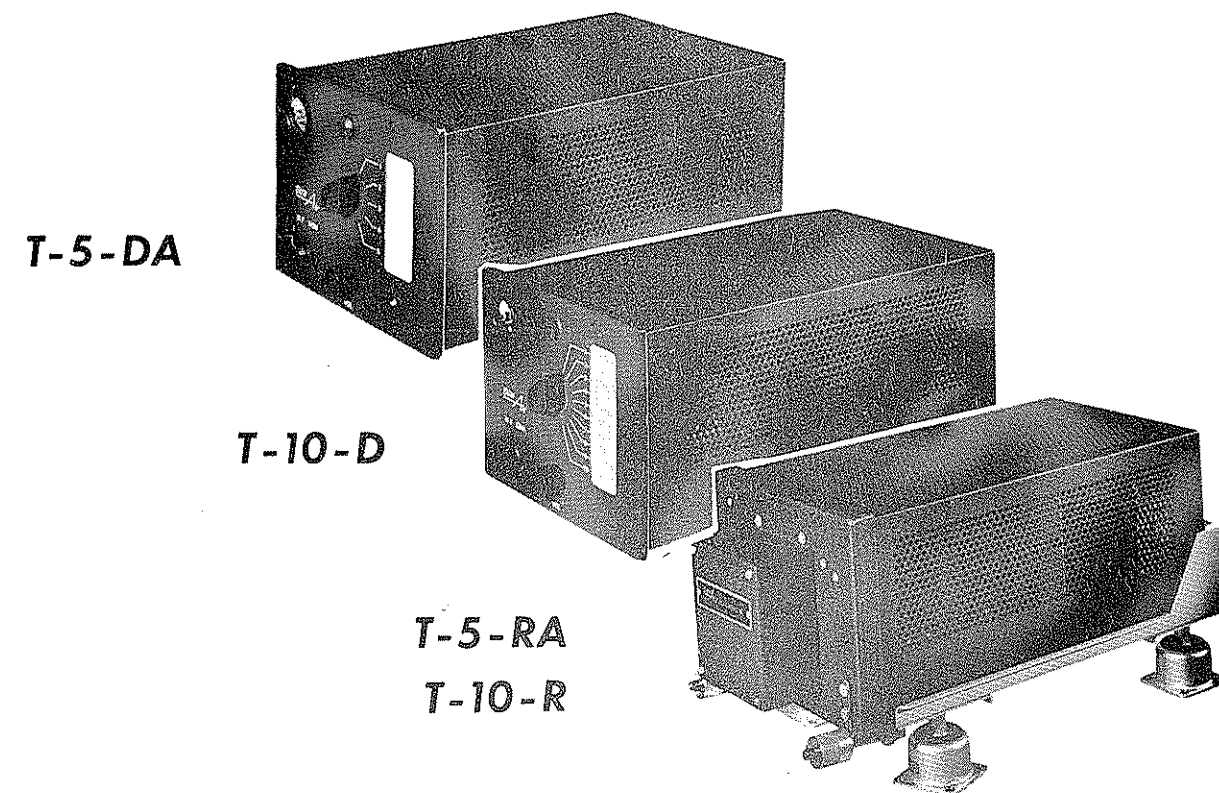


SUNAIR HF TRANSCEIVER MODELS:  
T-5-DA, T-5-RA, T-10-D and T-10-R  
14 or 28 Volts DC  
35 - 40 Watts  
2,000 to 18,000 Kilocycles



**HF TRANSCEIVER  
MODELS T-5-DA, T-5-RA,  
T-10-D & T-10-R**

FCC APPROVED—FOR AVIATION AND MARITIME SERVICES

3RD EDITION, 31 OCTOBER 1968  
MANUAL PART NUMBER 99453

AUG 6 1970

WARRANTY POLICY

AVIONICS DIVISION

SunAir Electronics warrants each equipment manufactured by it to be free from defects in material or workmanship, under normal use for which intended, for one (1) year from date of installation. SunAir will hereunder replace or repair (at SunAir's discretion) any defective components (excluding tubes, semi-conductors and crystals which carry a standard Electronic Industries Association warranty of ninety (90) days.

Any defective equipment (or component) should be returned, transportation charges prepaid, to SunAir or to a SunAir authorized warranty station. Provided that the failure is within the terms of this warranty and is not due to damage, misuse, improper installation or unauthorized modification or repair, SunAir will, in addition to replacing component parts within specified periods, also assume warranty labor costs for ninety (90) days from date of original installation. Any such charges must be reasonable and for actual bench repair only and limited to a maximum of four (4) hours. Labor not directly related to correcting the defective condition cannot be honored.

This Warranty is in lieu of all other guaranties, expressed or implied. The obligation and responsibility of SunAir shall be limited to that expressly provided herein and SunAir shall not be liable for consequential or other damage or expense whatsoever therefor or by reason thereof.

SunAir reserves the right to make changes in design or additions to or improvements in its equipment without obligation to install such additions or improvements in equipment theretofore manufactured.

REVISIONS

REVISIONS	PAGE(S)	MANUAL REVISION DATE	UNIT SERIAL NO. EFFECTIVITY	ADDENDUM COVERED



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SECTION I  
GENERAL INFORMATION

1. Specifications

(a) Primary Power

14 VDC	3 Amps Receive 11.5 Amps. Transmit 17 Amps. Fully Modulated Transmit	28 VDC	2 Amps. Receive 5.5 Amps. Transmit 9 Amps. Fully Modulated Transmit
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(b) Receiver

Frequency Range	2 MHz to 18 MHz
Frequency Tolerance	.005% using SunAir crystals
Gain	NMT 5 uv for 1 watt across a 3.2 ohm load
Sensitivity	NLT - 6 db S+N/N for 1 uv signal
Selectivity	6 db - NLT-5 kHz - NMT-7 kHz 60 db - NLT-30 kHz - NMT-70 kHz
Spurious Response Rejection	Image - NLT-30 db Other Spurious Responses - NLT-60 db
AGC	NMT-10 db change in output with input from 10 uv to 100,000 uv
Audio Output	Speaker - 3.2 ohm - 6 watts Phones - 500 ohm - 50 milliwatts

(c) Transmitter

Frequency Range	2 MHz to 18 MHz
Frequency Tolerance	0.005% using SunAir crystals
RF Output	NLT-35 watts into a 50 ohm load
Modulation	NMT 95% with clipper and filter
Audio Response	NMT-6 db variation of input to maintain same output from 400 Hz to 2500 Hz
Harmonic Output	Suppression spurious radiation exceeds the minimums set by the F.C.C.
Side Tone	NLT-50 milliwatts into 500 ohm



(d) Weights and Dimensions

Transceivers

T-5-DA	Length 12-3/8" including connectors; Width 6-1/8"; Height 5"	10 lbs.
T-5-RA	Including shockmounts and connectors. Length 14"; Width 7-3/4"; Height 6-9/16"	12 lbs.
T-10-D	Same as T-5-DA	
T-10-R	Same as T-5-RA	

Control Heads

Drum	See Page No. 15	7 oz.
Digital	See Page No. 15	10 oz.
SCU-50/51	See Page No. 15	7 oz.
RF Indicator	See Page No. 18	3 oz.

(e) Equipment Supplied

<u>T-5-DA/T-10-D</u>	<u>T-5-RA/T-10-R</u>
Installation Cables	Control Head
Connectors	Connectors
RF Inverter	Shockmount
RF Indicator	RF Inverter
	RF Indicator

(f) Optional Accessories (Not included with radio)

Microphone and receptacle  
Headphones and receptacle  
Installation cables (T-5-RA and T-10-R)  
Trailing antenna kit (manual or electric)  
Fixed antenna kit (Requires AC coupler)  
AC antenna coupler (requires fixed antenna)

## 2. System Description

The SunAir Transceiver has been designed to be a compact, highly dependable unit. The unit is complete within itself requiring only a primary power source and antenna and on the Remote Models, a controlhead. The SunAir Transceiver incorporates separate receiving crystals, thus permitting operation on 5-10 single or double frequency simplex channels in the frequency range of 2 through 18 megahertz.

The SunAir Transceiver is enclosed in a perforated aluminum dust cover equipped with cam-locks to facilitate removal. The cover before painting, like all other aluminum parts used in the SunAir Transceiver has been given a special chemical conversion coating to insure maximum retardation of corrosion. The faceplate on the Direct Models is made of plexiglas and is edge-lighted to permit night viewing of the controls, frequency card and the RF Indicator Meter.

The latest advances in electronic design have been incorporated into your SunAir Transceiver. The printed circuit boards are of the highest quality material, thus assuring greatest possible prevention of component failure through vibration and shock. Quality components are used throughout all SunAir equipment, thereby greatly decreasing the possibility of component failure in the field.

Your SunAir Transceiver, after careful alignment, has been run an equivalent of 50 flying hours before being tested in quality control to assure you of the finest possible performance.

## 3. Parts Replacement

A complete stock of replacement parts for all SunAir equipment is maintained at the factory. In some cases the part supplied against an order for a replacement item may not be an exact duplicate of the original part where the original item has been superseded by a newer and more efficient design. Such replacement parts will be interchangeable electrically. If the new part has a different size or shape, all necessary hardware to permit installation in older sets will be furnished.

Refer to the parts section of this manual for full descriptions of all electrical components listed in the schematic. If any components which you may require are not listed, please contact the factory Sales Order Department for price and delivery.

Parts for SunAir equipment may be secured from SunAir distributors and dealers throughout the world. When direct orders from the factory are required, it is very important that complete information be provided, so as to permit efficient processing of your order.

The following information is necessary, at the time of ordering the replacement part, to assure the customer of receiving the correct part and to enable SunAir to effect prompt shipment:

- (a) Model number of the equipment
- (b) Operating voltage
- (c) Serial number
- (d) SunAir part number of the item
- (e) Full word description
- (f) Circuit symbol, if applicable
- (g) Quantity required of each item
- (h) Purchase order number
- (i) Your name, address and Zip Code
- (j) Shipping destination
- (k) Mode of shipment

When ordering crystals, the following additional information is required:

- (a) Exact frequency desired
- (b) Crystal uses: Transmit or receive

When placing orders directly with the factory, the following rules will apply:

- (a) Each order for replacement parts is subject to a minimum billing of \$5.00.
- (b) Material ordered in error or returned for customer convenience will be subject to a 10% of list price restocking charge.
- (c) When ordering, please address your order to the attention of the Sales Order Department.
- (d) Telephone orders may be placed between the hours of 8:00 A.M. to 5:00 P.M. (E.S.T.) Monday through Friday by calling Area Code 305, 525-1505 and asking for the Sales Order Department.

#### 4. Equipment and Parts Repair

Complete factory service is available on any SunAir equipment. Repairs, adjustments or modifications which are of such a nature as to warrant factory service will be made in accordance with the instructions of the customer. A labor charge, cost of parts and shipping charges will apply to all non-warranty work.

#### 5. Return of Equipment or Material

To return equipment or material, under warranty or otherwise, advise SunAir, giving full particulars. If the item is thought to be defective, give full information concerning the nature of the defect. SunAir will then authorize the return. Failure to secure this authorization prior to forwarding the equipment or failure to provide complete information may cause unnecessary delay in processing.

#### 6. Parts Shortage or Damage

Do not accept a shipment where there are visible signs of damage to the cartons until a complete inspection is made. Unpack and inspect all parts and equipment as soon as received. If there is a shortage or if any evidence of damage is noted, insist on a notation to that effect on the shipping papers before signing the receipt from the carrier.

If concealed damage is discovered after a shipment has been accepted, notify the carrier immediately in writing and await his inspection before making any disposition of the shipment. A full report of the damage should also be forwarded to SunAir. Include the following:

- (a) Order number
- (b) Model and serial number
- (c) Name of transportation agency
- (d) Waybill number

When SunAir receives this information, arrangements will be made for repair or replacement.

#### 7. Production Changes

Engineering and production changes may be made from time to time in order to incorporate any feature or design which will improve performance, increase reliability or improve the usefulness of the equipment. Notice of such changes will be made through periodic service letters to all SunAir distributors.

## 8. General Operating Procedure

To a large extent, the degree of satisfaction obtained from the use of any communications equipment depends upon the operator. A casual or indifferent microphone technique can result in a very substantial loss in communication range. In many cases, other aircraft will be using the same frequency and will be trying to contact the same operator with messages of equal urgency or importance. The following suggestions are offered to help obtain the maximum utility from your SunAir Transceiver:

- (a) Always monitor the frequency to be certain another operator is not using it before making a transmission.
- (b) Hold the microphone close to the lips and speak clearly and distinctly. Use a normal voice level. Loud talking or shouting are not necessary and will distort the transmission.
- (c) Keep all transmissions brief and to the point. Avoid cluttering the frequency with unnecessary conversation.
- (d) Have the transceiver checked at regular intervals by a competent radio service agency to make certain it is always in good operating condition. A gradual loss of performance might otherwise go unnoted and communication range will be reduced.
- (e) To operate the transmitter, hold the microphone in the palm of the hand with the thumb resting lightly on the press-to-talk switch. Hold the microphone close to the lips and press the microphone switch. Initiate a call and release the microphone button. If transmission and reception are clear and undistorted, no further checks are necessary.

### IMPORTANT

DO NOT OPERATE THE TRANSCEIVER WITHOUT AN ANTENNA OR SUITABLE DUMMY LOAD CONNECTED TO THE ANTENNA JACK AND A SUITABLE LOAD TO THE A.F. OUTPUT.

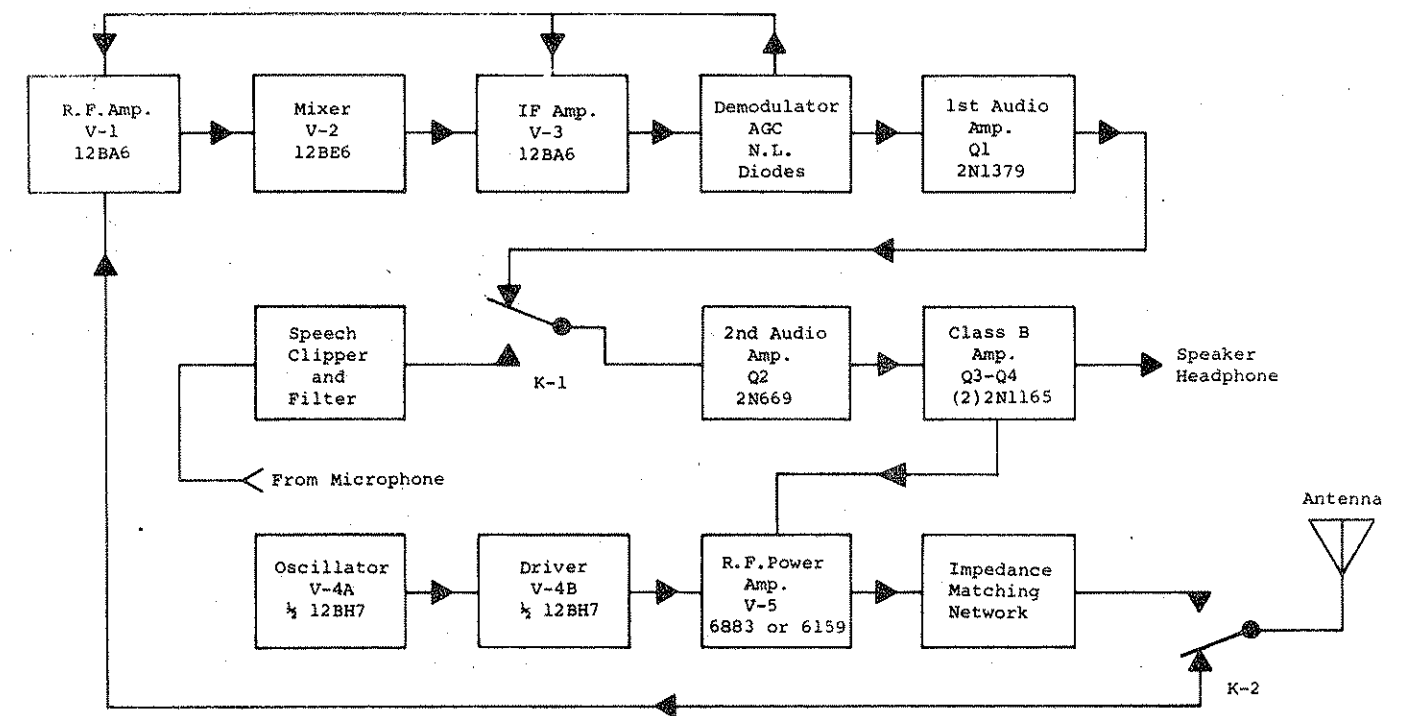


FIGURE NO. 1  
BLOCK DIAGRAM

## 9. Basic Circuitry

### (a) Receiver

The receiver is a single conversion superheterodyne design employing a crystal controlled oscillator for frequency stability. The receiver input circuit is designed to match an antenna impedance of 50 ohms.

The incoming signal is coupled to the grid of V1 inductively. The amplifier signal from V1 is capacitively coupled to the grid of the mixer V2 and the mixer grid tuned circuits. A section of V2 also functions as the local oscillator. The crystal frequency is 455 kHz higher or lower than the desired channel frequency, thus producing the mixer output of 455 kHz. IF transformers T1 and T2 are double tuned filters resonant at 455 kHz.

Demodulation is accomplished by CR-1 and C-31. Noise limiter and delay circuit consist of CR-2, C-34, R-22 and R-24. AGC voltage for the RF and IF amplifiers is developed across R-20 after rectification by CR-3.

## 10. Audio Section

### (a) Receive Only

The output from the noise limiter is amplified by the audio preamplifier Q-1. The output of Q-1 is switched out of the Audio Power Amplifier circuits on transmit by K-1 which on transmit also switches off the speaker output and places a 1k ohm resistor in series with the 500 ohm output for side-tone.

### (b) Transmit Only

A mike clipper-filter is employed to prevent overmodulation and assure good audio fidelity characteristics. This also is switched by K-1.

### (c) Audio Power Amplifier

To insure the least possible noise from the aircraft electrical system enters the low level audio section, the A+ for Q-1 and Q-2 has been regulated and filtered by the stud mounted zener diode, CR-4, and associated components. The output of Q-2 is transformer coupled to the push-pull output stage consisting of Q-3 and Q-4. A thermistor has been employed in the base biasing network to compensate for thermal-electrical changes. The collector circuit of Q-3 and Q-4 has been fused at the center-tap of T-4 to protect the transformer should an overload occur.

### (d) Transmitter

V-4A is a Pierce oscillator capacitively coupled to a V-4B, a plate-tuned buffer-driver. For highest efficiency, a Class "C" power amplifier stage with protective cathode bias is used with high level plate and screen modulation.

An inductively tuned pi-network is employed for output matching into an antenna impedance of 50 ohms.

Series tuned harmonic traps resonant to the second harmonic are utilized to lower the second harmonic output to a level well below the maximum as set by the F.C.C.

#### (e) Tuned Circuits

There are five (5) sets of tuned circuits (excluding the IF transformers): The receiver RF, mixer grid, driver plate, PA plate and harmonic traps.

In the T-5 series, a separate set of tuned circuits for each channel is used, consisting of a fixed capacitor and a tunable inductor.

The T-10 series, somewhat like the T-5, uses a separate set of tuned circuits for each ODD channel, consisting of a fixed value capacitor and a tunable inductor. The EVEN channels use the inductor already tuned to the previous ODD channel by tuning it to the desired frequency by means of a trimmer capacitor switched in place of the fixed value capacitor used on the previous ODD channel.

#### (f) Transceiver Controls

All controls for operating the SunAir Direct Model Transceivers are located on the front panel. All controls for the Remote Models are located on the control head.

The knob marked "VOL" is the on-off volume control. In the extreme counterclockwise position, it turns off the power. When this knob is advanced in a clockwise direction, it turns the transceiver on and increases receiver volume with continued rotation.

The meter in the upper left corner of the Direct Models is the RF Indicator. When it is used in conjunction with the trailing wire antenna, minimum reading will indicate the antenna being tuned to 52 ohms or 1/4 wave length.

#### (g) Remote Model Channeling

Channeling on the Remote Models is accomplished by means of a solenoid type motor controlled by a pair of wire saving switch wafers, a driver wafer on the control head and a homing wafer on the solenoid motor. One is a direct opposite of the other (See Figure 15).



Completion of channeling is accomplished when the ground circuit is interrupted.

An arc suppressor circuit is used to reduce arcing of the interrupter contacts.

(F) RF Inverter

RF Inverter P/N 98863 has been added internally to the T-5DA, T-5RA, T-10D and T-10R Transceivers. The RF Inverter detects the difference between the forward and reflected power and drives the power indicator meter. When the forward and reflected power are equal, such as when the antenna system is not matched to the transmitter, the meter will indicate "0". As the reflected power decreases the meter reading will increase. Therefore, to tune an antenna system, tune for a peak on the meter. When an antenna system is tuned, the meter will indicate relative transmitter power output. (See Figure 21).

The tunable coils used in the T-5/T-10 are called out in the following table.  
The capacitor used with a coil for a given frequency is also designated.

