INSTRUCTION MANUAL

for the

WRL

Globe Scout

TRANSMITTER MODEL 66

Manufactured by WRL ELECTRONICS, INC.
Council Bluffs, Iowa

MANUFACTURERS OF

World Famous Globe Transmitters

TABLE OF CONTENTS

6740
4
26960
771.25

Paul O. Mitch E72-B62
665 South Front St.
Milton, Penna.

5/15/57

1/23/59 John S Snuggs
705 Powell Pampa, Texas

ELECTRICAL SPECIFICATIONS

POWER INPUT: 50 watts Phone; 65 watts CW.

OUTPUT LOAD: Pi network through coaxial connector 52 to 1000 ohms.

FREQUENCY RANGES: Six switch positions.

160 Meters	1.75-3.0Mcs.
80 Meters	3.2-4.8Mcs.
40 Meters	6.6-10.0Mcs.
20 Meters	13.0-23.5Mcs.
15 Meters	13.0-23.5Mcs.
11-10 Meters	26.0-32.0 Mcs.

TUBE COMPLEMENT:

Quan.	Type	Function
1	6V6	Crystal Oscillator
1	6146	Final Amplifier
1	6U8	Speech Amplifier/Driver
1	6L6GB	Modulator
1	5U4GB	Rectifier

POWER REQUIREMENTS: 115 Volts AC 50/60 cycles (Power Consumption 160 watts CW, 210 watts Phone).

Figure 1. Front View of Globe Scout Model 66.

SECTION I

GENERAL DESCRIPTION

1-1. GENERAL.

1-2. The Globe Scout Transmitter, Model 66, is made by WRL Electronics, Inc. of Council Bluffs, Iowa. The transmitter is rated at 65 watts DC plate input power to the R.F. Power Amplifier Radio Telegraphy (CW) and 50 watts Radio Telephony (AM) operation.

1-3. DESCRIPTION.

1-4. The Model 66 transmitter is completely self-contained in a metal cabinet of handsome design. Dimensions are 8 inches high, 8 inches deep and 14 inches wide. Net weight is approximately 24 pounds. Ventilating grilles provide adequate ventilation and heat dissipation. Normal TVI precautions have been taken and the meter is provided with a special type shielding to prevent radiation through the meter. The Pi network provides a high degree of harmonic attenuation when properly tuned, eliminating the necessity of a low-pass filter in most cases. While primarily designed for fixed station operation, this transmitter may be used very effectively as a mobile transmitter by the installation of a suitable dynamotor or vibrator supply to provide the necessary B plus voltages. The pi-network in the final amplifier stage will load into any random length antenna or into a mobile whip antenna. Complete bandswitching eliminates inconvenient plug-in coils. Band changing entails only resetting of the band change switch and the changing of the crystal (or the switching of a VFO). Due to the wide frequency coverage, this transmitter may be used on MARS and CAP frequencies.

1-5. The chassis may easily be removed from the cabinet for inspection and servicing. Power requirements are 115 volts, 50/60 cycles single phase alternating current. Tube complement is shown in Table 1.

TABLE 1. TUBE COMPLEMENT.

Quan.	Type	Function
1	6V6	Crystal Oscillator
1	6146	Final Amplifier
1	6U8	Speech Amplifier/Driver
1	6L6GB	Modulator
1	5U4GB	Rectifier

1-6. THEORY OF OPERATION.

1-7. A 6V6 tube is employed in a controlled regenerative crystal oscillator circuit. Although the circuit was primarily designed for crystal operation, any VFO with an output of 10 to 50 volts RF will work equally well. The stage allows the use of standard 160 to 40 meter crystals and provides more than enough output to drive the final amplifier to full input. Bandswitching is incorporated in this stage and the cathode keying has proved to be crisp and clear on all bands. On straight-through operation the excitation to the final amplifier may be in excess of requirements. In this instance, the oscillator tuning control must be detuned to reduce the amount of drive to the proper level (Complete details are given in the tune-up procedure). The oscillator stage is capacity-coupled to the final amplifier.

1-8. The R.F. power amplifier stage employs a 6146 tube operated as a Class C amplifier. Two types of bias are applied to this stage; one is cathode, or self-bias, and the other is excitation bias. The cathode of this stage is keyed as well as that of the oscillator. The final amplifier operates straight-through on all bands except 10 meters where doubling is employed. Due to high efficiency, doubling in this stage does not affect the output to any appreciable extent. Design of the plate circuit in the final amplifier stage utilizes bandswitching plus a pi-network. The pi-network allows matching into various antenna impedances.

1-9. The speech amplifier and driver stage circuits are of conventional design. The pentode section of a dual purpose type 6U8 is employed as a speech amplifier. The amplified speech signal is fed into the triode section of the tube through the volume control. The triode section of the tube operates as the driver stage. Printed circuit couplates are utilized in the speech amplifier and driver stages increasing efficiency. Capacity coupling is used between the driver stage and a modified Heising type modulator circuit. Modification of the original Heising circuit consists of heavily modulating the screen of the 6146, as well as the plate, so it contributes materially to the carrier output. Metering of either the final grid or final plate circuits by means of a dual scale meter provides constant monitoring of circuit operation.

