

TM 11-307J

WAR DEPARTMENT

TECHNICAL MANUAL  
FOR  
SIGNAL GENERATOR I-72-J

April 14, 1943

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WAR DEPARTMENT,  
WASHINGTON, April 14, 1943

**This Technical Manual, published by the Espey Manufacturing Company on order Nos. 15997-PHILA-43, 21331-PHILA-43, 25466-PHILA-43, is furnished for the information and guidance of all concerned.** 29352

SIGNAL GENERATOR I-72-(\*)

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## DESTRUCTION OF ABANDONED MATERIEL IN THE COMBAT ZONE

In case it should become necessary to prevent the capture of this equipment, and when ordered to do so,  
**DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED,  
 RECOGNIZED, OR USED BY THE ENEMY. BURN ALL PAPERS  
 AND BOOKS.**

### Means:—

1. Explosives, when provided.
2. Hammers, axes, sledges, or whatever heavy objects are readily available.
3. Burning by means of incendiaries such as gasoline, oil, paper, or wood.
4. Grenades and shots from available arms.

### Procedure:—

1. Obliterate all identifying marks. Destroy nameplates and circuit labels.
2. Demolish all panels, castings, switch- and instrument boards.
3. Destroy all controls, switches, relays, connecting means and meters.
4. Rip out all wiring in electrical equipment. Smash gas, oil, and water cooling systems in gas-engine generators, etc.
5. Smash every electrical or mechanical part whether rotating, moving or fixed.
6. Break up all operating instruments such as keys, phones, microphones, etc.
7. Destroy all classes of carrying cases, straps, containers, etc.



**Disposal:—**

Where possible, and time permits, bury all debris or dispose of it in streams or other bodies of water.

**S A F E T Y   N O T I C E**

The maximum voltage available in this equipment is less than 300 volts. Such voltages are not usually regarded as dangerous to human life, but may be the source of considerable discomfort or even injury to a person coming in contact with them. Care should be taken not to touch those components carrying plate potentials. It is to be noted that no interlocks are provided, as no high-potential parts are exposed or accessible during operation.

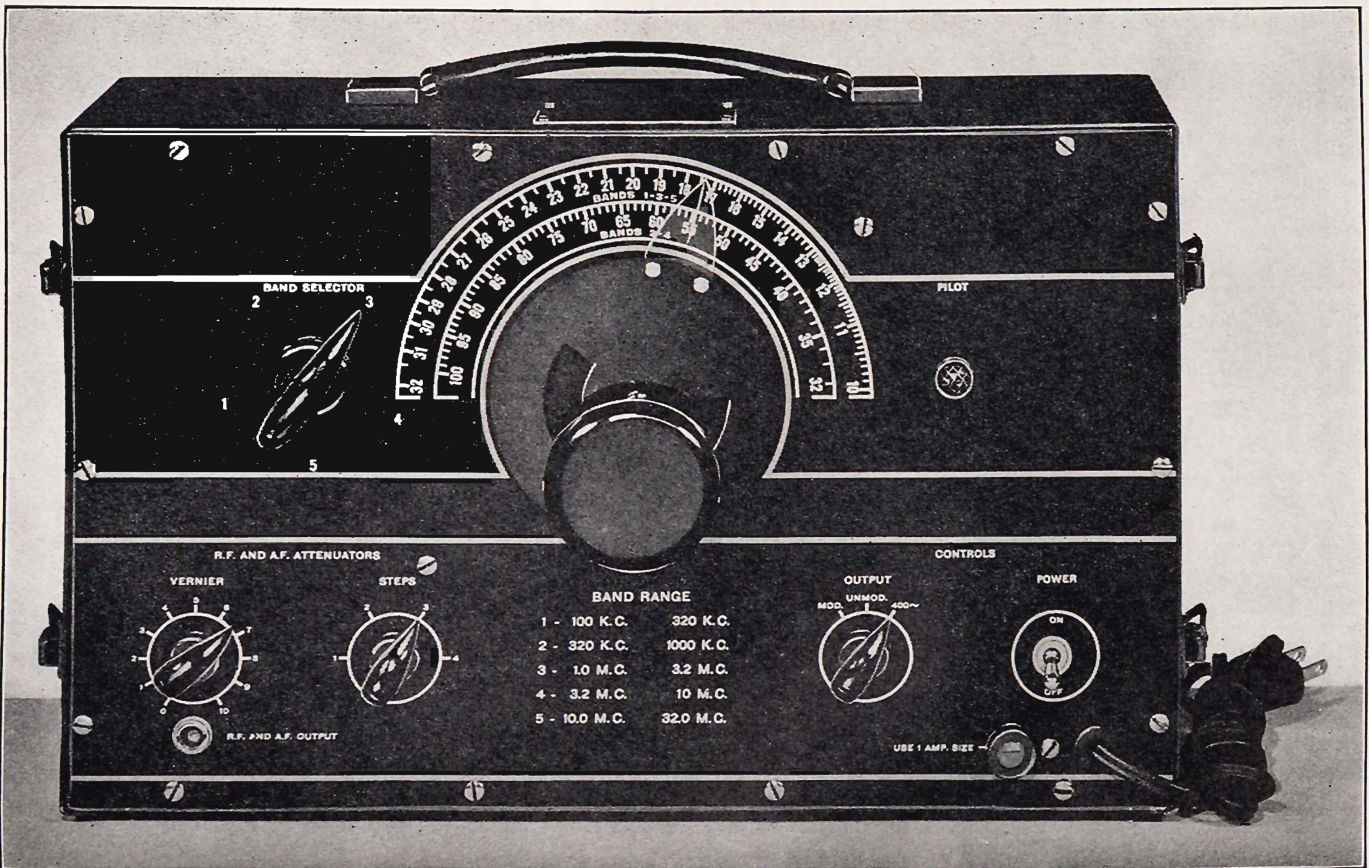


Fig. 1 — SIGNAL GENERATOR I-72-(\*), FRONT VIEW, COVER REMOVED



## SECTION I DESCRIPTION

1. **General.**—Signal Generator I-72-(\*) is portable test equipment incorporating a radio-frequency oscillator which is used to align Signal Corps radio sets. It has a range of 100 kc to 32 mc (32,000 kc) with 400-cycle modulation. The r-f output voltage with the attenuator set for maximum is over 30,000 microvolts on all bands except in the region of 10,000 kc to 20,000 kc where the maximum obtainable output may be 10,000 microvolts or over. It operates on 110-125 volt, 60-cycle alternating current. It is contained in a metal cabinet which is provided with a removable cover held in place by four snap catches. For convenient carrying, the cabinet is provided with a leather handle. A shielded output lead and a spare fuse is mounted on clips attached to the inside of the cover. The generator consists of a tuned plate oscillator, modulator, attenuators, and filament and plate supply.

