING:

The recommended muting procedure is shown in Fig. 2. Any alternate method requires modification of the receiver.

ANTENNA:

Two antenna inputs are provided. The 2 terminal strip should be used with twinlead systems and presents a nominal impedance of 300 ohms unbalanced. The BNC connector presents a nominal 50 ohm unbalanced impedance. It should be used with a coaxial type antenna lead and for connecting the outputs of converters for other bands. When the receiver is used in conjunction with a high powered transmitter it is recommended that some type of protective coaxial relay such as the Dow-Key type DKC-G be used.

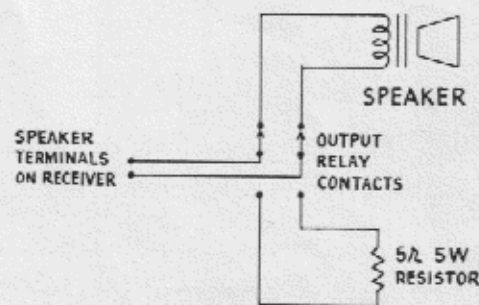
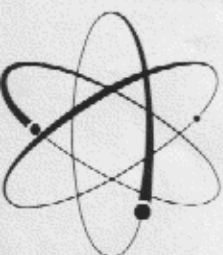


FIG. 2



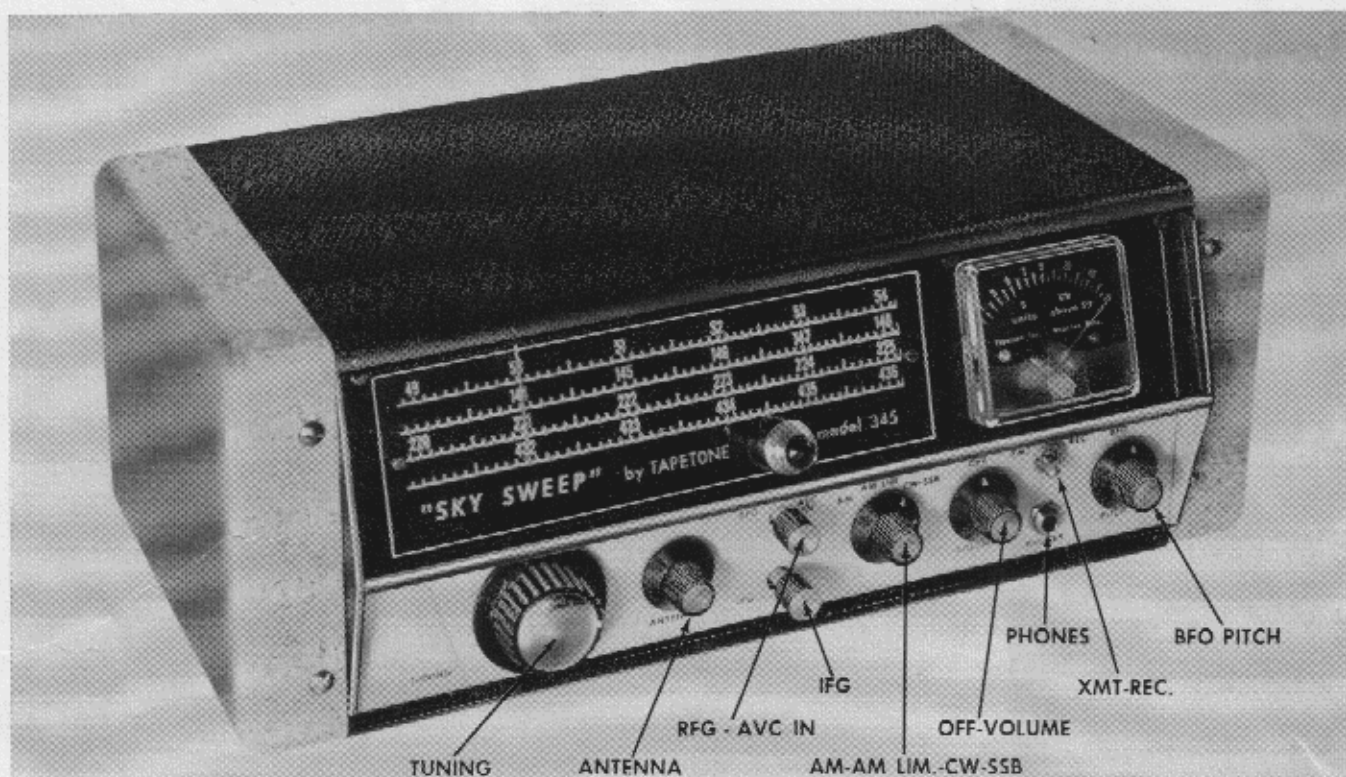


FIG. 3

SECTION III—OPERATION

CONTROLS:

This section explains the function and operation of each of the front panel controls reading from left to right.

TUNING:

The tuning knob provides a 20 to 1 ratio for ease in selecting the desired signal as indicated on the slide rule dial. Frequency increases with clockwise rotation of the dial.

ANTENNA:

The antenna trimmer provides an adjustment for peaking the input circuit of the receiver to provide the best match to the antenna at any frequency within the band.

RFG — AVC IN:

The sensitivity of the receiver is adjusted by means of this control. The input stage of the receiver only is adjusted with this control. The switch which turns the AVC on and off is associated with this control. Pushing the knob toward the receiver panel turns the AVC on and pulling it toward the operator turns the AVC off. This may be accomplished at any setting of the RF gain control permitting maximum flexibility of operation.