1-10. The power supply utilizes a 5U4GB tube as a full wave rectifier. The voltage and current supplied are 500V DC at 200 ma., which is adequate to power the complete transmitter. An accessory socket mounted on the rear of the transmitter provides 500V DC, 6.3 VAC and 115 VAC for external accessories which may be used with the transmitter such as relays, VFO, etc. Power requirements for mobile operation are 6 volts DC at 4 amperes and 500 volts DC at 200 ma. This voltage may be applied to the transmitter through the accessory socket after removal of the accessory plug.

Figure 2. Panel Controls of Globe Scout Model 66.

SECTION II

OPERATING PROCEDURES

2-1. GENERAL.

2-2. The following paragraphs describe the various panel controls of the Globe Scout Transmitter, Model 66. Tune-up and operating procedures are outlined following the description of controls. It is recommended that this section be studied thoroughly before any attempt is made to place the transmitter in operation.

2-3. DESCRIPTION OF CONTROLS.

2-4. FIL-GAIN. Combined AC power switch and audio gain control. AC switch is the master power switch.

2-5. TRANSMIT-STANDBY. A toggle switch. In STANDBY position it opens the B minus circuit and disables the transmitter. Also opens 115 V AC circuit between pins 4 and 5 of the accessory socket (SO-6). In TRANSMIT position the B minus circuit is completed. 115 VAC is applied between pins 4 and 5 of the accessory socket to energize an external antenna change-over relay (Relay is optional equipment and is not supplied with the transmitter).

2-6. PHONE-CW. A toggle switch. In CW position the modulator screen voltage is removed and the cathode circuit of the modulator tube is opened disabling this stage. Also the modulation choke is shorted to prevent high voltage transients when keying.

2-7. OSC. TUNE. This variable capacitor tunes the oscillator plate circuit to the fundamental, second, or third harmonic of the crystal (or VFO) frequency.

2-8. BAND SWITCH. A two-section rotary switch permits instant choice of bands through the entire range of amateur frequencies from 160 to 10 meters by selecting the proper taps on the oscillator and final amplifier coils.

2-9. F. GRID-F. PLATE. A toggle switch. Meters the final grid or final plate current depending on switch position.

2-10. FINAL PL. TUNE. This variable capacitor tunes the final amplifier plate circuit to resonance at the desired operating frequency.

2-11. ANT. LOAD. This variable capacitor matches the antenna or feedline impedance to the final amplifier plate circuit impedance for proper loading and maximum R.F. output to the antenna.

2-12. VFO-XTAL. A slide switch located on rear of the transmitter. Place in XTAL position for crystal control of transmitter or in VFO postion when VFO operation is desired. This switch controls oscillator regeneration.

2-13. EXTERNAL CONNECTIONS.

WARNING

Before making any external connections to the transmitter remove the A.C. power cord plug from the A.C. source receptacle. Also place FIL-GAIN control in the OFF position. The first external connection should be a good ground to the GROUND connection on the rear of the transmitter. See paragraph 2-20.

2-14. MIC. Input receptacle for crystal or high impedance dynamic microphone.

2-15. KEY. Key jack for CW operation. Closed circuit type. In cathode circuit of both oscillator and final amplifier tubes.

2-16. XTAL-VFO. Insertion of proper crystal, or VFO output plug, allows operation on all amateur bands 160 through 10 meters.

2-17. ANTENNA. Coaxial receptacle located on rear of transmitter. For use with high impedance antennas such as random length long wires or folded dipole antennas.

2-18. DOUBLET. Coaxial receptacle located on rear of transmitter. For use with low impedance antennas such as a doublet, or beam antennas.

2-19. ACCESSORY. Socket on rear of transmitter. Provides 115 volt AC source between pins 4 and 5 for external antenna change-over relay. Also may provide B plus at pin 3 and filament voltage at pin 7.. External B plus and filament voltages may be supplied to the transmitter through this socket when used in mobile operation.

2-20. GROUND. Located on the rear of the transmitter. Attach a good electrical ground to this terminal.

CAUTION

Read paragraph 2-13 before making any external connections.

A No. 12 copper wire connected to a cold water pipe, or to a 6 or 8 foot rod driven into the ground is usually satisfactory. Should difficulty be encountered in achieving a good ground on the higher frequency bands, it may be that the length of the grounding wire is such that it acts like an antenna. The cure is to shorten or lengthen the wire a few feet.

2-21. POWER CORD AND PLUG. Extends out from the rear of the transmitter. Supplies A.C. power to the transmitter when plugged into a 115 volt 50/60 cycle, single phase alternating source. Most home wall receptacles provide this type of power.