FREQUENCY	R.F. AMPLIFIER & MIXER COIL L1 thru L10		* R.F. CAPACITOR C3 thru C7	* MIXER CAPACITOR C14 thru C18	TRANSMITTER OSC. COIL L13 thru L17		* TRANS. CAPACITOR C55 thru C59	P.A. COIL L19 thru L23		P.A. CAPACITOR C67 thru C71	ANTENNA CAPACITOR C77 thru C81		TRAP COIL L24 thru L28		* TRAP CAPACITOR C72 thru C76
	TYPE	surair P/N	VALUE	VALUE	TYPE	surair P/N	VALUE	TYPE	surair P/N	VALUE	VALUE	TYPE	surair P/N	VALUE	VALUE
2.0 - 2.2 MC	A6	63351	100 pf	75 pf	TX-6	63284	75 pf	B9	63208	350 pf	1200 pf	D6	63143		330 pf
2.2 - 2.6		63351	75	50		63284	32		63208	300	1000		63143		220
2.6 - 3.3		63351	50	20		63284	20	LU3	63210	220	1000	D5	63155		220
3.3 - 3.8		63351	32	20		63284	12	LU3-3	63210	180	1000		63155		150
3.8 - 4.6 ***	A6-20	63351	20	50	TX-5	63296	32	LU2	63387	150	750	D4	63167		150
4.6 - 5.2	A5	63363	50	32		63296	20		63387	120	750		63167		150
5.2 - 5.8		63363	20	20	TX-4	63301	50	B7	63222	100	750	D3	63179		100
5.8 - 6.4	A4	63375	32	32		63301	32	B5	63296	100	750		63179		68
6.4 - 7.0		63375	20	20	TX-3	63313	20		63296	100	700		63179		68
7.0 - 7.5	A3	63105	32	32		63313	12		63296	75	700		63179		50
7.5 - 8.0		63105	20	20	TX-2	63325	50	B4	63258	75	700	D2	63181		68
8.0 - 8.5	A3	63105	32	32		63325	32		63258	75	600		63181		68
8.5 - 9.2		63105	20	20		63325	12	B3	63260	65	600		63181		68
9.2 - 9.5		63105	12	12	TX-1	63337	50		63260	65	600		63181		50
9.5 - 10.5	A1	63129	32	32		63337	32	B1	63272	65	600	D1	63193		68
10.5 - 11.5		63129	20	20		63337	20		63272	65	600		63193		50
11.5 - 12.5		63129	12	12		63337	12		63272	50	500		63193		50
12.5 - 13.5	A0	63131	20	20	TX-0-R	63090	20	B0	63076	50	500	D1-3	63935		68
13.5 - 14.0		63131	12	12		63090	12		63076	40	500		63935		50
14.0 - 15.0	A0-2	63765	12	12	TX-1	63820	12	B0-1	63882	30	390		63935		50
15.0 - 16.0	A0-3	63777	12	12	TX-0-R-2	63832	12	B0-2	63894	30	390	D1-4	63947		50
16.0 - 17.0	A0-4	63789	12	12	TX-0-R-3	63844	12		63894	30	360		63947		50
17.0 - 18.0	A0-5	63791	12	12	TX-0-R-4	63856	12	B0-3	63909	30	360		63947		50
1.6 - 1.7 **	A7-210	63349	50	150	TX-6	63284	100	B10	63038	350	1200	D6	63143		500
278 KC REC.	A7	63349	750	330											

\*T-10, EVEN CHANNELS USED 10 thru 40 PF TRIMMER. \*\*MIX COIL IS A6. \*\*\*MIX COIL IS A5

FIGURE NO. 2 COIL - CAPACITOR COMBINATIONS

# CAPACITOR PART NUMBERS

* R.F. CAPACITOR C3 thru C7	* MIXER CAPACITOR C14 thru C18		* TRANSMIT CAPACITOR C55 thru C59		P.A. CAPACITOR C67 thru C71		ANTENNA CAPACITOR C77 thru C81		* TRAP CAPACITOR C72 thru C76	
sunair P/N	sunair P/N	VALUE	sunair P/N	VALUE	sunair P/N	VALUE	sunair P/N	VALUE	sunair P/N	VALUE
24252	24264	100pf	24264	75pf	27773	350pf	25610	1200pf	24226	330pf
24264	24288	75	24305	50	27759	300	24927	1000	25086	220
24288	24317	50	24317	20	27711	220	"	1000	"	220
24305	24317	32	24329	20	27694	180	"	1000	27668	150
24317	24288	20	24305	50	25892	150	24915	750	"	150
24288	24305	50	24317	32	25907	120	"	750	"	150
24317	24317	20	24288	50	25919	100	"	750	25074	100
24305	24305	32	24305	32	25919	100	"	750	25672	68
24317	24317	20	24317	20	25919	100	24941	700	"	68
24305	24305	32	24329	12	25921	75	"	700	25933	50
24317	24317	20	24288	50	"	75	"	700	25672	68
24305	24305	32	24305	32	"	75	24185	600	"	68
24317	24317	20	24329	12	27565	65	"	600	"	68
24329	24329	12	24288	50	"	65	"	600	25933	50
24305	24305	32	24305	32	"	65	"	600	25672	68
24317	24317	20	24317	20	"	65	"	600	25933	50
24329	24329	12	24329	12	25933	50	24202	500	"	50
24317	24317	20	24317	20	25933	50	"	500	25672	68
24329	24329	12	24329	12	25945	30	"	500	25933	50
"	"	12	"	12	"	30	25488	390	"	50
"	"	12	"	12	"	30	"	390	"	50
"	"	12	"	12	"	30	25476	360	"	50
24329	24329	12	24329	12	25945	30	25476	360	25933	50
24288	27668	50	24252	100	27773	350	25610	1200	25098	500
24915	24226	750								

FIGURE 2 A



## SECTION II

### INSTALLATION

#### 11. Preliminary

When a SunAir Transceiver or parts shipment is received, inspect it carefully as soon as possible after delivery. Refer to Section I for the procedure to be followed to make a claim for equipment damaged in shipment.

IMPORTANT: To place your warranty in effect so that you will receive parts on a no-charge basis, you must fill out the warranty card and mail it to SunAir within ten (10) days after your new installation is completed.

The F.C.C. requires a pre-operational check after the initial installation of a transmitter to insure that the frequency and deviation are within the tolerances set forth in the rules and regulations governing the class of service for which the equipment is licensed. This, as well as tuning or adjustment of the Transceiver, must be done only by a properly licensed radio-telephone operator of the appropriate class or by qualified personnel working under his direct supervision.

#### 12. Transceiver

After the equipment has been unpacked and the warranty card completely filled out and started on its way back to SunAir, inspect all components visually. Remove the dust cover from the Transceiver and make certain that tubes, diodes and transistors are firmly seated. Inspect other components to be certain they have not been dislodged in shipment. These installation procedures are intended only to serve as a general guide and should be altered as required to meet individual requirements. Remember care in the initial installation can make a great deal of difference in customer satisfaction with the equipment.

Decide upon the general type of installation and the location of the equipment and accessory items. Make sure all wires and fuel lines will be by-passed when the Transceiver is installed and all flight controls will have unimpeded action.

Remove the false panel or use a quarter-inch drill with saw attachment to cut the hole in the panel. File the edges smooth to permit the faceplate to fit flush. See Figure 3 for exact measurements.

Hold the cover in place and mark it for the four holes that must be drilled to mount it to the brackets. These holes must be countersunk so that no binding will occur when the Transceiver is installed. Install the dust cover using four No. 6 metal screws with fiber stop nuts.

### 13. Antenna Requirements

When deciding upon the location of the coupling unit in the aircraft, one important fact must be remembered. The length of wire between the loading unit and the fixed antenna feed-through must be as short as possible. It should be six (6) inches or less. Excessive length causes radiation inside the aircraft. It will result in considerable detuning and very limited range, even though the meter indicates that it is properly tuned.

When calculating the length of the antenna, the length of the lead should be considered as this lead becomes part of the radiating element.

The antenna and coupling unit should be matched to the transmitter. The transmitter should not be tuned to the coupling unit. Tuning the transmitter to the coupling unit results in severe detuning, excessive current usage and overheating. Under no circumstance should the transmitter be retuned unless a 50 ohm load is connected to the transmitter output.

A fixed antenna kit is available from SunAir. The various parts are shown in C. U. Coupler Manual, Part No. 99347. They are relatively easy to install and should present no problems.

Several types of R.F. Inverters may be used to indicate antenna tuning. SunAir transmitters now have the R.F. Inverter mounted internally in the transmitter (Figures 26, 30, 32 and 36). An external Inverter may be used, as shown in the Electric Reel Manual, Part No. 99477.

A trailing antenna kit is available from SunAir. The various parts are shown in the Installation Manual, Electric Reel Antenna Kit, Part No. 99477.

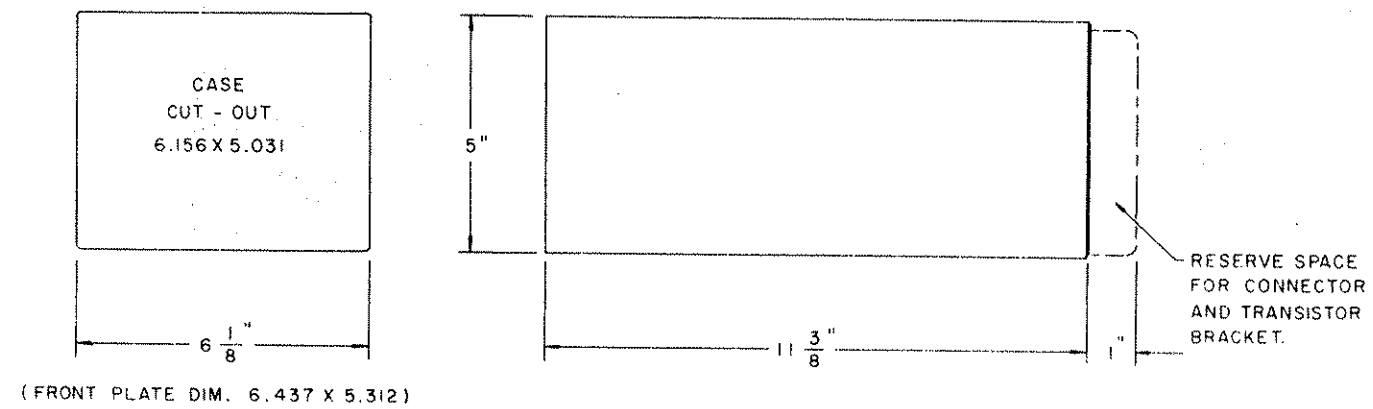


FIGURE NO. 3  
T-5 DA/T-10, MOUNTING DIMENSIONS

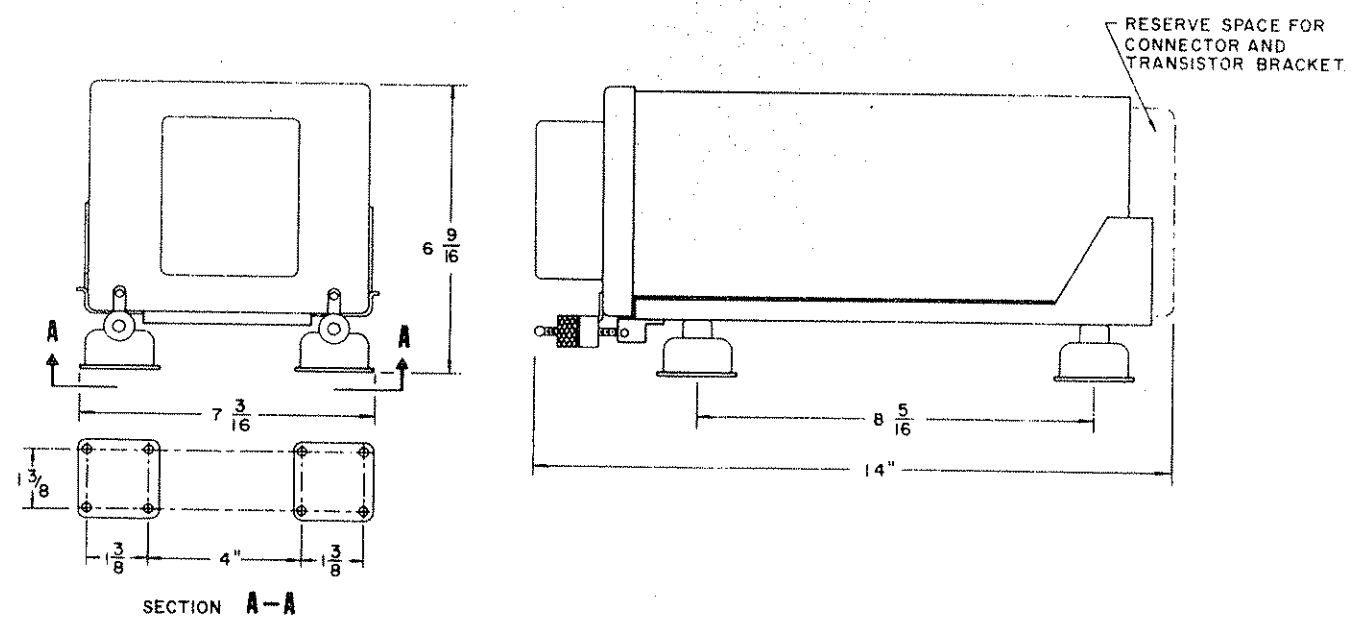


FIGURE NO. 4  
T-5 RA/T-10R, MOUNTING DIMENSIONS



FIGURE NO. 5  
DRUM TYPE CONTROL HEAD

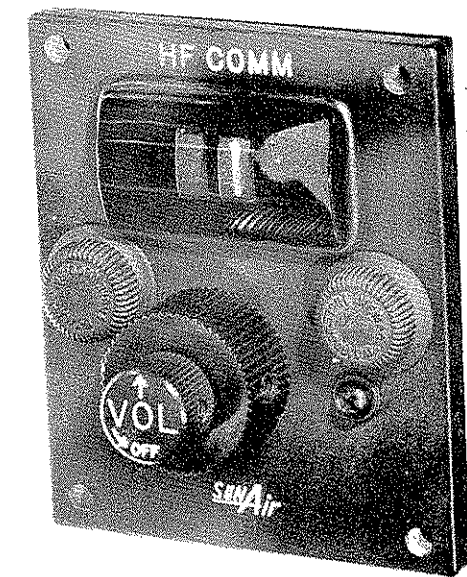


FIGURE NO. 6  
DIGITAL TYPE CONTROL HEAD

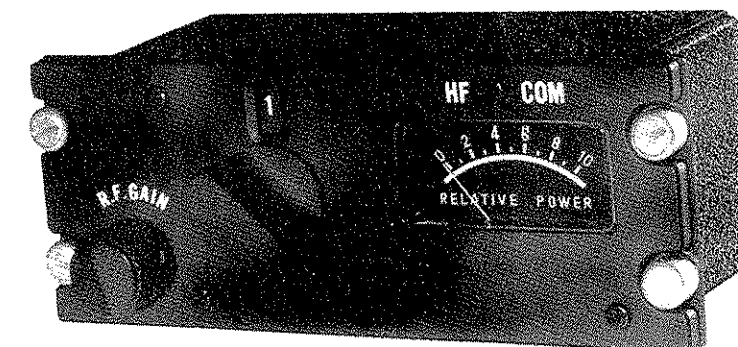
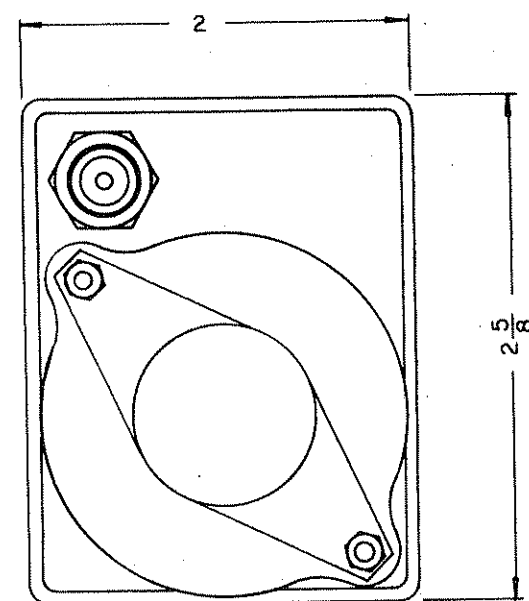
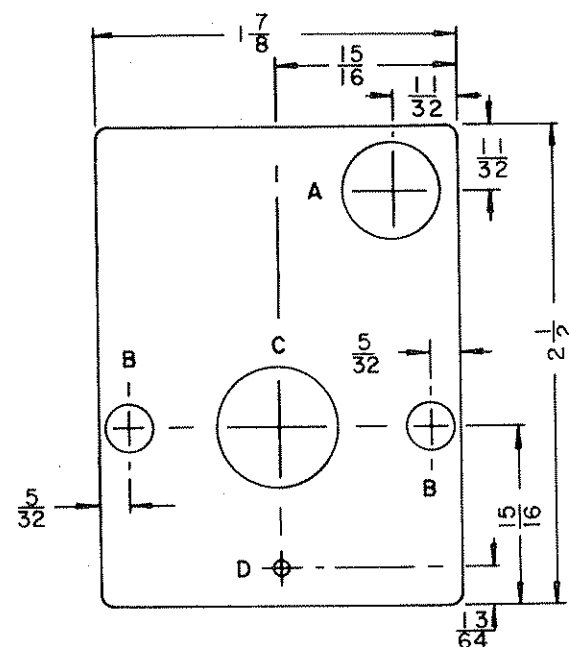


FIGURE NO. 7  
SCU-50/51, CONTROL HEAD





REAR VIEW



DRILL NOTES:

- A -  $\frac{1}{2}$  IN. DRILL (1)
- B -  $\frac{1}{4}$  IN. DRILL (2)
- C -  $\frac{5}{8}$  IN. DRILL (1)
- D - TAP DRILL NO. 47,  
TAP 3-48

ORDERING INFORMATION	
FOR TRANSCEIVER MODEL NO.	CONTROL HEAD PART NO.
T-5-RA	32338
T-10-R	32338 (REMOVE 5 CHANNEL STOP)

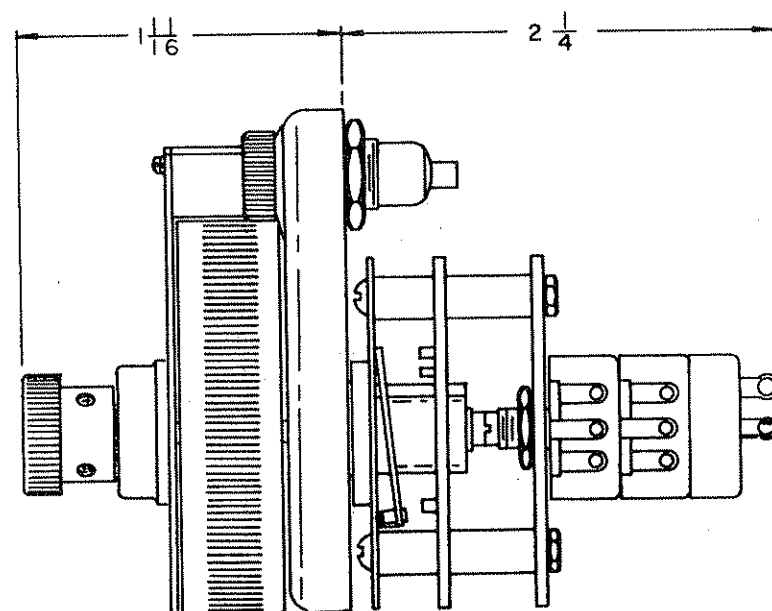
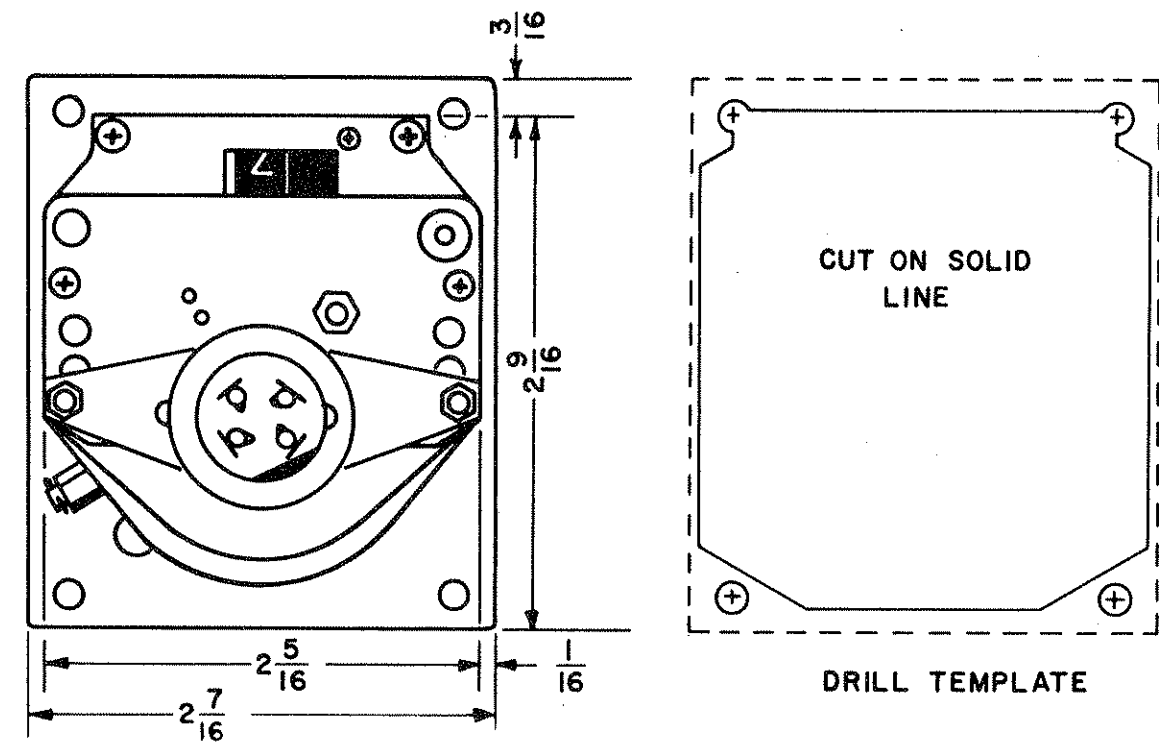
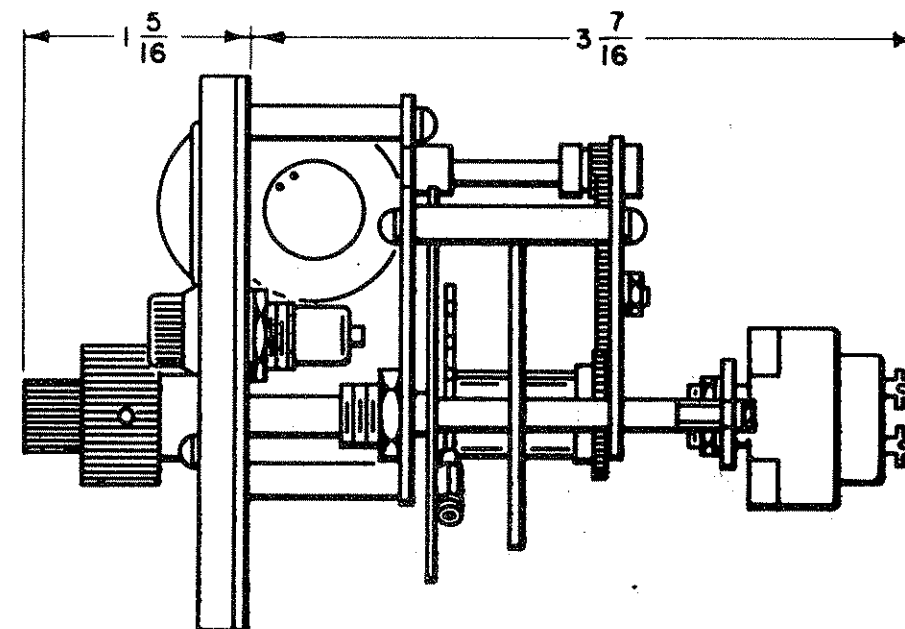