IFG:

This control permits adjustment of the I.F. amplifier signal level for maximum CW sensitivity and SSB operation. The I.F. Gain is inoperative when the AVC is switched on since the AVC automatically maintains the gain of the I.F. stages at a desirable level.

AM-AM LIM.-CW-SSB:

This switch selects the mode of operation of the receiver. In the left or maximum CCW position the receiver is set up for AM phone or MCW reception. In the middle or AM LIM position, the noise limiter is in operation. In the right or CW-SSB position the BFO is on and the heterodyne detector is in the circuit for CW or SSB reception. The "S" meter operates in all modes, permitting signal strength readings on all types of signals.

OFF-VOLUME:

The audio level from the receiver is adjusted by means of this control. The AC switch which turns the receiver on and off is mounted on this control. In the maximum counter-clockwise position, the receiver is shut off. Rotating the control slightly clockwise will actuate the switch and turn the receiver on. Further rotation increases the audio volume until maximum is reached at the extreme clockwise position.

XMT-REC.:

This is a two position toggle switch which may be set at Xmt to mute the receiver during standby or transmitting periods. This switch does not turn off or change any of the operating voltages in the receiver front end or I.F. This insures maximum stability of all critical circuits during standby periods.

BFO PITCH:

This control varies the frequency of the beat frequency oscillator. It may be set to suit the operator on CW signals and should be set about 2 kc from the center frequency for SSB operation.