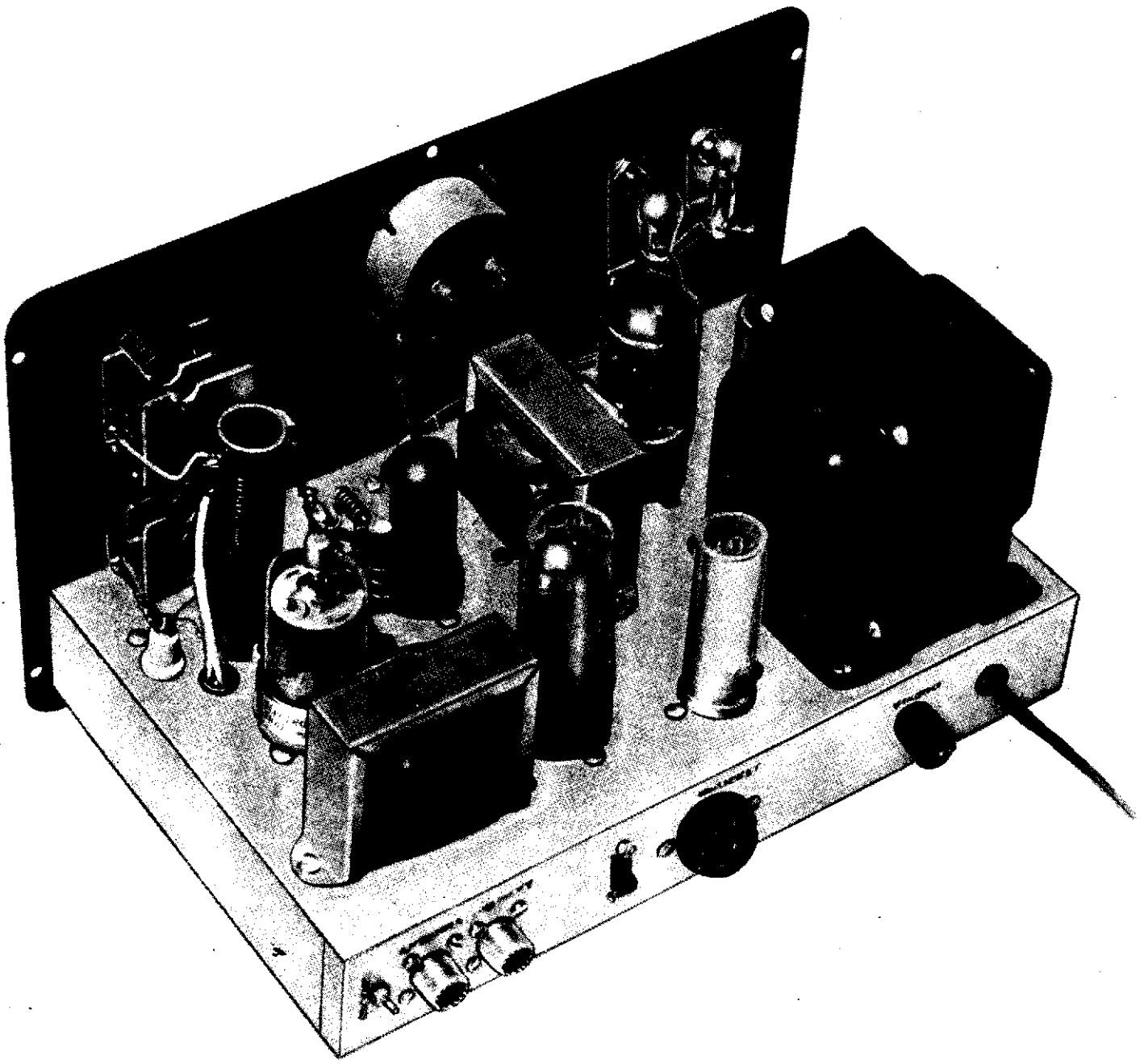


Figure 3. Inside Top View of Globe Scout Model 66.

2-22. TUNE-UP PROCEDURE.

2-23. The following paragraphs describe the tune-up procedure for the Globe Scout transmitter, Model 66. Prior to the initial tune-up the following preliminary precautions and procedures should be observed:

(1) Remove the transmitter from the cabinet by removing the panel mounting screws. The unit will then slide out of the cabinet. Inspect the transmitter for any possible hidden damage and make certain all tubes are in their respective sockets and seated properly.

(2) Replace the transmitter into the cabinet and install the panel mounting screws. Be careful not to mar the panel when replacing the screws.

(3) Attach a good electrical ground to the chassis grounding connection (located next to the chassis connector labeled ANTENNA). See paragraph 2-20.

(4) Connect the antenna feedline to the proper coaxial receptacle as per paragraphs 2-17 and 2-18. (See also Section IV, paragraphs 4-5 through 4-10.) The use of coaxial feedline naturally indicates the use of a coaxial connector such as the type 83-1SP. If a twin-lead type feedline is used, simply insert one conductor of the feedline into the center hole of the ANTENNA coaxial receptacle (A banana plug serves well as a connector for this purpose) and connect the other conductor of the feedline to the grounding connection on the chassis (same place the ground wire is attached).

(5) Place all switches to the following positions:

FIL-GAIN: extreme left to OFF position.
TRANSMIT-STANDBY: to STANDBY position.
PHONE-CW: to CW position.
BAND-SWITCH: to the desired band of operation
F. GRID-F. PLATE: to F. GRID position.
XTAL-VFO (on rear of chassis): to XTAL position if a crystal is to be used, or to VFO position if VFO is to be used.

(6) If crystal control is used insert a proper crystal into the XTAL socket. Refer to Table II, CRYSTAL CHART.

TABLE II. CRYSTAL CHART.

