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SECTION I

PURPOSE:

The SUNAIR T-5-D and T-5-R High Frequency Transceivers are designed for airborne communications.

SPECIFICATIONS:

Tube Complement:

RECEIVER		TRANSMITTER	
12BA6	R.F. Amplifier	12BH7	Oscillator-Amp.
12BE6	Mixer Oscillator	6883	Power Amplifier
12BA6	IF Amplifier	6883	Modulator
6T8	2nd Det.- Audio		
6AQ5	Audio Amplifier		

FREQUENCY RANGE: 2-12mc., 5Channel, Crystal Controlled.

TRANSMITTER OUTPUT: 35 watts.

POWER REQUIREMENTS: 28 Volts @ 2 Amp. Receive
4.7 Amp. Transmit
14 Volts @ 4 Amp. Receive
9.4 Amp. Transmit

SENSITIVITY: 5 Microvolt Input For .3 watts Out.

AUDIO OUTPUT 500 ohm Headphone, 3.2 ohm speaker

DIMENSIONS: T-5-D (6 1/4" Wide x 5 1/8" High x 13" Deep
T-5-R (6 1/4"Wide x 6 5/8' High (Including Shock Mounts) x 13" Deep

WEIGHT:
T-5-D----------10 1/2lbs.
T-5-R----------12 3/4lbs.

SECTION 1

Equipment Supplied

The following items are supplied with the T-5-D and the T-5-R.

"T-5-D"

Quantity	Description	Part No.
1	T-5-D Transceiver with Dust Cover and Cables 14 Volt	1001-14
1	28 Volt	1001-28
1	RF Inverter Assembly/with Connectors	1-4
1	Technical Manual	T-3

"T-5-R"

1	T-5-R Transceiver with Dust Cover Shock Mounts and Cables 14 Volt	4001-14
	28 Volt	4001-28
1	Remote Control Head	4002
1	R.F. Inverter Assembly	1-4
1	R.F. Tuning Meter	4003
1	Frequency Card Holder	4004
1	Technical Manual	T-3

OPTIONAL EQUIPMENT

1	Antenna Reel Kit - Manual	MR-1
1	Antenna Reel Kit - Electric 14 Volt	ER-14
1	28 Volt	ER-28
1	Remote Loading Unit - Manual (when using fixed Antenna)	ML-1
1	Remote Loading Unit - Electric 14 Volt	EL-14-5
1	28 Volt	EL-28-5

SECTION 1

Description

The SunAir T-5-D and T-5-R are designed to operate on any frequency between 2 mc and 12 mc inclusive. The models T-5-D and T-5-R are identical in all respects with the following exception:

T-5-D applies to the direct control model

T-5-R applies to the remote control model

The intermediate frequency amplifier section is aligned to the standard I.F. frequency of 455 kc. The receiver antenna input coils are mounted one above the other on a bracket just in back of the faceplate. The lower coil is the Channel 1 coil with Channel 2 coil mounted directly over number 1, etc., with Channel 5 coil being located at the top of the bracket.

The mixer coil for Channel 1 has a capacitor connected directly across the terminals. The capacitors for channel two, three, four and five are connected across two sections of the channel selector switch directly behind the 12BE6 mixer tube.

These capacitors can be identified as to their respective channel positions by the color of the wires connected to one end, which are connected to their respective coils. Coding is standard RMA and this coding is used throughout the transceiver for channel identification. BROWN - Channel One, RED - Channel Two, ORANGE - Channel Three, YELLOW - Channel Four, and GREEN - Channel Five.

The receiver mixer grid coils are located just above the crystal sockets with Channel One coil in the position nearest the front panel, with coil number two directly behind number one, etc. It will be noted from the drawing of the mixer circuit that all capacitors and coils not in use in a particular position of the channel selector switch, are disconnected from each other and from the mixer grid circuit. This is to prevent

possible absorbtion loss from the coil-capacitor combination that is in use. This practice is also followed in the P.A. circuit.

Tuning of the antenna input circuit is accomplished by tuning all coils for maximum, taking care to see that the signal generator is always adjusted to the lowest possible output level to give a sharp indication. A change in frequency will require changes in coil and capacitor combinations. This of course, will be necessary only when a frequency change has been made in the field, as all transceivers are tuned to the frequencies specified, when desired frequencies are stated at date of order.

The transmitter contains a crystal controlled Pierce Oscillator. The transmit crystals are switched by the channel selector switch common to the receiver. This same switch also selects the amplifier driver plate coil and the P.A. coil. Each P.A. coil has its own individually tuned harmonic trap.

One section of the 12BH7 (V6) functions as the oscillator, the other section as an amplifier driver. The amplifier driver is tuned in the plate circuit for each channel by coils L 11 through L 15 respectively. The amplifier driver output is capacitively coupled to the final amplifier V7. Cathode bias is employed in the P.A. for tube protection, should loss of excitation occur. The plate is tuned to resonance by coils L 16 through L 20 respectively in a Pi network coupling output to the antenna. Capacitors C54 through C58 are selected to give an impedance output of 52 ohms for the frequency in use.

Harmonic traps are employed for each channel to reduce harmonic radiation to fall within tolerance prescribed by FCC. Traps are tuned with coil L 25 through L 30 respectively.

The final amplifier is plate modulated by tube type 6883 (V8). A Heising modulator is employed. The microphone input in transformer coupled to the grid of the modulator and microphone voltage is obtained from the modulator cathode bias resistor.

Voltage readings from all stages of the transmitter are taken in unmodulated condition, with the transmitter operating on Channel No. 1, 3023.5 kc.

The power supplies used in the T-5-D and T-5-R transceivers are of the solid state design, using transistors for switching and operate with an efficiency of approximately 85%. Adequate filtering is included to eliminate undesirable interference of the 1.5 kc switching frequency.

The power supplies used in the T-5-D and T-5-R are identical. The exceptions in parts difference between the 14 volt and the 28 volt units are listed throughout the parts list.

CAUTION

Reversing polarity of the input voltage will result in transistor damage and will cause a direct short in the power supply.

SECTION II

Installation

RG-58-AU Coaxial Lead is employed for connecting the SunAir Transceiver to the reel type trailing wire antenna, or to the loading device, if a fixed antenna is used. The connecting wire between the loading coil and the antenna should be a well-insulated, unshielded type of shortest length possible. The voltage on this line can reach a very high value and breakdown will occur when using coaxial cable.

Satisfactory operation of a SunAir Transceiver is not possible from a fixed antenna only, and the exclusive use of same cannot be recommended unless limited operating range is considered adequate. No method of loading the SunAir transceiver to a fixed antenna is incorporated in the unit itself and if a fixed antenna is desired, some external method of loading must be provided. The maximum length of the fixed antenna will be dictated by the highest frequency to be employed in the SunAir Transceiver and should be any length shorter than a quarter wave length at this frequency, using the loading coil to resonate the fixed antenna to this frequency and the lower frequencies.

The coaxial lead employed between the SunAir Transceiver and the reel trailing wire antenna can be any length necessary for the installation involved.

IMPORTANT: The outside shield on the coaxial lead must be grounded at the transceiver by the proper attachment to the plug, and also must be grounded at or near the trailing wire antenna reel. If the fixed antenna is used, the shield must be grounded near the loading device.