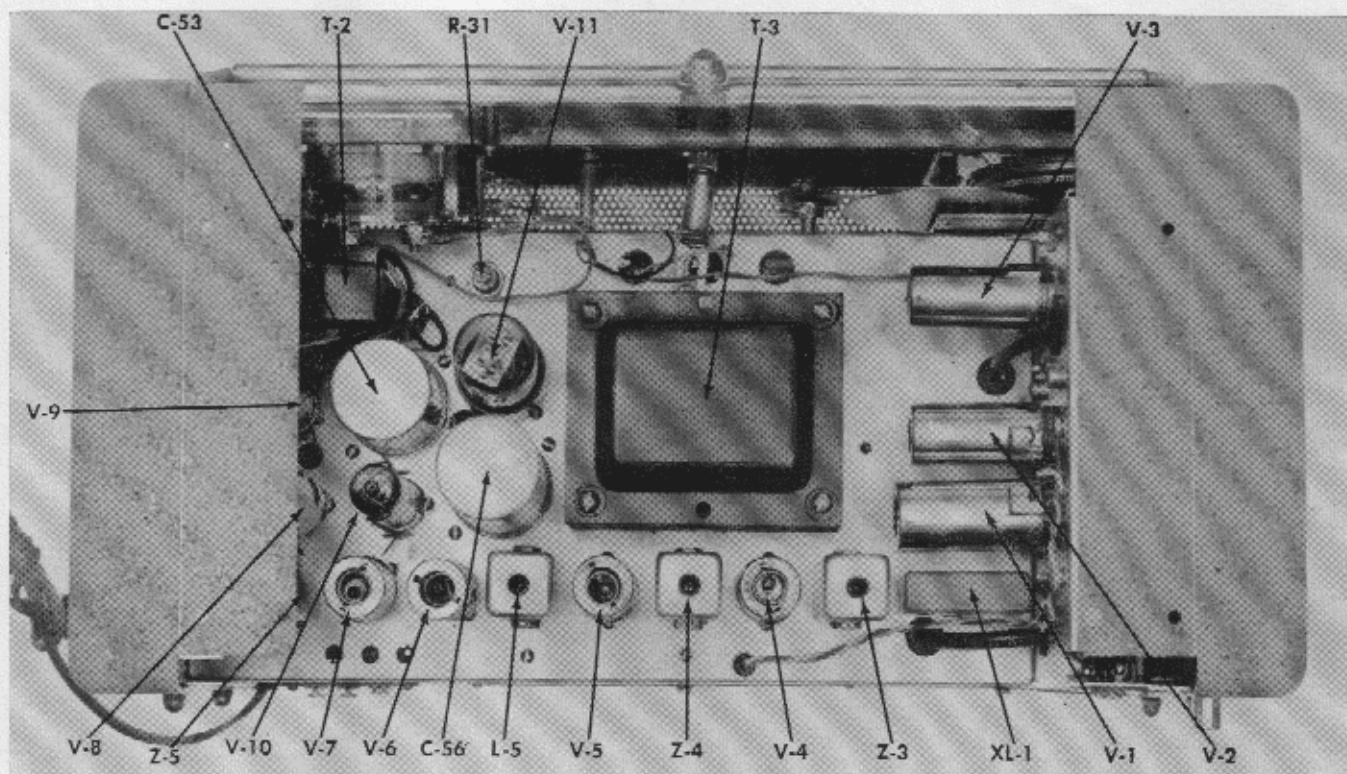
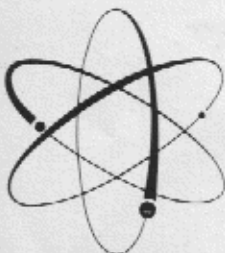