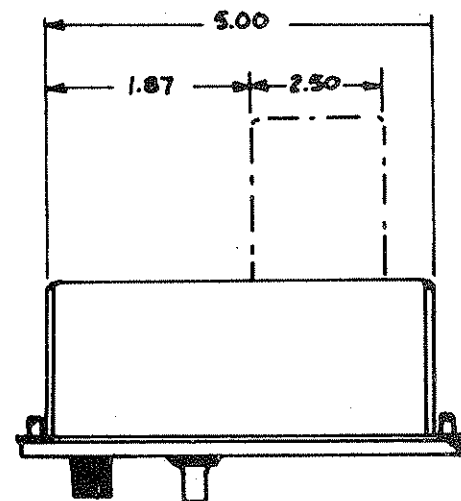
FIGURE NO. 8

DRUM TYPE, CONTROL HEAD, MOUNTING DIMENSIONS



ORDERING INFORMATION	
FOR TRANSCEIVER MODEL No.	CONTROL HEAD PART No.
T-5-RA	32936 (red)
T-10-R	32405 (REMOVE 5 CHAN STOP)
T-5-RA	32948 (white)
T-10-R	33435 (white)





Drawing applies to Serial  
No. 151 and subsequent. (T-5-RA)  
Drawing applies to Serial  
No. 151 and subsequent. (T-10-R)

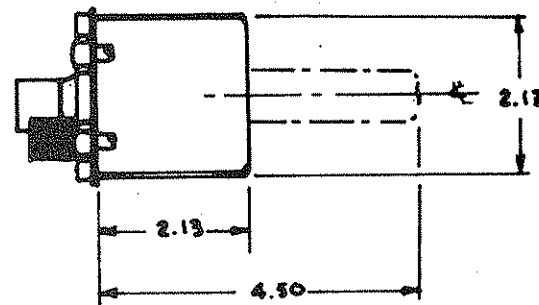
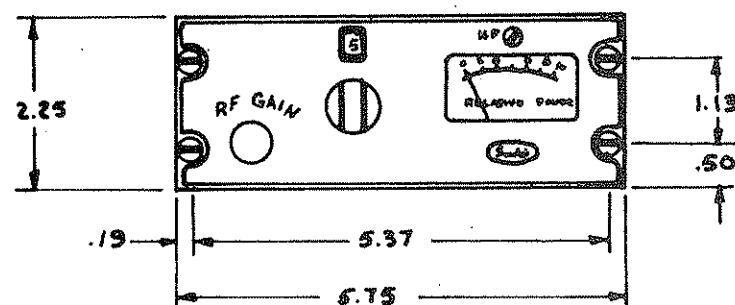


FIGURE NO. 10  
SCU-50/51 CONTROL HEAD MOUNTING DIMENSIONS

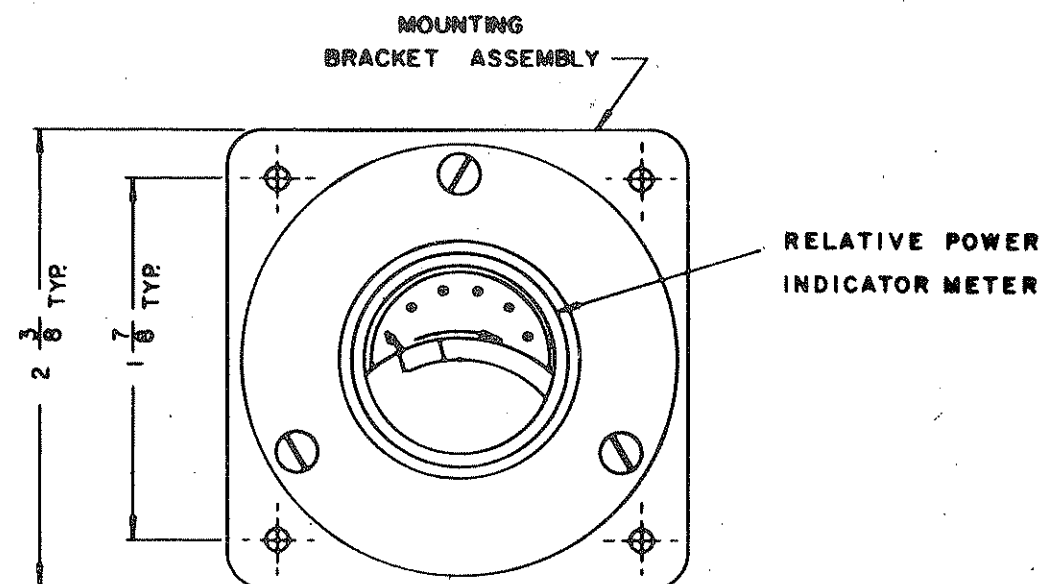
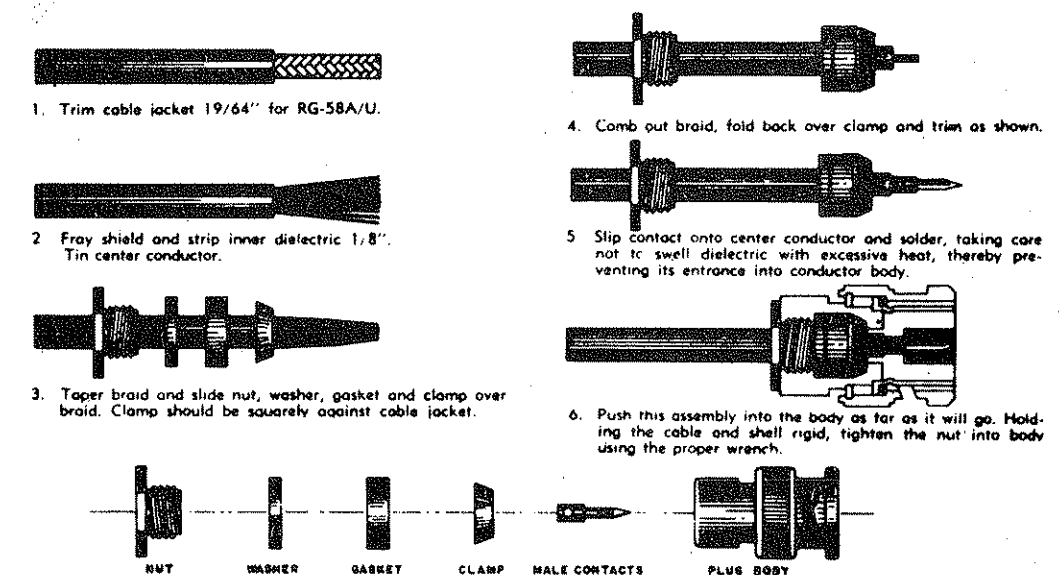
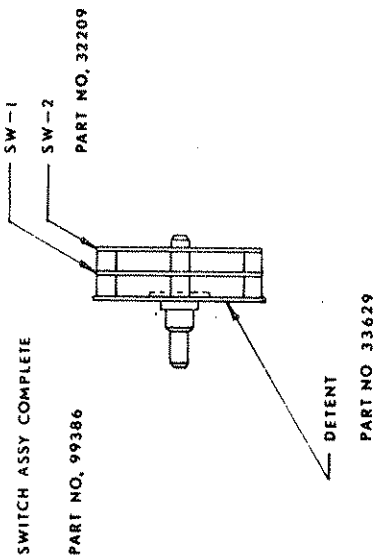
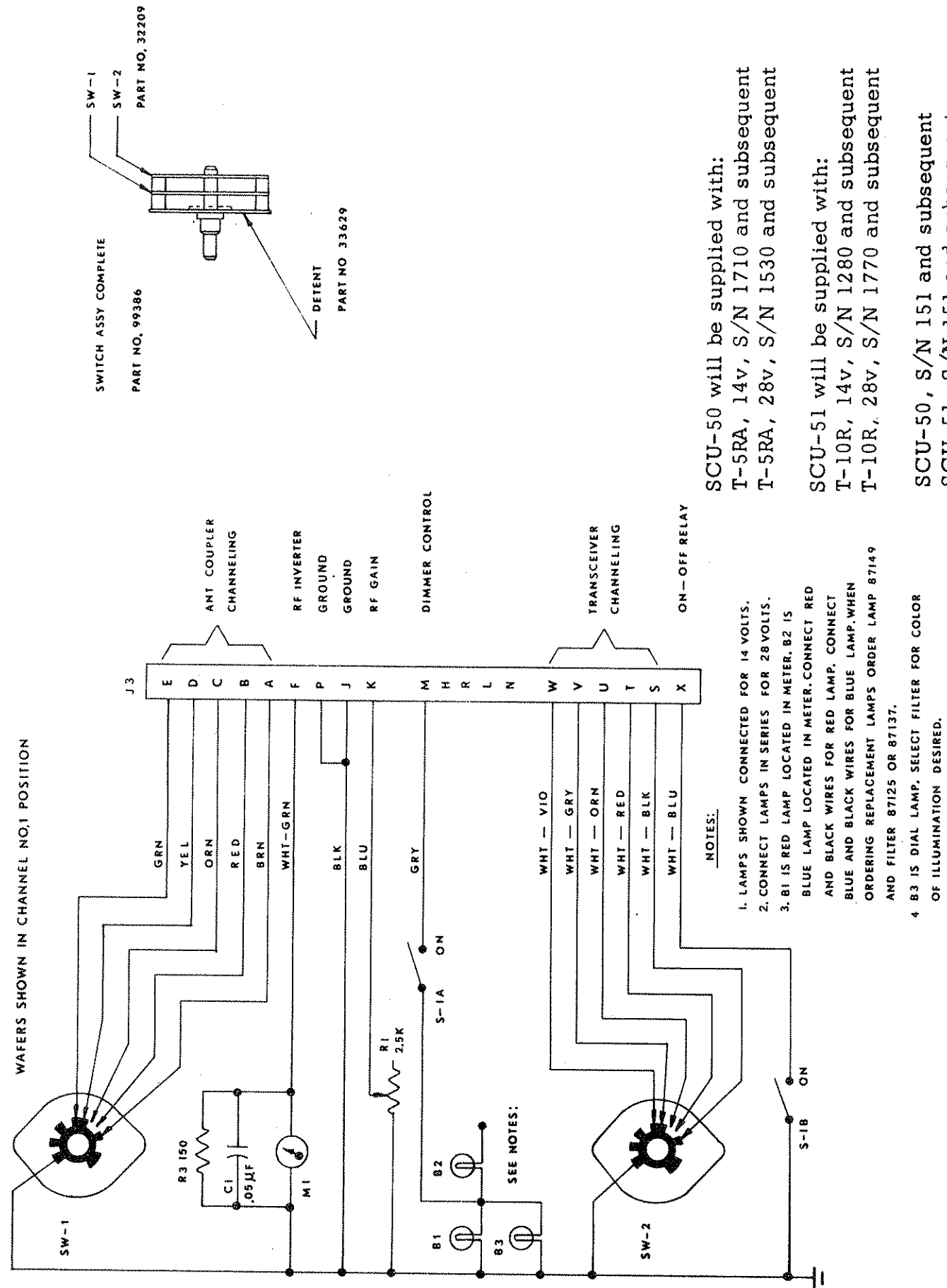


FIGURE NO. 11  
R.F. INDICATOR, MOUNTING DIMENSIONS



The antenna cable for use with the Transceiver should be RG-58 A/U. This cable should be as short as possible and all bends should have at least a 2-inch radius. A BNC connector is supplied for the interconnection of the antenna and the Transceiver. See Drawing Figure 12 for the proper method of assembly of the BNC connector.



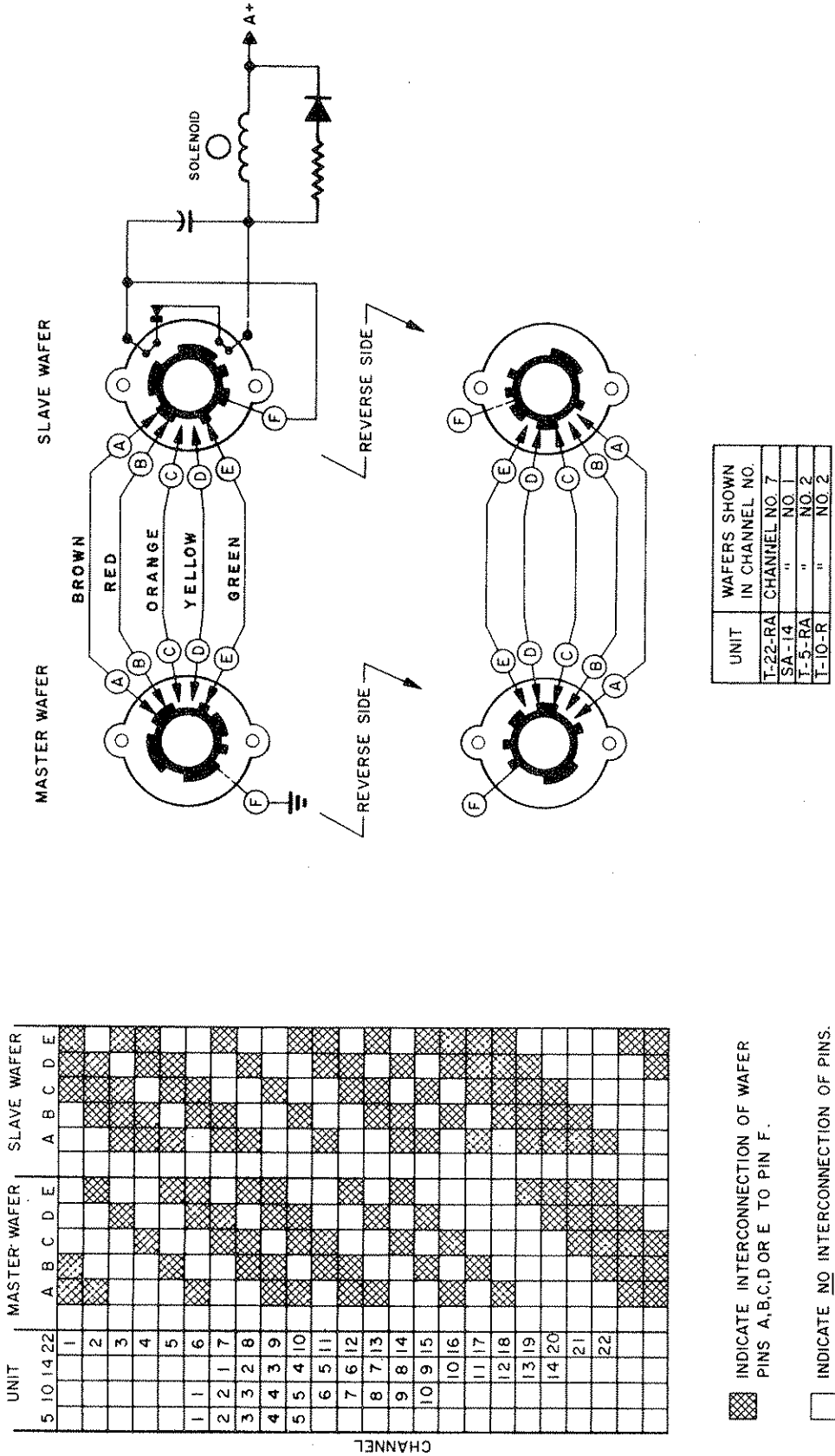
SCU-50 will be supplied with:  
T-5RA, 14v, S/N 1710 and subsequent  
T-5RA, 28v, S/N 1530 and subsequent

SCU-51 will be supplied with:  
T-10R, 14v, S/N 1280 and subsequent  
T-10R, 28v, S/N 1770 and subsequent

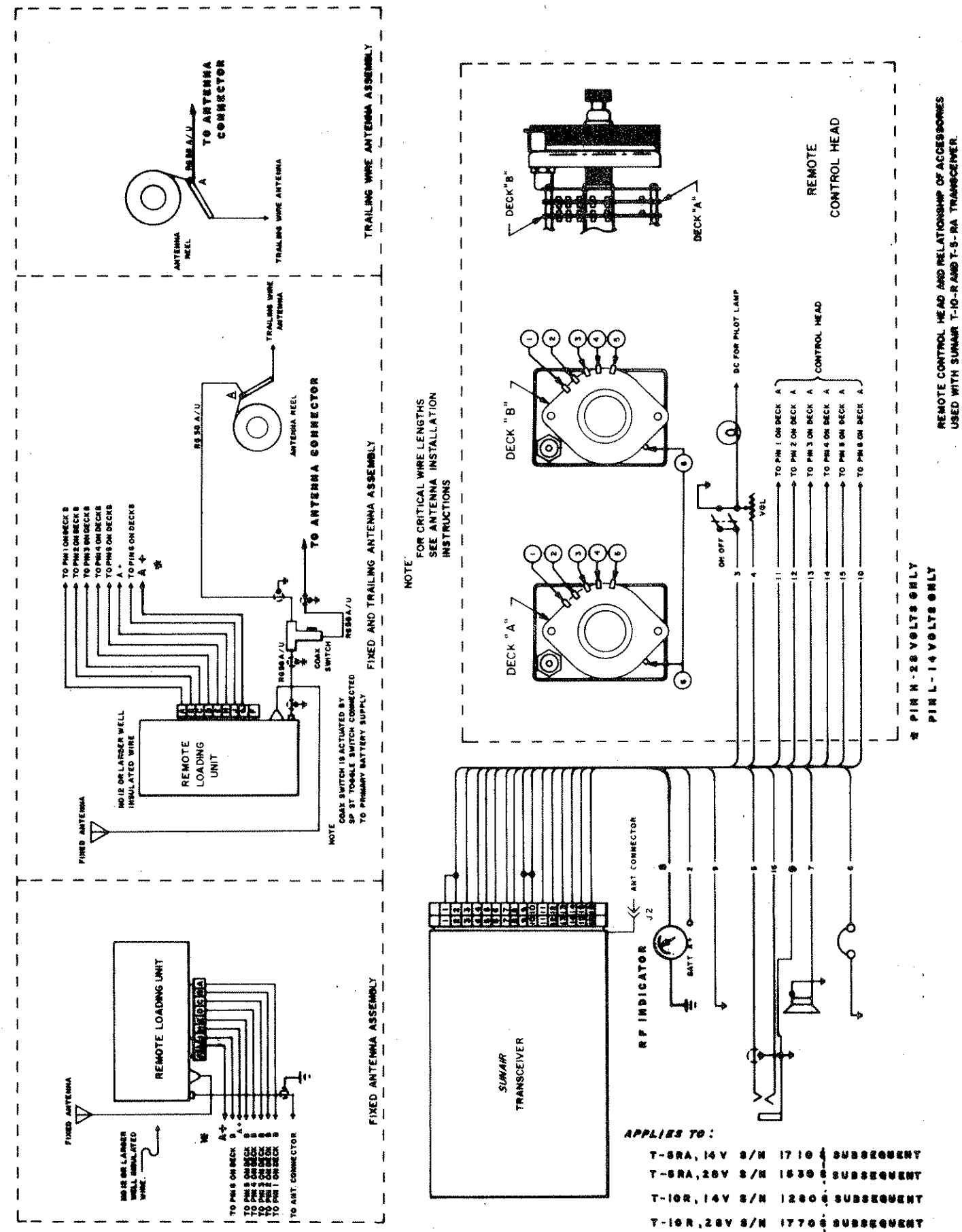
SCU-50, S/N 151 and subsequent  
SCU-51, S/N 151 and subsequent

FIGURE NO.13  
SCHEMATIC, SCU-50/51 CONTROL HEAD

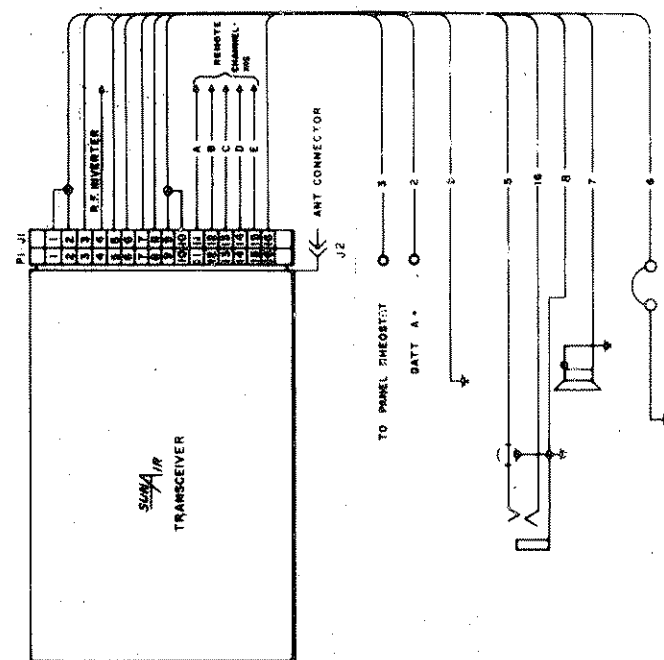
FIGURE NO.14  
DIAGRAM, T5- RA/T-10R TRANSCEIVER CHANNELING



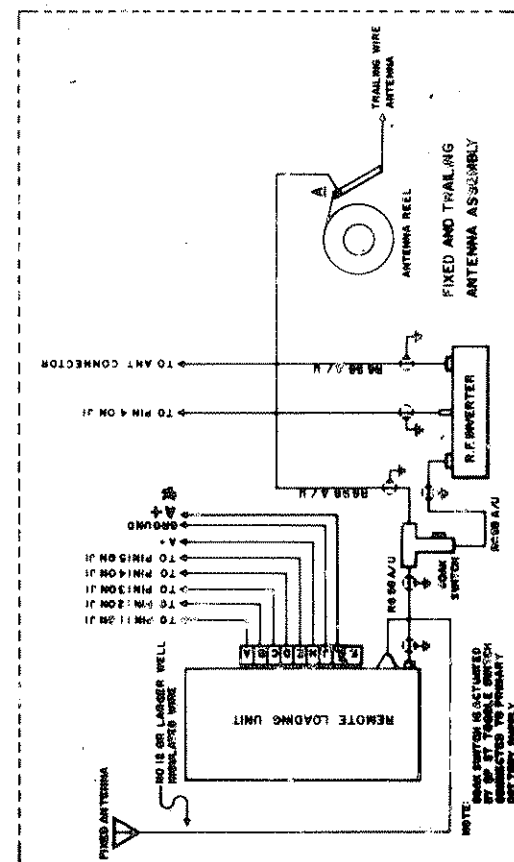
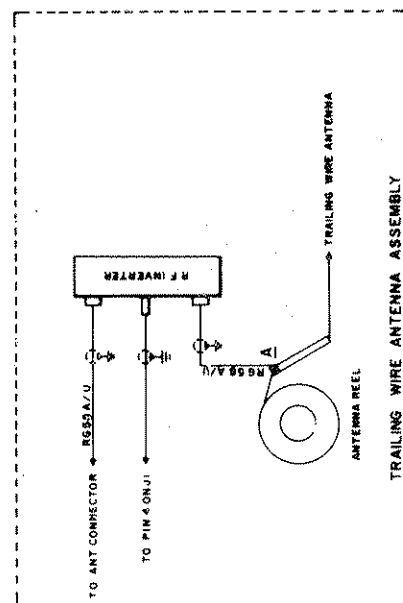






