

OPERATING INSTRUCTIONS FOR AMECO TRANSMITTER, MODEL TX-62

IT IS IMPORTANT THAT THIS ENTIRE MANUAL BE READ CAREFULLY BEFORE THE TRANSMITTER IS PLUGGED INTO AN OUTLET AND BEFORE ANY OPERATING IS DONE WITH THE TRANSMITTER.

SAFETY NOTICE

Voltages of over 600 volts DC are present in the TX-62 when the unit is in operation. THESE VOLTAGES CAN BE DANGEROUS. Occasionally a few tests may have to be made inside the set with the high voltage on. NOTE that this voltage is present, whether the key is up or down. Observe all safety precautions. When it is necessary to make measurements with the power on, use only one hand. Keep the other hand in your pocket. Do not lean on the table or touch any other object.

DO NOT ATTEMPT TO MAKE ANY REPAIRS OR CHANGE TUBES WITH THE POWER ON. Disconnect the plug from the AC line before doing any work inside the transmitter.



GENERAL INFORMATION

The Ameco Model TX-62 Transmitter is a compact, convenient, easy-to-operate transmitter for the 6 and 2 meter bands. The TX-62 has 75 watts input on CW and 75 watts peak input on phone. It has a built-in AC power supply and modulator. All exciter circuits are broadbanded. Only the final plate and loading capacitors have to be tuned. A potentiometer-type drive control is used to set the drive level to the final grid. The final is operated straight through on both bands.

The TX-62 uses the low distortion Ameco DUO-GRID modulation. It is NOT controlled carrier or clamp tube modulation, but a far superior system with quality that cannot be distinguished from push-pull plate modulation, even with an oscilloscope. The percentage of modulation is controlled by an audio gain control on the front panel.

SPECIFICATIONS

FREQUENCY COVERAGE: 50-52 Mc. and 144-148 Mc.

POWER INPUT TO FINAL: CW - 75 watts,
Phone - 75 watts peak

TUBES AND FUNCTIONS: 6GK6 crystal controlled oscillator and tripler, 6GK6 doubler, 7868 driver, 7984 final, 12AX7 audio voltage amplifier and 6GK6 modulator. The modulator is used as a clamp tube on CW.

FREQUENCY CONTROL: Crystal controlled, using inexpensive 8 Mc. crystals or an external VFO can be used.

METER reads final cathode current, final grid current and RF output.

CONTROLS: POWER switch; PHONE-CW switch; METER selector switch; VFO-CRYSTAL switch; MIC GAIN control and spot switch; DRIVE control; BAND switch; Final PLATE tuning; LOAD. The jack for the microphone or key and the crystal socket are on the front panel. Additional connections can be made to an octal socket on the rear of the chassis for key, relay, etc.

SIZE: 11-1/2 x 9-1/2 x 6 inches. **WEIGHT:** 18-1/2 lbs.

POWER: AC-117 volts, 60 cycles, 220 watts maximum. For 12 volts DC operation, a Heath MP-10 Power Supply

can be used.

ANTENNA: The TX-62 is designed to be used with 50 or 72 ohm coaxial line fed antennas. For balanced lines of 200, 300, 450 or 600 ohms, either a balun made from coaxial cable or an antenna tuner can be used. These will provide the conversion from balanced to coaxial line. See the ARRL Handbooks for details. Baluns are described in the section on Antennas (1964 page 385) and dimensions are in a table in the section on VHF Antennas (1964 page 456). An Antenna Tuner is described in the section on VHF Transmitters (1964 page 452). This data is in all the Handbooks from 1957 on.

The antenna jack is an SO-239 (83-1R) connector which requires a PL-259 (83-1SP) plug on the antenna cable.

For best results, a beam antenna should be used. The more elements the beam has, the better, especially on 2 meters. The "halo", the "big wheel", the "whip" and other non-directional types can be used for net, local contacts and mobile operation.

CRYSTALS: The crystals used are the popular 8 Mc. series -- in FT-243 holders. The frequency of the crystal is multiplied by six to get the transmitting frequency on 6 meters. It is multiplied by 18 to get the transmitting frequency on 2 meters. In other words, 8.3333 Mc. to 8.6667 Mc. crystals are to be used for 6 meters and 8.0000 Mc. to 8.2222 Mc. crystals are to be used for 2 meters. Because phone operation on 6 meters is above 50.10000 Mc., only the crystals above 8.350 Mc. can be used for 6 meter phone operation. If operation in the 145 Mc. to 147 Mc. band is desired, the crystal frequency must be between 8.0555 Mc. and 8.1666 Mc.

VFO: The output of the external VFO must be plugged into the crystal socket and the crystal-VFO switch is then thrown to the VFO position. The ground contact on the VFO-crystal socket is the one next to the MIC jack. The operation of the transmitter is the same for VFO or crystal.

The VFO must be capable of delivering between 7 and 14 volts at 8 Mc. to 8.66 Mc. However, the VFO frequency is not limited to 8 Mc. to 8.66 Mc. Equally satisfactory is a VFO that delivers 2.5 to 5 volts at 12.0 Mc. to 13 Mc., or 1.0 to 2.0 volts at 24 Mc. to 26 Mc. The 24 Mc. to 26 Mc. VFO is the best one to use. The AMECO VFO-621 operates in this range.

MICROPHONE: Any high impedance microphone (crystal, ceramic or dynamic) can be used. The microphone is connected to the transmitter by a three-contact 1/4" diameter phone plug. Switchcraft phone plugs, Models 60, 90, 260, 269, 290 or 297 can be used. Some of these models are shielded and some are not. Shielded types are best, but no difficulty has been noted with the plastic shell plugs.