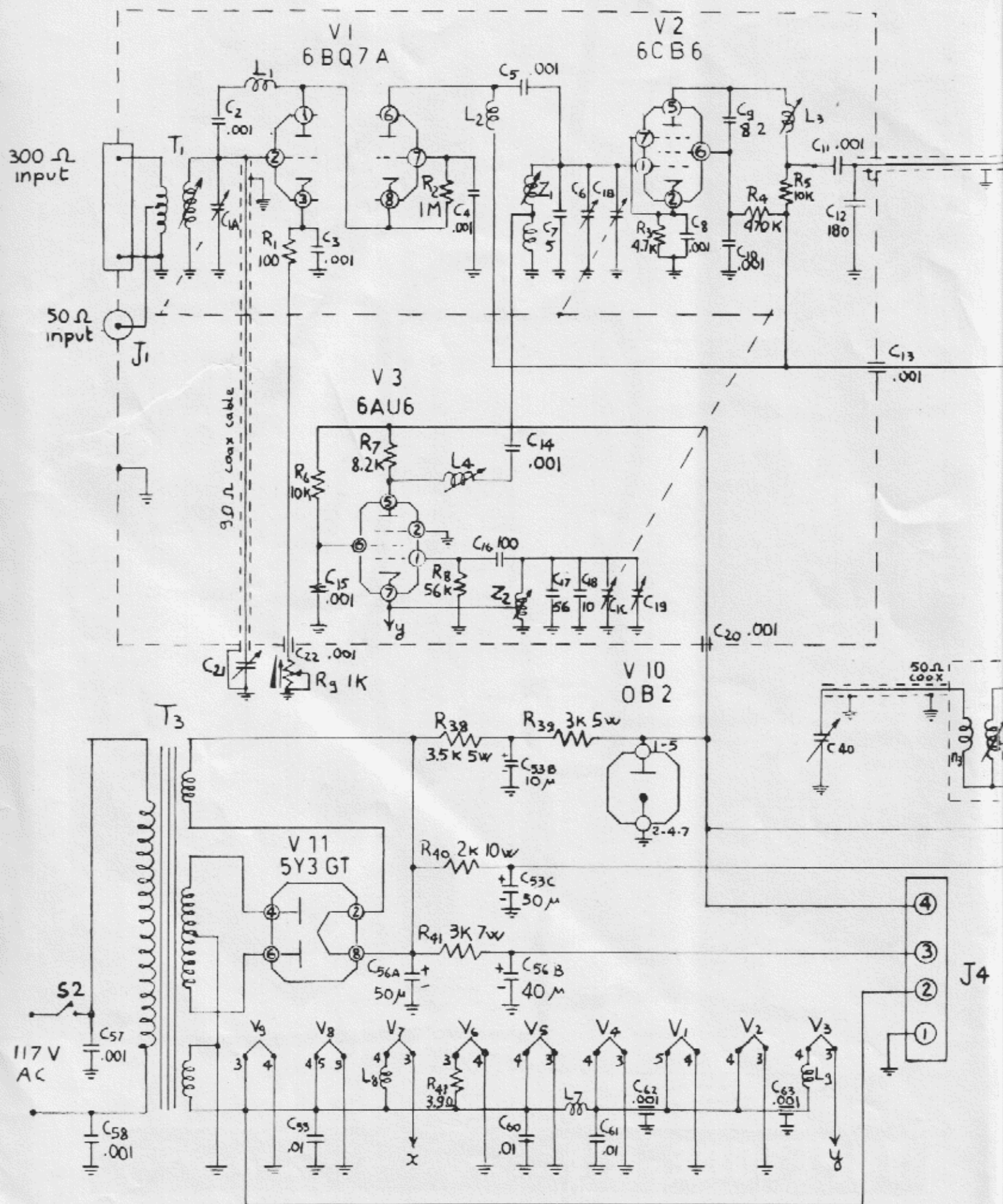