SECTION II

Operation

The reel type trailing wire antenna provides the maximum possible performance for the SunAir Transceiver and must be used if long range operation is to be expected. No loading device is necessary where the reel type trailing wire antenna is employed, as the length of the trailing wire can be adjusted by the operator to represent a quarter wavelength at the frequency of the channel in use. Adjustment of the antenna to this point is accomplished by reeling out the antenna to the first position that gives maximum indication on the tuning meter, while the microphone button is depressed. After the operator becomes acquainted with the approximate number of turns off the reel for each frequency employed, it is possible to return to this position, then depress the microphone button and adjust for maximum indication on the tuning meter.

SECTION III

Alignment Procedure

Receiver: Alignment should be started with the IF section at the last tuned circuit, (the input section of the last IF transformer), then proceed toward the front end, tuning for maximum in each case. It will be necessary to keep the signal generator output to a minimum in order to prevent actuating the AVC circuit.

With the signal generator set for the desired output, adjust the mixer grid coil for maximum. Proceed in the same manner with the antenna coil. In the event new frequencies are being installed it is very likely the coil-capacitor combination will have to be changed.

Refer to Page 9 for this information.

Transmitter: Tune the amplifier driver with applicable coil (L 11 through L 15) for maximum drive to the P.A. Grid drive should be measured with a Vacuum Tube Voltmeter connected from the P.A. Grid to ground.

Terminate the transmitter output in a pure resistive 52 ohm load and connect an R.F. Ammeter in series, or terminate the transmitter output in a direct reading power meter of 52 ohm impedance. Tune the applicable P.A. plate coil, (L 16 through L 20) for maximum output.

Channel one is equipped with two Harmonic traps connected in parallel from output side of the P.A. coil to ground. All other P. A. coils have one trap connected from output side to ground. After the P.A. coil is tuned to resonance, the associated harmonic trap should be tuned for minimum second Harmonic.

Normally circuit characteristics produce a higher harmonic content when the transmitter is used in the lower portion of the frequency range specified: i.e.: 2000 kc to 3000 kc. Provisions have been made to employ two (2) harmonic traps in Channel 1 which would normally be employed for the lowest frequency in use.

COIL DATA

RECEIVER R.F. & MIXER COILS
(L1 - L10 INCLUSIVE)

Coil	Frequency Range	Capacity (mmf)	
		R.F.	Mix.
A-1	10.0 mc - 13.0 mc	20	20
A-2	8.5 mc - 10.0 mc	50	32
A-3	7.0 mc - 8.5 mc	50	32
A-4	5.8 mc - 7.0 mc	20	20
A-5	3.8 mc - 5.8 mc	20	20
A-6	2.6 mc - 3.8 mc	50	20
A-6	2.0 mc - 2.6 mc	100	50
A-7	278R	330	350

TRANSMITTER OSC. COILS
(L11 - L15 INCLUSIVE)

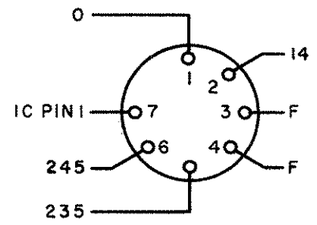
TX-0	13.0 mc - up	12
TX-1	10.0 mc - 13.0 mc	12
TX-2	8.5 mc - 10.0 mc	12
TX-3	7.0 mc - 8.5 mc	12
TX-4	5.8 mc - 7.0 mc	20
TX-5	3.8 mc - 5.8 mc	20
TX-6	3.3 mc - 3.799 mc	12
TX-6A	2.0 mc - 3.299 mc	20

		P.A.	Ant.
B-0	13.0 mc - up	32	500
B-1	10.0 mc - 13.0 mc	32	500
B-2	9.0 mc - 10.0 mc	47	500
B-3	8.0 mc - 9.0 mc	68	600
B-4	7.0 mc - 8.0 mc	75	600
B-5	6.0 mc - 7.0 mc	75	600
B-6	5.0 mc - 6.0 mc	100	600
B-7	4.0 mc - 5.0 mc	100	750
B-8	3.3 mc - 3.99 mc	150	1000
B-8	2.8 mc - 3.299 mc	250	1000
B-9	2.0 mc - 2.8 mc	250	1200

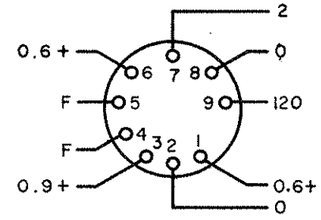
HARMONIC TRAPS
(L25 - L30 INCLUSIVE)

		Trap
D-1	11.0 mc - 14.0 mc	32
D-2	8.75 mc - 11.0 mc	68
D-3	7.4 mc - 8.75 mc	68
D-3	5.7 mc - 7.4 mc	100
D-3	5.4 mc - 5.7 mc	120
D-3	4.1 mc - 5.4 mc	150
D-4	3.3 mc - 4.1 mc	220
D-5	2.5 mc - 3.3 mc	220
D-6	2.0 mc - 2.5 mc	440

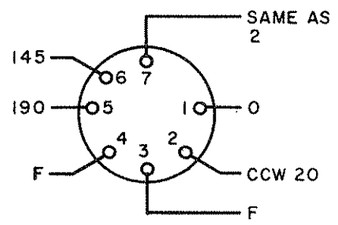
V5-6AQ5
A.F. AMP



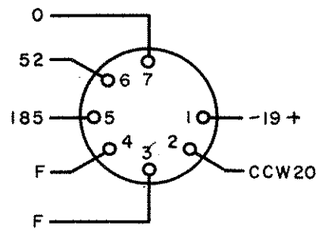
V4-6T8
A.F. PREAMP
DET NOISE LIMITER



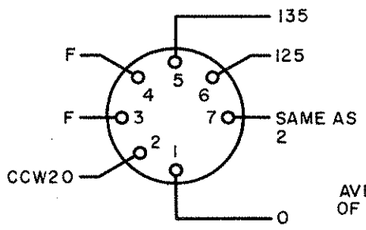
12BA6
I.F. AMP



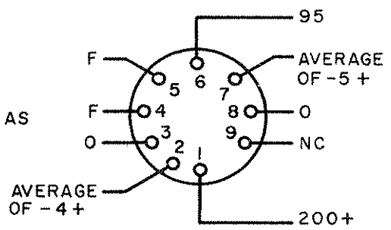
V2-12BE6
MIXER-OSC.



V1-12BA6
R.F. AMP.



V6-12BH7
X-MITTER OSC-AMP



V7-6883
X-MITTER P.A.

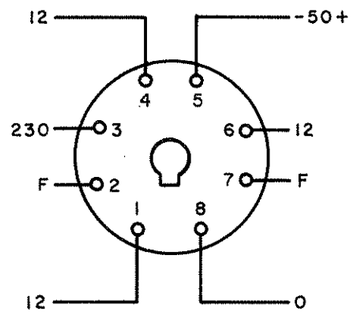


PLATE VOLTAGE 420

V8-6883
MODULATOR

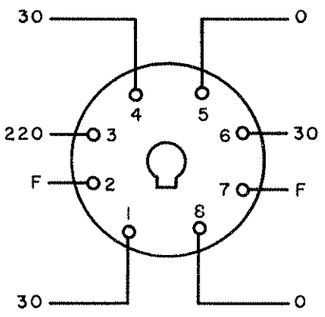


PLATE VOLTAGE 440

CAUTION: USE A 3mh CHOKE IN SERIES WITH TEST LEAD.