The tip of the plug is the key line, the ring is the hot side of the microphone and the sleeve is the ground. The microphone cable is attached to the plug in the following manner (See Figure 2): Connect the cable shield from the microphone cable to the sleeve of the plug. Connect the hot microphone lead of the cable to the ring of the plug. Connect the lead coming from the push-to-talk button to the tip of the plug.

No provision is made for the use of a carbon microphone.

KEY: Any key can be used for CW; --- straight, side swiper, bug or electronic.

CIRCUIT DESCRIPTION

The TX-62 uses a 6GK6 pentode tube as a crystal oscillator. It uses standard, inexpensive, 8 to 9 Mc. fundamental type crystals. By throwing a switch on the panel from crystal to VFO, the variable frequency oscillator can be connected to the crystal socket instead of the crystal. When this is done, the 6GK6 oscillator works as an amplifier or frequency multiplier.

The plate of the oscillator is connected to a dual tuned RF transformer (L2 and L3). This feeds the resultant 24 Mc. to 26 Mc. signal to the second 6GK6 tube. This second tube operates as a frequency doubler. Its plate is connected to a dual tuned RF transformer (L4 and L5) which feeds the 48 Mc. to 52 Mc. signal to the third tube, a 7868 pentode. On 2 meters, the 7868 tube is used as a tripler to produce the 144 Mc. to 148 Mc. signal for the final grid, through the broadband transformer, L8 and L9. On 6 meters, the 7868 works straight through, driving the final grid through L6, the 6 meter plate coil which is connected to the link on L11, the final grid coil. The combination of L6 and L11 forms a broadband transformer covering the 6 meter band. No front panel adjustments are used in any of the circuits described above. The circuits are broadbanded and do not have to be tuned.

The final amplifier is a 7984 tube. This is a new type, developed for use in the commercial mobile service for frequencies up to 175 Mc. The plate circuit is a pi-net on 6 meters. It is a series tuned, link coupled arrangement on 2 meters. Separate sections of the same variable capacitor are used for loading on the two bands. One capacitor is used to tune the plate on both bands. To simplify tuning, the meter is connected to a diode RF detector at the bandswitch. It is always better to tune a transmitter for RF output rather than for a plate current dip. They rarely coincide. After tuning, the plate current can always be checked.

The modulator, to the careless eye, appears to be either clamp tube or controlled carrier. It is neither. The TX-62 modulator does not sound like either type. It is clean to listen to, clean to look at on an oscilloscope and gets through when the going is rough. The first tube, a 12AX7, is used as a two-stage voltage amplifier. The second tube, a 6GK6, is the modulator. It is connected to the 7984 final screen as a Heising modulator. A proportion of the audio signal is also fed into the control grid of the 7984. With screen modulation alone, distortion increases sharply above approximately 65% modulation. When the grid is also modulated, as in the Ameco system, this distortion is reduced to a very low value permitting clean, 100% modulation with a very simple circuit. When the transmitter is operated on CW the modulator tube is reconnected as a clamp tube to protect the final in case of loss of excitation. On phone, the reduced screen voltage provides some protection for the final.

INSTALLATION

READ THIS ENTIRE SECTION OVER CAREFULLY BEFORE DOING ANYTHING. THEN START WITH STEP ONE.

DO NOT PLUG THE TRANSMITTER INTO THE AC LINE OUTLET UNTIL THE INSTRUCTIONS BELOW TELL YOU TO DO SO.

1. Connect the wire from the ground terminal at the rear of the chassis to a good ground such as a cold water pipe. All other equipment such as the receiver, converters, power supplies, VFO, etc. should have good connections made to this same ground. Use a #14 or heavier wire. Do not depend on coaxial cable to provide a common ground. The RF bypass capacitors from the AC line to the chassis can give an unpleasant shock if the above grounding instructions are not followed. This is true for all makes of equipment. Do NOT use an AC/DC receiver in this setup.

2. Connect the antenna to the changeover relay or switch.

3. Connect the Standing Wave Bridge, if one is available. Instructions for this come with the Standing Wave Bridge.

4. Hook up the Low Pass Filter, if you are operating on 6 meters. A Drake TV-1000LP is recommended for this use. If you switch to 2 meters, remove the low pass filter from this circuit. The Gavin BP-144 filter is sometimes useful on 2 meters.

5. Connect the receive side of the relay to the converter or receiver.

6. Connect the transmit side of the relay to the coaxial jack on the back of the transmitter.

7. Connect the relay coil (See section on Connecting the Dow-Key Relay).

8. Plug in the microphone.

9. Plug in the crystal. If a VFO is to be used, use a crystal for at least the first tests.

OPERATION FOR PHONE AND CW

1. Preset the TX-62 controls as follows: POWER switch to OFF, CW-PHONE switch to CW, VFO - CRYSTAL switch to CRYSTAL, METER switch to GRID, MIC GAIN at zero, DRIVE at 100, LOAD at zero, PLATE at about 50, BAND switch set on the band to be tuned up, Key or microphone switch should be open

2. Plug the line cord of the transmitter into the AC wall outlet.

3. Throw the power switch on. Wait for at least one full minute for the tubes to warm up.

4. Key the transmitter with the key or the button on the microphone momentarily and watch the meter. It should read between 2 and 9 ma.

5. If the meter reads above 5 ma., turn the drive control down to obtain a reading between 2 ma. and 5 ma.

6. Throw the meter switch to ANT.

7. Key the transmitter and tune the PLATE capacitor for maximum reading on the meter.

8. Key the transmitter and adjust the LOAD capacitor for maximum reading.

9. Repeat steps 7 and 8 several times until no further increase is obtained. Do NOT hold the key down for a long time. Hold it for just a few seconds at a time while each adjustment is made. During tuneup, it is very easy to overheat the final amplifier tube and shorten its life.