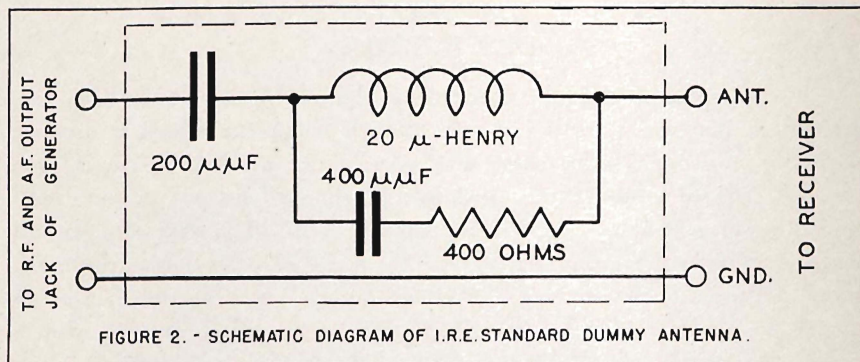
2. **Weights and Dimensions.**—The complete unit weighs 22.2 pounds and the overall dimensions are 15 1/8 inches long, 6 3/4 inches deep, and 9 7/16 inches long.

## SECTION II INSTALLATION AND OPERATION

3. **Installation.**—Because Signal Generator I-72-(\*) is portable, there are no special instructions required for its installation other than to make sure that the a-c power source, to which it is attached, is 110-125 volt, 60-cycle a-c current. Remove the front protecting cover and the unit is ready for use.

4. **Preparation for Use.**—In aligning the r-f circuits of a radio receiver, use some form of dummy antenna to prevent undue reaction between the low output impedance of the signal generator and the input circuits of the receiver. Unless other instructions are contained in the maintenance instructions for the radio receiver being aligned, use the I.R.E. dummy antenna shown in figure 2. Build this antenna by using 43 turns of No. 34 wire, close wound on a half-inch form, (this coil should have an inductance of 20 microhenries) one capacitor of 200 $\mu\mu\text{f}$ , one capacitor of 400 $\mu\mu\text{f}$  and a 400-ohm, non-inductive resistor. Connect the dummy antenna between the signal generator and the receiver as shown in figure 2.

(\*) This indicates that equipment will be supplied with issue letters. In this case, I-72-J is referred to, and the instructions refer to this equipment.



### 5. Operation.—

*a. Starting.*—To start Signal Generator I-72-(\*), throw the POWER switch to ON. Set the OUTPUT control to MOD. (modulated), UNMOD. (unmodulated), or to 400  $\sim$ , depending on the type of output desired. With OUTPUT control set at MOD., the signal generator gives an r-f output with 400-cycle audio modulation. With OUTPUT control set at UNMOD., the output of the signal generator is an unmodulated r-f carrier. With OUTPUT control set at 400  $\sim$ , the signal generator output is a 400-cycle a-f signal **without** r-f carrier.

*b. Tuning.*—To set the signal generator to any desired frequency within its range, determine the band in which the desired frequency occurs and adjust the BAND SELECTOR switch and frequency dial pointer for the frequency desired.

*c. Example.*—Assume that the desired frequency is 7.0 megacycles. On the legend (band range) this frequency occurs in band No. 4 (3.2 MC to 10.0 MC) and, therefore, is read on the lower scale at 70. Adjust the MAIN TUNING control to 70 on the lower scale. Adjust the STEPS control and the VERNIER control of the r-f and a-f attenuators, marked R.F. AND A.F. ATTENUATORS. These controls vary the voltage available at the output jack. More detailed description of the attenuator will be found in Section III, paragraph 11. To turn the signal generator off, throw the POWER switch to OFF.

**CAUTION: DO NOT LEAVE THE BAND SELECTOR SWITCH IN-BETWEEN NUMBERS BECAUSE NO R. F. SIGNAL WILL BE GENERATED.**

**6. Use with Output Meter.**—Most alignment work is done with a copper-oxide rectifier-type a-c meter (output meter) across the audio output of a radio receiver. The effect of various adjustments can also be observed by the use of a cathode-ray oscilloscope



or a meter in the second detector output. Signal Generator I-72-(\*) should be used with the r-f output modulated by means of the internal 400-cycle oscillator (OUTPUT switch at MOD.). It is important, when adjustments are made that the output of the signal generator be reduced as the alignment progresses. If this is not done, the A. V. C. action of the radio receiver will tend to make the response seem broad and misalignment will result. When greater sensitivity is required, connect the output meter from the plate of one of the output tubes through a  $.5\mu\text{f}$  capacitor, in series, with the chassis. MODULATED OUTPUT FROM THE SIGNAL GENERATOR MUST BE USED WHEN USING AN A-C OUTPUT METER. Some radio receivers will require the use of an unmodulated signal (OUTPUT switch set at UNMOD.) and a d-c meter of suitable range connected to the output of the second detector circuit. This procedure should be followed when called for in the service notes of such receivers.

### 7. Intermediate-Frequency Alignment.—

*a. Procedure.*—The usual procedure in aligning a super-hetrodyne receiver is first to align the i-f amplifier, then the oscillator and finally the r-f amplifier and mixer.

**NOTE—SOME SIGNAL CORPS RADIO RECEIVERS REQUIRE SPECIAL ALIGNMENT PROCEDURE. CONSULT THE TECH-**

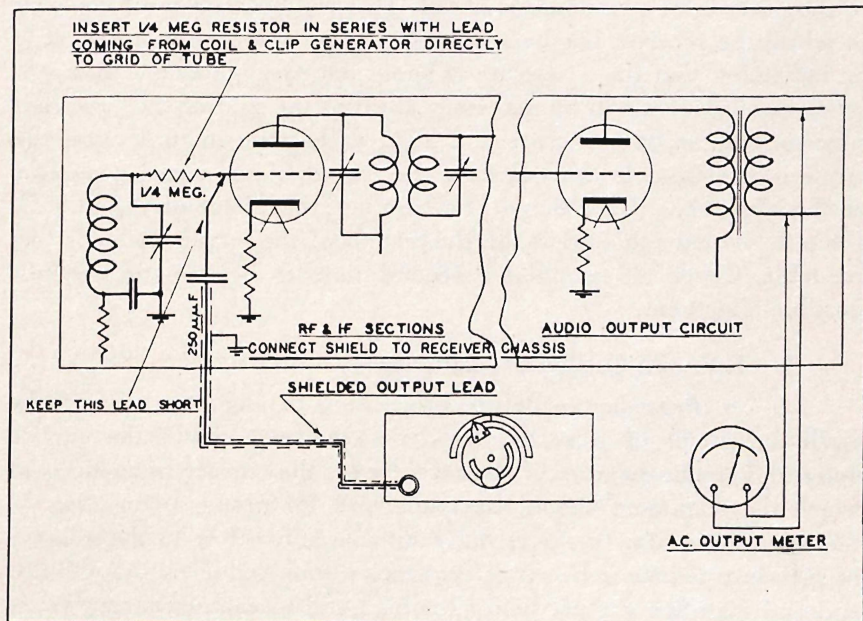


Fig. 3 — METHOD OF CONNECTING SIGNAL GENERATOR TO RADIO RECEIVER FOR ALIGNMENT

## NICAL MANUAL OR INSTRUCTION BOOK FOR THE RECEIVER BEFORE ALIGNING.

*b. Method of Connection.* — With the output meter connected across the audio output of the receiver as shown in figure 3, disconnect the lead from the control-grid terminal of the first detector tube. Place an isolating,  $\frac{1}{4}$ -megohm resistor in series with this lead and the terminal from which it was removed. This resistor will minimize the effect of the tuned circuit upon the stage under test while maintaining proper bias on the grid. Connect the signal generator to the grid through a  $250\mu\text{mf}$  capacitor in series with the output lead of the signal generator and connect the shielded braid of the signal generator output lead to the receiver chassis as shown in figure 3.