NOTE: VOLTAGES ON REC. TAKEN AT NO SIGNAL INPUT, VOL CONTROL CCW.

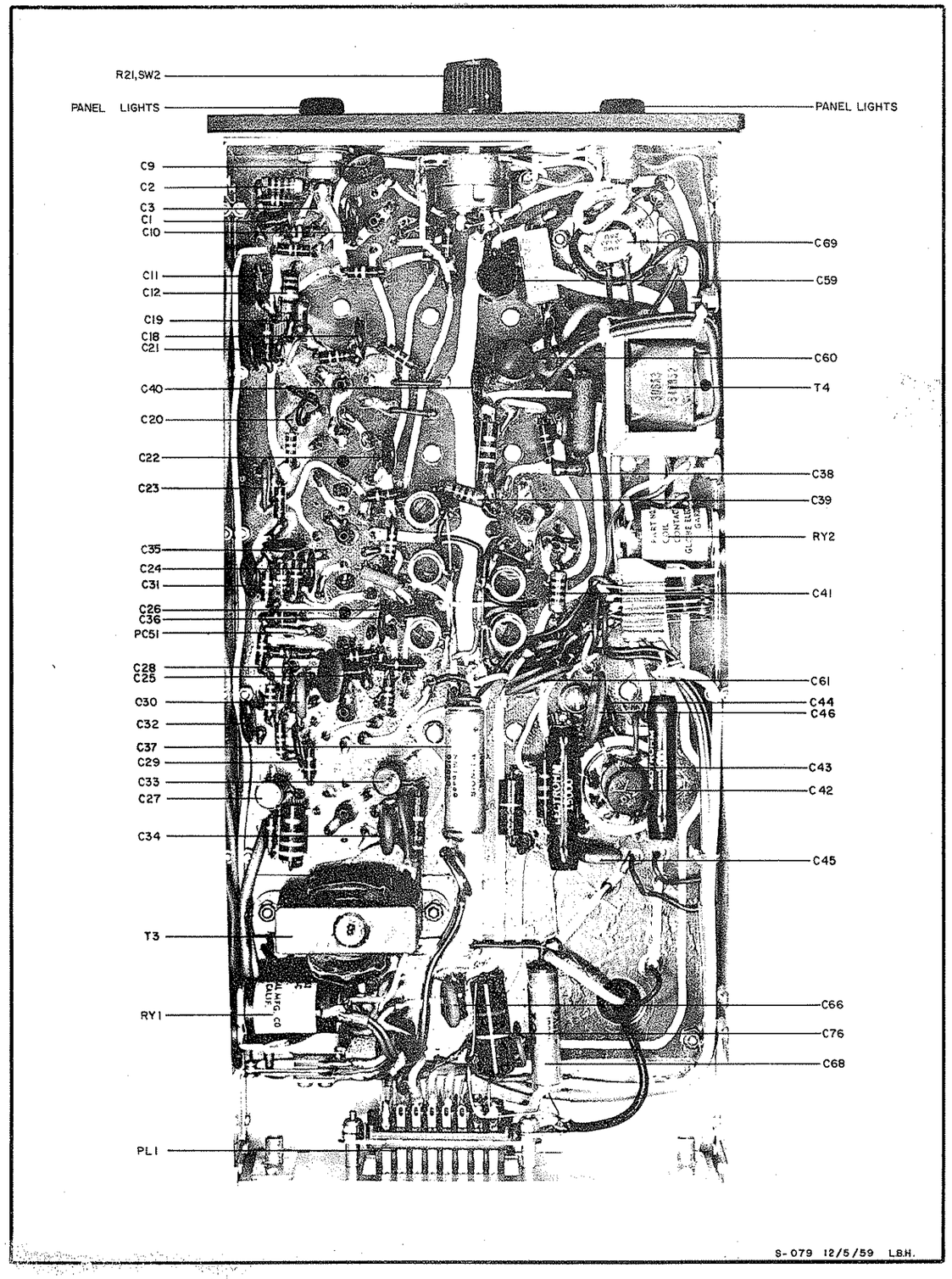
TRANSMITTER KEYED UNMODULATED

DENOTES VTVM TRIPLETT MODEL 650 OR EQUIV.

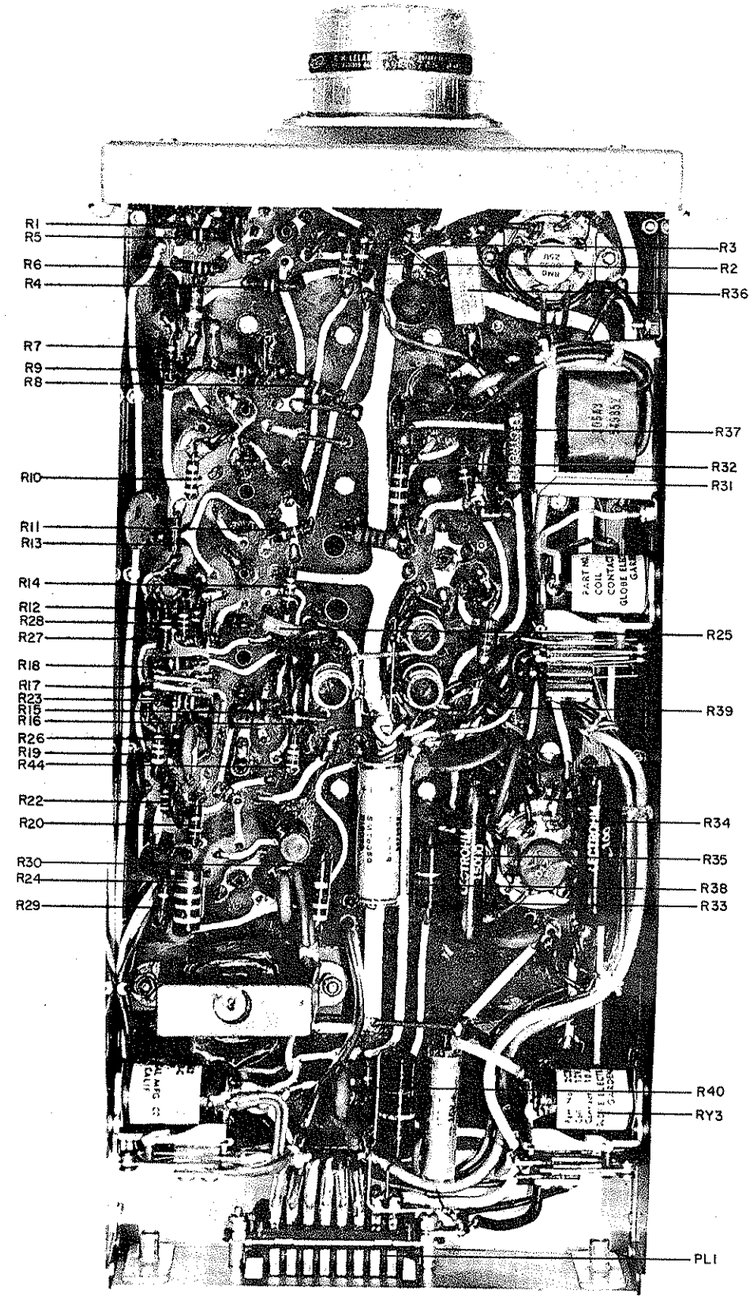
ALL OTHER VOLTAGES MEASURED WITH AVO 20,000Ω/V VOM OR EQUIV.