Band	Crystal
160 Meters	1800 to 2000 KC
80 Meters	3500 to 4000 KC
40 Meters	7000 to 7300 KC
20 Meters	7000 to 7175 KC
15 Meters	7000 to 7150 KC
11 Meters	6740 to 6807 KC
10 Meters	7000 to 7425 KC

(7) Insert a key plug into the key jack and close the key contacts.

(8) Set the three tuning condenser knobs: OSC. TUNE, FINAL PL. TUNE and ANT. LOAD to their maximum capacity settings (indicating arrows on knobs pointing to the left side of the panel as you face the transmitter).

(9) Insert the AC power cord plug into a 115 volt AC receptacle.

(10) Turn on the power switch by rotating the FIL-GAIN knob clockwise until a "click" is heard and felt. Do not advance GAIN control any further.

(11) Place the TRANSMIT-STANDBY switch to the TRANSMIT position.

(12) Tune the oscillator plate circuit by rotating the OSC. TUNE knob slowly in a clockwise direction until maximum current is indicated on the meter (key contacts must be closed to obtain any reading on the meter). Typical settings of the OSC. TUNE control knob for each band are shown in Table III.

TABLE III. TYPICAL "OSC. TUNE" CONTROL KNOB SETTINGS.

160 Meters	80 Meters	40 Meters	20 Meters	15* Meters	11-10 Meters
					

*NOTE: When tuning for the 15 meter band an increase in grid current will be noted at the 20 meter setting. Do not stop at this position but continue with a clockwise rotation. A second increase in grid current will be noted at the proper position as indicated in Table III.

(13) Final grid current for any band should not exceed 3 milliamperes as indicated on the lower scale of the meter. Should grid current exceed 3 milliamperes, advance the OSC. TUNE control further in a clockwise direction until the meter indicates no more than 3 milliamperes. Open the key.

NOTE: Many crystals are not as "active" as others and it may not be possible to obtain 3 milliamperes drive. A maximum current indication between 2 and 3 milliamperes is satisfactory.

CAUTION

Do not exceed 3 milliamperes grid current on the final as this will shorten tube life and may cause excessive harmonic radiation.

(14) Place the F. GRID-F. PLATE switch to the F. PLATE position.

(15) Close the key contacts and advance the FINAL PL. TUNE control in a clockwise direction until minimum plate current dip is indicated in the meter (lowest possible reading obtainable). The antenna must be attached or arcing of the tuning capacitors may occur. Typical settings of the FINAL PL. TUNE control, for each band, are shown in Table IV.

TABLE IV. Typical FINAL PL. TUNE control settings at resonance.

160 Meters	80 Meters	40 Meters	20 Meters	15 Meters	11-10 Meters
					

(16) Now that the minimum final plate current has been obtained, antenna loading may be accomplished by advancing the ANT. LOAD control slowly in a clockwise direction. As the control is advanced an increase in current will be noted on the meter. The control should be advanced until an indication of 130 milliamperes is reached.

(17) Retune the FINAL PL. TUNE control for minimum current dip. The minimum current indication should be higher than before, indicating the antenna is loading.

(18) Repeat steps 15 and 16 until the minimum final plate current dip is between 125 and 130 milliamperes. This is full load.

(19) Place the F. GRID/F. PLATE switch to the F. GRID position and re-peak the OSC. TUNE control so the proper amount of final grid current is indicated. Do not exceed 3 milliamperes as per step 13.

2-24. The tune-up procedure for CW operation is now completed and the transmitter may be placed into CW operation. For phone operation refer to Section III.

SECTION III

RADIO TELEPHONY OPERATION

3-1. PHONE (AM) OPERATION.

3-2. After the transmitter has been properly tuned for CW operation it may be placed in AM operation as follows:

(1) Place the TRANSMIT/STANDBY switch to STANDBY position.

(2) Place the PHONE/CW switch to PHONE position.

(3) Remove the key plug from the KEY jack.

(4) Connect a Crystal or high impedance Dynamic microphone to the MIC input receptacle.

(5) Place the TRANSMIT/STANDBY switch to TRANSMIT position.

(6) Place the F. GRID/F. PLATE switch to F. PLATE position.

(7) Advance the GAIN control in a clockwise direction, while speaking into the microphone in a normal voice. When a 5% variation of the final plate resting current is noted on the meter, maximum modulation has been reached. The knob pointer will be approximately in the "Three O-Clock" position.

3-3. All preliminary procedures have now been performed and the transmitter may be placed into AM phone operation.

SECTION IV

OPERATING SUGGESTIONS AND ANTENNA CONSIDERATIONS

4-1. GENERAL.

4-2. Some operators place equipment into operation before they read the instructions, or understand how to operate the equipment; then blame the equipment because it fails to function properly. A careful study of Section II, Operating Procedures, and the observance of suggestions contained in the following paragraphs will assure the operator of proper and efficient operation of the tranmsitter.

4-3. GROUNDING THE TRANSMITTER.

4-4. A good electrical ground connection to the transmitter chassis is essential for efficient operation and proper loading. The ground wire length should be kept as short as possible to prevent its action as a leg of the antenna. Such action may cause the chassis and cabinet to be very "hot" with RF, prevent proper loading of the final or cause modulator squeal due to RF feedback into the speech input stage. The use of several ground wires, each a different length and each connected to an independent ground point, may prove to be helpful. Ground wires, for example, may be, one 4 ft., one 8 ft. and one 16 ft. in length.