*c. Adjustment of Generator.* — Set the signal generator to the correct intermediate frequency as shown on the receiver chassis or circuit diagram. Advance the receiver volume control to its maximum volume position. Advance the R.F. AND A.F. ATTENUATOR settings of the signal generator until an indication is noted on the output meter or a signal is heard in the loudspeaker. If no indication is noted with all output controls in their maximum position, the receiver may have been previously aligned at another frequency. Turn the frequency dial knob of the signal generator slightly to one side and then to the other until a response is noted. This will indicate the frequency to which the receiver has been adjusted. If no response is noted, it is an indication that the i-f system is badly out of alignment and stage-by-stage alignment will be necessary. Start at the grid of the tube that precedes the second-detector and align each stage in turn, until the entire i-f system is in tune. Reduce the output of the signal generator as the alignment proceeds so as to reduce the effect of the A.V.C. Keep it low enough so that the fluctuation of the output meter is just readable. Check all trimmers a second time to be sure of the best possible alignment.

### 8. R.F. and Oscillator Alignment.—

*a. Procedure.* — Before proceeding to align the r-f and the oscillator circuit of a superheterodyne receiver, consult the service notes and circuit diagram of the receiver for the correct frequencies at which the alignment should be made and for proper connection of the signal generator to the receiver antenna connector. In the absence of such instructions, select two frequencies, one slightly above the low end and the other slightly below the high end of each frequency range of the receiver. Connect a  $.1\mu\text{f}$  capacitor in series with the signal generator lead. If the receiver band covers the broadcast range these



points would be 1400 and 600 kc., while the short-wave bands would be at corresponding points on the short-wave dial scale.

*b. High Frequency.*—Set both the signal generator and receiver dial to the higher frequency alignment point first and adjust the oscillator trimmer until a response is indicated. Adjust the first detector and r-f trimmers for maximum response. The output of the signal generator must be reduced as the various circuits are brought into alignment.

*c. Low Frequency.*—Now set the signal generator at the low frequency point and tune the receiver dial until a response is indicated. This point should agree with the dial calibration. If an oscillator padder capacitor is employed in the receiver, adjust it while slowly rocking the tuning capacitor of the receiver back and forth until maximum signal is indicated. Recheck the oscillator trimmer at the high frequency point and readjust if necessary. The low frequency point should also be readjusted, as these two oscillator adjustments are not independent.

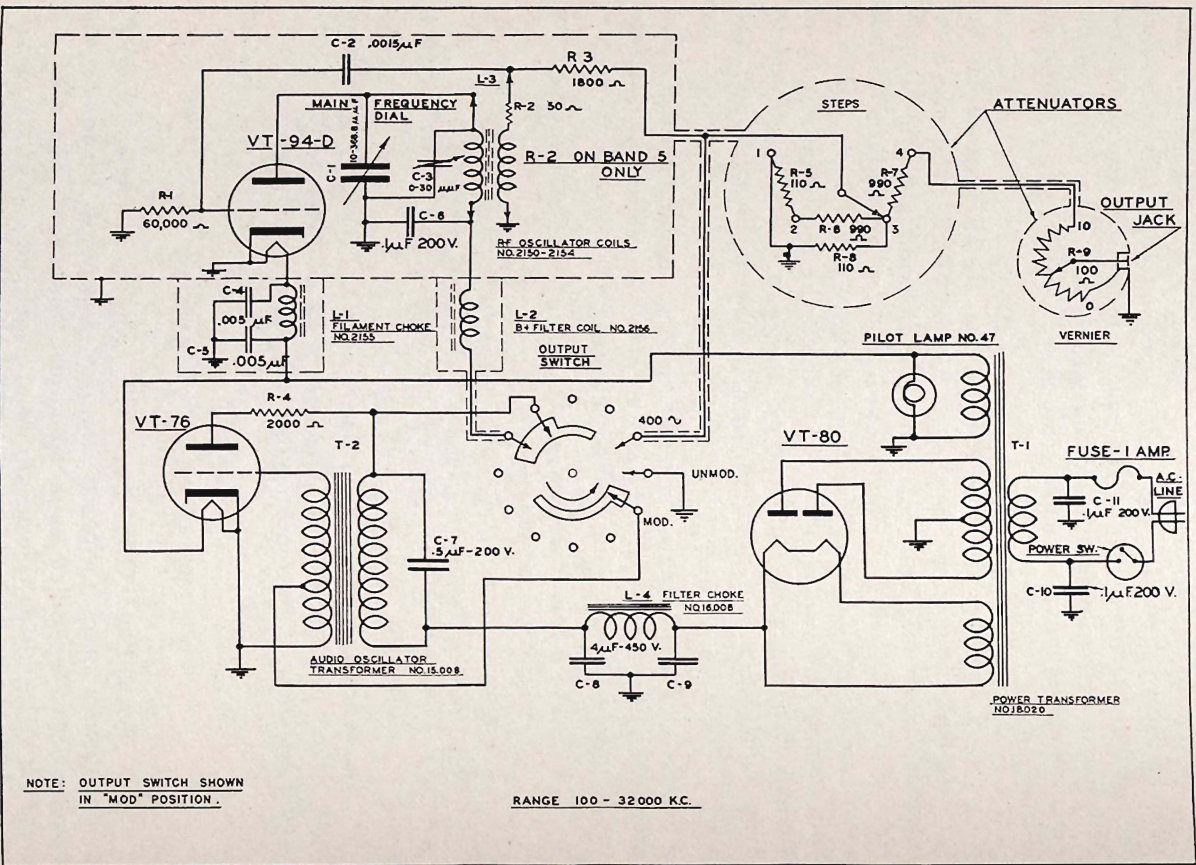
*d. Final Check.*—The receiver dial calibration should now check with that of the signal generator. If the calibration does not check, one of the following faults is indicated:

- (1) The i-f amplifier was not aligned to the frequency for which it was designed.
- (2) The proper alignment procedure was not carried out.
- (3) The inductance of one of the r-f coils is incorrect.
- (4) The spacing of the r-f sections of the variable tuning capacitor is incorrect.