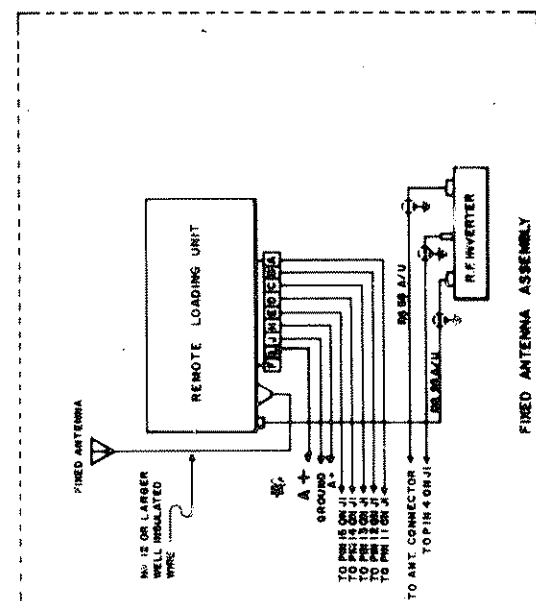


NOTE:  
FOR CRITICAL WIRE LENGTHS  
SEE ANTENNA INSTALLATION  
INSTRUCTIONS



APPLIES TO:

T-5DA, 14V, S/W 12149 & PREVIOUS  
T-5DA, 28V, S/W 12399 & PREVIOUS  
T-10D, 14V, S/W 1239 & PREVIOUS  
T-10D, 28V, S/W 1249 & PREVIOUS

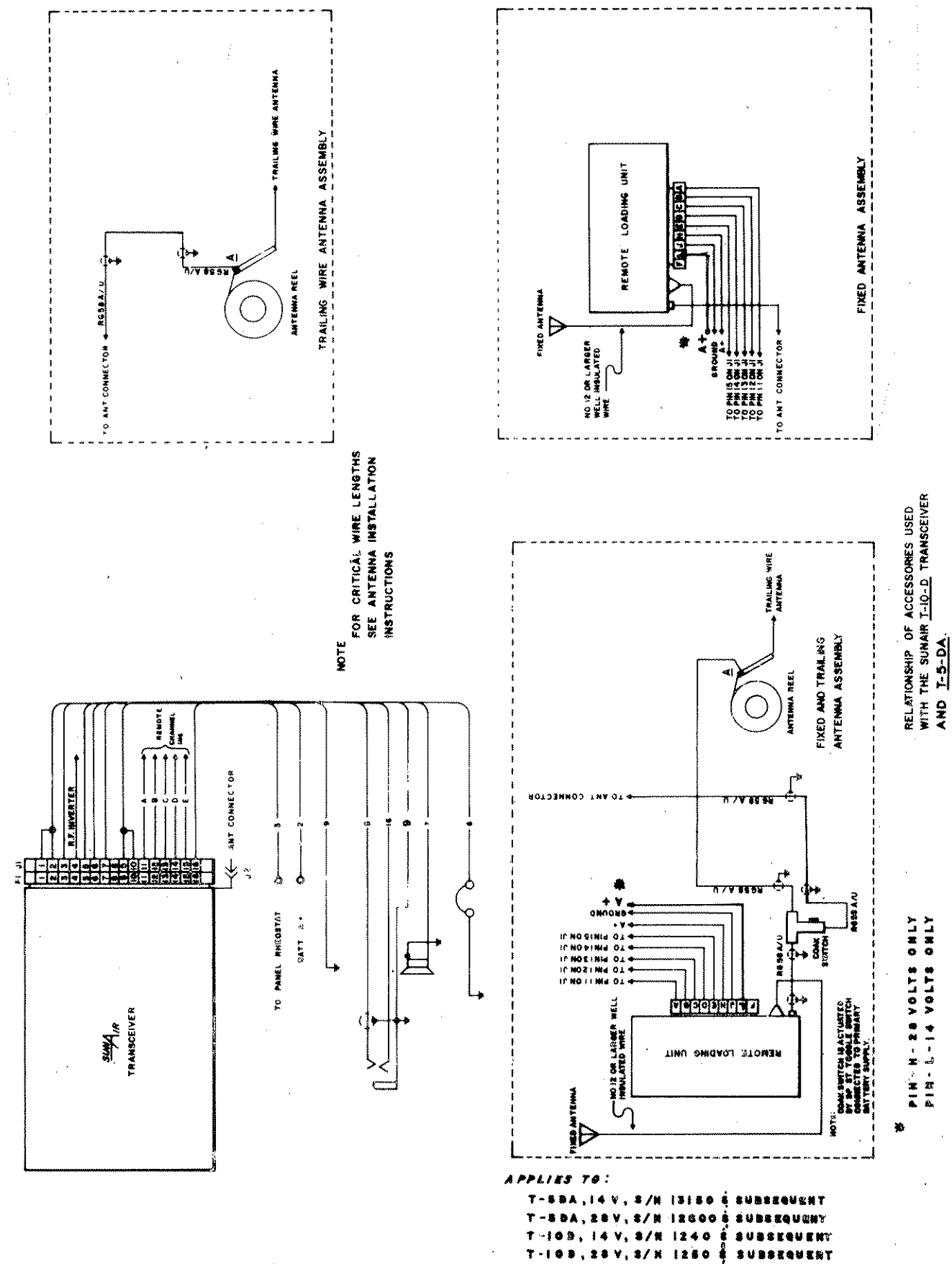


RELATIONSHIP OF ACCESSORIES USED  
WITH THE SUNAIR T-10-D TRANSCEIVER  
AND T-5-DA

15 PIN - M - 28 VOLTS ONLY  
PIN - L - 14 VOLTS ONLY

FIGURE NO. 17  
DIAGRAM, T-5DA/T-10D, INTERCONNECTION

FIGURE NO. 18  
DIAGRAM, T-5DA/T-10D, INTERCONNECTION



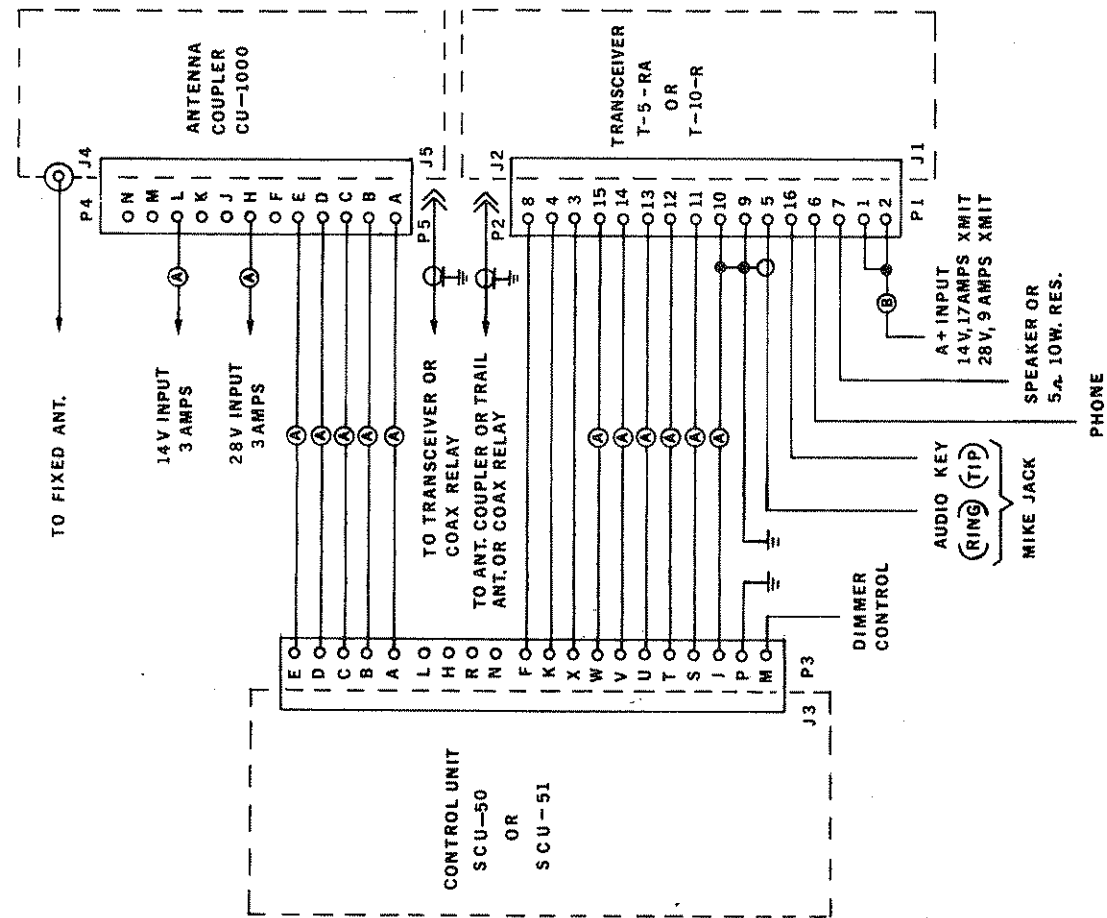
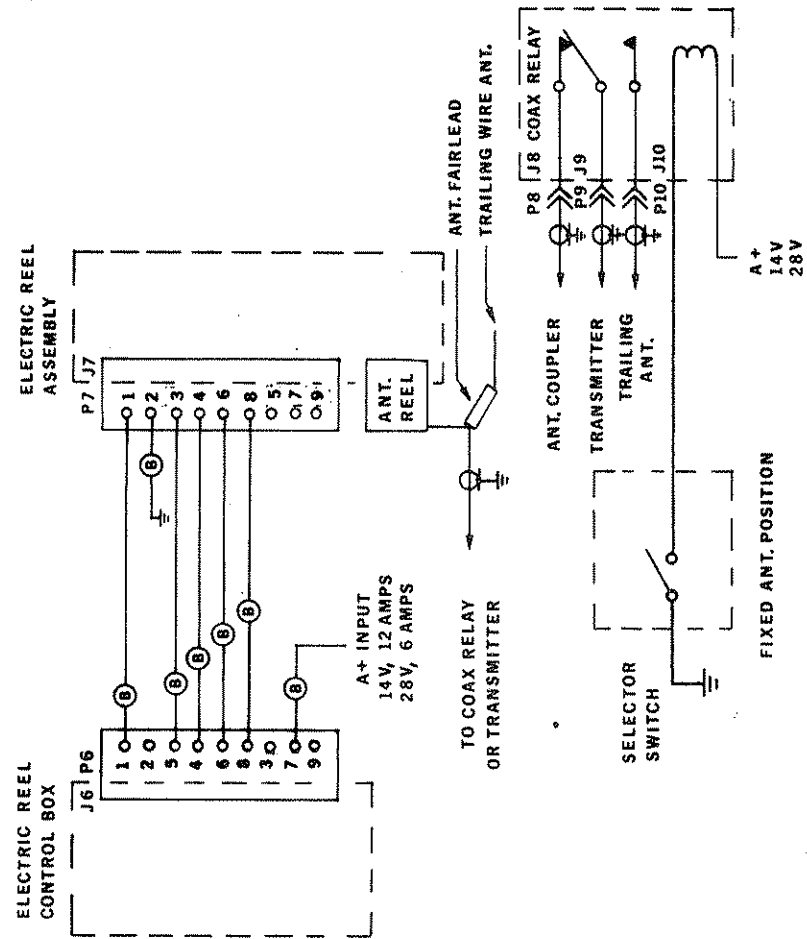


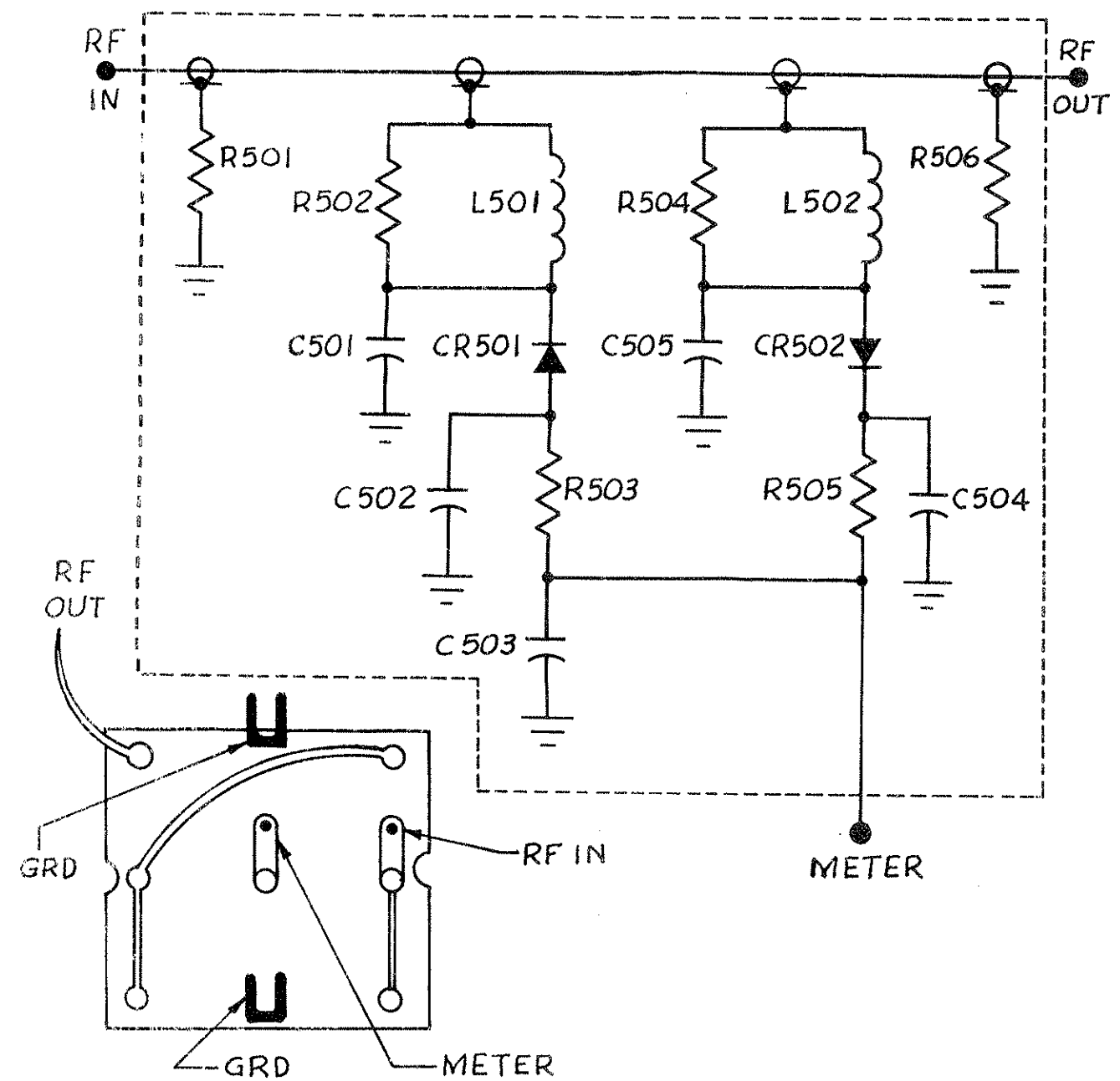
FIGURE NO. 19  
DIAGRAM, SCU-50/51, T-5RA/T-10R INTERCONNECTION



WIRE	LENGTH	SIZE AWG
A	LESS THAN 24 FT	# 20
	MORE THAN 24 FT BUT LESS THAN 39 FT	# 18
	MORE THAN 39 FT BUT LESS THAN 62 FT	# 16
B	LESS THAN 10 FT	# 16
	MORE THAN 10 FT BUT LESS THAN 18 FT	# 14
	MORE THAN 18 FT BUT LESS THAN 35 FT	# 12

SYM.	TYPE	PART NO.
P1	16 PIN 26-4200-16S	74087
P2	BNC UG-88/U	74403
P3	20 PIN MRE-20S-GH	74506
P4	12 PIN 165-10	74362
P5	UHF UG-175/U	90873
P6	9 PIN PL-112	71114
P7	9 PIN PL-112	71114
P8	UHF UG-175/U	90873
P9	UHF UG-175/U	90873
P10	UHF UG-175/U	90873

1. UNLESS OTHERWISE INDICATED WIRES (INCLUDING SHIELDED) SHOULD BE AWG # 24 OR LARGER.
2. ALL SHIELDED WIRE INSULATED TYPE.
3. COAX CABLE 50 OHM TYPE RG-58 A/U OR EQUIV.



NOTE: PAGES 26,30,32,36 SHOW LOCATION OF  
RF INVERTER IN TRANSCEIVER.

FIGURE NO.20  
SCHEMATIC, R.F., INVERTER

# SECTION III

## ALIGNMENT AND SERVICE INFORMATION

### 14. Frequency Selection of Channels

Frequencies for the SunAir Transceivers are pre-selected by the customer and the proper coils and capacitors for the tuned circuits are installed by the manufacturer. Should different frequencies be desired, changes in the coil-capacitor combinations may be necessary. Refer to Figure 2 for these requirements. The changes can be made in the field after the components are purchased from SunAir.

#### T-10-D and T-10-R Only

IMPORTANT: In selecting frequencies for the T-10-D and T-10-R radios, the following factors must be observed:

1. These channels are paired - (1 & 2) (3 & 4) (5 & 6) (7 & 8) (9 & 10).
2. The MAXIMUM frequency separation between channels (1 & 2) and each of the other paired frequencies is as follows:

2,000 to 5,000 kHz	250 kHz
5,001 to 8,000 kHz	500 kHz
8,001 to 18,000 kHz	800 kHz

Example #1 - If channel No. 1 is 2,000 kHz, channel No. 2 may not be more than 2,250 kHz.

Example #2 - If channel No. 3 is 7,000 kHz, channel No. 4 may not be more than 7,500 kHz.

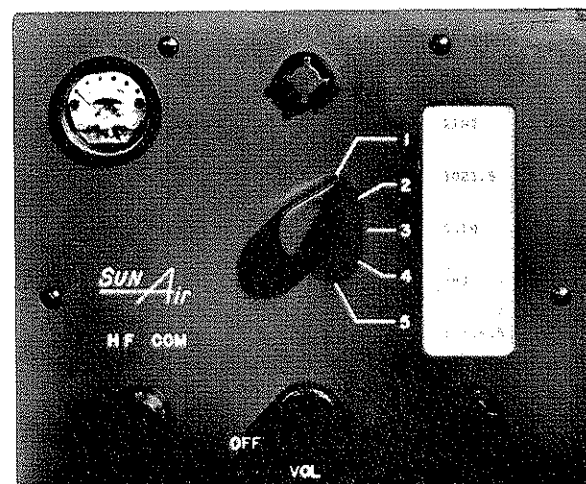


FIGURE NO.21  
T-5 DA, FRONT PANEL

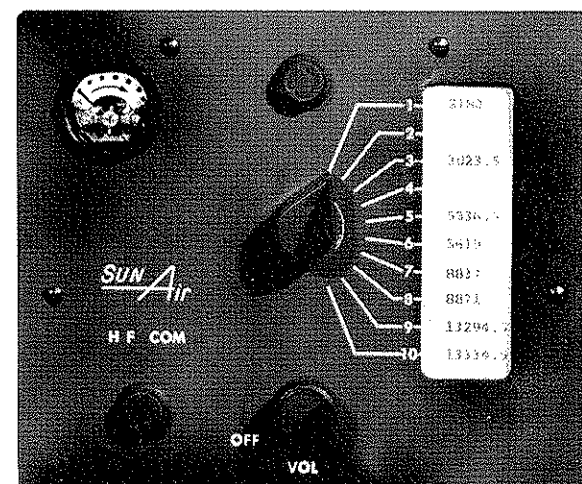


FIGURE NO.22  
T-10D, FRONT PANEL

### SECTION III

#### ALIGNMENT AND SERVICE INFORMATION

##### 15. Equipment Required

The following is a list of the type of test equipment required for the alignment of the T-5 and T-10:

- (a) RF signal generator
- (b) AC voltmeter, audio range
- (c) Bird Thru-line Wattmeter or calibrated load with an ammeter
- (d) Oscilloscope
- (e) Frequency counter
- (f) D.C. VTVM
- (g) D.C. power supply
- (h) SunAir test set or equivalent cable assembly

##### 16. Alignment - Receiver

The receiver is aligned starting at the output IF and working back to antenna RF circuit.

The IF amplifier section is aligned to the standard IF frequency of 455 kHz. Start the alignment with the output IF can and then align the IF can in the mixer circuit. Keep the signal generator output to a minimum to prevent actuating the AGC circuit.