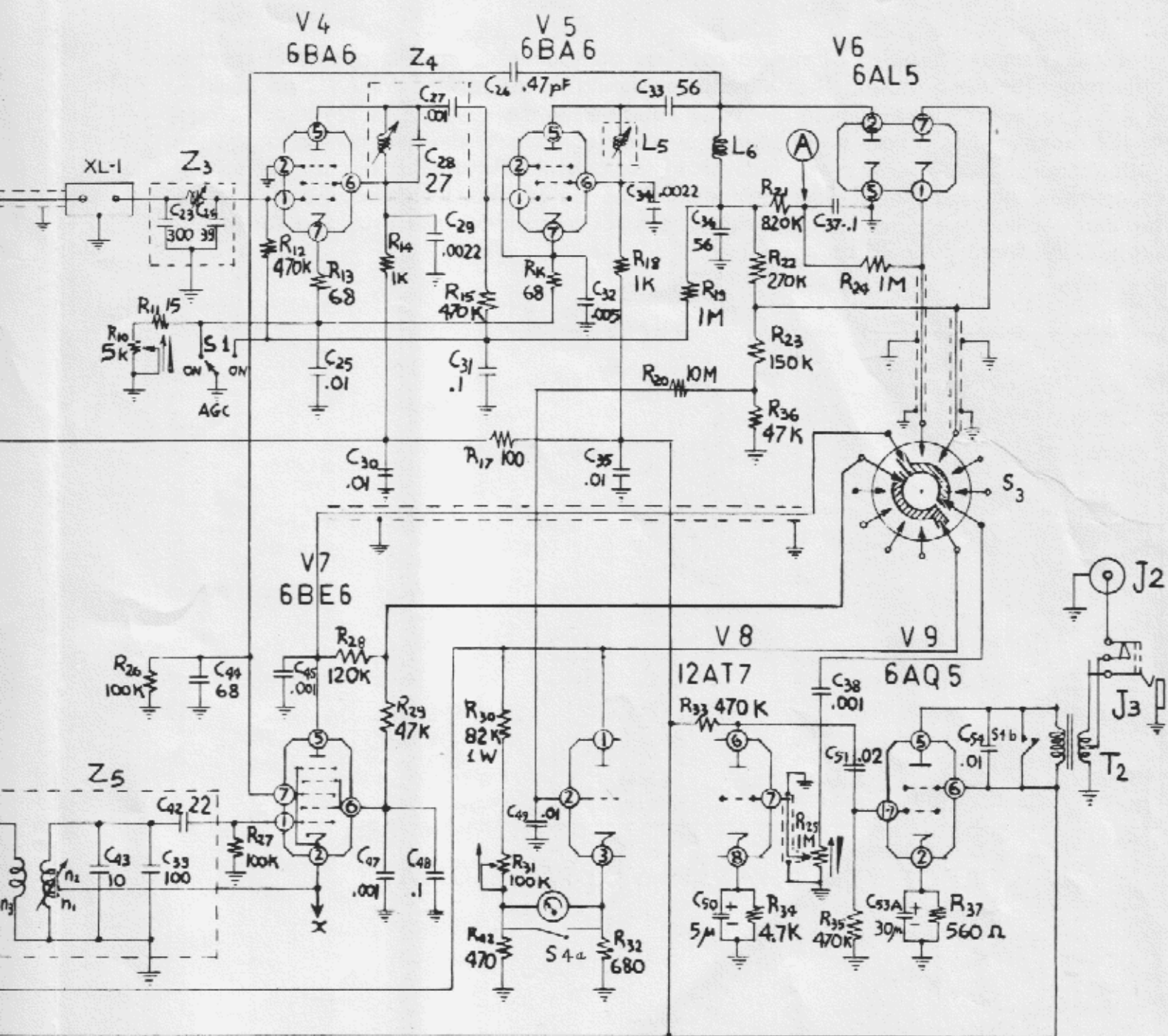
FIG. 4

SECTION IV—MAINTENANCE

The Tapetone 345 receiver is carefully aligned before shipment, using high precision laboratory equipment to insure absolute accuracy. A minimum of maintenance should be required in day-to-day operation. Fig. 4 is a photo-







SIX METER-10.7 MC REC. SCHEMATIC

300
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graph showing the location of various receiver components. R-31 is provided as zero adjustment for the S-Meter. Thus adjustment should be made with the AVC off and I.F. & R.F. gain control at maximum clockwise rotation. In the event of failure in some part of the receiver, Fig. 5 may be helpful. It is a voltage chart, showing normal operating voltages at all tube socket pins. Because of the crystal filter used in the I.F., we do not recommend alignment of the receiver without the use of a low frequency sweep generator and oscilloscope. For specific instructions for any service not provided for in this section, the factory should be consulted.