Unless replacement of the indicated parts (3) and (4) has been made, these two possibilities can safely be eliminated. Point (2) should be checked by repeating the alignment operations.

### SECTION III FUNCTIONING OF PARTS

**9. Tuned-Plate Oscillator.**—This consists of Tube VT-94-D, mounted on a bracket close to variable capacitor C-1 and the coil turret system, operating as a tuned-plate oscillator. The shaft of capacitor C-1 extends through the front panel and carries the pointer for the frequency calibrated dial. The turntable of the coil turret system is rotated by a knob attached to a shaft extending through the panel. This control has band indications numbered 1 to 5 indicating the frequency range as follows:



NOTE: OUTPUT SWITCH SHOWN IN "MOD" POSITION.

RANGE 100 - 32,000 KC.

Fig. 4 — SIGNAL GENERATOR I-72-(\*), SCHEMATIC DIAGRAM



Band Number	Frequency Range
1.....	100 K.C. to 320 K.C.
2.....	320 K.C. to 1000 K.C.
3.....	1.0 M.C. to 3.2 M.C.
4.....	3.2 M.C. to 10.0 M.C.
5.....	10.0 M.C. to 32.0 M.C.

Bands 1, 3, and 5 are read on the upper part of the calibrated dial and bands 2 and 4 are read on the lower part of the dial.

**10. Modulator.**—Tube VT-76 mounted on the vertical partition together with the modulation transformer T-2 and the  $.5\mu\text{f}$  capacitor C-7, constitute the 400-cycle internal oscillator and provide the necessary energy to modulate the radio-frequency oscillator approximately 30 percent. The output of this audio oscillator is also available through the attenuators and output jack.

**11. Attenuator.**—The attenuator is built in two sections in the round shielded compartments at the lower right of the chassis as shown in Figure 6. The first section R-5, R-6, R-7 and R-8 (fig. 4) consists of four steps, each giving increases of approximately 10 to 1 per step as the control is advanced from 1 to 4. The second section R-9 is a vernier to permit closer adjustment of the output levels between adjustment obtainable with the STEPS control. Maximum output is obtainable when the STEPS control is set at 4 and the VERNIER control is set at the extreme right or clockwise position at (10). When using the 400-cycle oscillator output through the attenuator, a maximum of approximately 1.2 volts is available. With the step attenuator in position 1, audio output will be zero.

**12. Radio-Frequency Filters.**—Radio-Frequency traps L-1 and L-2 provided to keep r-f strays at a minimum. The r-f choke L-2 prevents the outward flow of r-f currents from the plate circuit while r-f choke L-1, in combination with the two  $.005\mu\text{f}$  Capacitors C-4 and C-5, performs the same function for the filament circuit.

**13. Power Supply.**—The power supply consists of Tube VT-80, power transformer T-1, filter choke L-4 and two  $4\mu\text{f}$  capacitors, C-8 and C-9. In addition, two  $.1\mu\text{f}$  capacitors, C-10 and C-11, are employed across the power transformer primary to block r-f currents from the power line. The line plug, attached to the line cord, may be plugged into any 110-125 volt, 60-cycle, alternating current source.

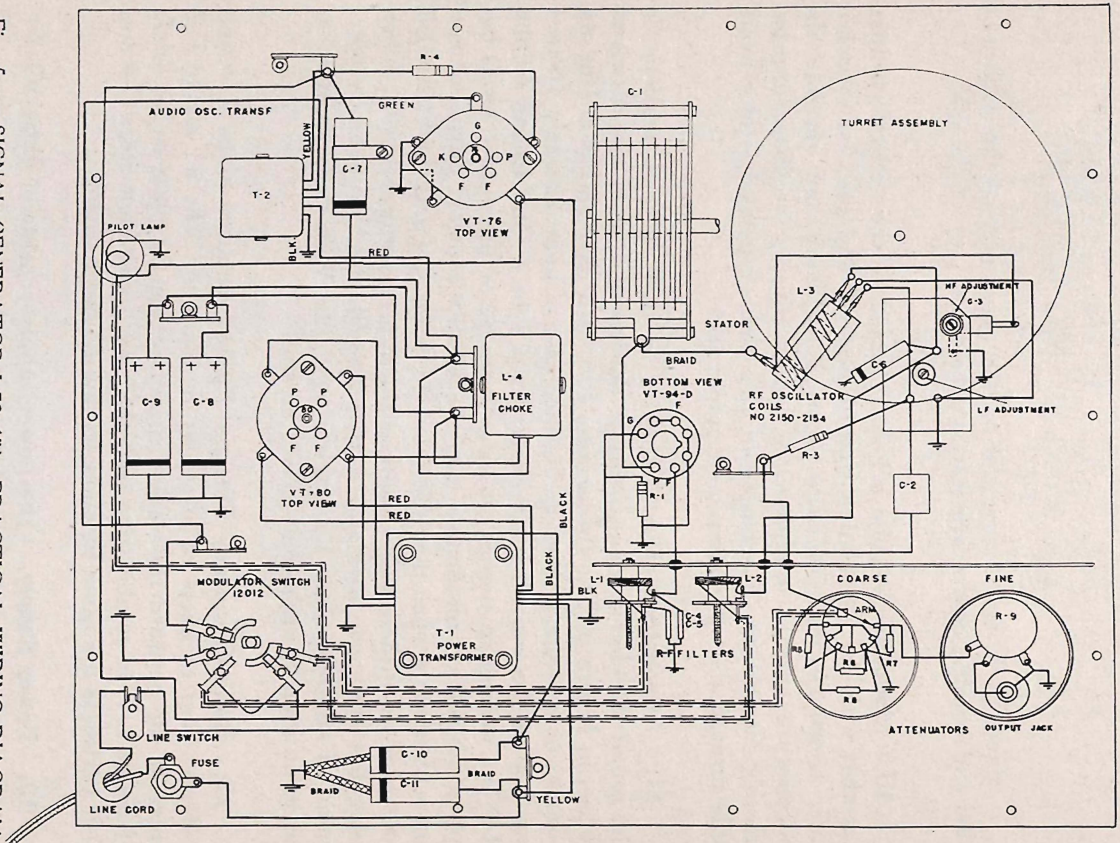


Fig. 5 — SIGNAL GENERATOR I-72 (\*), PRACTICAL WIRING DIAGRAM



## SECTION IV MAINTENANCE

**14. Parts Replacement.**—In the event that replacement of any of the fixed capacitors of Signal Generator I-72-(\* ) should become necessary, this work should be done only by qualified personnel. Pay careful attention to the manner of installation. †Duplicate the heavy short leads and well soldered joints carefully. To install a new fuse, unscrew retainer marked FUSE, at the lower right of the panel, by turning to the left. If the fuse is defective, replace it with the spare fuse fastened by a clip to the inside of the cover of the signal generator. DO NOT REPLACE THE FUSE UNTIL THE CAUSE OF ITS HAVING BURNED OUT IS LOCATED AND REMEDIED. Replace the spare fuse as soon as possible.

