

## SECTION VI ACCESSORIES

### 6.1 GENERAL.

Table 6-1 lists accessories which are available for use with the KWM-1 Amateur Transceiver. Figures 6-1 through 6-15 illustrate the accessories.

TABLE 6-1  
KWM-1 ACCESSORIES

ACCESSORIES	COLLINS PART NO.
516E-1 12-Volt D-C Power Supply	522 0846 005
516E-2 28-Volt D-C Power Supply	522 0984 00
516F-1 A-C Power Supply	522 0847 00
312B-1 Speaker	522 0849 00
312B-2 Speaker Console (including Phone Patch and Directional Wattmeter)	522 0850 00
351D-1 Mobile Mount	522 0873 00
189A-1 Phone Patch (included in 312B-2)	522 0871 00
189A-2 Phone Patch	522 0872 00
302C-1 Directional Wattmeter	522 0649 00
399B-1 DX Adapter	522 1094 00
399B-2 DX Adapter (Export Model)	522 1132 00
399B-3 Novice Adapter	522 1291 00
Mobile Power Cable	543 6147 003

### 6.2 516E-1 12-VOLT D-C POWER SUPPLY.

Figure 8-2 shows circuit details, and figures 6-1 through 6-3 identify parts. It includes an 800-volt 200-ma supply for the power amplifier plates and a 260-volt 215 ma-supply for all other plate circuits. The 260-volt supply is tapped for -65 volts bias.

The transistors for each supply are connected in a grounded-collector multivibrator circuit which switches the d-c input power to a-c power for application to the primary winding of the power transformer. Output from the transformer secondary is rectified in a silicon diode voltage doubler circuit. The voltage from the bias tap of the 260-volt supply is rectified by a half-wave silicon diode rectifier. Input current requirement is 25 amperes (maximum) in TUNE or CW condition. SLO-BLO fuses not recommended.

### 6.3 516E-2 28-VOLT D-C POWER SUPPLY.

The 516E-2 Power Supply (figures 6-4, 6-5, 6-6, and 8-3) is similar in construction and layout to the 516E-1. Input voltage and current requirements are 24 to 30 volts d-c at 12.5 amperes (maximum).

### 6.4 516F-1 A-C POWER SUPPLY.

Figure 8-4 is a schematic diagram of the 516F-1 Power Supply, and figures 6-7 and 6-8 show parts locations. The 516F-1 contains an 800-volt 200-ma power supply for the power amplifier plates and a 260-volt 215-ma power supply for all other plate circuits. The 260-volt supply is tapped for -65 volts bias. The input voltage requirement is 115 volts, 60 cps. The 516F-1 can be operated on 400 cps if C5 is removed. If F1 or F3 are blown and a slo-blo fuse is not available, use an instantaneous type of fuse. With an instantaneous type, transients may cause more frequent loss of fuses.

### 6.5 312B-2 SPEAKER CONSOLE.

Figure 8-5 is a schematic diagram of the 312B-2 Speaker Console shown in figure 6-10. It contains a 4-ohm oval speaker, a 189A-1 Phone Patch, and a 302E-1 Directional Wattmeter. The meter portion of 302E-1 is calibrated for 200 watts (forward or reverse power). The phone patch is available separately and is described in paragraph 6.6.

#### 6.5.1 OPERATION OF DIRECTIONAL WATTMETER.

- a. Set POWER switch on 312B-2 to FORWARD position.
- b. Tune and load transmitter according to instruction book.
- c. Note forward power reading on 312B-2 meter.

d. Set POWER switch to REFLECTED position and note meter reading. Use the forward and reflected power readings with the vswr chart, figure 6-16, to compute the standing-wave ratio of the antenna and feedline system. If the vswr is 2 to 1 or less, the directional wattmeter indications may be used to calculate the power delivered to the feedline by subtracting reflected power from forward power.

e. If the vswr is greater than 2 to 1, use an antenna tuner between the directional wattmeter and the antenna. Tune and load transmitter to dummy load. Disconnect dummy load and connect antenna feedline. Leave transmitter controls as set and adjust antenna tuner for minimum reflected power.

## NOTE

The procedure in step e. provides optimum operating conditions for the transmitter. It will not correct standing-wave conditions on the feedline unless the antenna tuner is located at the junction of feedline and antenna.