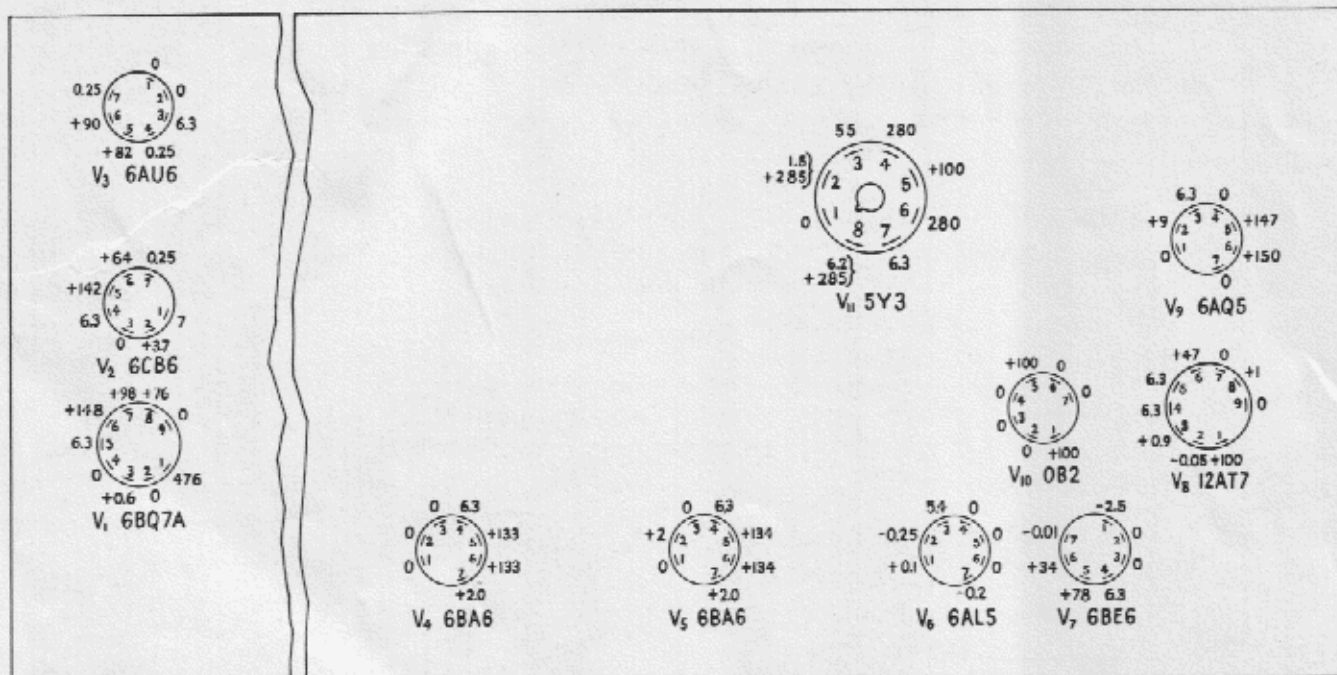
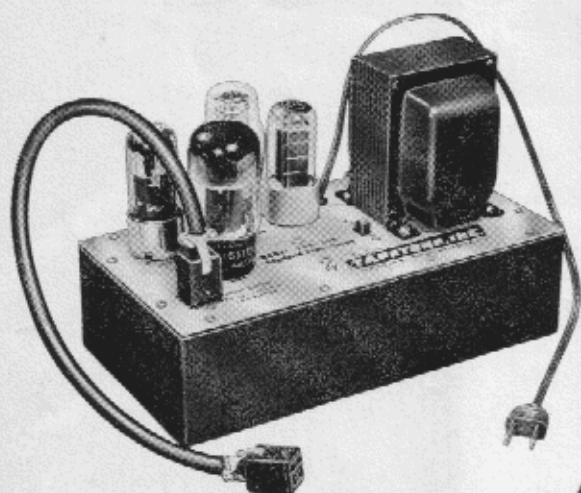