**15. Tube Replacement.**—Either Tube VT-80 or Tube VT-76 may be replaced without affecting the calibration of the instrument. † Ordinarily, this is also true of Tube VT-94-D, although the frequency calibration should be checked after changing this tube before further use is attempted. If the calibration of the signal generator is thrown off by the replacement of Tube VT-94-D, normal operation of the signal generator for a period of 24 to 48 hours will age the tube and usually restore the instrument to calibration. Calibration change will be most noticeable at the high-frequency end of band 5. Small changes in calibration can be corrected by means of the trimmer capacitor adjacent to each coil and accessible through the upper adjustment port in the oscillator shield-can (See figure 6.).

**16. Recalibration.**—Do not attempt recalibration under any circumstances unless frequency standards of known accuracy are available. Do not conclude that the generator frequency is off unless it has been checked against more than one standard, as it is possible that the standard may be at fault. Only qualified personnel should attempt to recalibrate this instrument. Attention is directed to the adjustable iron-core in each of the 5 coils for the control of its inductance and to the five trimmer capacitors on the coil turret assembly for control of the minimum capacities of the individual bands. Adjustment should be made preferable through the two access ports provided in the rear of the oscillator shield can, with the shield in place (See figure 6.). Although the two adjustments for each band are not com-

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† Remove the fourteen binding-head screws which are at the edge of the front panel. Remove the chassis by tilting the case forward and gently pulling.



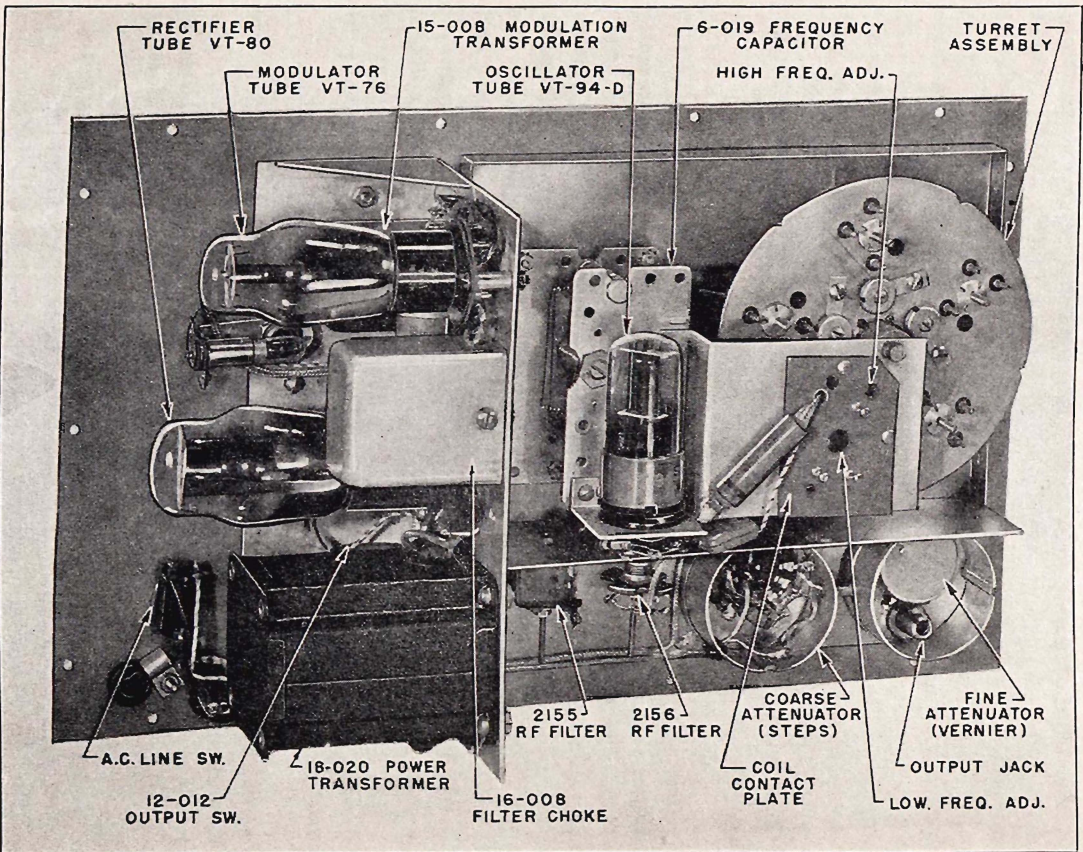


Fig. 6 — SIGNAL GENERATOR I-72 (\*), REAR VIEW OF CHASSIS, WITH OSCILLATOR AND ATTENUATOR COVERS REMOVED



pletely independent, it may be said that the iron slug has the greater control over the low-frequency end of each band and the trimmer over the high-frequency end.

**17. Care of Coil Contacts.**—The coil contacts are silver plated and should not be cleaned with sandpaper or other abrasives. These contacts may be cleaned with carbon tetrachloride or alcohol. After cleaning, the contacts should be coated with a very light coating of petroleum jelly.