- (a) Connect an RF signal generator modulated at 1000 cycles to pin 7 of the 12BE6 pentagrid mixer, V2, and set the frequency at 455 kHz.
- (b) Turn the receiver RF gain fully clockwise. An audio signal should be heard in the output.

- (c) Connect an audio voltmeter across the two speaker terminals. Carefully touch up the tuning slugs in T1 and T2, the IF transformers. When the meter shows that these are peaked, remove the signal generator from V2.
- (d) Connect the signal generator to the antenna input. The RF amplifier and mixer are aligned through the use of tunable inductors on the T-5 series and tunable inductors and trimmer capacitors on the T-10 series (See section on tuned circuits).
- (e) As the receiver is being aligned, the RF input must be decreased so that the RF level is kept below that which activates the AGC circuits.

NOTE: If the frequency of any channel is to be changed, it may be necessary to change the coil-capacitor combinations for that channel. Refer to Coil-Capacitor Chart for the proper selection.

#### 17. Alignment - Transmitter

A Bird Thru-Line Wattmeter is used to check the alignment of the transmitter.

One section of V4 functions as a Pierce Oscillator. The other section functions as an amplifier-driver. The amplifier driver is tuned, with the transmitter keyed and without modulation. The circuit is tuned for maximum negative voltage at Test Point, in the following sequence:

- (a) Select Channel #1.
- (b) Key the transmitter and adjust the driver plate coil for maximum negative voltage as indicated on a VTVM connected at Test Point.
- (c) Select Channel #2.
- (d) Key the transmitter and if aligning a T-5, tune the next coil; if aligning a T-10, tune trimmer capacitor for oscillator, marked #2.

- (e) Tune the driver on all remaining channels.
- (f) Select Channel #1.
- (g) Key the transmitter and tune PA coil for maximum output as indicated on the Wattmeter while not exceeding 180 ma of cathode current.
- (h) Select Channel #2.
- (i) On a T-5, peak PA coil as on Channel #1. On a T-10, the PA coil for Channel #1 is used on Channel #2 also by balancing between the two. If the frequency spread is too great, separate fixed capacitors may be placed on the switch wafer to aid the balancing.
- (j) Tune the PA tank circuit on the remaining channels.
- (k) The harmonic traps are tuned by use of a communications receiver with an AGC voltage monitoring device. The receiver is tuned to the second harmonic of the transmitting channel by maximum indication on the indicator. This shows the trap is absorbing the second harmonic. Trimmer capacitors are used on the EVEN channels in the T-10 series.

#### 18. Trouble Locating Guide

When servicing the SunAir Model T-5-DA Transceiver, it will be helpful to refer to the block diagrams and schematics on the equipment. In addition, the following list of typical symptoms with probable sources of faults should help to solve many servicing problems.

##### Transceiver

If the complete transceiver is malfunctioning, the unit should be checked for proper input A+ power and for a blown fuse (F-2). If the fuse is blown, check for one of the following:



- (a) Short in the A + input wiring.
- (b) Shorted transistor (defective).
- (c) Reversed battery polarity on installation.
- (d) Transistor shorted to heat sink (defective insulating washer).

If, with proper A + to the transceiver, the unit is still malfunctioning, proceed with the following B + power supply checks:

- (a) With proper A + power supply, listen for a high frequency "whine" (1500 to 2000 Hz) at the power supply. Lack of this "whine" indicates that the transistors are not switching. Check for one of the following causes of trouble:
  - 1. B + short to ground.
  - 2. Defective transistors in power supply.
  - 3. Defective component in power supply.
- (b) If power supply "whine" is present, check for low B +. The causes of low B + may be internal (within the power supply) or external (in the load).

Check for the following:

- 1. External.
  - Shorted Tubes.
  - Shorted bypass capacitor.
- 2. Internal.
  - Shorted diode.
  - Shorted filter capacitor.

#### Transmitter

Inoperative, no RF Output:

- (a) Defective component in oscillator or power supply.
- (b) Defective tube.
- (c) Defective crystal.

Operative, but low RF output:

- (a) Defective tube.
- (b) Transmitter out of alignment.
- (c) Low B +; see Power Supply checks.

Output OK, percent of modulation low:

- (a) Defective transistor in audio amplifier stage.
- (b) Defective microphone.
- (c) Defective components in modulation circuit.
- (d) Defective relay.
- (e) Low microphone voltage.

Modulation distorted:

- (a) Defective component(s) in oscillator driver stage.
- (b) Defective crystal.

#### Receiver

Inoperative, no audio:

- (a) Check transistors and components in audio amplifier stage.
- (b) Check F-1.

Inoperative, but loud hiss at maximum volume:

- (a) Defective tube.

Receiver operative, but low sensitivity:

- (a) Defective tube.
- (b) Defective diode in detector, noise limiter or AGC circuit.
- (c) Open coil in RF or mixer stage.
- (d) Receiver out of alignment.
- (e) Defective volume control.

Receiver operative, but audio distorted:

- (a) Defective diode in detector, noise limiter or AGC circuit.
- (b) Defective transistor or component in audio amplifier circuit.

## 19. Tube and Semi-Conductor Complement

### Receiver

RF Amplifier - 12BA6  
Mixer Oscillator - 12BE6  
IF Amplifier - 12BA6  
Detector Diode - CSD 2648  
Noise Limiter Diode - 1N461  
1st Audio - 2N1379

### Transmitter

Oscillator and Buffer Amplifier - 12BH7  
RF Power Amplifier - 6883 (14V)  
RF Power Amplifier - 6159 (28V)

### Power Supply

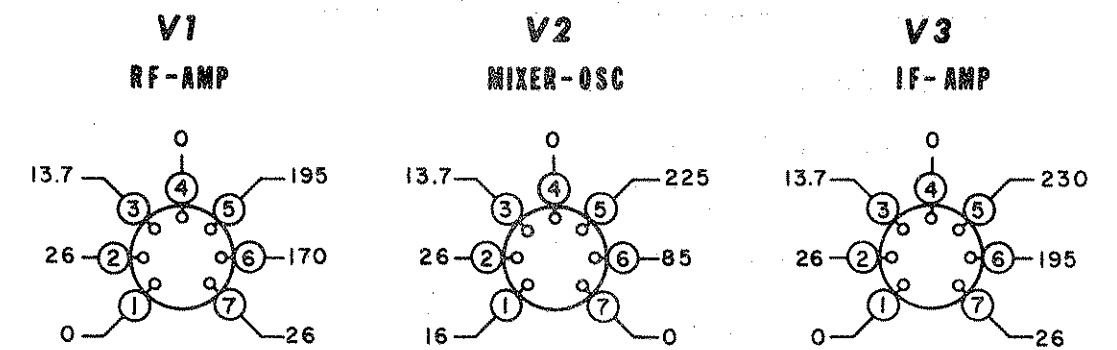
Switching (2) 2N277 14V  
Switching (2) 2N174 28V

### Modulator and Receiver Audio

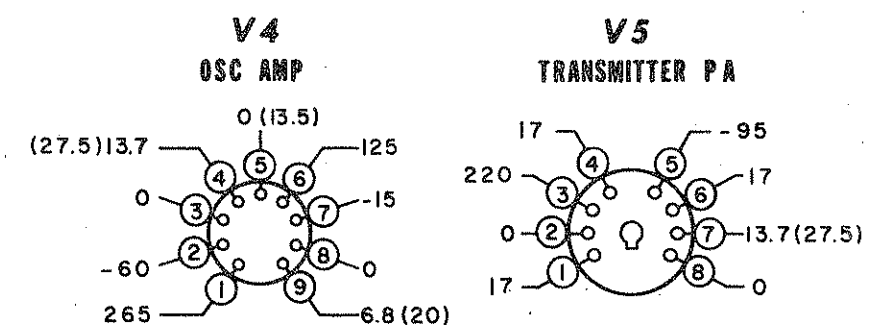
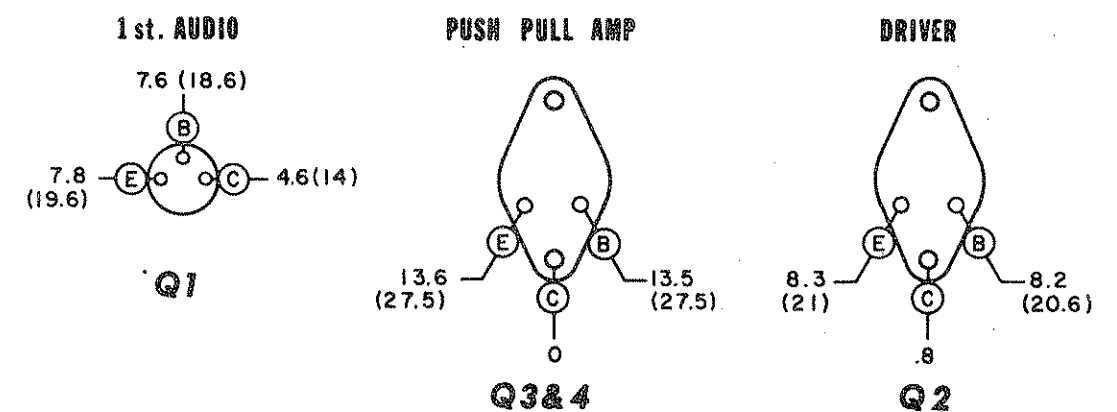
Driver - 2N669  
Power Amplifier (2) - 2N1165

### Miscellaneous Diodes

Ledex Arc Suppressor - CSD2648  
Key Click Suppressor - CSD2648  
A + Transient Suppressor - 1E43Z  
Audio A + Regulator - 1N2974A (14V)  
Audio A + Regulator - 1N2986B (28V)  
Mike Audio Clipper (2) - 1N746  
B + Bridge Rectifier (4) - CER73

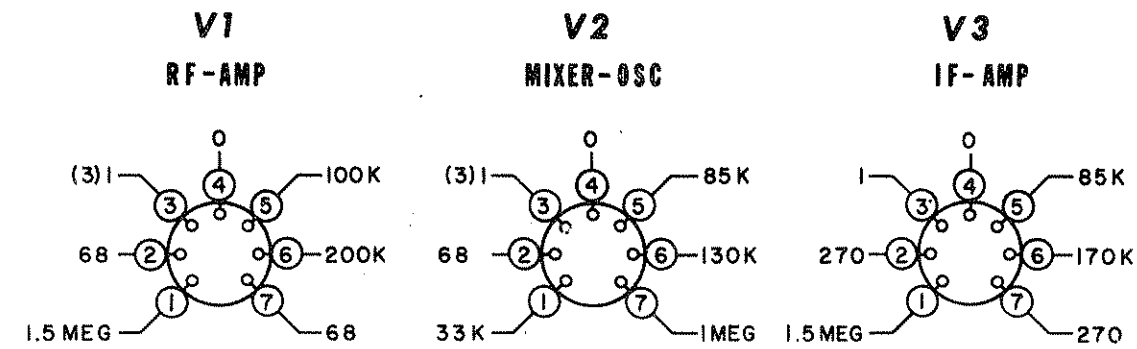


USE EXTREME CAUTION WHEN TAKING VOLTAGE MEASUREMENTS ON TRANSISTORS.

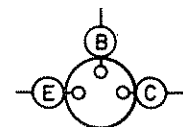


#### CONDITIONS OF MEASUREMENT

1. Receiver voltages taken with no signal input.
  2. Volume control full CCW.
  3. Transmitter voltages, (V4 & V5) taken with transmitter keyed, no modulation.
  4. All voltage measurements made with a VTVM. Readings will vary with the operating frequency. Readings shown taken at 3023.5 KC.
  5. Supply voltage 13.7 - 28.5 V DC as measured at F1 against ground.
  6. Voltages of 28 volt units shown in parenthesis. ( )
- E Emitter      B Base      C Collector

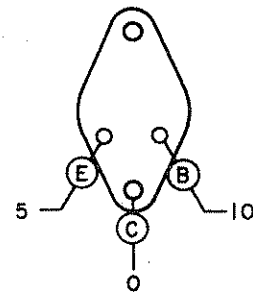


1st. AUDIO



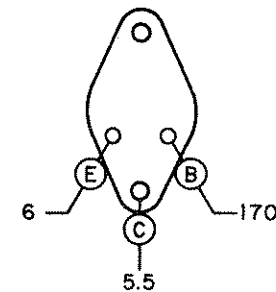
Q1

PUSH PULL AMP



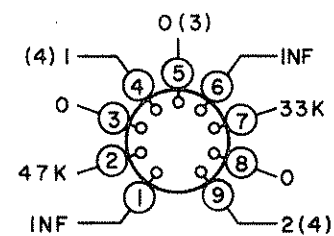
Q3&4

DRIVER

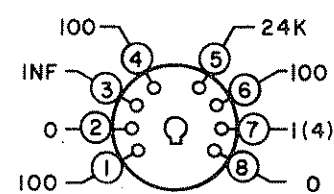


Q2

V4  
OSC AMP



V5  
TRANSMITTER PA



1. Resistance measurements made with volume control at maximum.
2. Resistance measurements on driver transistor and audio power transistor made with ohmmeter negative terminal grounded.
3. Resistance measurements should not be made on first audio transistor.
4. Resistance measurements peculiar to 28 V units shown in parenthesis.

FIGURE NO.24  
RESISTANCE MEASUREMENTS

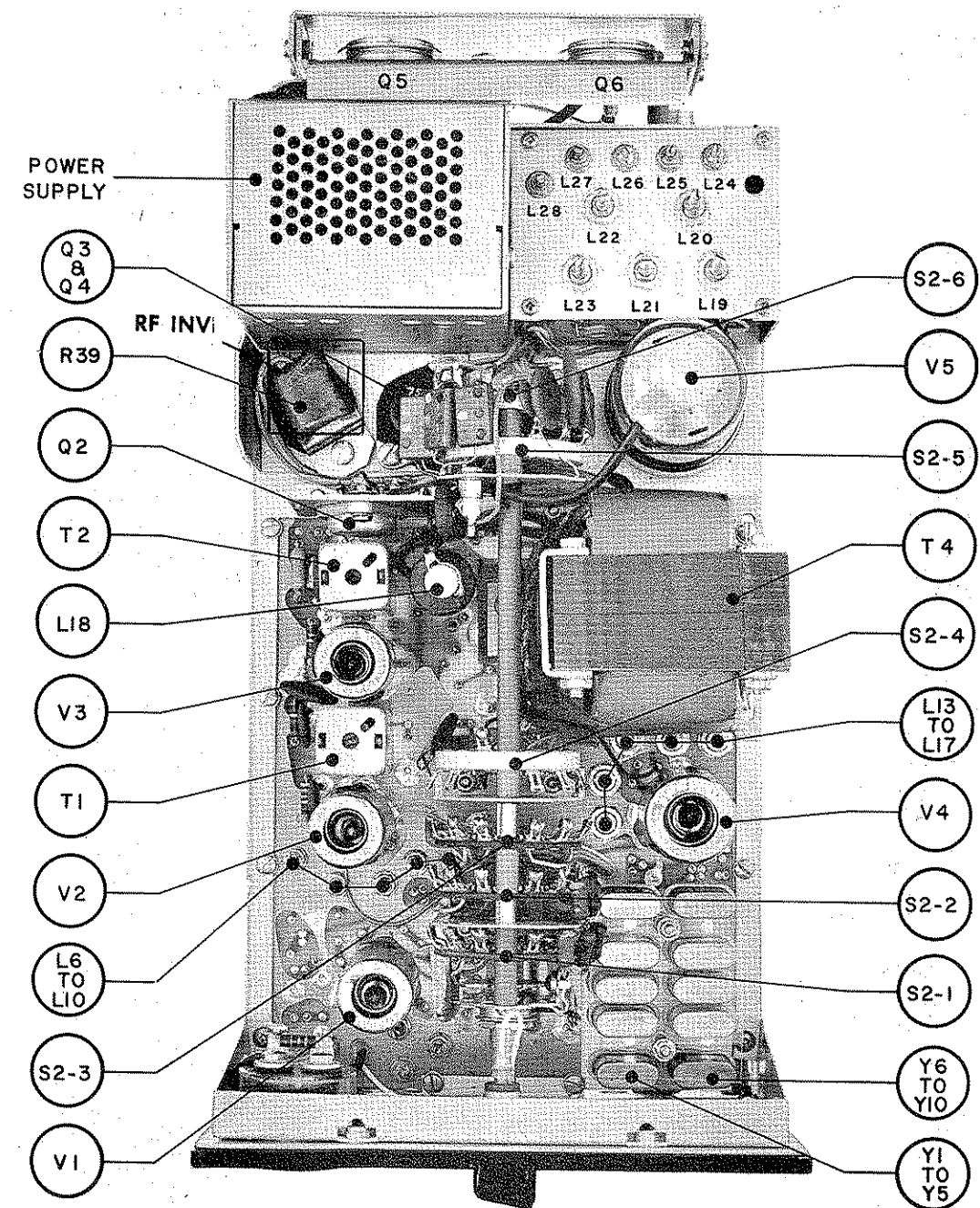


FIGURE NO.25  
T-5 DA, TOP VIEW

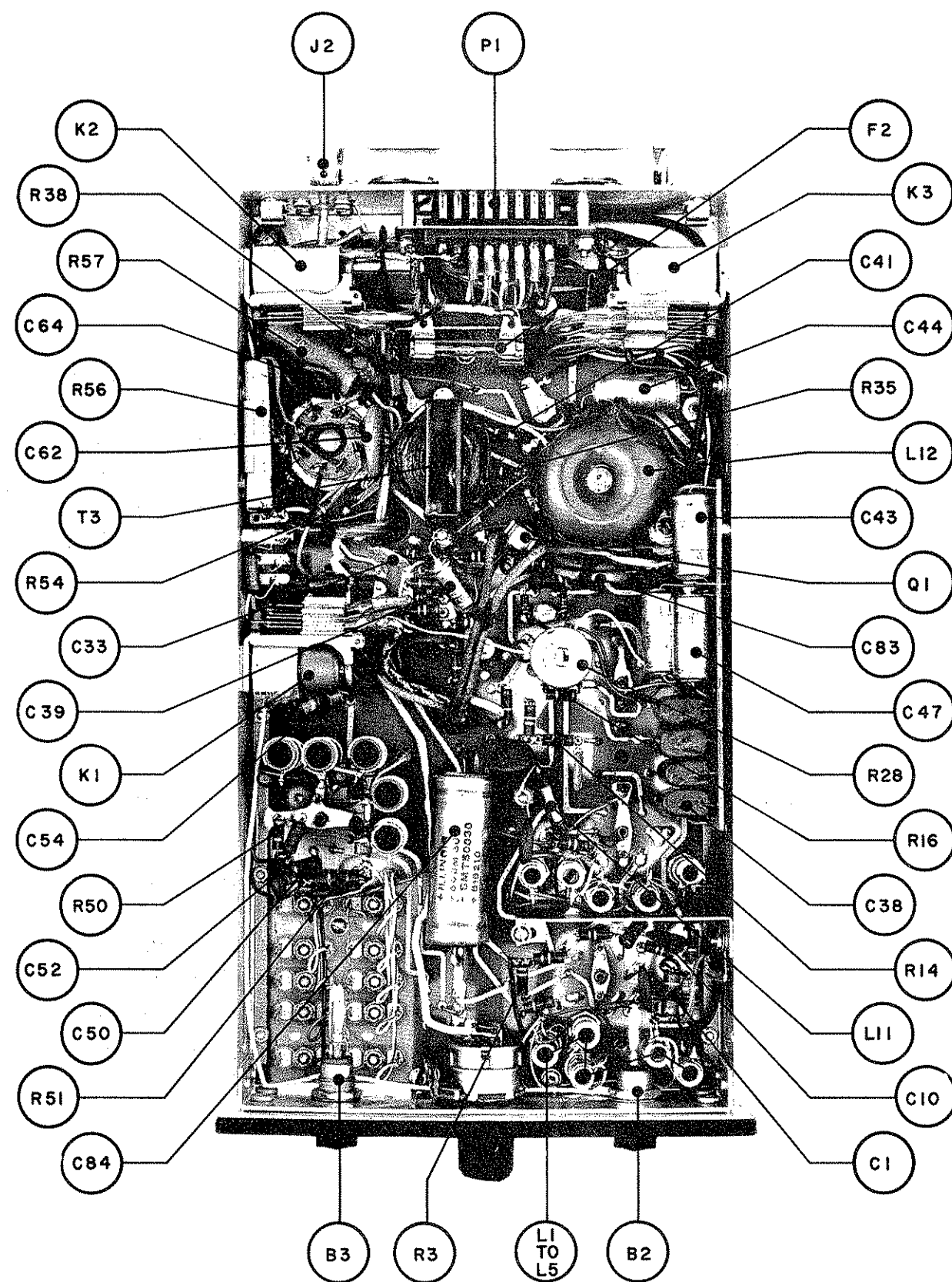
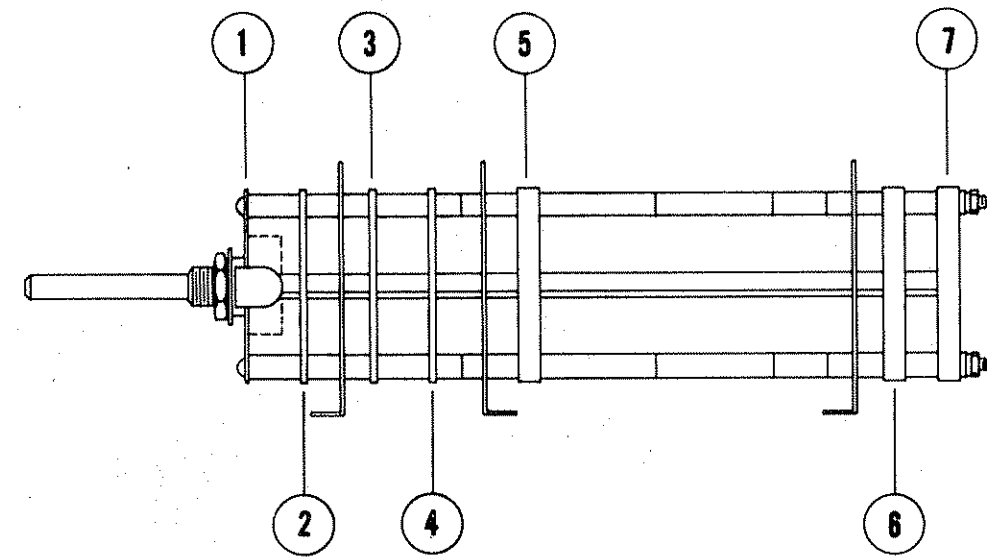
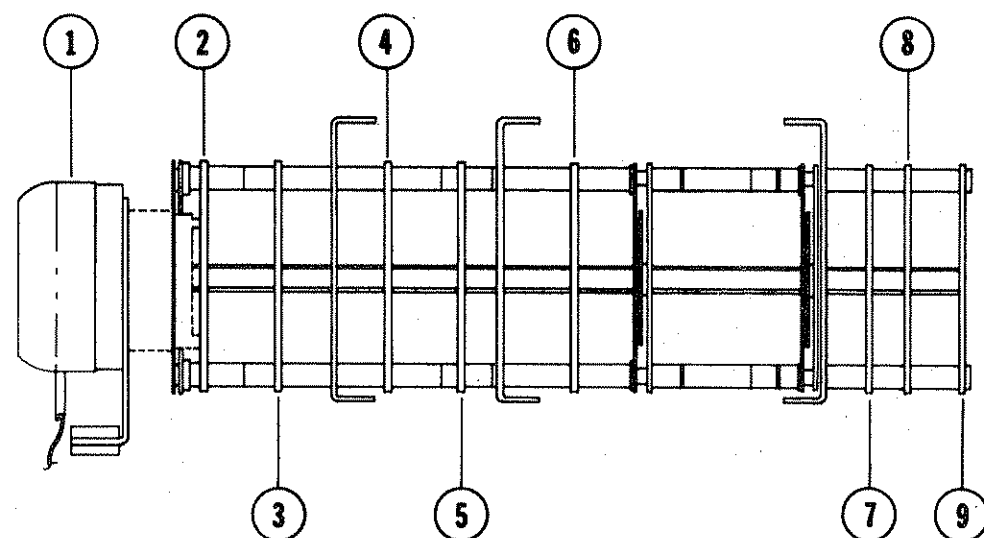