A 1MEG RESISTOR USED IN SERIES WITH VTVM TEST LEAD. VOLTAGE READINGS WILL DEVIATE WITH CHANGE OF INPUT POWER & OPERATING FREQUENCY

S-085 10/29/60JS

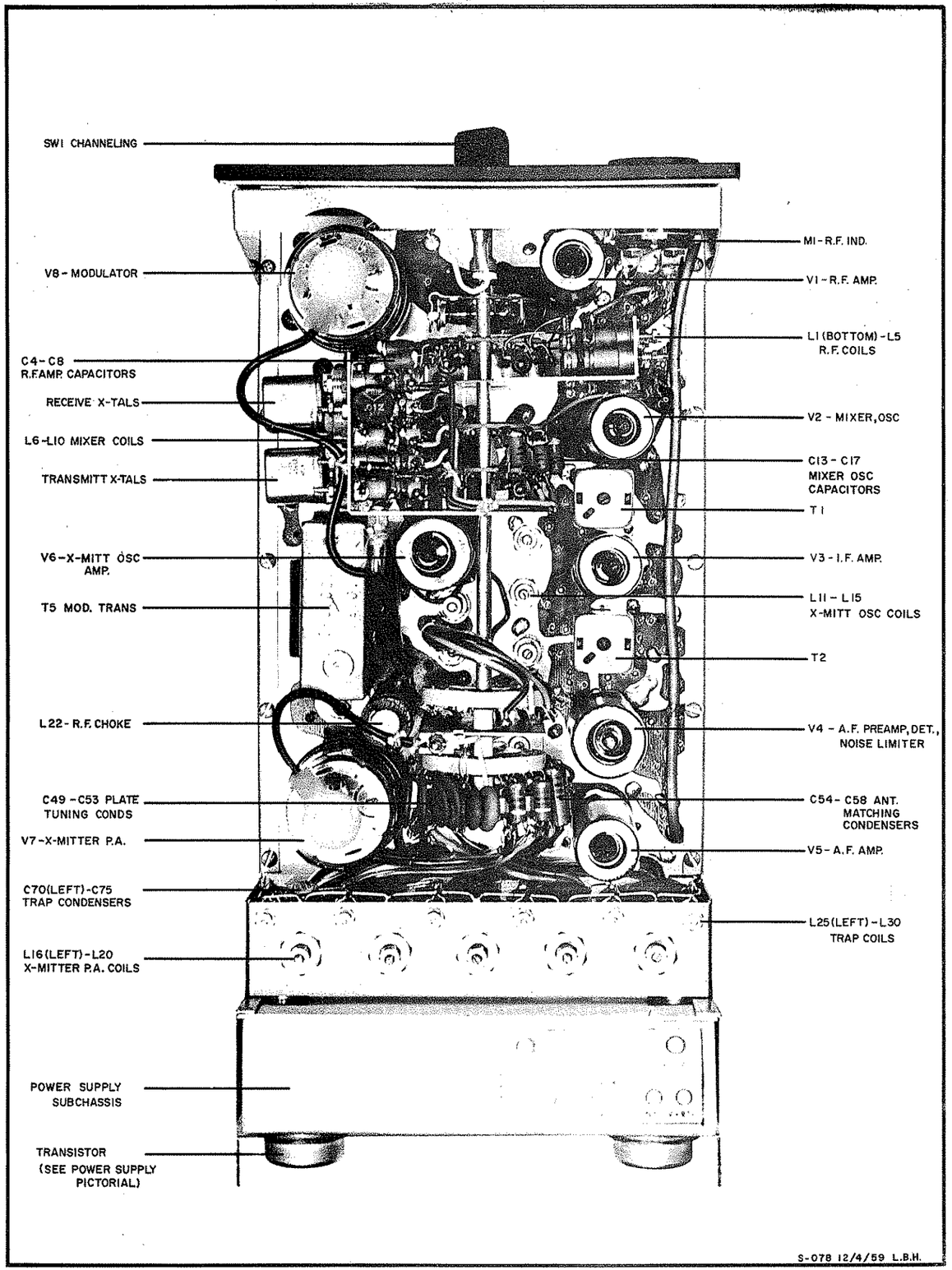


T-5-D & T-5-R Bottom View (Capacitor Locations)