**18. Voltage and Resistance Readings.**—See figure 7.

**19. Commercial Equivalents of Signal Corps Tubes Used in This Equipment.**—

Signal Corps Types	Commercial Equivalents
VT-76	76
VT-80	80
VT-94-D	6J5-GT

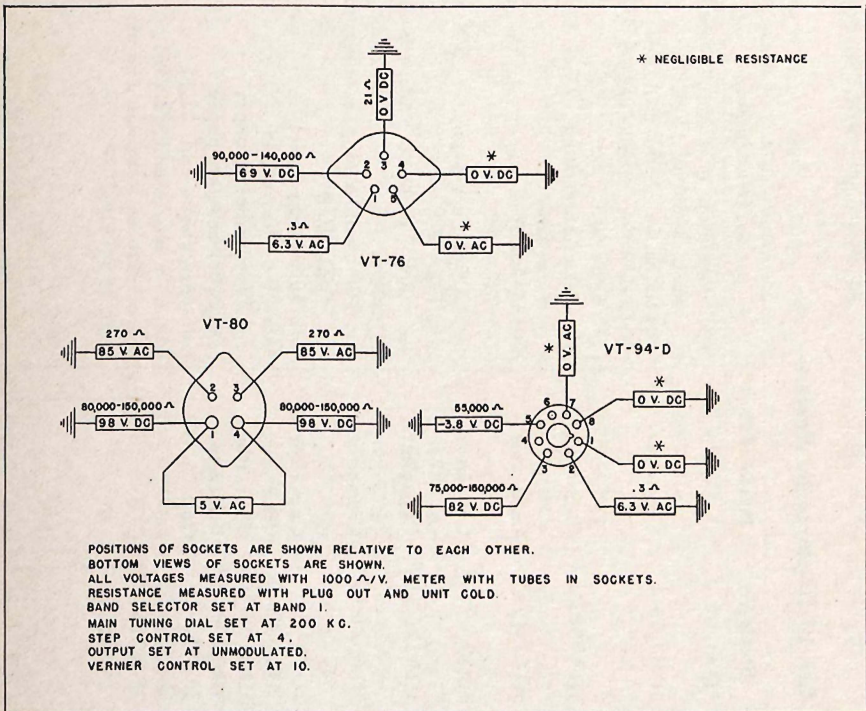


Fig. 7 — RESISTANCE AND VOLTAGE MEASUREMENTS FROM TUBE SOCKETS TO CHASSIS

SECTION V  
SUPPLEMENTARY DATA

20. List of Replaceable Parts.—

Ref. No.	Stock No.	Name of Part	Description	Function	Mfr.	Contr. Dwg. No.
C-1	3D9010V-7	Capacitor	Var. capacitor, min. cap. $10\mu\mu\text{f}$ , max. $368.8\mu\mu\text{f}$	Frequency control	1	6.019
C-2	3DA1.50-4	Capacitor	$.0015\mu\text{f}$ , mica $\pm 5\%$ tol. or $.0015\mu\text{f}$ , 400v, tubular, paper, Type W	Grid coupling capacitor	2	
C-3	3DA9001V-1	Capacitor	Air dielectric, 0-30 $\mu\mu\text{f}$ , Type 22-5230, 5 required	High frequency adjust.	3	
C-4	3DA5-49	Capacitor	$.005\mu\text{f}$ , bakelite, paper, $\pm 5\%$ tol., Type W	Part of filament filter	2	
C-5	3DA5-49	Capacitor	$.005\mu\text{f}$ , bakelite, paper, $\pm 5\%$ tol., Type W	Part of filament filter	2	
C-6	3DA100-109	Capacitor	$.1\mu\text{f}$ -200v, $1/4$ " braid leads, tubular, paper	R-F plate supply by-pass	1	25.005
C-7	3DA500-67	Capacitor	$.5\mu\text{f}$ -200v, with clamp, tubular, paper, Type W2B	Audio tuning capacitor	1	25.006
C-8	3DB4-41	Capacitor	$4\mu\text{f}$ -450v, electrolytic	Power supply filter capacitor	1	25.007
C-9	3DB4-41	Capacitor	$4\mu\text{f}$ -450v, electrolytic	Power supply filter capacitor	1	25.007
C-10	3DA100-109	Capacitor	$.1\mu\text{f}$ -200v, tubular, paper	R-F line filter	1	25.005
C-11	3DA100-109	Capacitor	$.1\mu\text{f}$ -200v, tubular, paper	R-F line filter	1	25.005
L-1	3F3852H/C1	Coil	Iron-core choke coil, #2.155	Filament filter choke	1	G-192-A
L-2	3F3852/C2	Coil	Iron-core choke coil, #2.156	R-F osc. plate supply filter	1	G-192-A
L-3-1	3F3852H/C	Coil	Set of inductors for each band, #2.150 to #2.154	R-F oscillator coil	1	G-198-A
2						
3						
4						
5						



Ref. No.	Stock No.	Name of Part	Description	Function	Mfr.	Contr. Dwg. No.
L-4		Coil	Iron-core reactor	Plate power supply filter choke	1	16.008
R-1	3Z6660-7	Resistor	60,000 ohm, 1/2 watt, tol. $\pm 10\%$ , Type EB	Oscillator grid bias	7	
R-2	3Z6005-31	Resistor	50 ohm, 1/2 watt, tol. $\pm 10\%$ , Type EB	Use in series with r-f oscillator coil on band 5	7	
R-3	3Z6180-3	Resistor	1800 ohm, 1/2 watt, tol. $\pm 10\%$ , Type EB	Limiting resistor	7	
R-4	3Z6200-40	Resistor	2000 ohm, 1/2 watt, tol. $\pm 10\%$ , Type EB	Modulation % adjustment resistor	7	
R-5	3Z6011-2	Resistor	110 ohm, 1/2 watt, tol. $\pm 1\%$ , Type BT1/2	Part of attenuator assembly output voltage control	5	
R-6	3Z6099-1	Resistor	990 ohm, 1/2 watt, tol. $\pm 1\%$ , Type BTS	Part of attenuator assembly output voltage control	5	
R-7	3Z6099-1	Resistor	990 ohm, 1/2 watt, tol. $\pm 1\%$ , Type BTS	Part of attenuator assembly output voltage control	5	
R-8	3Z6011-2	Resistor	110 ohm, 1/2 watt, tol. $\pm 1\%$ , Type BT1/2	Part of attenuator assembly output voltage control	5	
R-9	2Z7283-7	Resistor	100-ohm potentiometer	Fine adjustment of attenuator output voltage control	1	G-193-A
T-1		Transformer	Primary: 117v, 60 cycles Sec. 1: 100-0-100v, 12ma Sec. 2: 5.0v, 2.0 amp Sec. 3: 6.3v, 1.0 amp	Power transformer	1	18.020
T-2		Transformer	Audio oscillator transformer, 400 cycle	Modulation transformer	1	18.008
CA-1	3F3852H/C3	Cable	2' 6" shielded braided lead with male connector, braid to protrude.	Output cable	1	10.007
CN-1	3F3852H/L	Contact Lug	4 sets "Plate", "Grid", "Plate Supply", "Ground"	Coil turret contacts	1	27.021
CO-1	3F3852/C4	Line Cord	6-foot black rubber line cord with plug	A-C line cord	12	

SIGNAL GENERATOR 1-72-(\* )