FIGURE NO. 26  
T-5 DA, BOTTOM VIEW



ITEM	CKT. SYM.	DESCRIPTION
1.		Switch Detent
2.	S2-1	R. F. Amp Coil and Capacitor Selector
3.	S2-2	Mixer Coil and Capacitor Selector
4.	S2-3	Transmitter and Receiver Crystal Selector
5.	S2-4	Transmitter Buffer Coil and Capacitor Selector
6.	S2-5	P. I. Network Input and Remote Load Channeling Selector
7.	S2-6	P. I. Network Input and Output Selector





ITEM	CKT. SYM.	DESCRIPTION
1.		Channeling Solenoid
2.	S1-8	Solenoid Homing Wafer
3.	S1-1	R. F. Amp Coil and Capacitor Selector
4.	S1-2	Mixer Coil and Capacitor Selector
5.	S1-3A and B	Transmitter Buffer Coil and Capacitor Selector
6.	S1-5	Transmitter Buffer Coil and Capacitor Selector
7.	S1-6	P. I. Network Input and Output Selector
8.	S1-7	P. I. Network Input Capacitor and Antenna Trap Selector
9.	S1-9	Terminal for Trap Capacitors and Wires to Trap Coils

FIGURE NO.28  
DIAGRAM, T-5 RA, SWITCHING

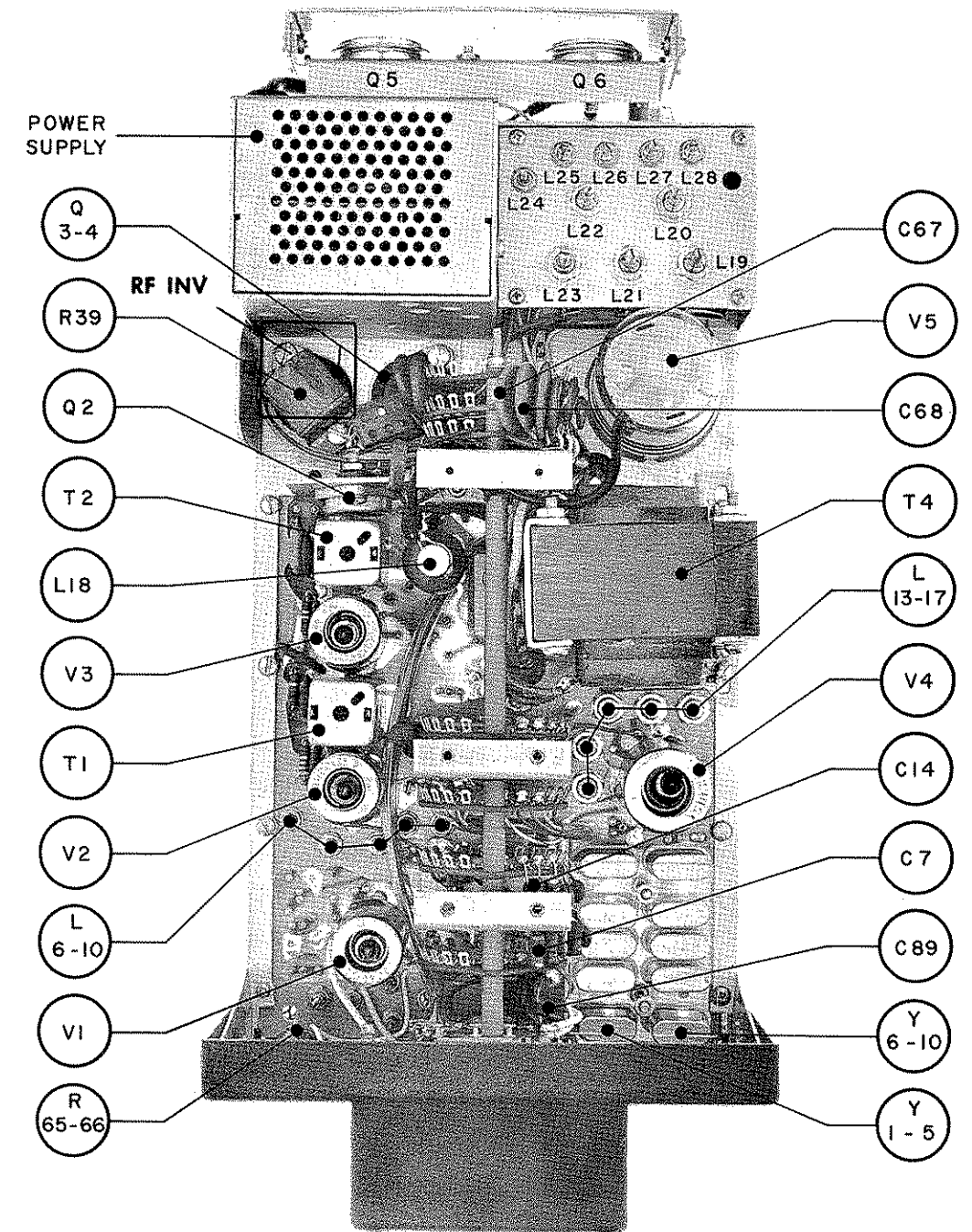


FIGURE NO.29  
T-5-RA, TOP VIEW

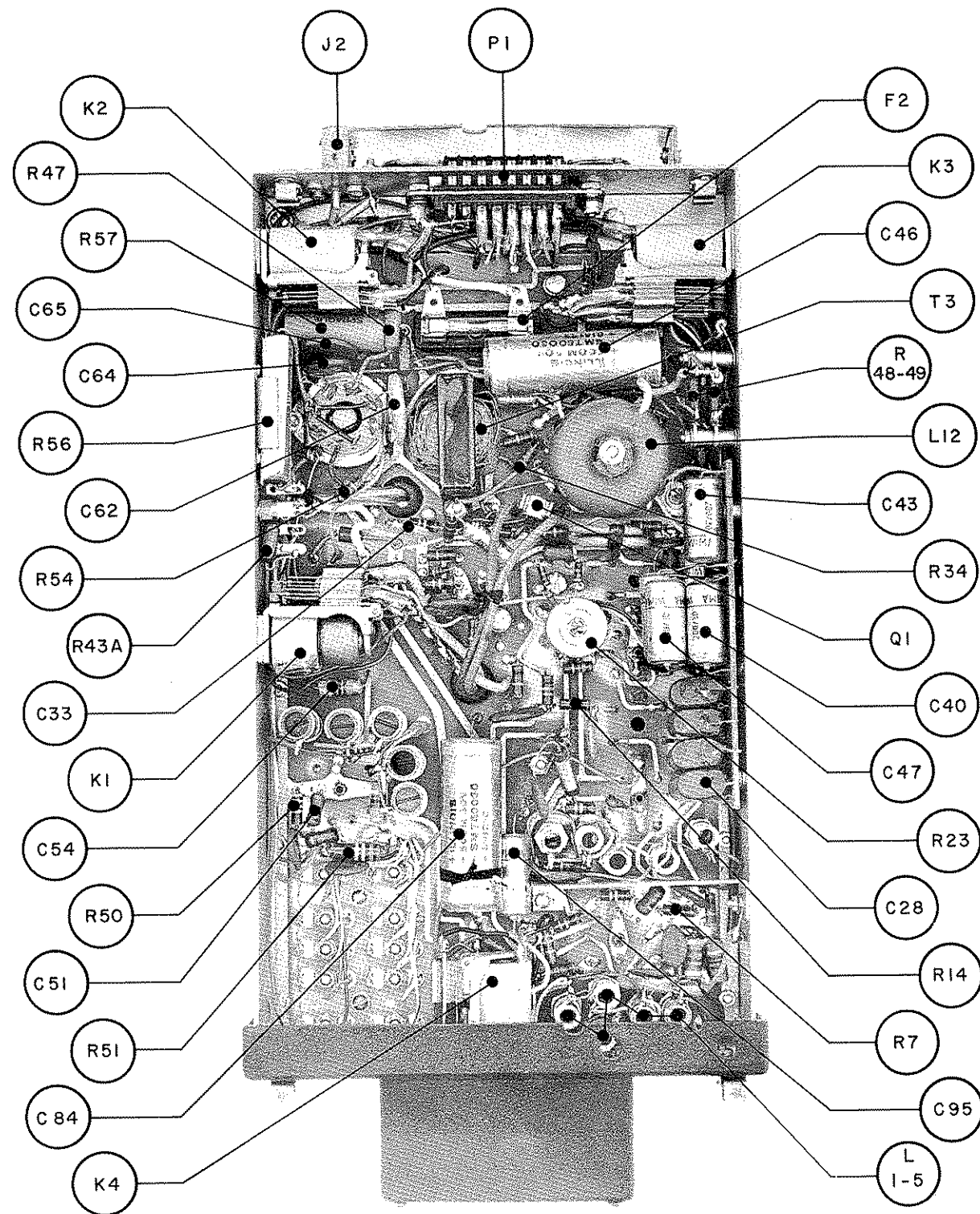


FIGURE NO.30  
T-5-RA, BOTTOM VIEW

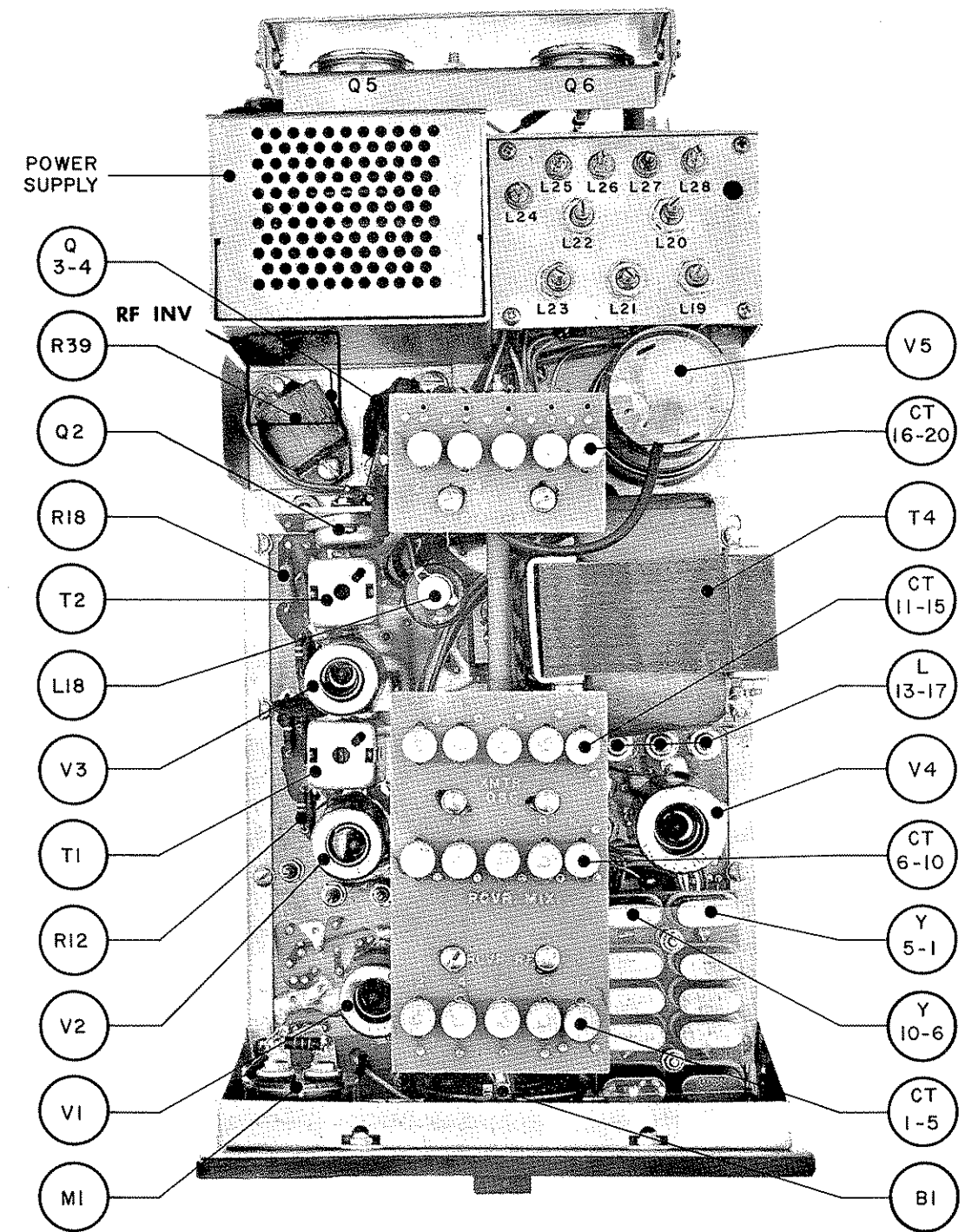


FIGURE NO. 31  
T-10-D, TOP VIEW

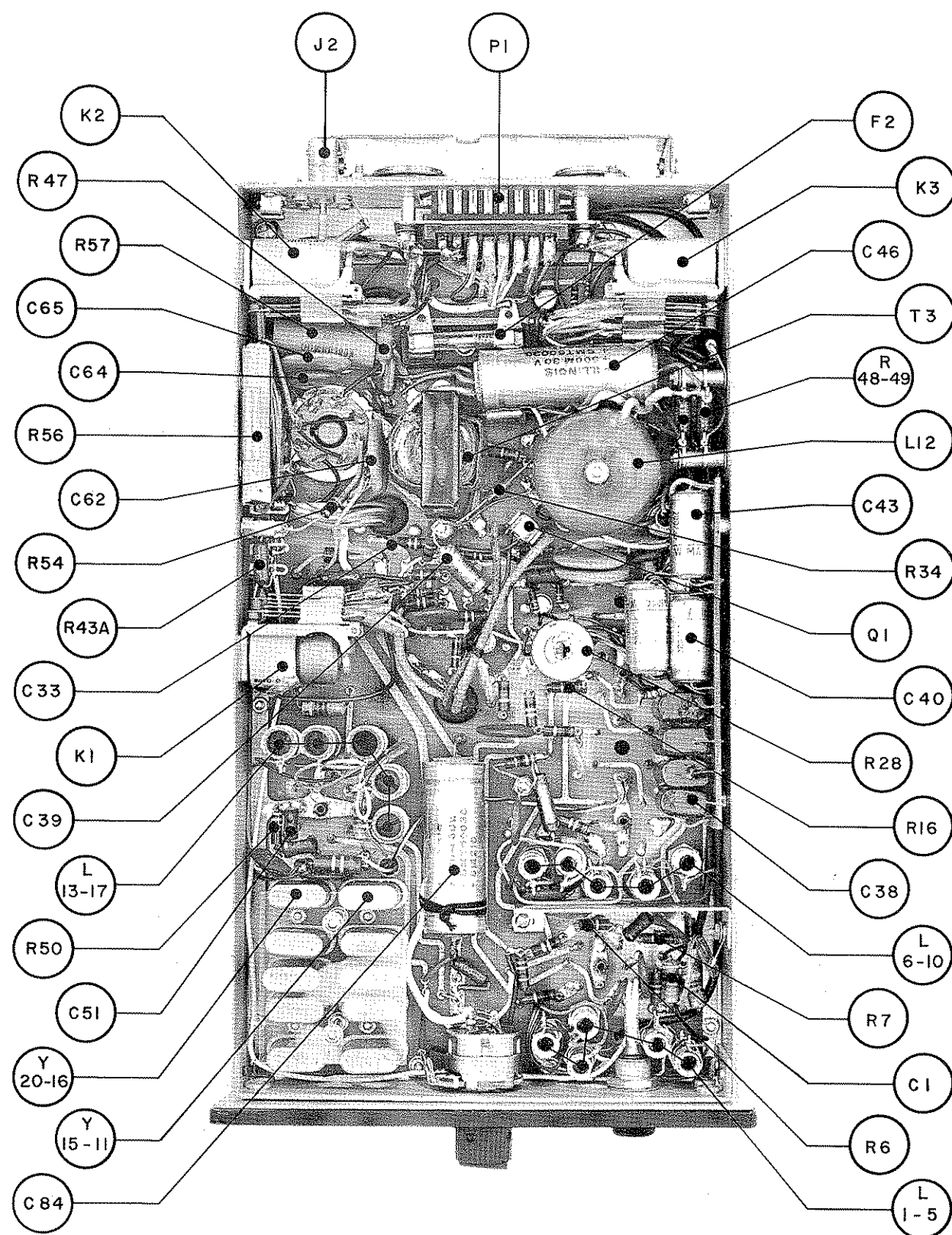
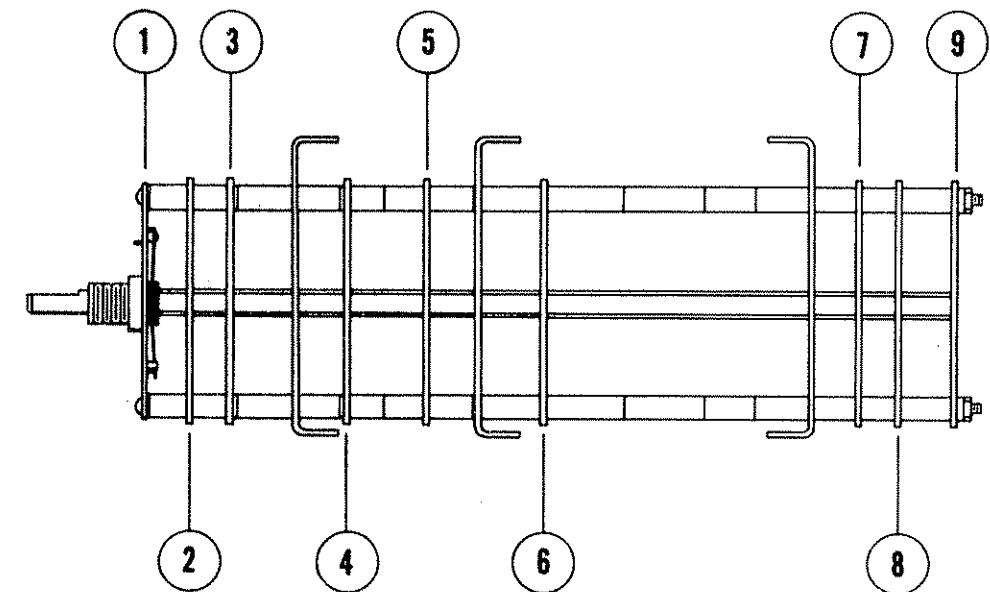
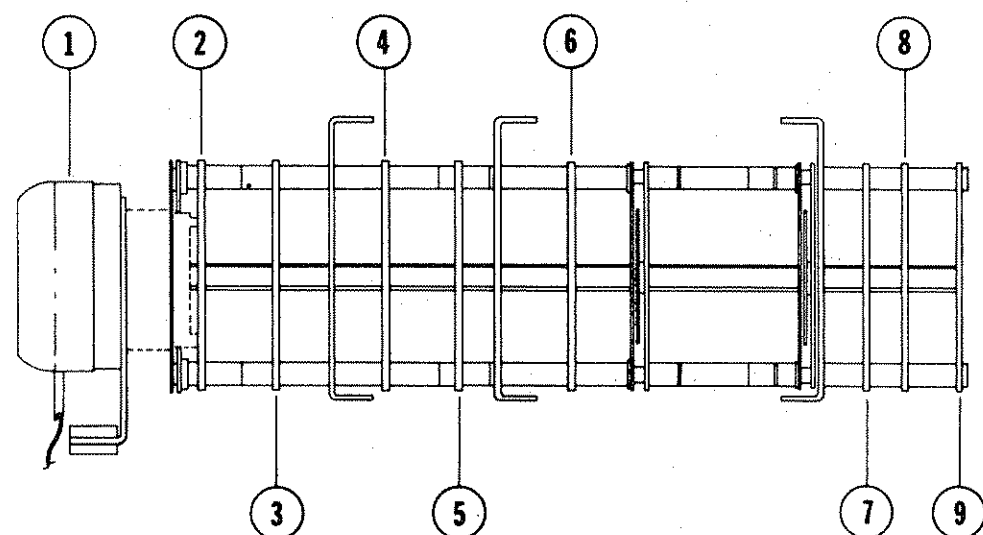