**6.6 189A-2 PHONE PATCH.**

Figure 6-11 shows the 189A-2 Phone Patch. It is identical to the 189A-1 included in the 312B-1 Speaker Console except that a small escutcheon plate is supplied. Electrical schematic connections and input and output impedances are the same as those shown for the 189A-1 in figure 8-5. To operate, set up as follows:

a. Set EMISSION SWITCH to SSB, ANTI-TRIP control full counterclockwise, MIC. GAIN control full counterclockwise, VOX. GAIN control full counterclockwise, but DO NOT turn far enough to click PTT ON switch, R.F. GAIN, and A.F. GAIN as required for normal operation.

b. Tune in an AM. carrier to 700 to 800 cycles beat frequency.

c. Set VOX BAL control on Phone Patch to either full clockwise or full counterclockwise.

d. Lift telephone and dial any single digit to remove dial tone.

e. Place PHONE PATCH ON-OFF switch to ON.

f. Advance VOX. GAIN control on KWM-1 until vox relay just operates.

g. SLOWLY readjust VOX BAL control until vox relay drops out.

h. Repeat steps f. and g. until it is no longer possible to drop out vox relay with very small adjustments of VOX BAL control. Leave VOX BAL control at this setting.

## NOTE

If an a-c vacuum-tube voltmeter is available, connect it from terminal 1 of TB1 (on 189A-2)

to ground. SLOWLY adjust VOX BAL control for vtvm null (minimum indication).

i. Hang up telephone, turn off Phone Patch, reset all KWM-1 controls for normal VOX SSB operation.

j. The Phone Patch now is ready for use. Normal procedure is to call your party on telephone, then switch the Phone Patch on adjust R.F. GAIN to provide maximum voice-to-noise ratio and A.F. GAIN for normal telephone line level.

k. Depending upon telephone line characteristics and voice volume of incoming telephone signal, it may be necessary to make slight adjustments of MIC. GAIN and VOX. GAIN. In case of extremely weak signals from the telephone line, operate KWM-1 push-to-talk.

**6.7 302E-1 DIRECTIONAL WATTMETER.**

Figure 6-12 shows the coupler of the 302E-1 Directional Wattmeter. It is identical to that of the directional wattmeter included in the 312B-2 Speaker Console. Circuitry is shown in figure 8-5.

**6.8 399B-1 DX ADAPTER.**

Figure 8-6 is a schematic diagram of the 399B-1 DX Adapter, and figure 6-13 shows the terminal board portion of the adapter. The 399B-1 DX Adapter permits the vox circuits to transfer the transmit section of the KWM-1 to crystal control within the American phone band (the desired crystal may be plugged into the plug-in unit) while the receive sections are tuned into the foreign DX band. The crystal plug-in unit contains two transmit crystals and one receive crystal with provision for five additional transmit crystals. Transmit crystals are furnished for operation at 14.293 and 14.296 mc and the receive crystal is for operation from 14.250 to 14.350 mc. The export version of the DX Adapter is furnished with transmit crystals for operation at 14.303 and 14.306 mc and receive crystal for 14.250 to 14.350 mc. Transfer operation is accomplished automatically by relays and crystals included in the adapter.

## NOTE

To return KWM-1 to single frequency transceiver operation, replace crystal plug-in box with 13C-1 Crystal Plug-in Unit. No wiring changes are necessary.

**6.8.1 INSTALLATION.**

a. Remove KWM-1 bottom plate and open top cover. Remove screw securing C176 clamp to post (see