NOTE: Step 10 is for CW operation only. Steps 11 through 13 are for Phone Operation only.

10. (CW OPERATION ONLY) Throw the meter switch to GRID. Adjust the drive control for 3 ma. on the meter. Satisfactory results can be had with as little as 2 ma.

The transmitter is now tuned up for CW operation.

The following steps are for Phone operation only.

11. Throw the CW-PHONE switch to PHONE. Throw the METER switch to GRID. Adjust the DRIVE control for 3 ma. on the meter. Satisfactory results can be had

with as little as 2 ma.

12. Throw the METER switch to ANT. This will permit observation of the RF output to the antenna, including the variations with modulation.

13. Adjust the MIC GAIN control until the meter swings up the scale on a few words -- on peaks -- about one-quarter way between the meter reading for CW and the meter reading for Phone when there is no modulation. If the meter does not swing at all, the modulation is too low. Either talk closer to the microphone or talk louder or turn the MIC GAIN control up higher. When the swing is excessive, the modulation is also excessive, causing distortion and often poor readability. In this case, turn the MIC GAIN control down.

The transmitter is now tuned for Phone operation.

Note that in the tuneup procedures above, the plate current is not mentioned. Accurate tuning cannot be had by tuning the TX-62 for plate current dip. A typical range of meter readings on CATH, or cathode currents (the total of plate, screen and grid currents) is as follows:

	6 meters	2 meters
CW	130 - 170 ma.	150 - 190 ma.
Phone	80 - 110 ma.	90 - 135 ma.

These readings are affected by line voltage variations, antenna characteristics, tube variations and circuit variations.

On Phone, one may talk as long as desired. On CW, send CW as long as desired but do not hold the key down for more than a couple of minutes. Remember that CW is a "part time" operation - the carrier is off a good part of the time. If tests require long key-down operation on CW, tune carefully.

ALTERNATE STEP 11:

Step 11 above is rather simple and is sufficient for most operations. However, as the user becomes more familiar with the transmitter, he may want to use a better method for arriving at the proper final grid current. The final will operate with more efficiency with this alternate method. It can be done as follows:

With the METER switch on ANT. and the DRIVE control at maximum (never allow the final grid to have more than 5 ma. for more than a few seconds), adjust the DRIVE control from the maximum point downwards. As the control is turned down, the meter reading will increase and then decrease. Turn the control up again (clockwise) --- just past the peak reading to where the meter reading starts to drop very slightly. This is the best operating point. The METER switch can then be thrown to GRID. The grid current reading is usually very close to 3 ma., but it may be as low as 2 ma. or as high as 3.5 ma. Note that this procedure is good for general use, on any Class C amplifier -- for phone or CW.

SPOT SWITCH: There is a switch on the MIC GAIN control. It is normally in the "ON" position. If the MIC GAIN control is turned counter-clockwise - past 0 - the switch will snap to the "OFF" position. In this position, the final amplifier and the driver are disabled, and the VFO, V1 and V2 are turned on by grounding the cathodes. This permits tuning in the signal on the receiver, without putting a signal on to the antenna. Either the receiver can be exactly tuned to a crystal frequency or, when a VFO is used, the VFO can be tuned in exactly to the same frequency as the station the receiver is tuned in on. As soon as the tuning is completed, turn the MIC GAIN back to the original setting.

RELAYS

Circuits for the changeover from receive to transmit can have practically infinite variations. Some of the switching that may have to be done, depending on the equipment combination, is as follows:

Disable the receiver.

Transfer the antenna from the receiver to the transmitter.

Short out or otherwise protect the receiver (or converter) input from damage from energy produced by the transmitter. Open contacts on an ordinary relay or switch are no protection.

Key the transmitter.

Key the VFO.

The least expensive system is to use manually operated switches for all changes. However, after a short time, the operating clumsiness of this will become obvious. The best system is to use a relay especially made for this purpose. An arrangement will be described in detail for mixed phone and CW operation. It uses the Dow-Key DK60-G2C Relay with double pole double throw auxiliary contacts and a 12 volt DC coil. The initial cost may seem high, but there is no equivalent unit on the market that will do the job. The use of this relay makes for extremely convenient operating conditions.

CONNECTING THE DOW-KEY RELAY (See Figs. 2 to 6)

A. Find a convenient place to mount the relay with two screws. DO NOT mount it directly on to the coax connector on the transmitter or on other equipment because the SO-239 coaxial connector is not made to carry any more load than a plug and flexible cable.

B. Obtain an octal male plug such as an Amphenol 86CP8 with a 3-12 or 3-24 cap.

C. Connect the relay coil to octal pins 6 and 7 with a good grade of flexible wire. Lamp cord is good. Cover the relay coil terminals with electrical tape.

D. Connect the auxiliary contacts of the relay as described below to provide receiver muting. See Fig. 2. The pin numbers referred to below are on the octal plug. Note that a ground wire MUST be connected from chassis to chassis as mentioned in step #1 of Installation on Page 3. DO NOT use an AC/DC receiver.

D1. Connect the center terminal of one set of SPDT contacts to pin 1 of the octal plug.

D2. Disconnect the lead that connects the speaker to the grounded audio terminal on the receiver.

D3. Connect the terminal of the normally closed contact to the terminal of the speaker that was just disconnected.

D4. Do not disturb the other side of the speaker that is connected to the hot audio output terminal on the receiver.

D5. Connect a resistor across the output audio terminals of the receiver. If the speaker impedance is 3.2 or 4 ohms, use a 10 ohm, one watt resistor. If it is a high impedance speaker (4,000 ohms is typical), use a 10,000 ohm, one watt resistor.

D6. Connect the key terminal of the VFO (if one is used) to pin 2 of the octal plug.