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Ref. No.	Stock No.	Name of Part	Description	Function	Mfr.	Contr. Dwg. No.
F-1	3Z1926	Fuse	1 amp, Type 1040	Protect equipment	6	
FH-1	3Z3275	Fuseholder	Type 1075	Holder for fuse	6	
H-1	6Z4996	Handle	Black Cowhide	Carrying handle	1	27.162
K-1	2Z5748.4	Knob	Round Knob, 3 required	Part of VERNIER control		
				Part of STEPS control		
				Part of OUTPUT control	13	
K-2	2Z5748.6	Knob	Pointer knob	Part of BAND SELECTOR	13	
K-3	2Z5748.5	Knob	Large round knob	Part of main tuning control	13	
J-1	2Z5573.1	Output Jack	Bayonet type, female connector (modified)	Output jack	1	27.199
P-1	3F3852H/P3	Panel	Front, 15" x 9 3/8"	Front panel	1	23.026
B-1	2Z5952	Pilot Lamp	General Electric, Type 44 or 47	Pilot light	7	
E-1	3F3852H/P	Pointer	Plastic Pointer	Part of main tuning control	1	7.004
D-1	3F3852H/P1	Pointer Disc	Bakelite dial disc	Part of main tuning control	1	7.003
S-1	2Z8665.2	Socket	Marked "VT-76", 5-prong 1 1/2" mtg. ctrs.	Modulator tube socket	8	
S-2	2Z8761.5	Socket	Marked "VT-94-D" or "Type A", octal socket, black bakelite, Type S-8	R-F oscillator tube socket	9	
S-3		Socket	Marked "VT-80", 4-prong, 1/2" Mounting centers	Rectifier Tube Socket	8	
SW-1	3Z9825-20	Switch	1 circuit 7-position	Attenuator step switch	1	12.013
SW-2	3Z9825-19	Switch	2 circuit 3-position	Modulator switch	1	12.012
SW-3	3Z9843-1	Switch	SPST toggle, 1/2" x 1/4" hub, bat handle	A-C line switch	10	
VT-76	2V76	Tube VT-76	Triode, RMA #76	Audio Osc. Mod.	11	
VT-80	2V80	Tube VT-80	Full Wave Rectifier, RMA #80	Power rectifier	11	
VT-94-D	2V6J5GT	Tube VT-94-D	Triode, #6J5-GT	R-F osc.	11	



**21. List of Manufacturers.—**

1. Espey Mfg. Co., Inc., 305 East 63rd Street, New York City
2. Micamold Radio Co., 1087 Flushing Avenue, Bklyn., N. Y.
3. Meissner Company, Mount Carmel, Illinois
4. Sprague Specialties, North Adams, Mass.
5. International Resistance Co., 400 N. Broad Street, Phila., Pa.
6. Littelfuse, Inc., 4757 Ravenswood Avenue, Chicago, Ill.
7. General Electric Co., 570 Lexington Avenue, N. Y. C.
8. A. W. Franklin Company, 175 Varick Street, N. Y. C.
9. American Phenolic Corp., 1830 S. 54th Ave., Chicago, Ill.
10. Carling Tool Co., 626 Capitol Avenue, Hartford, Conn.
11. Sylvania Elect. Products, Emporium, Pa.
12. Cornish Wire Company, 15 Park Row, N. Y. C.
13. Crowe Name Plate & Mfg. Co., 3701 Ravenswood Ave.,  
Chicago, Ill.

BY ORDER OF THE SECRETARY OF WAR:

[A. G. 062.11 (9-8-42)]

G. C. MARSHALL,  
*Chief of Staff*

OFFICIAL:

J. A. ULIO,  
*Major General,*  
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DISTRIBUTION:

(For explanation of symbols see FM-21-6.)

SUPPLEMENT  
to  
TECHNICAL MANUAL  
Signal Generator I-72-J  
14 APRIL 1943

The following information, published on Orders No. 1659-PHILA-45, 11886-PHILA-45, and 26059-PHILA-44 supplements TM 11-307J, 14 April 1943. Personnel using the equipment and having custody of this technical manual will attach this supplement securely inside the front cover of the TM, and will enter suitable notations beside the changed paragraph in the TM to indicate the presence of the supplementary information. This supplement will remain in effect only until the information is published in an official War Department Publication.

*Page 5, Par. 2.* Add the following information after paragraph 2:

2.1. SHIPPING WEIGHTS AND DIMENSIONS.—Signal Generator I-72-J is packed in a carton  $17\frac{1}{4}$  inches by 12 inches high by  $8\frac{1}{3}$  inches deep. The total weight of the packaged unit is approximately  $24\frac{1}{4}$  pounds.

*Page 16, Par. 20.* Add the following information after paragraph 20:



## 20.1. MAINTENANCE PARTS LIST FOR SIGNAL GENERATOR I-72-J.

Ref symbol	Signal Corps stock No.	Name of part and description	Quantity per unit	Running spares	Original stock	3d ech	4th ech	5th ech	Depot stock
C-8, -9	3DB4-78	CAPACITOR, fixed; electrolytic; 4 mf $\pm 20\%$ ; 450v dc (working); Sprague #UT-4.	2			*	*	*	*
C-2	3K3015212	CAPACITOR, fixed; mica; 1,500 mmf $\pm 5\%$ ; 500 dc (working); AWS type CM30A15W.	1			*	*	*	*
C-4, -5	3D3551212	CAPACITOR, fixed; mica; 5,100 mmf $\pm 5\%$ ; 500v dc (working); AWS type CM35A512J; Micamold.	2			*	*	*	*
C-6, -10, -11	3DA10-212	CAPACITOR, fixed; paper; 100,000 mmf $+30\%$ $-20\%$ ; 600v dc (working); Sprague #PX24A.	3			*	*	*	*
C-7	3DA500-57.3	CAPACITOR, fixed; paper; 500,000 mmf $+30\%$ $-20\%$ ; 600v dc (working); Sprague #PX24B.	1			*	*	*	*
C-3, A, B, C, D	3D9012V-3	CAPACITOR, variable; air-dielectric; 1-12 mmf; $\frac{7}{16}$ " diam x $\frac{13}{8}$ " lg; Meissner #22-5230; (molded plastic).	5			*	*	*	*
C-1	3D9010V-7	CAPACITOR, variable; air-dielectric; 10-368 mmf; 500v dc (working); 11-rotor, 10-stator; Espey Series #19.	1			*	*	*	*
	3Z1013.6	CLIP, fuse; beryllium copper; cadmium-plated; $\frac{29}{64}$ " high x $\frac{5}{16}$ " wd; Littelfuse #1216; fatigue resistant; 200°C heat resistance; (holds spare fuse).	1			*	*	*	*
L-4	3C321	COIL, radio, a-f; filter; 40 h; 0.025 amp; $\frac{17}{8}$ " x $1\frac{1}{2}$ " x $2\frac{1}{4}$ "; (shielded; mtg center 1"; insulated leads).	1			*	*	*	*