FIGURE NO.32  
T-10-D, BOTTOM VIEW



ITEM	CKT. SYM.	DESCRIPTION
1.		Switch Detent
2.	S1-8	Remote Load Unit Channeling Wafer
3.	S1-1	R. F. Amp Coil and Capacitor Selector
4.	S1-2	Mixer Coil and Capacitor Selector
5.	S1-3A and B	Transmitter and Receiver Crystal Selector
6.	S1-5	Transmitter Buffer Coil and Capacitor Selector
7.	S1-6	P. I. Network Input and Output Selector
8.	S1-7	P. I. Network Input Capacitor and Antenna Trap Selector
9.	S1-9	Terminal for Trap Capacitors and Wires to Trap Coils



ITEM	CKT. SYM.	DESCRIPTION
1.		Channeling Solenoid
2.	S1-8	Solenoid Homing Wafer
3.	S1-1	R. F. Amp Coil and Capacitor Selector
4.	S1-2	Mixer Coil and Capacitor Selector
5.	S1-3A and B	Transmitter Buffer Coil and Capacitor Selector
6.	S1-5	Transmitter Buffer Coil and Capacitor Selector
7.	S1-6	P. I. Network Input and Output Selector
8.	S1-7	P. I. Network Input Capacitor and Antenna Trap Selector
9.	S1-9	Terminal for Trap Capacitors and Wires to Trap Coils

FIGURE NO. 34  
DIAGRAM, T-10R, SWITCHING

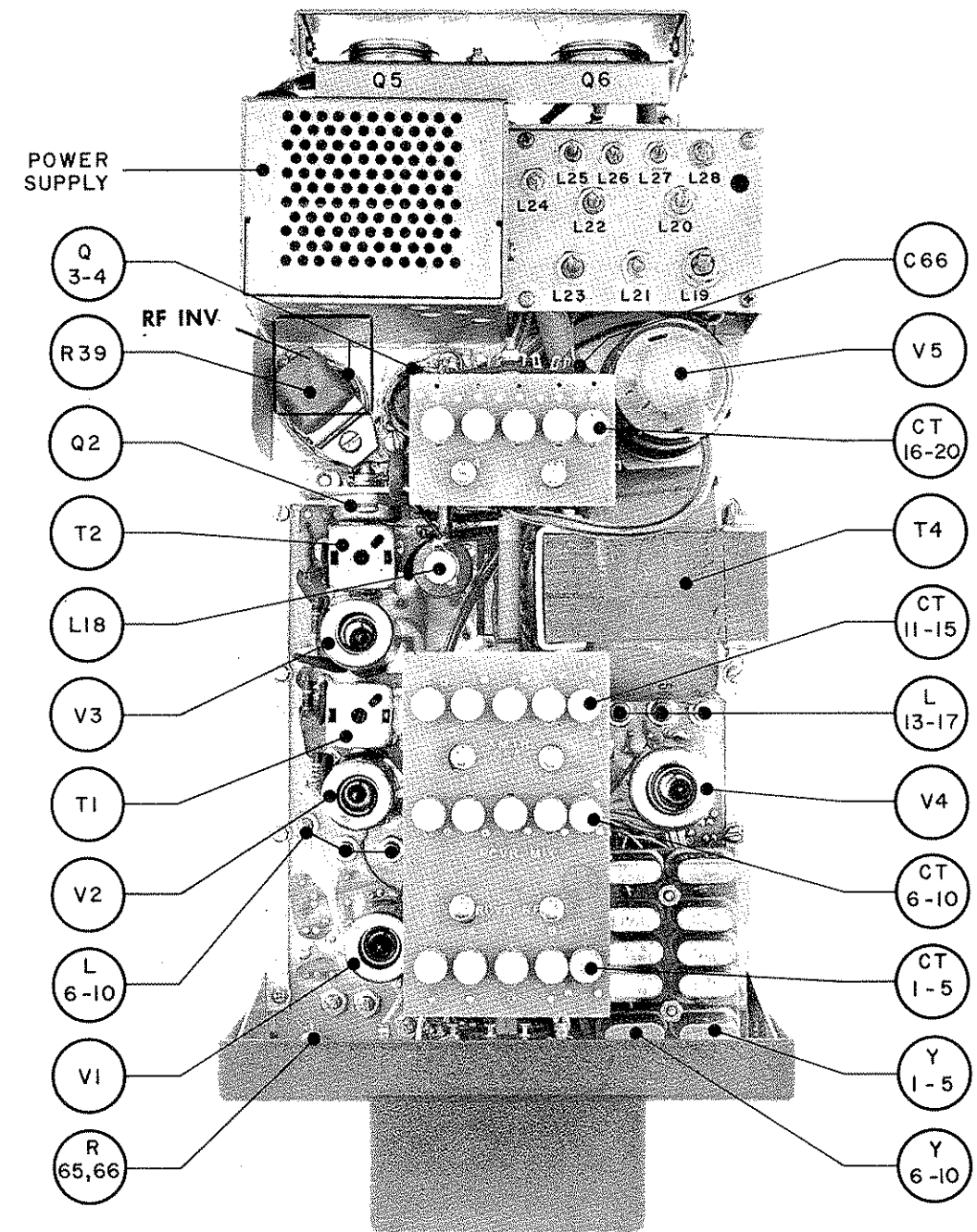


FIGURE NO.35  
T-10R, TOP VIEW



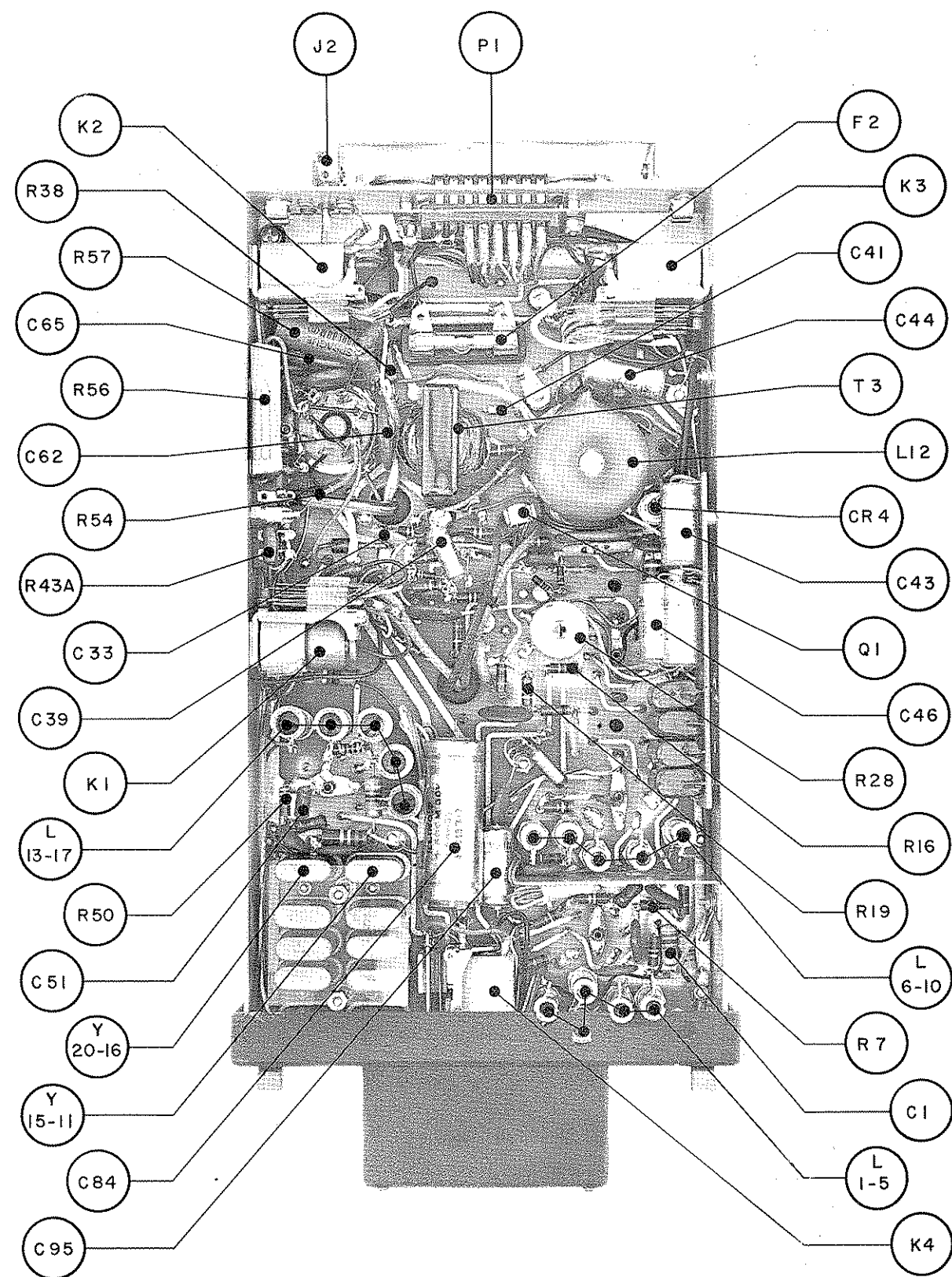


FIGURE NO.36  
T-10R, BOTTOM VIEW

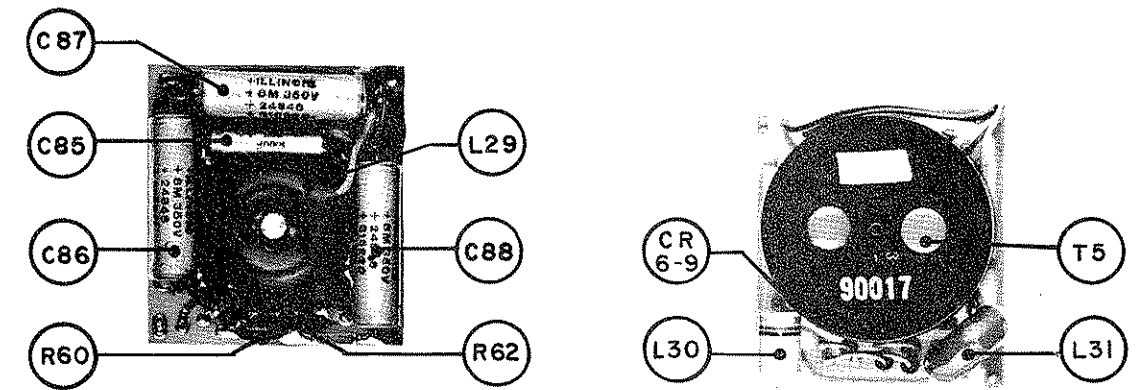


FIGURE NO. 37  
POWER SUPPLY, P.C. BOARD

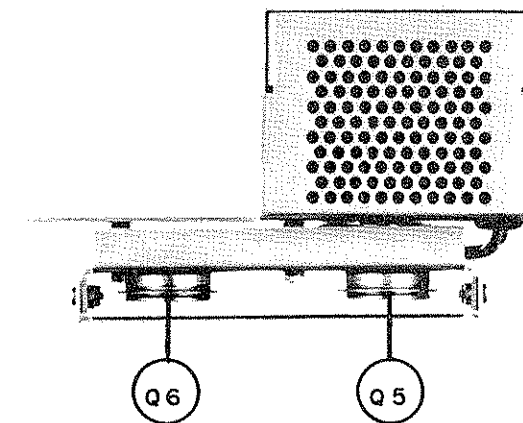


FIGURE NO. 38  
POWER SUPPLY

The transistorized power supply is located in the rear of the main chassis. AC voltage is generated by the oscillation of transistors Q5 and Q6 producing a square wave at 1500 Hz. The AC voltage appearing on the secondary of transformer T6 is rectified by a bridge-type rectifier comprised of diodes CR6 through CR9. One-half of this high voltage is obtained from the secondary center tap and is used to operate the receiver, the transmitter crystal oscillator and buffer. Both circuits are well filtered to eliminate any noise or hum that might be prevalent in the output.

The SunAir-designed 10-Channel Test Set is a compact, easy-to-use servicing unit. Ordinary bulky test panels and intricate wiring are outmoded by this unit.

This test set, when used with a high-frequency wattmeter, a vacuum tube voltmeter and a high-frequency signal generator, is recommended for complete servicing of all SunAir 10-channel transceivers.

The test set is 7¼ inches wide, 5½ inches deep and 4¾ inches high. It has an aluminum front panel and a black finished dust cover.

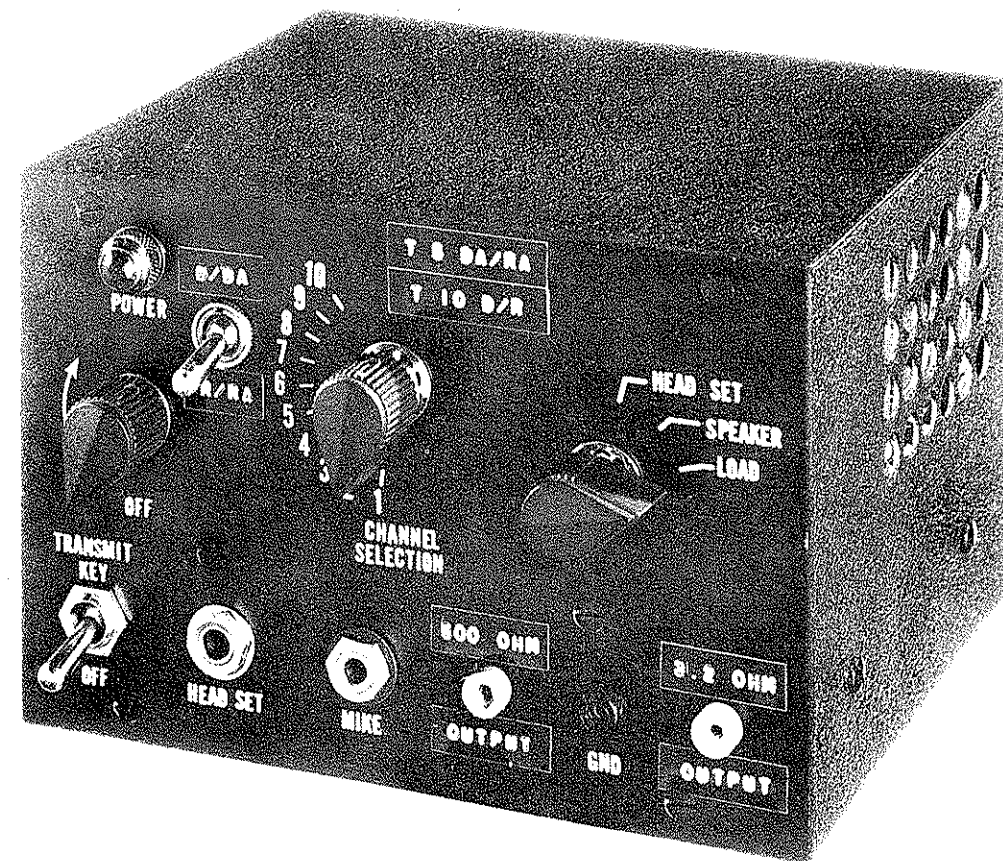
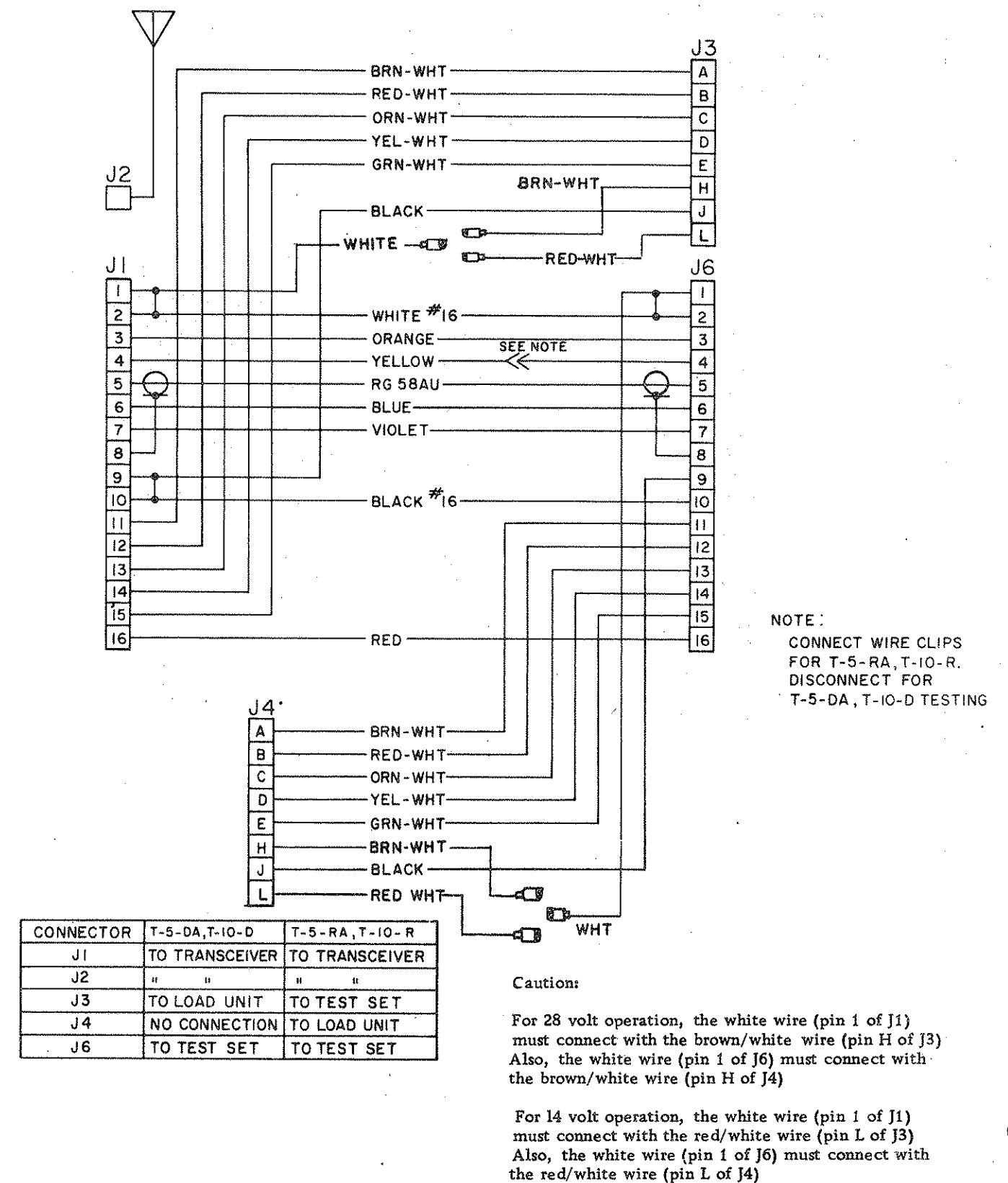