E. Connect the center terminal of the other set of the SPDT auxiliary contacts to pin 8 of the octal plug. Connect the normally open contact to the hot terminal of the telegraph key. Do not connect anything to the third auxiliary contact. Connect the ground side of the telegraph key to pin 1 of the octal plug. Note that it is nec-

essary to have a key with a shorting lever on it, or it will be necessary to add a switch across the key. If only phone operation is planned, omit the key and connect the normally open contact directly to pin 1 of the octal plug.

F. Insert the octal plug into the socket at the rear of the transmitter.

G. Connect the transmitter to the relay with a short piece of coaxial cable of the same type used in the lead-in from the antenna. Use a PL-259 plug on each end of the cable. A filter or antenna tuner can be connected between the transmitter and the relay, if desired.

H. Connect the relay to the receiver or converter using the same type of cable. Use a PL-259 plug on the relay end and a connector that will mate with the other unit at the other end.

I. Connect the antenna to the relay with another PL-259 plug. If a bridge is used, connect the Standing Wave Ratio Bridge between the relay and the antenna.

When the relay is connected in this way, the changeover from receive to transmit is completed by operating the push-to-talk button on the microphone, or an optional extra switch across pins 1 and 7 can be used. If the transmission is to be on CW, the shorting lever on the key must be open. It must be closed for phone operation.

Note that there is no mention of breaking a B+ or cathode line or other disabling of the receiver or converter. There is no benefit to be derived from this kind of switching. There is a definite advantage in having this circuit operating. With the receiver in full operation, except for the broken speaker line and the very high loss between the antenna and the converter or receiver input which the relay provides, the receiver can be used to check the signal from the transmitter. If the headphones are plugged into the receiver, it is possible to monitor the transmitter for distortion, drift, frequency modulation, hum, etc.

ALIGNMENT

The TX-62 has a number of broadband circuits to eliminate the need for several panel adjustments usually found on this type of equipment. An additional advantage of the broadband circuits is the reduction of spurious outputs. This is because there are two tuned circuits used where there is usually only one, giving better attenuation of the unwanted harmonics in the multiplier stages.

These circuits are not likely to require any adjustment UNLESS THEY HAVE BEEN TAMPERED WITH.

The normal alignment gives satisfactory drive to the final over the whole 2 meter band and from 50 to 52 Mc. on the 6 meter band. There are two reasons for tuning for 2 instead of 4 Mc. on 6 meters. First, there is very little activity above 52 Mc., even in good band openings. Second, it permits slightly better attenuation of spurious signals. MARS and CAP frequencies outside both bands are covered.

Alignment should be done at the factory.

Alignment instructions are available, on request (send self-addressed stamped envelope) for those who have both the test equipment and experience in aligning broad-band amplifiers.

SERVICE DATA

No matter how well equipment is designed and manufactured, defects are bound to occur. The purpose of this section is to correct these defects as easily as possible. In case of any difficulty, the first step is to deter-

mine definitely that a defective condition exists. If the transmitter or the equipment connected to it is not operated correctly, certain indications of trouble might be presented when there is actually nothing wrong. The operator must be thoroughly familiar with the operating procedures, before attempting to shoot trouble.

After a positive determination is made that the transmitter has a fault, the first step is to localize the fault. Once the trouble is narrowed down to a single tube or circuit, the faulty part is quite simple to identify.

With the Trouble Shooting Data Chart, Voltage and Resistance Data (Tables), localizing trouble becomes relatively simple.

TROUBLE SHOOTING DATA

DO NOT DISTURB ALIGNMENT ADJUSTMENTS

SYMPTOMS AND POSSIBLE CAUSES:

1. Transmitter will not operate when AC power is applied. Pilot light will not light.
 - a. Defective 5 amp. fuse.
 - b. Poor contact at AC outlet.
 - c. Defective POWER switch.
 - d. Open high voltage rectifier diodes, D2, D3.
 - e. Open 20 ohm wire wound resistor, R43.
2. Fuse blows.
 - a. Wrong size fuse. Use 5 amp. 3AG fuse.
 - b. Short in high voltage circuits:
Rectifier diode or diodes D2, D3.
Filter capacitors C48, C49.
Bypass capacitors or coupling capacitors C27, C28, C29.
Wiring shorts.
 - c. Power transformer shorted or burned.
 - d. Shorted tube: 7984, 7868.
3. No final cathode current reading on meter.
 - a. Key not connected or not operated.
 - b. Meter open
 - c. Meter switch not making contact. See that it can move freely to all 3 positions without being stopped by the panel. If it doesn't move freely, loosen mounting screws and reset the switch.
 - d. No high voltage. See 1d, 1e.
 - e. Defective tube 7984.
 - f. Open RF choke L12.
 - g. Jumper on octal socket, J3, cut.
 - h. R39 open.
 - i. No plug in J3.
4. No final grid current reading on meter.
 - a. 1d, 1e, 3a, 3b, 3c, 3e, 3g.
 - b. Defective crystal, no crystal plugged in.
 - c. VFO turned off or defective.
 - d. VFO-CRYSTAL switch in the wrong position.
 - e. Any defective part or tube in the V1, V2, V3, V4 circuits. Check voltages.
5. Insufficient or drooping grid current reading on the meter.
 - a. Defective crystal or VFO with insufficient output.
 - b. Weak tube V1, V2 or V3.
 - c. Alignment poor or tampered with.