4-5. ANTENNA CONNECTIONS.

4-6. Two antenna receptacles are provided to accommodate all types of antennas and any impedance match between 52 to 1000 ohms. The receptacles are labeled ANTENNA and DOUBLET. The proper use of each follows.

4-7. The coaxial receptacle labeled ANTENNA accommodates antennas for band of operation as per Table V.

4-8. The coaxial receptacle labeled DOUBLET accommodates antennas for band of operation as per Table VI.

4-9. LONG WIRE ANTENNAS.

4-10. The long wire type antenna should be avoided wherever possible, especially in TV fringe areas where weak TV signals are encountered. In the event a long wire type antenna must be used, it is recommended that an antenna tuning device be inserted between the transmitter and the antenna. A properly operated antenna tuner will give harmonic attenuation and will be very helpful in loading random length antennas.

4-11. PI NETWORK TUNING.

4-12. Tuning of the pi network is not difficult. It should be noted, however, that it is possible to tune the pi network to an undesirable harmonic of the desired frequency. The correct method to determine the proper frequency is to note the final plate current dips. The final plate current dip of the desired frequency will be more pronounced than that of a harmonic. No trouble should be encountered if the FINAL PL. TUNE control settings for each band are as illustrated in Table IV.

4-13. OSCILLATOR PLATE TUNING.

4-14. In the case of the pi network we found the tuning of a harmonic is undesirable. However, in tuning the oscillator plate circuit, in some instances it is necessary to tune this circuit to the second or third harmonic of the fundamental frequency in order to obtain the desired frequency in the final amplifier. No

TABLE V.

Band	Type of Antenna			
11-10 Meters	Doublet	Folded dipole	$\frac{1}{4}$ wave vertical	52 ohm beam
15Meters	Doublet	Folded dipole	$\frac{1}{4}$ wave vertical	52 ohm beam
20 Meters	Doublet	Folded dipole	$\frac{1}{4}$ wave vertical	52 ohm beam
40 Meters	Doublet	Folded dipole	_____	_____
80 Meters	_____	Folded dipole	_____	_____
160 Meters	_____	Folded dipole	_____	_____

TABLE VI.

Band	Type of Antenna			
11-10 Meters	_____	_____	_____	Beam lower than 52 ohms
15 Meters	_____	_____	_____	Beam lower than 52 ohms
20 Meters	_____	_____	_____	Beam lower than 52 ohms
40 Meters	Doublet	$\frac{1}{4}$ wave vertical	52 ohm beam	_____
80 Meters	Doublet	$\frac{1}{4}$ wave vertical	_____	_____
160 Meters	Doublet	$\frac{1}{4}$ wave vertical	_____	_____

difficulty should be encountered in tuning the oscillator plate circuit if the instructions, as set forth in paragraph 2-23, step 12, are carefully observed.

4-15. ANTENNA LOADING.

4-16. Loading of the final amplifier (with antenna attached) should not require an excessive amount of rotation of the FINAL PL. TUNE control to re-dip the circuit (paragraph 2-23, step 16). Should an excessive amount of rotation of this control be required to re-dip the final amplifier, excessive antenna reactance is indicated. The logical solution to eliminate this reactance is to change the physical dimensions of the antenna so that when the ANT. LOAD control is advanced to full load (125-130 ma) it requires very little retuning of the FINAL PL. TUNE control to obtain resonance of the final amplifier again.

4-17. ANTENNA CONSIDERATIONS.

4-18. For general all round use, low cost, ease of maintenance and good performance, the Doublet or Folded Dipole antennas are recommended. A chart of antennas for each band and formulas for computing the length of an antenna for a specific frequency are given in Table VII.

4-19. When an antenna is made to the correct length for a specific operating frequency, the length of the feedline is not critical. In practice this is practically impossible so the feed line should be kept as near to even multiples of one-half wave as possible, thus any mis-match at the antenna end will be exaggerated at the transmitter end. A 72 or 52 ohm (preferably 72 ohm) feed line should be used on a doublet antenna. A 300 ohm feed line should be used on a folded dipole antenna. The junction of the feed line and antenna center should be kept as close as possible as even a small amount of fanning of the feed line may cause a mis-match. See Fig. 4.

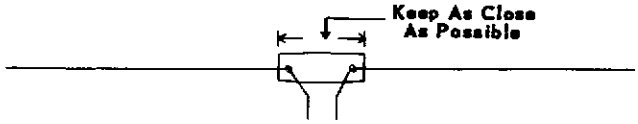


Figure 4.

Should the antenna be less than one-half wave above ground the lengths given in Table VII may not hold true. In this case it may be necessary to adjust the length of the antenna and/or feedline for the best match.

4-20. CHANGE-OVER RELAY.

4-21. The use of an antenna change-over relay is a very great convenience when operating. Any DPDT or SPDT, 115 volt AC relay with adequate insulation may be used in conjunction with the Globe Scout Model 66 transmitter. Suggested methods of relay connections are illustrated below in Figs. 5 and Figs. 6.