FIG. 5

RECEIVER CHASSIS VOLTAGE CHART

TURN PAGE FOR SCHEMATIC DRAWING OF RECEIVER



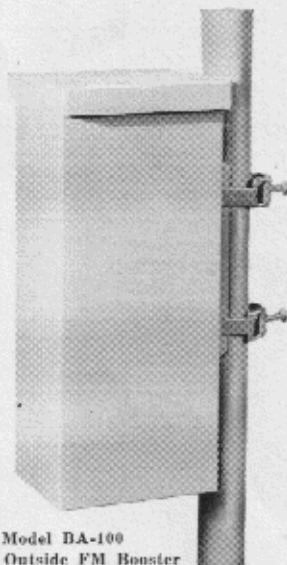
Converter Power Supply
PSR-150 Regulated



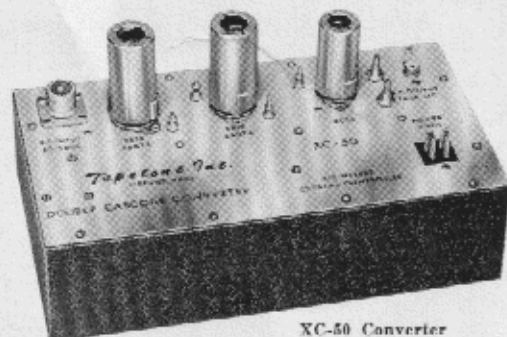
Model B-100
Inside FM Booster



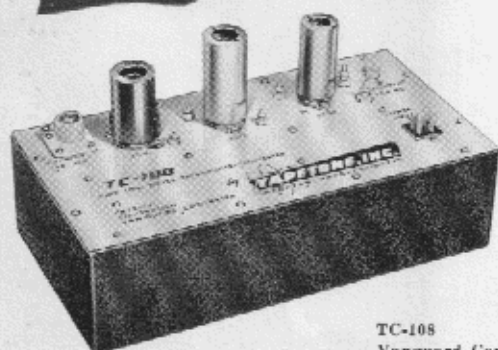
XC-144 Converter
for Two meter band



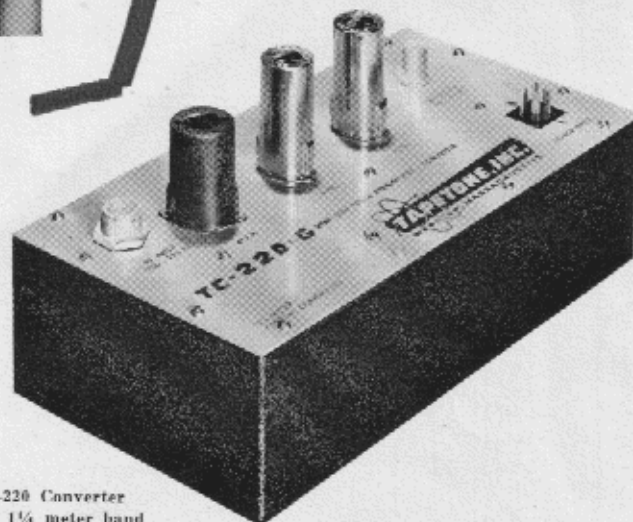
Model BA-100
Outside FM Booster



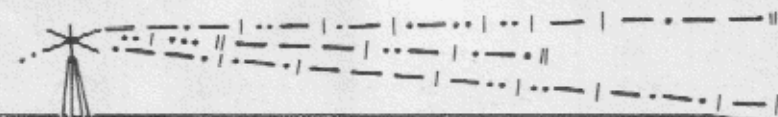
XC-50 Converter
for Six meter band



TC-108
Vanguard Converter



TC-220 Converter
for 1 1/4 meter band



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