L-2	3C323-79B	COIL, radio, r-f: choke; double winding; one pie wound; one solenoid wound; distributed capacity 5 mmf; 1-3 mh; 0.05 amp max; 21 ohms dc; 1½" diam x 1¾" lg; Templetone #232.003; (iron core, ⅜" diam x ⅝" lg; shielded terminals in aluminum can); r-f oscillator filter.	1			*	*	*	*
L3-1	3F3852J/2	COIL, radio, r-f: oscillator; 100-320 kc; Espey #G-198A; item 1 (coil from set stk #3F3852H/C).	1			*	*	*	*
L3-2	3F3852J/3	COIL, radio, r-f: oscillator; 320-1000 kc; Espey #G-198A; item 2 (coil from set stk #3F3852H/C).	1			*	*	*	*
L3-3	3F3852J/1	COIL, radio, r-f: oscillator; 1.0-3.2 mc; Espey #G-198A; item 3 (coil from set stk #3F3852H/C).	1			*	*	*	*
L3-4	3F3852J/4	COIL, radio, r-f: oscillator; 3.2-10 mc; Espey #G-198A; item 4 (coil from set stk #3F3852H/C).	1			*	*	*	*
L3-5	3F3852J/5	COIL, radio, r-f: oscillator; 10-32 mc; Espey #G-198A; item 5 (coil from set stk #3F3852H/C).	1			*	*	*	*
L-1	3C323-79A	COIL, radio, r-f: choke; layer wound shielded; 0.011 mh; 0.5 amp max; 0.1 ohm dc; 8 mmf distributed capacity; Templetone #232.004; (iron dust core, ⅜" diam x ⅝" lg; terminals shielded aluminum can 1½" diam x 1¾" lg); filament filter choke.	1			*	*	*	*
	NSNR	CONTACT ASSEMBLY, switch: micaalex plate; 2⅝" x 1¾" x ¼" with 3 spring steel contacts; each contact 2 pieces ⅞" x ⅝"	1					*	*

\* Indicates stock available.



20.1. MAINTENANCE PARTS LIST FOR SIGNAL GENERATOR I-72-J (Contd).

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Run-ning spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
CO-1	3F3852J/C6	x 1/32" riveted to micalex plate (p/o band selector switch S-4). CORD, 6-ft; No. 18; 2-conductor; Belden #1725; (all rubber with unbreakable soft rubber plug).	1			*	*	*	*
CA-1	3F3852H/C3	CORD, output; shielded braided lead with male; bayonet-type connector; 2 1/2' lg; Espey #10.007.	1			*	*	*	*
F-1	3Z1926	FUSE FU-26; 1 amp; 250v.	1	3	*	*	*	*	*
H-1	6Z4996-3	HANDLE, leather; suitcase-type; French-etched; 6" x 3/4"; Amer Leather Prod #22.	1			*	*	*	*
FH-1	3Z3275	HOLDER, fuse: (fuse post); extractor; Littelfuse #1075.	1			*	*	*	*
J-1	2Z5573.2	JACK, telephone; monitoring; Mallory type ARH (output jack).	1			*	*	*	*
K-1	2Z5848	KNOB, bar; black bakelite; for 1/4" shaft; 1 1/4" diam over-all; Kurz-Kasch #S-292-1L.	3			*	*	*	*
K-2	2Z5822-81	KNOB, bar; black bakelite; for 1/4" shaft; 2 1/4" diam over-all; Kurz-Kasch #S-293-1L (band selector).	1			*	*	*	*
K-3	2Z5821-40	KNOB, round; black bakelite; fluted; fits 1/4" diam shaft; 2 3/8" diam over-all; Kurz-Kasch #S-310-1; (frequency selector).	1			*	*	*	*
B-1	2Z5927	LAMP LM-27; 6-8v; 0.25 amp; miniature bayonet base; blue bead; T-3 1/4 bulb; Mazda #44.	1	2		*	*	*	*

	2Z5985.4	LAMPHOLDER: miniature bayonet base; brass; nickel-plated; $\frac{1}{2}$ " red jewel; Drake #10B.	1			*	*	*	*
E-1	3F3852H/P	POINTER, dial: plexiglass; $1\frac{5}{8}$ " x 1" x $\frac{3}{32}$ "; Espey #7.004.	1			*	*	*	*
R-2	3Z6005-31	RESISTOR, fixed: carbon; 50 ohms $\pm 10\%$ ; $\frac{1}{2}$ w; AB type EB.	1			*	*	*	*
R-3	3RC20BE182K	RESISTOR, fixed: carbon; 1,800 ohms $\pm 10\%$ ; $\frac{1}{2}$ w; AB type EB.	1			*	*	*	*
R-4	3RC20BE222K	RESISTOR, fixed: carbon; 2,200 ohms $\pm 10\%$ ; $\frac{1}{2}$ w; AB type EB.	1			*	*	*	*
R-1	3RC20BE563K	RESISTOR, fixed: carbon; 56,000 ohms $\pm 10\%$ ; $\frac{1}{2}$ w; AB type EB.	1			*	*	*	*
R-5, -8	3Z6010-132	RESISTOR, fixed: wire-wound; 100 ohms $\pm 1\%$ ; $\frac{1}{2}$ w; IRC type BW- $\frac{1}{2}$ .	2			*	*	*	*
R-6, -7	3Z6100-164	RESISTOR, fixed: wire-wound; 1,000 ohms $\pm 1\%$ ; $\frac{1}{2}$ w; IRC type BW- $\frac{1}{2}$ .	2			*	*	*	*
R-9	2ZK7263-1	RESISTOR, potentiometer, variable: carbon; 100 ohms $\pm 20\%$ ; 3-terminal; AB type J.	1			*	*	*	*
S-3	2Z8674.116	SOCKET, tube: std 4-prong; wafer type; $1\frac{3}{16}$ " x $1\frac{3}{4}$ ", with $1\frac{1}{2}$ " mtg center; Franklin Co #24A7 (for Tube VT-80).	1			*	*	*	*
SW-1	3Z9825-20	SWITCH, rotary: 1-circuit; 7-position; wafer-type; Templetone dwg #A712; (attenuator step switch).	1			*	*	*	*
SW-2	3Z9825-19	SWITCH, rotary: 2-circuit; 3-position; wafer-type; Templetone dwg #598A; (modulator switch).	1			*	*	*	*

\* Indicates stock available.



## 20.1. MAINTENANCE PARTS LIST FOR SIGNAL GENERATOR I-72-J (Contd).

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Run-ning spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
SW-3	3Z9849.10-3	SWITCH, toggle: SPST; C-H #8280; (power, on-off).	1			*	*	*	*
T-2	2Z9943-6	TRANSFORMER, a-f: modulation; steel case; 1 $\frac{1}{8}$ " lg x 1 $\frac{1}{8}$ " wd x 2" high; Gentrans #2D181; (400-c; pri current 30 ma max; turns ratio 3 $\frac{1}{2}$ to 1; tapped secondary; mtg center 1"; upright mounting).	1			*	*	*	*
T-1	2Z9955.1	TRANSFORMER, power: plate and filament; shielded case; 2 $\frac{3}{4}$ " wd x 2 $\frac{3}{8}$ " d x 3 $\frac{1}{4}$ " h; Gentrans #5A142 (117v, 60c pri; sec #1; 200v; sec #2; 5v at 2 amp; sec #3; 6.3v at 1 amp; mtg center 2 $\frac{5}{32}$ " x 1 $\frac{13}{16}$ ").	1			*	*	*	*
	2J6J5GT/G	TUBE type 6J5GT/G.	2	1	*	*	*	*	*
	2J76	TUBE type 76.	1	1	*	*	*	*	*
	2J80	TUBE type 80.	1	1	*	*	*	*	*

\* Indicates stock available.