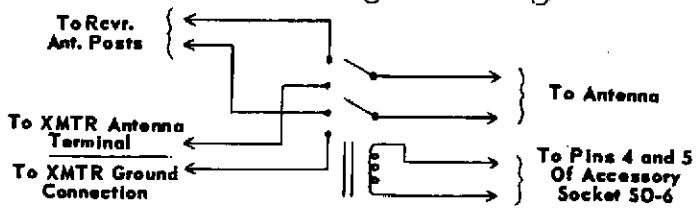


Figure 5. DPDT Relay Connections.

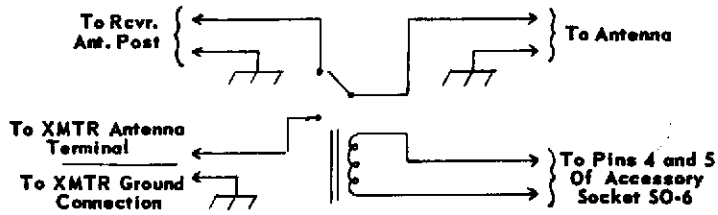


Figure 6. SPDT Relay Connections.

TABLE VII. ANTENNA CHART.

Band	1/2 Wave Doublet-72 Ohms	1/2 Wave Folded Dipole-300 ohms
10 Meters	15'-9" to 16'-6"	15'-8" to 16'-5"
15 Meters	21'-11" to 22'-3"	21'-9" to 22'-1"
20 Meters	32'-10" to 33'-3"	32'-4" to 33'-0"
40 Meters	64'-3" to 66'-3"	63'-6" to 66'-0"
80 Meters	118'-0" to 133'-0"	116'-0" to 132'-0"
160 Meters	235'-0" to 260'-0"	Impractical

Formulas:

$$\text{For half-wave doublet in feet} = \frac{468}{\text{Specific Freq. (MC.)}}$$

$$\text{For half-wave folded dipole in feet} = \frac{462}{\text{Specific Freq. (MC.)}}$$

SECTION V

MALFUNCTIONS AND PROBABLE CAUSE-VOLTAGE CHART

5-1. GENERAL.

5-2. This section deals with various malfunctions the operator may encounter. The most likely causes for each type of malfunction are given. The operator should be able to ascertain the nature of the malfunction from this chart and thus, easily repair the equipment. A voltage chart is also given as an aid to determining the nature of various malfunctions.

WARNING

Operation of this equipment involves the use of high voltages which are dangerous to life. Observe all safety precautions. Do not attempt to make adjustments inside the equipment, or change tubes with any power on. Disconnect-UNPLUG-the A.C. power cord and short out the filter condensers with a highly insulated shorting bar before touching any high voltage components.

5-3. MALFUNCTIONS AND PROBABLE CAUSE.

Symptom	Probable Cause
1. Transmitter will not operate when AC power applied.	1-1. Defective 3 amp fuse FS-1. 1-2. Accessory plug not installed.
2. Fuse blows when AC power applied.	2-1. Shorted tube or tubes.
3. Lack of final grid current.	3-1. Defective 6V6, 6146 or 5U4GB tube. 3-2. Key contacts not closed. 3-3. Defective crystal. 3-4. Lack of B plus voltage on 6V6 oscillator tube.
4. Final plate circuit will not tune properly.	4-1. Overloaded pi network. 4-2. Improper oscillator tuning. 4-3. ANT. LOAD and FINAL PL. TUNE control knobs improperly installed giving false indications.
5. Antenna will not load.	5-1. Defective antenna system. 5-2. Improper antenna dimensions. 5-3. Plates of ANT. LOAD condenser shorting.
6. No modulation on carrier.	6-1. Defective 6U8 or 6L6GB tube. 6-2. Open GAIN control. 6-3. Open P.C, Couplate. 6-4. CH2 shorted due to defective switch SW2. 6-5. MIC jack shorted. 6-6. Defective microphone or mic. cable.
7. Hum in modulation.	7-1. Defective 6U8 or 6L6GB tube. 7-2. Microphone cable "open". 7-3. Defective capacitor C18 or C20.
8. Squeal in modulation.	8-1. Insufficient antenna loading. 8-2. Defective ground system. 8-3. Microphone cable is $\frac{1}{4}$-wave length of operating frequency.
9. Arcing of FINAL PL. TUNE or ANT. LOAD condensers.	9-1. Insufficient antenna loading. 9-2. Defective antenna system. 9-3. Bent condenser plates.

SECTION V

MALFUNCTIONS AND PROBABLE CAUSE-VOLTAGE CHART

5-4. TYPICAL VOLTAGE READINGS.

5-5. The voltage readings given below are typical for the conditions as set forth. Some allowance must be given if the meter is not a 20000 ohm per volt meter.

WARNING

Use extreme caution when taking voltage readings. High voltages, dangerous to life, are involved.

CONDITIONS: AC line voltage 115 volts; Test meter-20000 ohm per volt; Band switch placed to 40 M position, PHONE-CW switch placed in PHONE position; Final load current 120 ma.; Final grid current 2.5 ma.; Meter connected from specified tube pin to chassis ground except where otherwise noted.