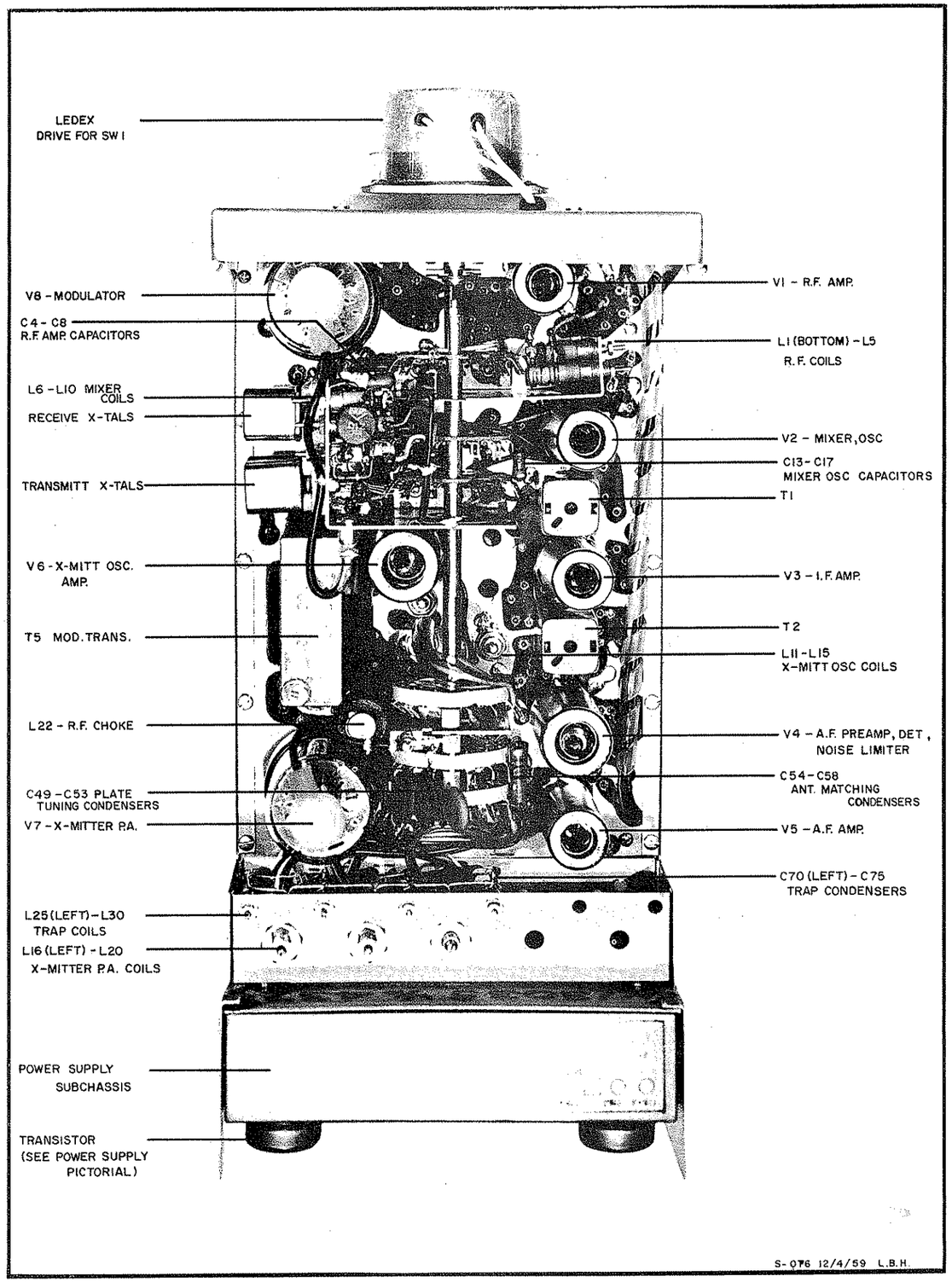


S-077 12/7/59 L.B.H.

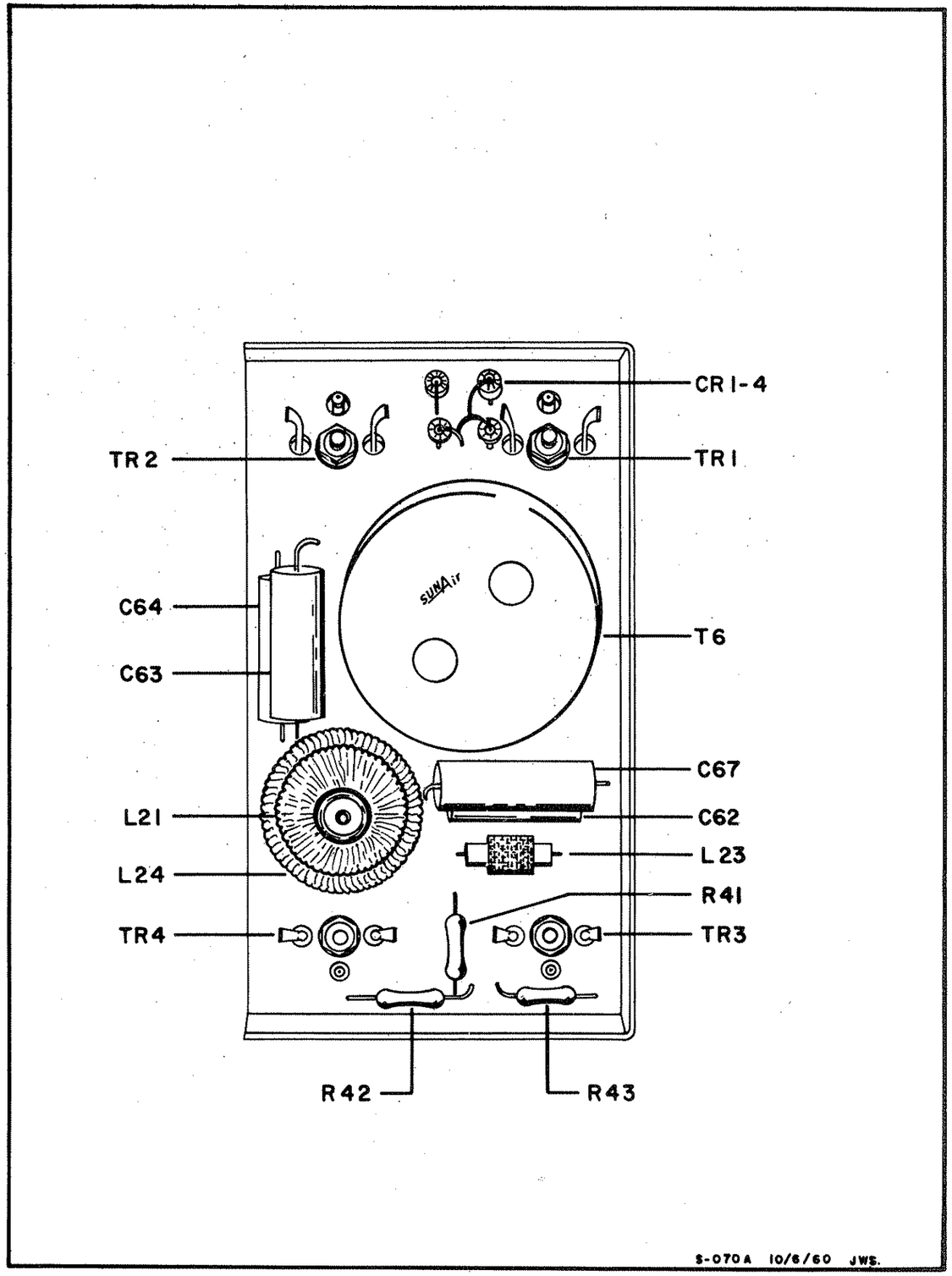
T-5-D & T-5-R Bottom View (Resistor Locations)


SW1 CHANNELING
V8 - MODULATOR
C4 - C8
R.F.AMP. CAPACITORS
RECEIVE X-TALS
L6 - L10 MIXER COILS
TRANSMITT X-TALS
V6 - X-MITT OSC
AMP.
T5 MOD. TRANS
L22 - R.F. CHOKE
C49 - C53 PLATE
TUNING CONDS
V7 - X-MITTER P.A.
C70 (LEFT) - C75
TRAP CONDENSERS
L16 (LEFT) - L20
X-MITTER P.A. COILS
POWER SUPPLY
SUBCHASSIS
TRANSISTOR
(SEE POWER SUPPLY
PICTORIAL)
M1 - R.F. IND.
V1 - R.F. AMP.
L1 (BOTTOM) - L5
R.F. COILS
V2 - MIXER, OSC
C13 - C17
MIXER OSC
CAPACITORS
T1
V3 - I.F. AMP.
L11 - L15
X-MITT OSC COILS
T2
V4 - A.F. PREAMP, DET.,
NOISE LIMITER
C54 - C58 ANT.
MATCHING
CONDENSERS
V5 - A.F. AMP.
L25 (LEFT) - L30
TRAP COILS
S-078 12/4/59 L.B.H.