- d. Drive control too high for the particular combination of crystal or VFO and the tubes V1 or V2.
6. Final PLATE and LOAD tuning unsatisfactory.
 - a. Antenna has a high standing wave ratio (SWR). Check it with an SWR bridge.
 - b. Antenna disconnected.
 - c. Antenna relay not working or not connected properly.
 - d. Wrong filter connected in the antenna line for the band in use.
7. No ANT reading on meter. Other readings normal, signals getting out O.K.
 - a. 3c.
 - b. Defective part: D1, R20, C32.
 - c. Wiring short or break.
8. No change in METER readings when switching from CW to PHONE.
 - a. Defective V6, R34, D5, S4.
9. No modulation.
 - a. 8a.
 - b. Defective microphone or microphone cable.
 - c. Incorrectly wired microphone plug.
 - d. Wiring or part defect in V5-V6 circuits.
10. Hum in modulation.
 - a. Unshielded or incorrectly connected microphone cable.
 - b. Defective C49.
 - c. V5 defective.
11. Distortion, squeal or overmodulation.
 - a. Defective V5.
 - b. 10a, 9b, 9c.
 - c. Receiver not properly muted during transmission.
 - d. Defective C36, C40.
 - e. Antenna disconnected or defective. Relay not making contact.
12. Smoke.
 - a. Turn off power, turn transmitter over quickly and try to locate the source of the smoke. Use a strong light if possible. This is the easiest trouble to find. Replace the damaged part. Locate the cause and correct it. The burned part is seldom the faulty one. Use the resistance chart to help locate the trouble.
13. DO NOT disturb any alignment adjustments when shooting trouble unless absolutely necessary. Unnecessary tuning is one of the best ways to make more trouble.

NOTES FOR THE VOLTAGE AND RESISTANCE TABLE:

The measurements are made with a vacuum tube volt meter (VTVM) with 11 megohms of input resistance on DC volts. The AC line voltage should be 117 volts at 60 cycles. The readings are typical, average and subject to variations from differences in line voltage, tubes, test frequency, alignment and antenna or dummy load. All measurements are made from the point indicated to the transmitter chassis or ground.

OHMMETER POLARITY: Diodes are used in the solid state power supply, as well as in the modulator and final stages. These diodes cause some of the ohmmeter readings to be different when the ohmmeter polarity is reversed. Therefore, if the ohmmeter reading is somewhat different (possibly lower) from the value given in the chart, change the polarity of the ohmmeter leads. If there is no trouble at this point, the reading should be the same as that given in the chart.

The controls are set as follows:

POWER to ON

VFO-CRYSTAL to CRYSTAL

MIC GAIN at zero

PLATE and LOAD are tuned normally

CW-PHONE, BAND and METER switches are set
as needed in testing.

* Indicates that the measurement is made with a
470K 1/2 watt resistor in series with the VTVM probe
tip and the point listed.

@ Indicates that the reading can vary considerably.

See paragraph on Ohmmeter Polarity.

The filament voltages are as follows:

V1, V2, V3 and V6

Pin 4 - 6.4 volts AC

V4

Pin 12 - 13.5 volts AC.