TABLE VIII. TYPICAL VOLTAGE READINGS.

Tube	Tube	Tube Pin Number								
Type	Function	1	2	3	4	5	6	7	8	9
6V6	Crystal Oscillator	0	0	+280	+190	0	+300	6.3VAC	.3	—
6146*	Final Amplifier	+55	0	+250	+55	-70	+55	6.3VAC	0	—
6U8	Mic. Amplifier Driver	+38	0	+10	0	6.3VAC	+50	+1	+1.3	0
6L6GB	Modulator	0	0	+420	+300	0	+440	6.3VAC	+24	—
5U4GB	Rectifier	0	5VAC To Pin No. 8	0	560VAC	0	560VAC	0	5VAC To Pin No. 2	—

* 6146 Plate-measured at bottom of RFC 3, +440V.

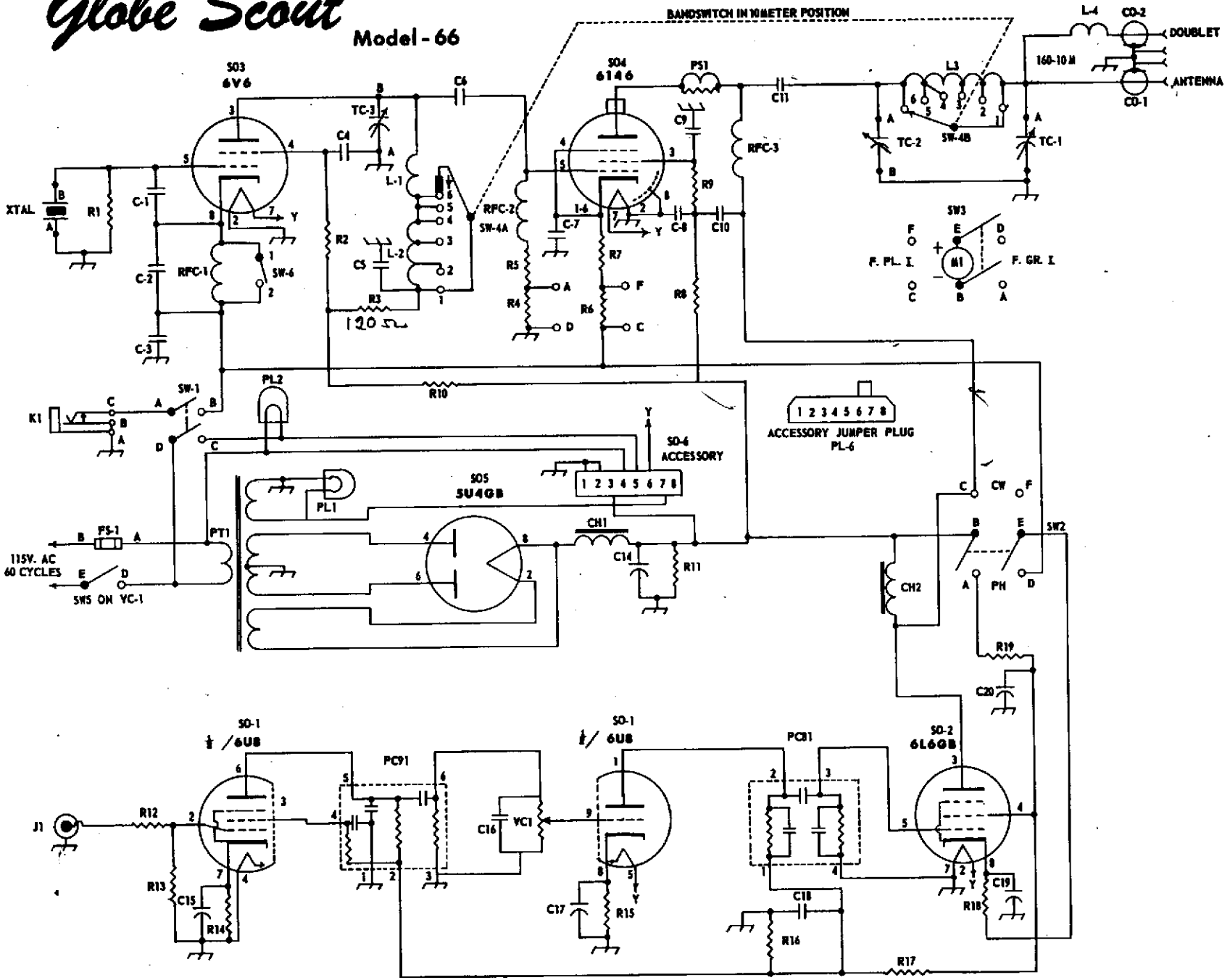
SECTION VI

PARTS LIST

Quan.	Description	Circuit Designation	WRL Part No.
1	Capacitor, tubular ceramic, 15 mmf-600 volt	C1	1101-008
1	Capacitor, tubular ceramic, 120 mmf-600 volt	C2	1101-002
1	Capacitor, disc ceramic, .005 mf-600 volt	C3	1101-003
1	Capacitor, disc ceramic, .005 mf-600 volt	C4	1101-003
1	Capacitor, disc ceramic, .005 mf-600 volt	C5	1101-003
1	Capacitor, tubular ceramic, .33 mmf-600 volt	C6	1101-004
1	Capacitor, disc ceramic, .005 mmf-600 volt	C7	1101-003
1	Capacitor, disc ceramic, .005 mf-600 volt	C8	1101-003
1	Capacitor, mica, 200 mmf-600 volt	C9	1102-001
1	Capacitor, disc ceramic, .0047 mf-1000 volt	C10	1101-023
1	Capacitor, ceramic, .001 mf-1500 volt	C11	1101-011
	Not Employed	C12	
	Not Employed	C13	
1	Capacitor, electrolytic, 12 mf-700 volt	C14	1106-007
1	Capacitor, electrolytic, 25 mf-25 volt	C15	1106-003
1	Capacitor, ceramic, 500 mmf-600 volt	C16	1101-005
*	Capacitor, electrolytic, 10 mf-500 volt	C17	1106-002
*	Capacitor, electrolytic, 10 mf-500 volt	C18	1106-002
*	Capacitor, electrolytic, 10 mf-500 volt	C19	1106-002
1	Capacitor, electrolytic, 12 mf-700 volt	C20	1106-007
*Single Triple Section Electrolytic			
1	Choke, 7H-250 MA	CH1	1300-008
1	Choke, 7H-250 MA	CH2	1300-008
1	Fuse, 3 amp	FS1	1500-002
1	Coil, Osc., 10-20M	L1	1400-006
1	Coil, Osc., 160-40M	L2	1400-007A
1	Coil, Pi Net, 160-10M	L3	1400-004
1	Coil, L Matching	L4	1400-008
1	Meter, 2" square 0-15-150 MA	M1	2500-001A
1	Pentode couplate	PC91	1109-002
1	Triode couplate	PC81	1109-001

Quan.	Description	Circuit Designation	WRL Part No.
1	Bulb, #47	PL1	3800-002
1	Bulb, 6S6	PL2	3800-003
1	Parasitic Suppressor	PS1	1301-009
1	Power transformer	PT1	1200-002
1	Choke, 2.5 MH, 50 MA	RFC1	1301-001
1	Choke, 2.5 MH, 50 MA	RFC2	1301-001
1	Choke, 2.5 MH, 200 MA	RFC3	1301-002
1	Resistor, 47K-1/2 Watt	R1	1000-002
1	Resistor, 22K-1 Watt	R2	1001-010
1	Resistor, 120 ohm 1/2 W	R3	1000-003