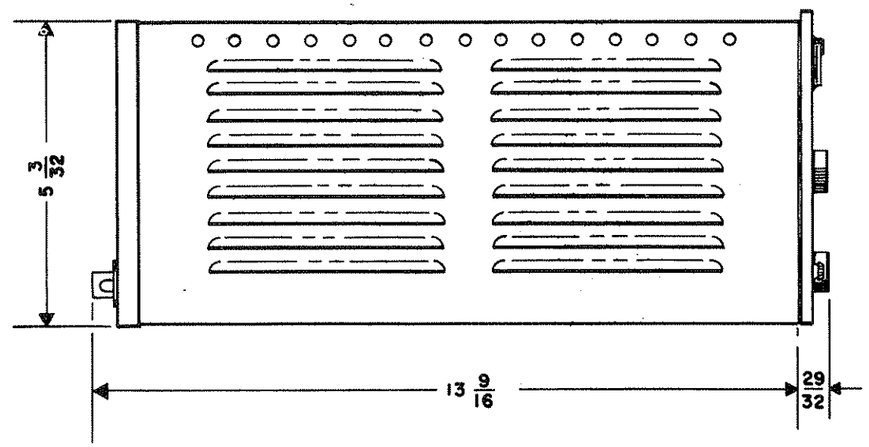
T-5-D Top View


LEDEX
DRIVE FOR SW I
V8 - MODULATOR
C4 - C8
R.F. AMP. CAPACITORS
L6 - L10 MIXER
COILS
RECEIVE X-TALS
TRANSMITT X-TALS
V6 - X-MITT OSC.
AMP.
T5 MOD. TRANS.
L22 - R.F. CHOKE
C49 - C53 PLATE
TUNING CONDENSERS
V7 - X-MITTER P.A.
L25 (LEFT) - L30
TRAP COILS
L16 (LEFT) - L20
X-MITTER P.A. COILS
POWER SUPPLY
SUBCHASSIS
TRANSISTOR
(SEE POWER SUPPLY
PICTORIAL)
V1 - R.F. AMP.
L1 (BOTTOM) - L5
R.F. COILS
V2 - MIXER, OSC
C13 - C17
MIXER OSC CAPACITORS
T1
V3 - I.F. AMP.
T2
L11 - L15
X-MITT OSC COILS
V4 - A.F. PREAMP, DET,
NOISE LIMITER
C54 - C58
ANT. MATCHING
CONDENSERS
V5 - A.F. AMP.
C70 (LEFT) - C75
TRAP CONDENSERS
S-076 12/4/59 L.B.H.