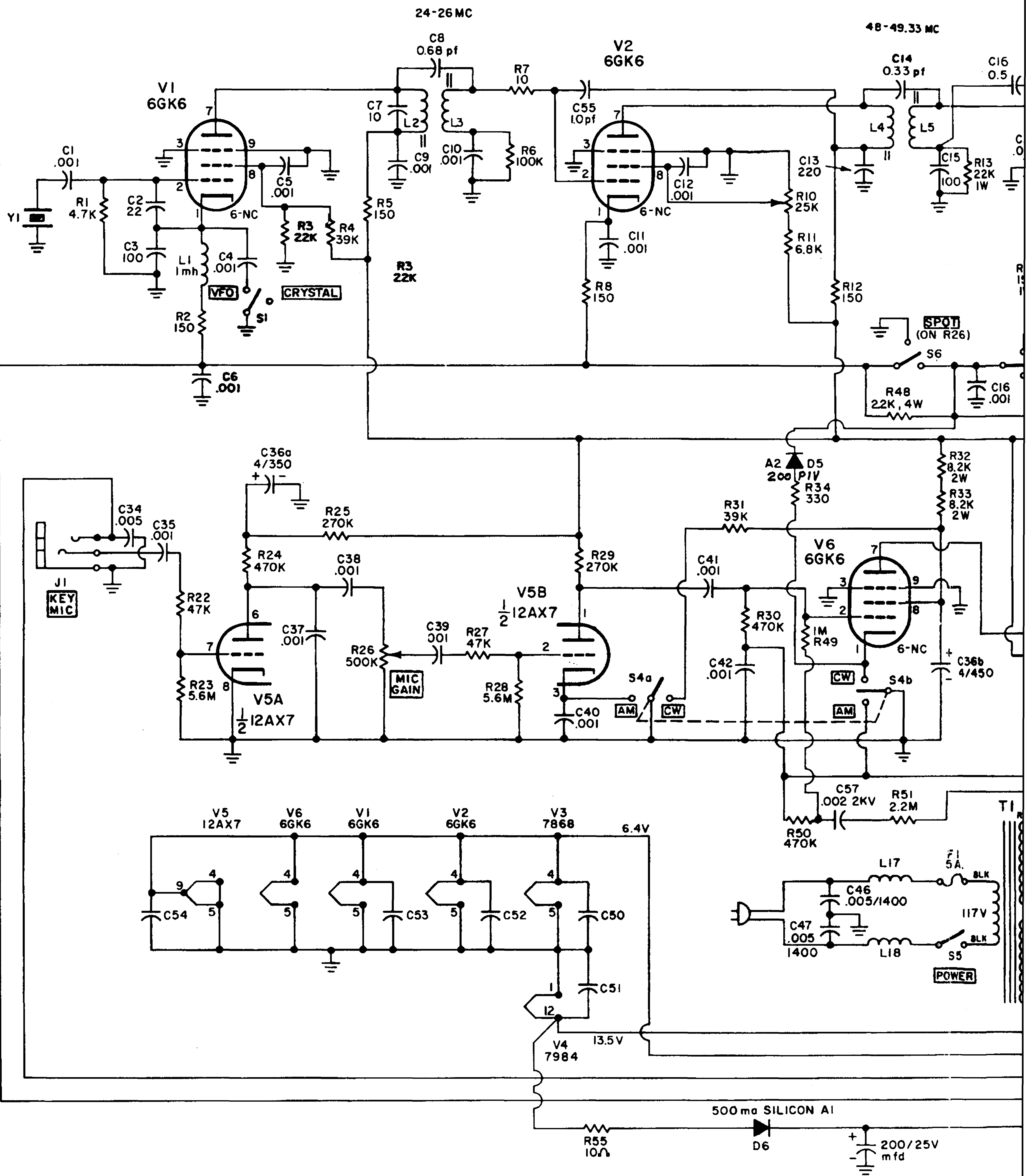
V5

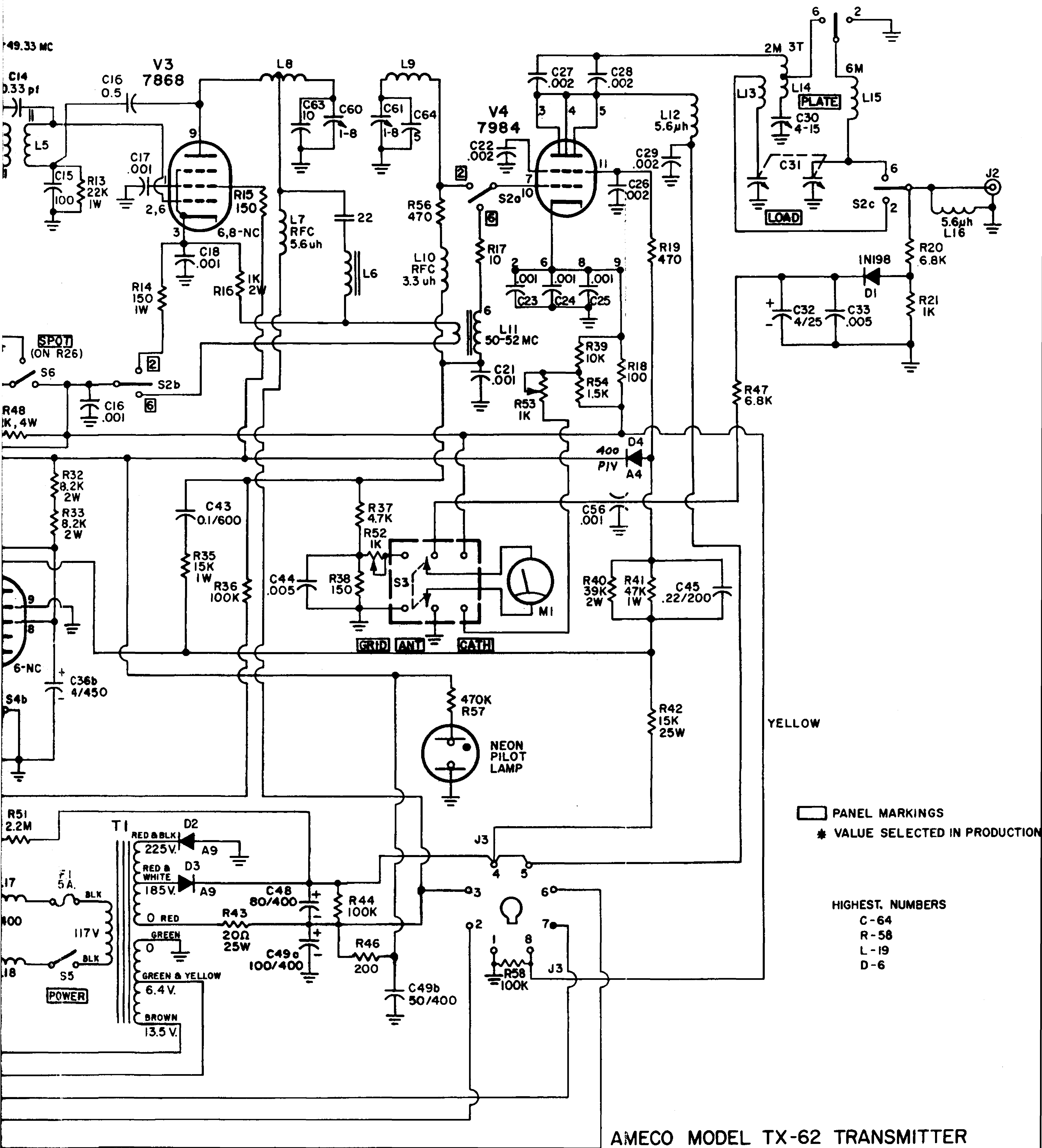
Pin 9 - 6.4 volts AC.