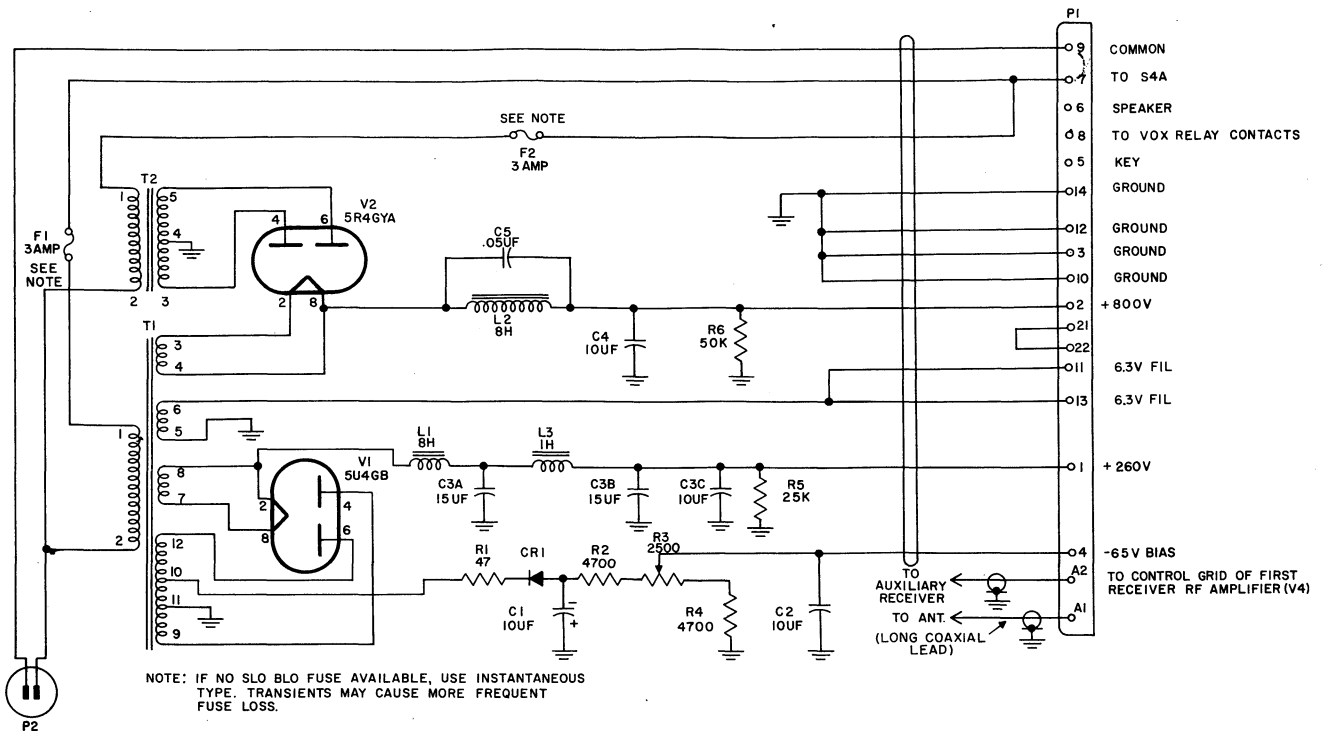


Figure 8-4. 516F-1 A-C Power Supply, Schematic Diagram

C204-04-3

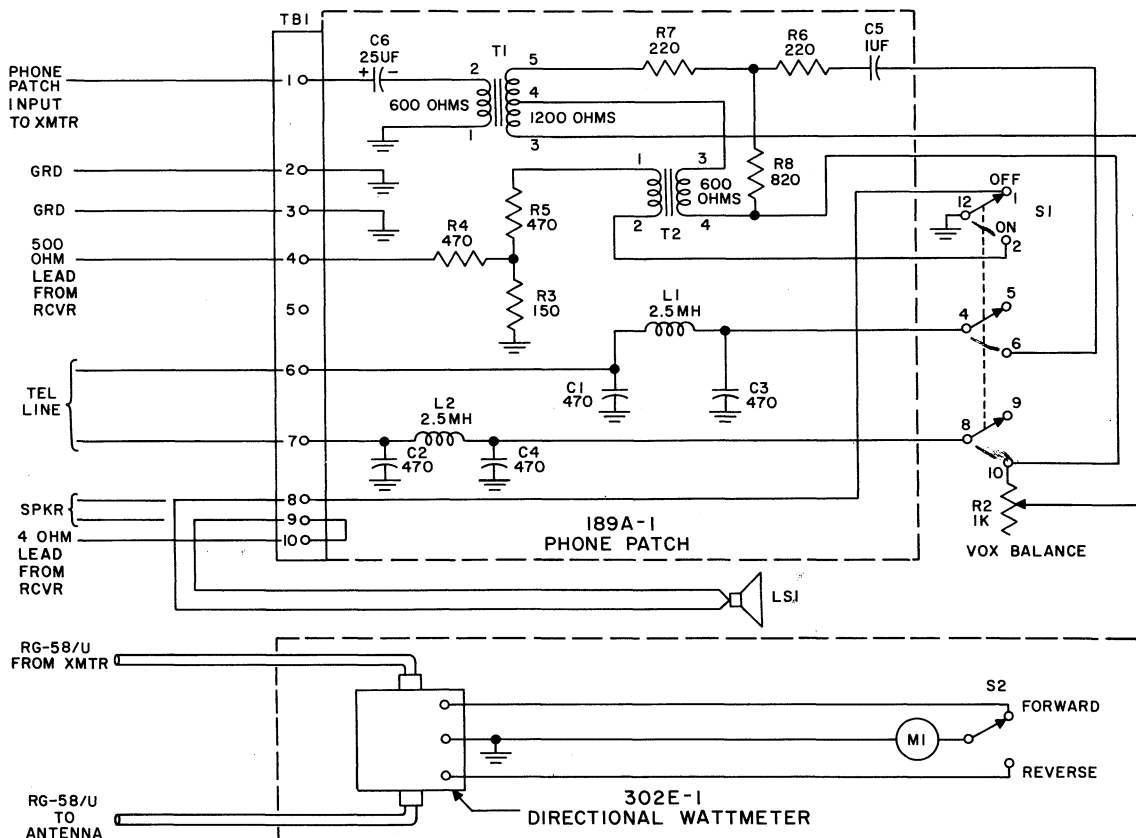


Figure 8-5. 312B-2 Speaker Console, Schematic Diagram

C204-08-3