T-5-R Top View

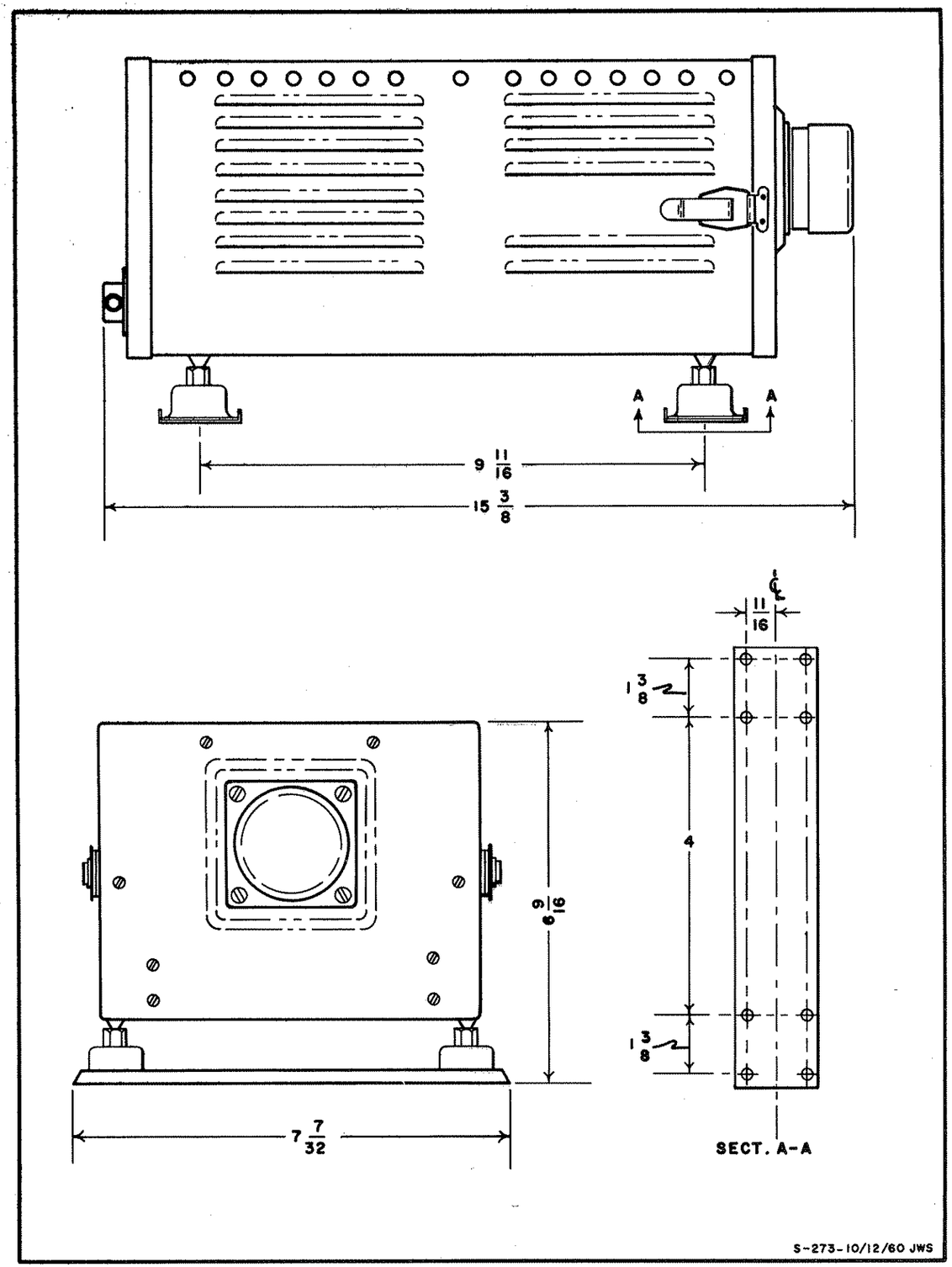


T-5-D & T-5-R Power Supply



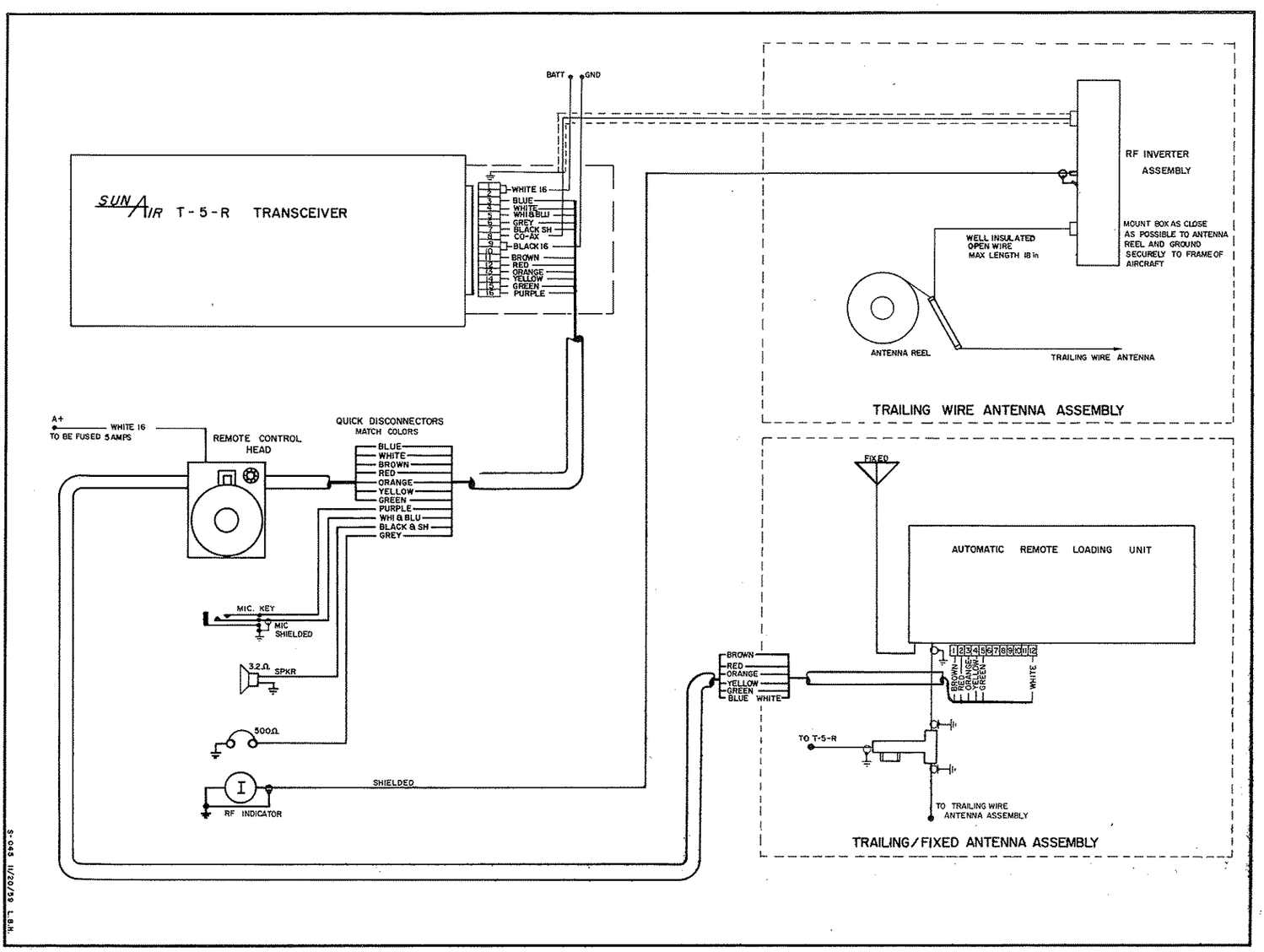
S-274 10/12/60 S.T.A.