FIGURE NO.39  
TEST SET



**FIGURE NO. 40**  
**TEST SET, CABLING**

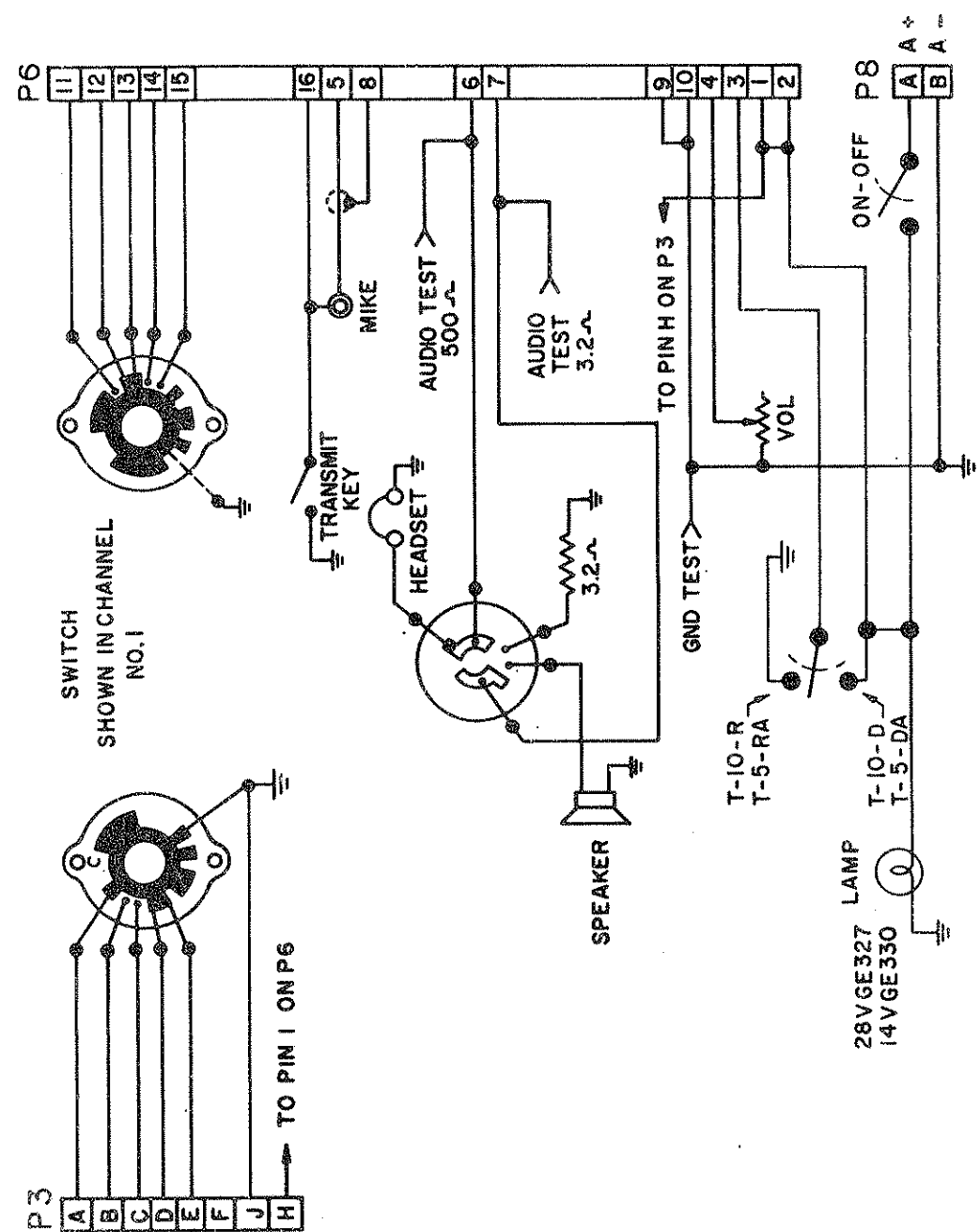


FIGURE NO. 41  
SCHEMATIC, TEST SET

CKT. SYM.	PART NO.	DESCRIPTION	CKT. SYM.	PART NO.	DESCRIPTION
L1		Frequency Dependent. See Fig. 2	R37	16334	Resistor, Wire wound 15 ohm 3W
Thru	-		R38	16279	" " " 1K "
L10			R39	93382	(14V) Thermistor & bracket
L11	63600	Choke, 33 uh	R40	17924	Resistor, wire wound 3 ohm 3W
L12	93760	" .7 mh	R41	-	Selected Value, WW, 1-10K "
L13			R42	16281	Resistor, Wire wound 450 ohm 3W
Thru	"	Frequency Dependent. See Fig. 2	R42A	"	" " " " "
L17			R43	"	" " " " "
L18	56061	Choke, 2.5 mh	R43A	"	" " " " "
L19			R44	-	Selected value, WW 400-2K "
Thru	-	Frequency Dependent. See Fig.2	R45		Unassigned
L28			R46	16279	(28V) Resistor, wire wound 1K "
L29	93734	(14V) Choke, .4 mh	R47	16243	(28V) " " " 1.5 ohm 3W
L29	93746	(28V) " 1.35 mh	R48	16968	" " " 1.0 ohm 10W
L30	56152	" 10.0 mh	R49	"	" " " " "
L31	93722	" 400 mh	R50	16695	Resistor, Comp. 33K 1/2W
M1	98112	Meter, Reflected Power	R51	16504	" " 27K 1W
Q1	44056	Transistor, 2N1379	R52	16683	" " 47K 1/2W
Q2	44135	" 2N669	R53	16798	" " 470 ohm "
Q3	44018	" 2N1165	R54	16633	" " 1 meg "
Q4	"	" "	R55	16504	" " 27K 1W
Q5	44044	(14V) " 2N277	R56	16152	" Wire wound 100 ohm 10W
Q5	44020	(28V) " 2N174	R57	16009	" " " 30K 5W
Q6	44044	(14V) " 2N277	R58	16463	" Comp. 470K 1W
Q6	44020	(28V) " 2N174	R59	16748	" " 1K 1/2W
R1	16712	Resistor, Comp. 22K 1/2W	R60	16281	(14V) Resistor, Wire wound 450 ohm 3W
R2	16633	" " 1.0 meg "	R60	16279	(28V) " " " 1K "
R3	16774	" " 68 ohms "	R61	16322	(14V) " " " 10 ohm "
R4	16671	" " 100K "	R62	16310	" " " 40 ohm "
R5	16712	" " 22K "	R63	16308	(28V) " " " 100 ohm "
R6	"	" " " "	R64	17027	" Comp. 1 ohm 1W
R7	16695	" " 33K "	R65	16968	" Wire wound 1 ohm 10W
R8	16748	" " 1K "	R66	"	" " " " "
R9	16633	" " 1.0 meg "	S1	32261	Pwr Switch (Rear Part of R15)
R10	16671	" " 100K "	S1-1		
R11	16774	" " 68 ohms "	Thru	32314	Switch Wafer
R12	16683	" " 47K "	S1-7		
R13	16748	" " 1K "	S1-8	32417	(T-5-RA, T-10-R) Switch Wafer
R14	16633	" " 1 meg "	S1-8	32209	(T-10-D) " "
R15	32261	" Variable 2500 ohm	S1-9	32211	Switch Wafer
R16	16762	" Comp. 270 ohm 1/2W	S2-1		
R17	16671	" " 100K "	Thru	32182	" "
R18	16059	" Wire wound 4.7K 3W	S2-3		
R19	16671	" Comp. 100K 1/2W	S2-4	32156	" "
R20	16633	" " 1 meg "	S2-5	32168	" "
R21	16645	" " 470K "	S2-6	"	" "
R22	16633	" " 1 meg "	T1	48038	Transformer, 1st I.F.
R23	16671	" " 100K "	T2	48040	" 2nd I.F.
R24	16633	" " 1 meg "	T3	48181	" Audio input
R25	17663	" " 680 ohm 1/4W	T4	48832	" " output
R26	17118	" " 100 ohm "	T4	48650	(Replaced by 48832)
R27	17429	" " 56 ohm "	T5	90029	(14V) Transformer, Power/PC Board
R28	32455	" Variable 250 ohm 1W	T5	90031	(28V) " " " "
R29	-	Select Value, Comp. 330K-1meg 1/2W	V1	76217	Tube, Electron, 12BA6
R30	16231	Resistor, Comp. 220K 1/2W	V2	76205	" " 12BE6
R31	16578	" " 2.7K "	V3	76217	" " 12BA6
R32	16748	" " 1K "	V4	76190	" " 12BH7A
R33	16530	(28V) " 330 ohm 1W	V5	76669	(14V) " 6883B
R34	17285	Resistor, Comp 220 ohm 1/2W	V5	76231	(28V) " 6159
R35	17596	" " 1.2K "	Y1		Quartz Crystal Units, Freq. 2000-18,000
R36	16322	(14V) " Wire wound 10 ohm 3W	Thru	80036	kHz (Specify Receive or Transmit)
R36	16310	(28V) " " 40 ohm "	Y20		

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION	CKT. SYM.	PART NO.	DESCRIPTION
B1	84367	(14V) Light Bulb, Type 330	C64	24381	Capacitor, Disc. 1500 pf 3KV
B1	84355	(28V) " " " 327	C65	24410	" " .01 uf 1.4KV
B2	84367	(14V) " " " 330	C66	25945	" " 30 pf 3KV
B2	84355	(28V) " " " 327	C67		
B3	84367	(14V) " " " 330	Thru	-	Frequency dependent. See Fig. 2
B3	84355	(28V) " " " 327	C81		
C1	24238	Capacitor, Tubular 250 pf, 500V	C82	24410	Capacitor, Disc. .01 uf 1.4KV
C2	24197	" Radial 510 pf, "	C83	25206	" " .05 uf 1.0KV
C3			C84	24537	" Elect 500 uf 30V
Thru	-	Frequency dependent. See Fig. 2	C85	25165	(14V) " " 400 uf 15V
C7			C85	25816	(28V) " " 200 uf 30V
C8	24408	Capacitor, Disc. .1 uf, 75V	C86	24848	" " 8 uf 350V
C9	24355	" " .01 uf, 500V	C87	"	" " " "
C10	"	" " " "	C88	"	" " " "
C11	"	" " " "	C89	25725	" Tubular .47 uf 250V
C12	"	" " " "			
C13	24329	" Radial 12 pf "	C94	25725	" Tubular .47 uf 250V
C14			C95	25880	" Elect. 100 uf 30V
Thru		Frequency dependent. See Fig. 2			
C18			CT1		
C19	-	Selected Value, 5-50 pf, 500V	Thru	26315	Capacitor, Variable, 10-40 pf
C20	24006	Capacitor, Disc. 330 pf, "	CT20		
C21	24355	" " .01 uf "			
C22	25050	" " 22 pf, 1000V	CR1	40127	Diode, CSD-2648
C23	24355	" " .01 uf 500V	CR2	40141	" 1N461
C24	"	" " " "	CR3	40127	" CSD-2648
C25	25103	" " .005 uf 1000V	CR4	40177	(14V)" 1N2974A
C26	24355	" " .01 uf 500V	CR4	40189	(28V)" 1N2986B
C27	24408	" " .1 uf 75V	CR5	40127	" CSD-2648
C28	24355	" " .01 uf 500V	CR6	40103	" CER-73
C29	"	" " " "	CR7	"	" " "
C30	24305	" Radial 32 pf "	CR8	"	" " "
C31	24018	" Disc 220 pf "	CR9	"	" " "
C32	"	" " " "	CR10	40232	" 1N746
C33	25103	" " .005 uf 1000V	CR11	"	" " "
C34	24408	" " 1 uf 75V	CR12	40165	" 1N534
C35	25830	(28V) " Met. Paper 1.0 uf 250V	CR13	40220	" 1N4755
C36	"	" " " "			
C37	"	" " " "	F1	86767	(14V) Fuse, 8 amp
C38	"	" " " "	F1	86107	(28V)" 5 "
C39	25153	" Elect. 10 uf 30V	F2	86030	(14V)" 20 "
C40	25816	(28V) " " 200 uf 30V	F2	84874	(28V)" 15 "
C41	24836	" " 2.2 uf 35V			
C42	25799	(14V) " " 100 uf 15V	J1	74099	Connector, 16 pin (Chassis)
C42	25816	(28V) " " 200 uf 30V		74087	" Mate for J1 (Cable)
C43	"	" " " "	J2	76310	Connector, Type BNC (Chassis)
C44	25165	(14V) " " 400 uf 15V		74403	" Mate for J2 (Cable)
C45	24393	" Disc. .05 uf 75V			
C46	24537	(28V) " Elect. 500 uf 30V	K1	66080	(14V) Relay, 3 PDT
C47	25816	" " 200 uf "	K1	66236	(28V) " 3 "
C48	"	" " " "	K2	66066	(14V) " S "
C49	-	(Unassigned)	K2	66250	(28V) " S "
C50	24329	Capacitor, Radial 12 pf 500V	K3	66078	(14V) " 3 "
C51	24305	" " 32 pf "	K3	66248	(28V) " 3 "
C52	24355	" Disc. .01 pf "	K4	66016	(14V) " S "
C53	24240	" Axial 100 pf "	K4	66004	(28V) " S "
C54	"	" " " "			
C55					
Thru	-	Frequency dependent. See Fig. 2	KR1	32285	Solenoid, Rotary Selector
C59					
C60	25355	Capacitor, Disc. .01 uf 500V			
C61	"	" " " "			
C62	24367	" " .05 uf "			
C63	24381	" " 1500 pf 3KV			

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION	CKT. SYM.	PART NO.	DESCRIPTION
		RF Inverter, P/N 98863			SCU-50 (T-5) SUPPLEMENT
C501	26054	Capacitor 22 pf		87125	Filter, Lamp, Red (99892 & 99890)
C502	27321	Capacitor .01 uf		87137	Filter, Lamp, Blu/Wht (99893 & 99891)
C503	27321	Capacitor .01 uf			
C504	27321	Capacitor .01 uf			SCU-51 (T-10) SUPPLEMENT
C505	26054	Capacitor 22 pf			
CR501	44290	Diode 1N914		87125	Filter, Lamp, Red (99900 & 99898)
CR502	44290	Diode 1N914		87137	Filter, Lamp, Blu/Wht (99901 & 99899)
L501	63911	Choke 56 uh			
L502	63911	Choke 56 uh			
R501	17429	Resistor 56 ohm 1/4W			
R502	17807	" 2.2K 1/4W			
R503	17429	" 56 ohm 1/4W			
R504	17807	" 2.2K 1/4W			
R505	17429	" 56 ohm 1/4W			
R506	17429	" 56 ohm 1/4W			
		SCU-50 Control Head (T-5) P/N 99893, 99892, 99891 & 99890			
S-1A & IB R1	32261	Potentiometer With Swi tch			
R3	17273	Resistor 150 ohm 1/4W			
SW 162	32209	Wafer, Switch			
C1	27357	Capacitor .05 uf 25V			
M1	87010	Meter			
J3	74491	Connector			
P3	74506	Connector			
B1 & 2	87149	Lamp, Meter, Clear			
B3	87149	Lamp, Dial, Clear			
	87125	Filter, Lamp, Red			
	87137	Filter, Lamp, Blue-White			
		SCU-51 Control Head (T-10) P/N 99901, 99900, 99899 & 99898			
S-1A & IB R1	32261	Potentiometer With Swi tch			
R3	17273	Resistor 150 ohm 1/4W			
SW162	32209	Wafer, Switch			
C1	27357	Capacitor .05 uf 25V			
M1	87010	Meter			
J3	74491	Connector			
P3	74506	Connector			
B1 & 2	87149	Lamp, Meter, Clear			
B33	87149	Lamp, Di al, Clear			
	87125	Filter, Lamp, Red			
	87137	Filter, Lamp, Blue-White			
	90859	Meter, RF Indicator			



RECOMMENDED SPARE PARTS LIST

Quantity Required for supporting indicated numbers of units per year				MODEL T-5-DA, T-5-RA, T-10-D, T-10-R		Voltage 14 & 28	October 29, 1968	
1	5	10	25	SunAir P/N	Description	Unit Price	Total Price	
1				25165	Capacitor			
1				24381	Capacitor			
1				24537	Capacitor			
2				24408	Capacitor			
2				25830	Capacitor			
2				25816	Capacitor			
1				25799	Capacitor			
1				24006	Capacitor			
2				24018	Capacitor			
1				24197	Capacitor			
1				24238	Capacitor			
2				24240	Capacitor			
1				24252	Capacitor			
1				24305	Capacitor			
2				24329	Capacitor			
4				24355	Capacitor			
2				24367	Capacitor			
1				24381	Capacitor			
1				24393	Capacitor			
2				24410	Capacitor			
1				25050	Capacitor			
2				25103	Capacitor			
1				25153	Capacitor			
1				25945	Capacitor			

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## RECOMMENDED SPARE PARTS LIST

[illegible]



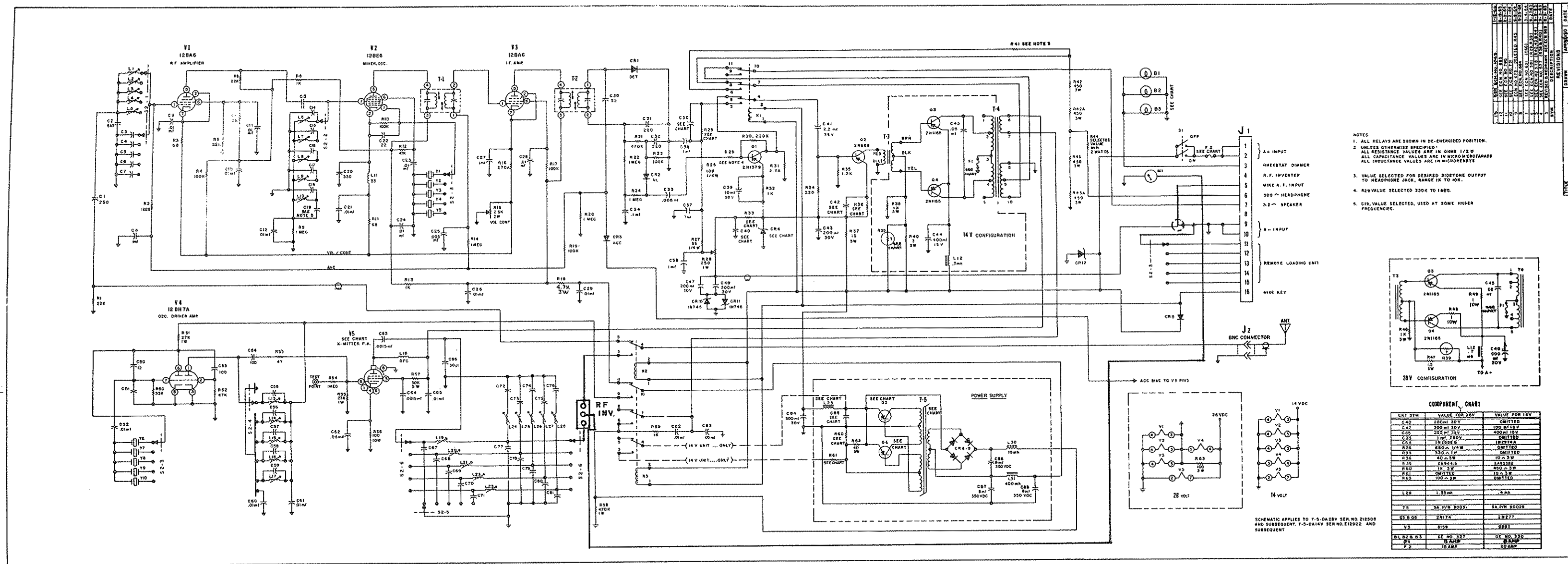


FIGURE NO. 42  
SCHEMATIC, T-5 DA



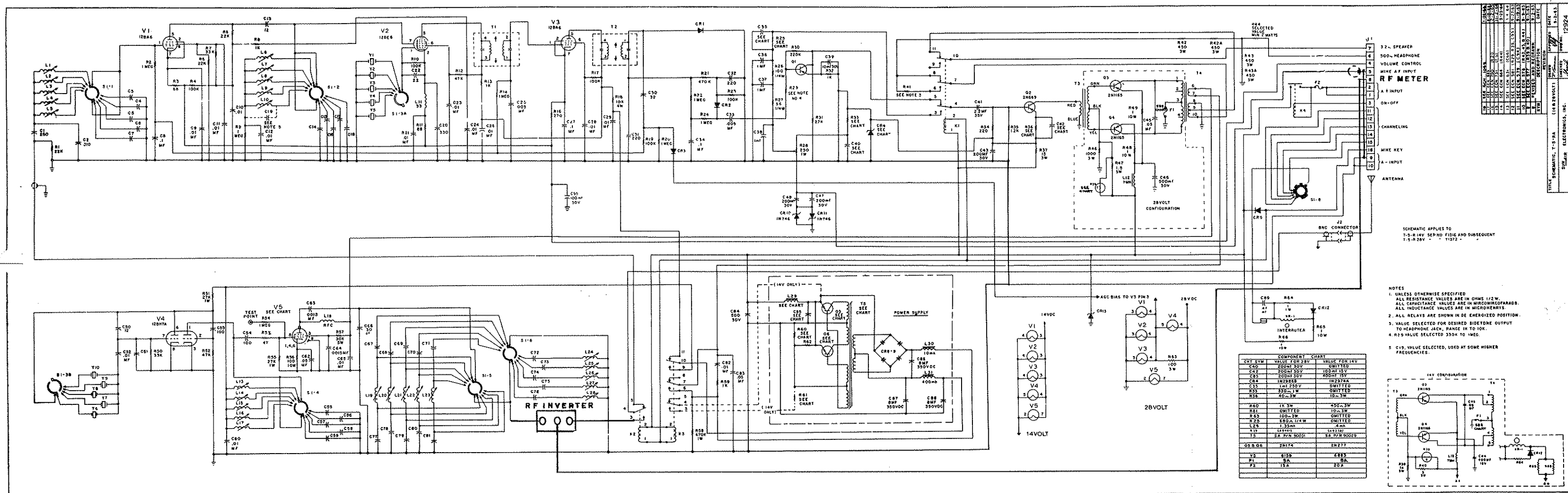


FIGURE NO.43  
SCHEMATIC, T-5 RA





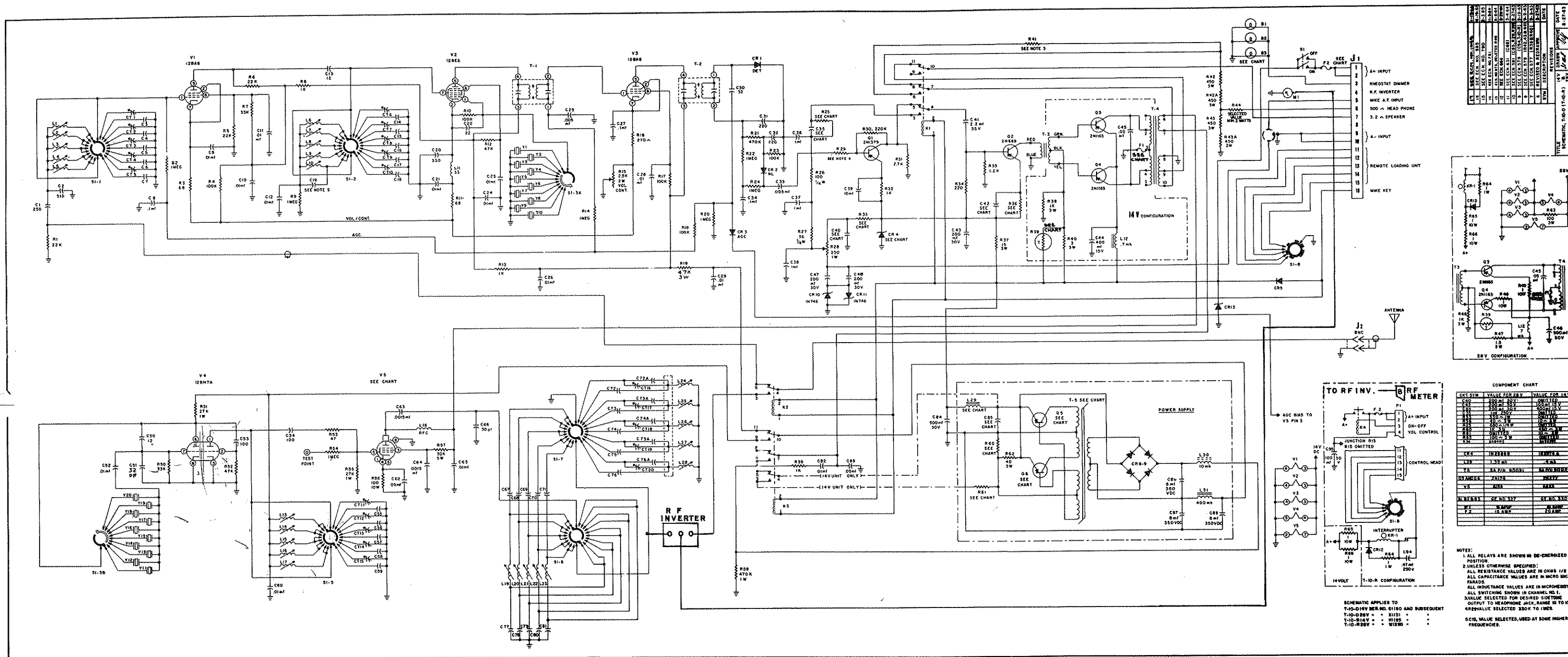


FIGURE NO. 44  
SCHEMATIC, T-10D/T-10R

11-11-11