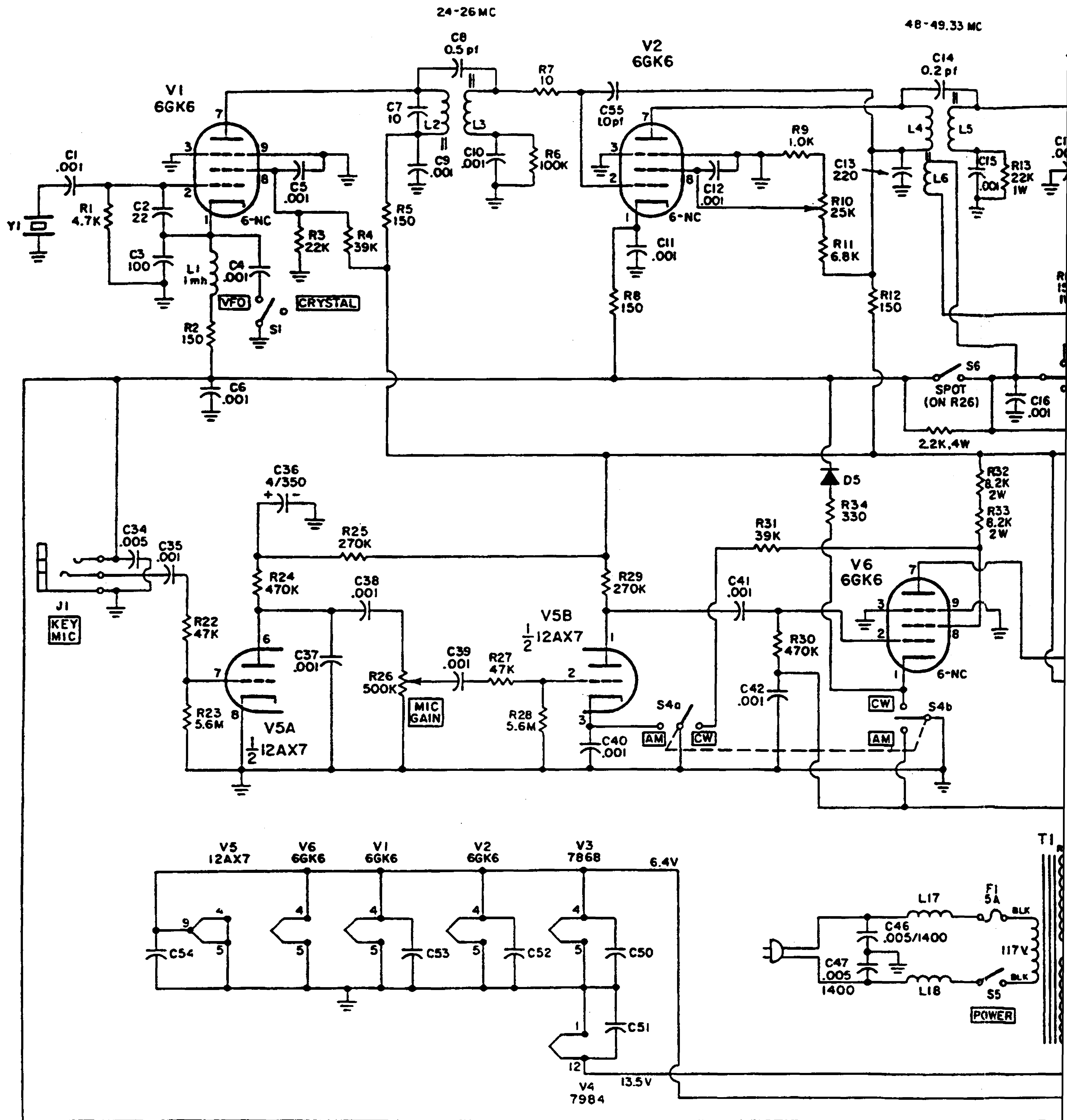
VOLTAGE-RESISTANCE CHART OF TX-62

Voltages are given in volts; Resistance values are in ohms. K indicates X 1,000; M indicates X 1,000,000.
V = Voltage. R = Resistance. See Notes on Page 6