1	Resistor, 120 ohm 1/2 W	R4	1000-003
1	Resistor, 22K-1/2 Watt	R5	1000-008
1	Resistor, .3 ohm	R6	1010-001
1	Resistor, 450 ohm 10 W	R7	1003-006
1	Resistor, 12,500 ohm 10W	R8	1003-007
1	Resistor, 56 ohm 1/2 Watt	R9	1000-010
1	Resistor, 6000 ohm 10W	R10	1003-010
1	Resistor, 50K-10 Watt	R11	1003-009
1	Resistor, 47K-1/2 Watt	R12	1000-002
1	Resistor, 2.2M-1/2 Watt	R13	1000-019
1	Resistor, 2200 ohm 1/2 W	R14	1000-006
1	Resistor, 1500 ohm 1/2 W	R15	1000-007
1	Resistor, 68K-2 Watt	R16	1002-006
1	Resistor, 22K-1 Watt	R17	1001-010
1	Resistor, 390 ohm-2 W	R18	1002-005
1	Resistor, 22K-2 Watt	R19	1002-003
1	Switch, transmit, DPST	SW1	2101-002
1	Switch, function, DPDT	SW2	2101-001
1	Switch, meter, DPDT	SW3	2101-001
1	Switch, band	SW4A-B	2100-002
1	Switch, Pwr. on VC-1	SW5	
1	Switch, VFO/Xtal SPST Slide	SW6	2102-001
1	Condenser, Variable, 365 mmf	TC1	1105-009
1	Condenser, Variable, 365 mmf	TC2	1105-009
1	Condenser, Variable, 75 mmf	TC3	1105-006
1	Volume control, w/ switch, 500K	VC1	2300-002
1	Tube, 6V6		
1	Tube, 6146		
1	Tube, 5U4GB		
1	Tube, 6U8		
1	Tube, 6L6GB		

Globe Scout Model-66



Schematic Drawing Of Globe Scout Model 66

WARRANTY

WRL Electronics, Inc. warrants each new product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to our authorized wholesaler from whom purchased, intact, for examination, with all transportation charges prepaid within the warranty period as follows: all components with the exception of tubes and meters are guaranteed for one full year from date of purchase; tubes and meters are guaranteed for ninety days from date of purchase.

This warranty does not extend to any of our products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our factory, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture. We do not authorize the purchase of any replacement for any faulty component that may be found in this unit. Under no circumstances will WRL Electronics, Inc. re-imburse the purchaser of this unit for any such purchase.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized wholesaler without charge to the owner.

This warranty applies only to the original purchaser and is not transferable. This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.

WRL Electronics, Inc. reserves the right to make circuit or component changes, or incorporate new features at any time, without incurring any obligation to owners of its products previously sold.