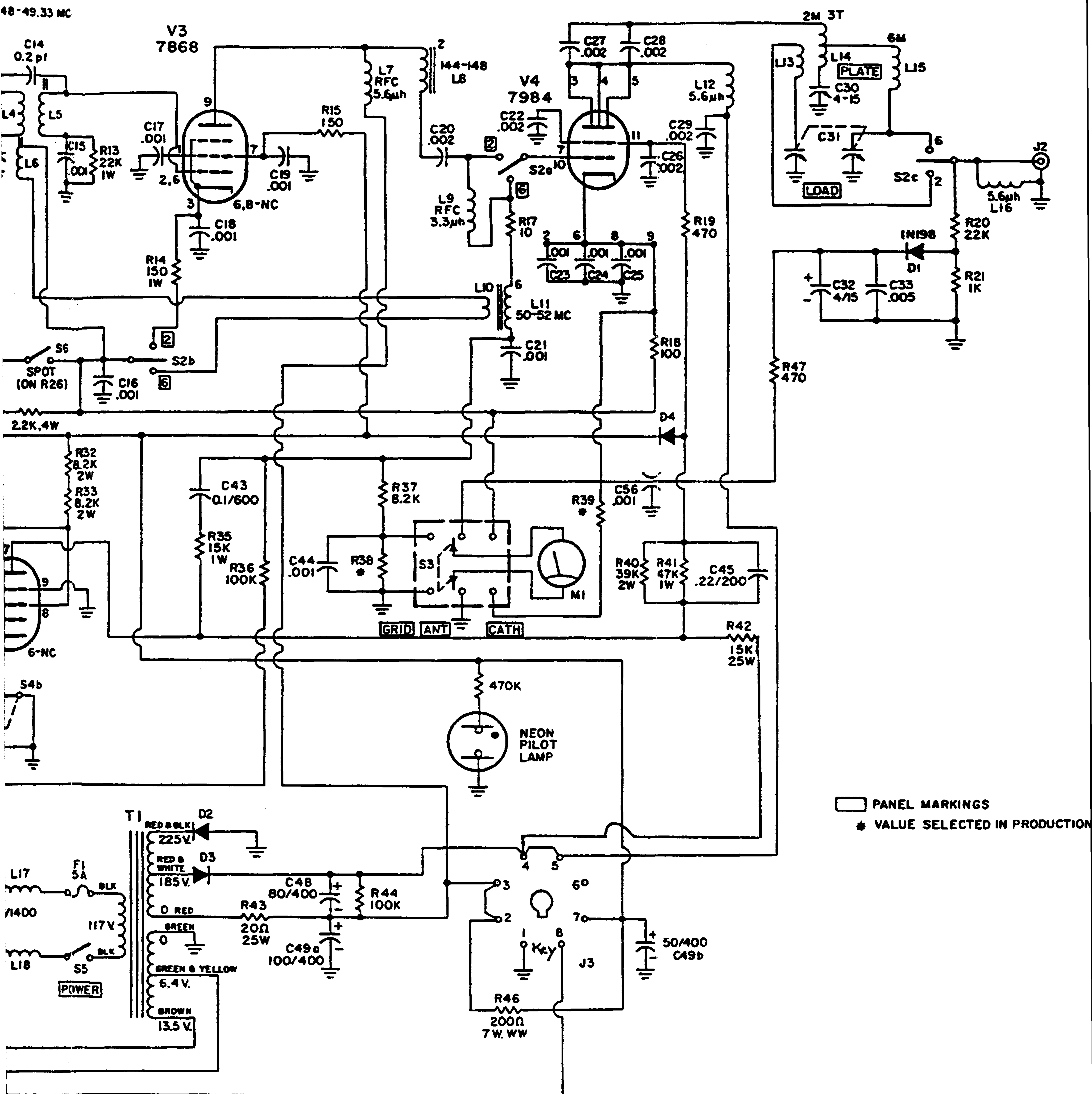
Tube	Pin No.	V or R	6 METERS				2 METERS			
			C W #		PHONE #		C W #		PHONE #	
			Key Down	Key Up	Key Down	Key Up	Key Down	Key Up	Key Down	Key Up
V1	1	V*	2.5	24	2.5	70	2.5	24	2.5	70
		R #	200	100K	200	100K	200	100K	200	100K
	2	V*	-4	0	-4	0	-4.4	0	-4.4	0
		R	4.7K	4.7K	4.7K	4.7K	4.7K	4.7K	4.7K	4.7K
	7	V	285	340	295	355	260	330	280	350
		R	33K	33K	72K	72K	33K	33K	72K	72K
	8	V	80	112	83	120	75	115	78	120
		R	20K	20K	20K	20K	20K	20K	20K	20K
V2	1	V	@2.5	24	@2.5	70	@2.2	24	@2.2	70
		R #	150	100K	150	100K	150	100K	150	100K
	2	V*	@-80	0	@-80	0	@-80	0	@-80	0
		R	100K	100K	100K	100K	100K	100K	100K	100K
	7	V	285	340	295	355	265	340	280	355
		R	33K	33K	72K	72K	33K	33K	72K	72K
	8	V	10 to 250, depending on setting of drive control - - - - -				control - - - - -			
		R	1K to 26K, depending on setting of drive control - - - - -				control - - - - -			
V3	3	V	36	24	37	70	12	24	12	70
		R #	1K	100K	1K	100K	150	100K	150	100K
	2, 6	V	0	0	0	0	72	0	46	0
		R	22K	22K	22K	22K	22K	22K	22K	22K
	1, 7	V	290	330	300	350	260	330	275	350
		R	33K	33K	72K	72K	33K	33K	72K	72K
	9	V	295	340	305	355	280	340	290	355
		R	33K	33K	72K	72K	33K	33K	72K	72K
V4	2, 6, 8, 9	V	17	24	10	70	20	24	12	70
		R #	100	100K	100	100K	100	100K	100	100K
	10	V	12	0	12	0	12	0	12	0
		R	4.8K	4.8K	4.8K	4.8K	5.3K	5.3K	5.3K	5.3K
	7, 11	V	200	23	125	355	210	21	115	355
		R #	130K	130K	130K	130K	130K	130K	130K	130K
	3, 4, 5	V	520	590	540	620	500	600	530	630
		R	130K	130K	170K	170K	130K	130K	170K	170K
V5a	6	V	77	85	75	82	70	80	70	77
		R	800K	800K	800K	800K	800K	800K	800K	800K
	7	V	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
		R	5.6M	5.6M	5.6M	5.6M	5.6M	5.6M	5.6M	5.6M
	8	V	0	0	0	0	0	0	0	0
		R	0	0	0	0	0	0	0	0
V5b	1	V	270	310	100	105	255	310	97	110
		R	350K	350K	350K	350K	350K	350K	350K	350K
	2	V	0	0	-0.8	-0.8	0	0	-0.8	-0.8
		R	5.6M	5.6M	5.6M	5.6M	5.6M	5.6M	5.6M	5.6M
	3	V	7	7	0	0	7	7	0	0
		R	∞	∞	0	0	∞	∞	0	0
V6	1	V	0	0	9	70	0	0	9	70
		R #	0	0	@	100K	0	0	@	100K
	2	V	0	0	0	0	0	0	0	0
		R	570K	570K	470K	470K	570K	570K	470K	470K
	7	V	400	23	180	520	390	21	180	510
		R	130K	130K	180K	180K	130K	130K	180K	180K
	8	V	205	120	260	350	190	125	240	355
		R	30K	30K	90K	90K	30K	30K	90K	90K
Octal Socket On Rear	3	V	295	340	305	355	280	340	290	355
		R	33K	33K	72K	72K	33K	33K	72K	72K
	4, 5	V	520	590	540	620	500	600	530	630
		R	130K	130K	170K	170K	130K	130K	170K	170K
	2, 8	V	0	24	0	70	0	24	0	70
		R	0	100K	0	100K	0	100K	0	100K
	6	V	10	19	10	19	10	19	10	19
		R	@#	@#	@#	@#	@#	@#	@#	@#







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AMECO MODEL TX-62 TRANSMITTER