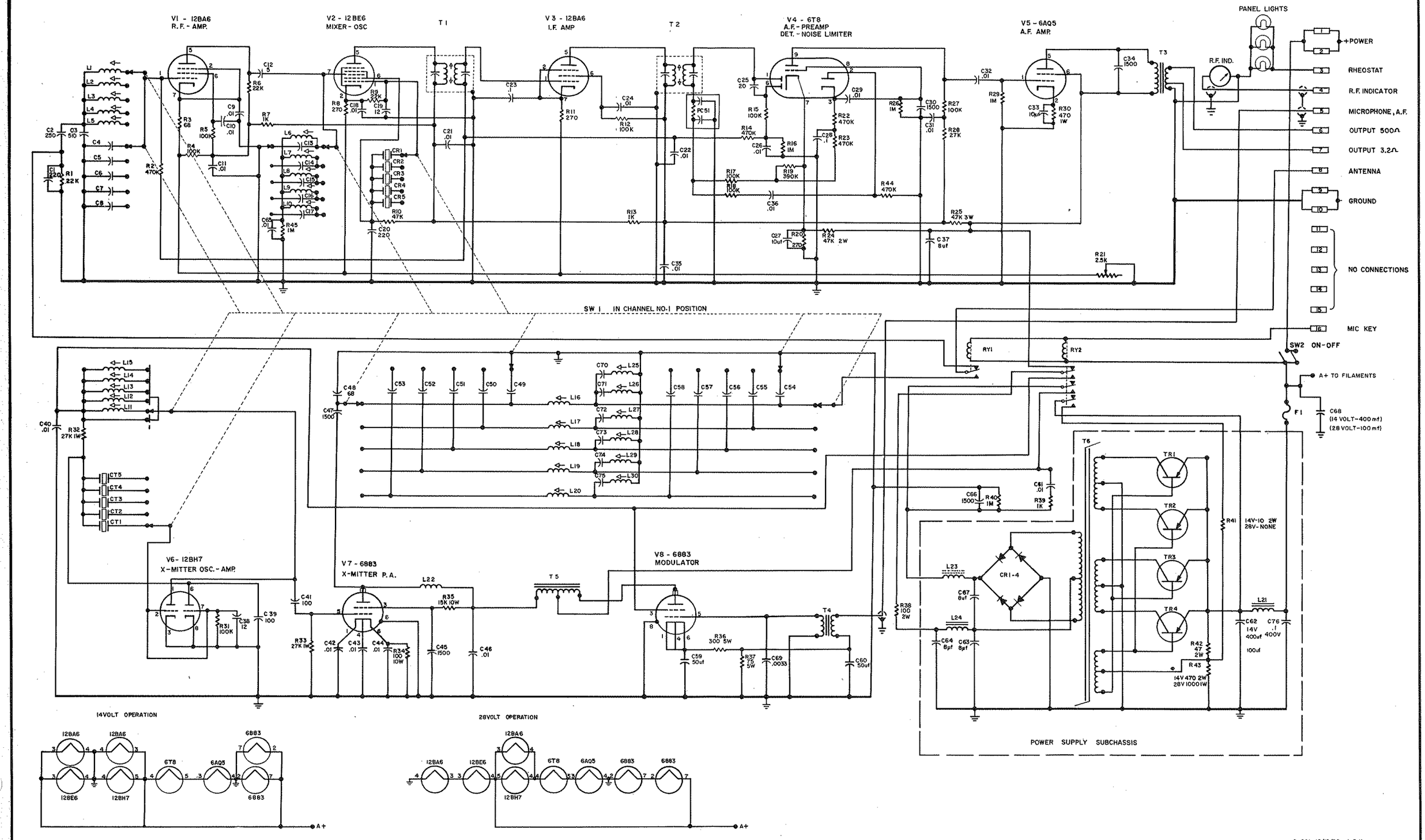
T-5-D Transceiver Overall Dimensions



T-5-R Transceiver Overall Dimensions

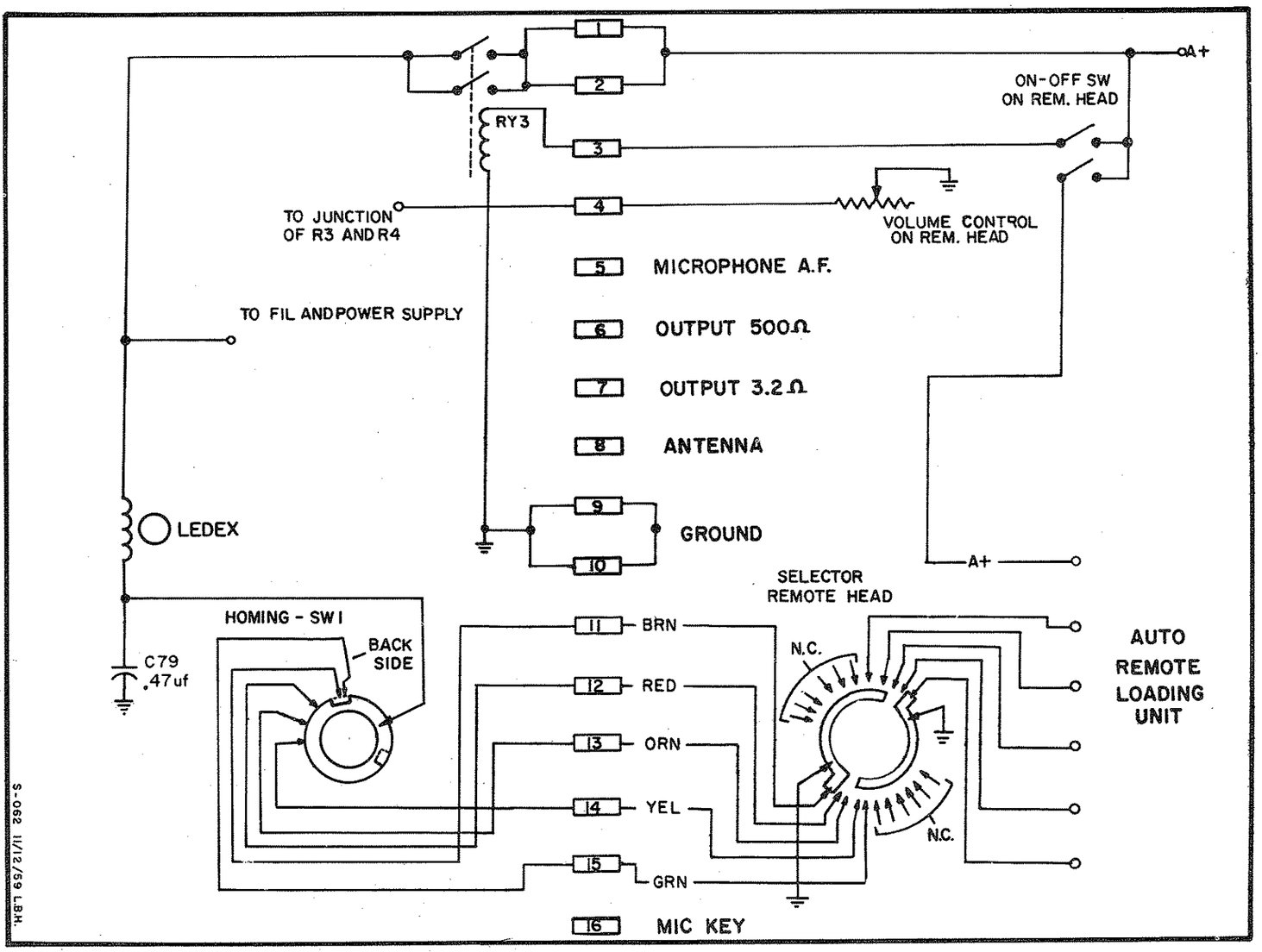
T-5-D Block Layout


SUN AIR T-5-R TRANSCEIVER
BATT
GND
WHITE 16
BLUE
WHITE
WHI & BLU
GREY
BLACK SH
CO-AX
BLACK 16
BROWN
RED
ORANGE
YELLOW
GREEN
PURPLE
RF INVERTER ASSEMBLY
MOUNT BOX AS CLOSE AS POSSIBLE TO ANTENNA REEL AND GROUND SECURELY TO FRAME OF AIRCRAFT
WELL INSULATED OPEN WIRE MAX LENGTH 18 in
ANTENNA REEL
TRAILING WIRE ANTENNA
TRAILING WIRE ANTENNA ASSEMBLY
A+
WHITE 16
TO BE FUSED 5 AMPS
REMOTE CONTROL HEAD
QUICK DISCONNECTORS MATCH COLORS
BLUE
WHITE
BROWN
RED
ORANGE
YELLOW
GREEN
PURPLE
WHI & BLU
BLACK & SH
GREY
MIC. KEY
MIC SHIELDED
32Ω SPKR
500Ω
SHIELDED
RF INDICATOR
FIXED
AUTOMATIC REMOTE LOADING UNIT
BROWN
RED
ORANGE
YELLOW
GREEN
BLUE
WHITE
TO T-5-R
TO TRAILING WIRE ANTENNA ASSEMBLY
TRAILING/FIXED ANTENNA ASSEMBLY
SI-045 11/20/59 L.B.H.

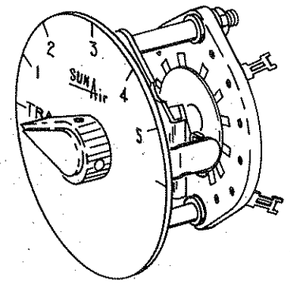


S-061 10/18/60 L.B.H.

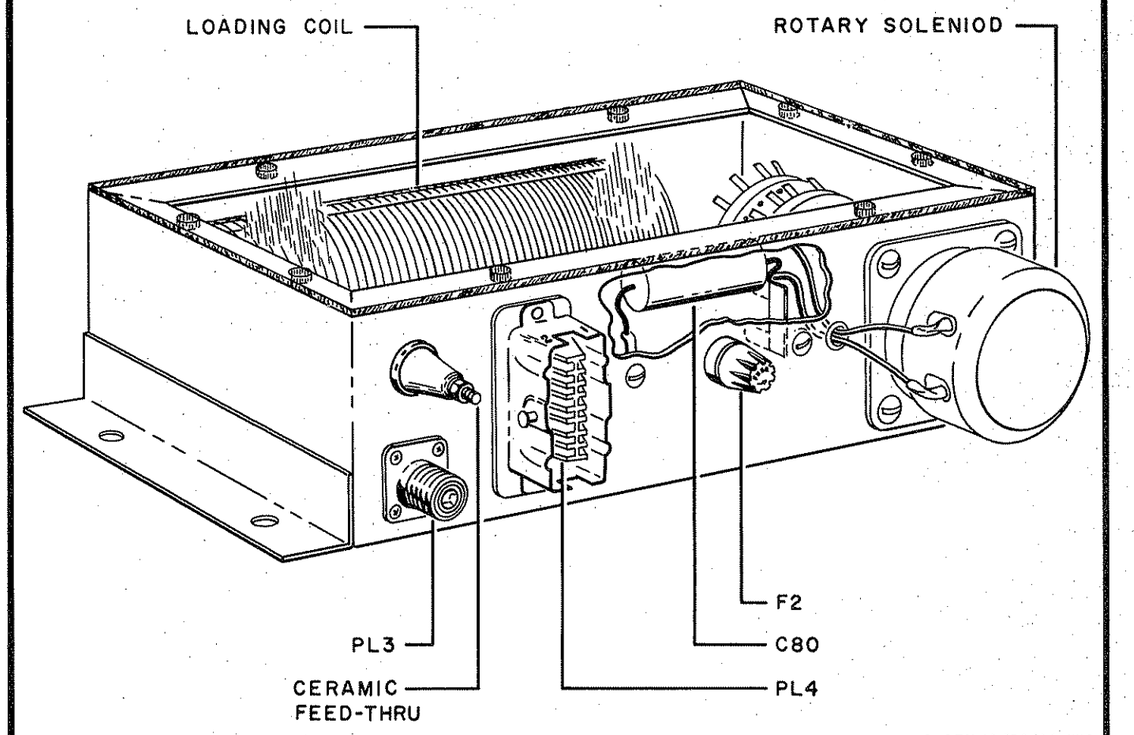
T 5 D TRANSCEIVER SCHEMATIC

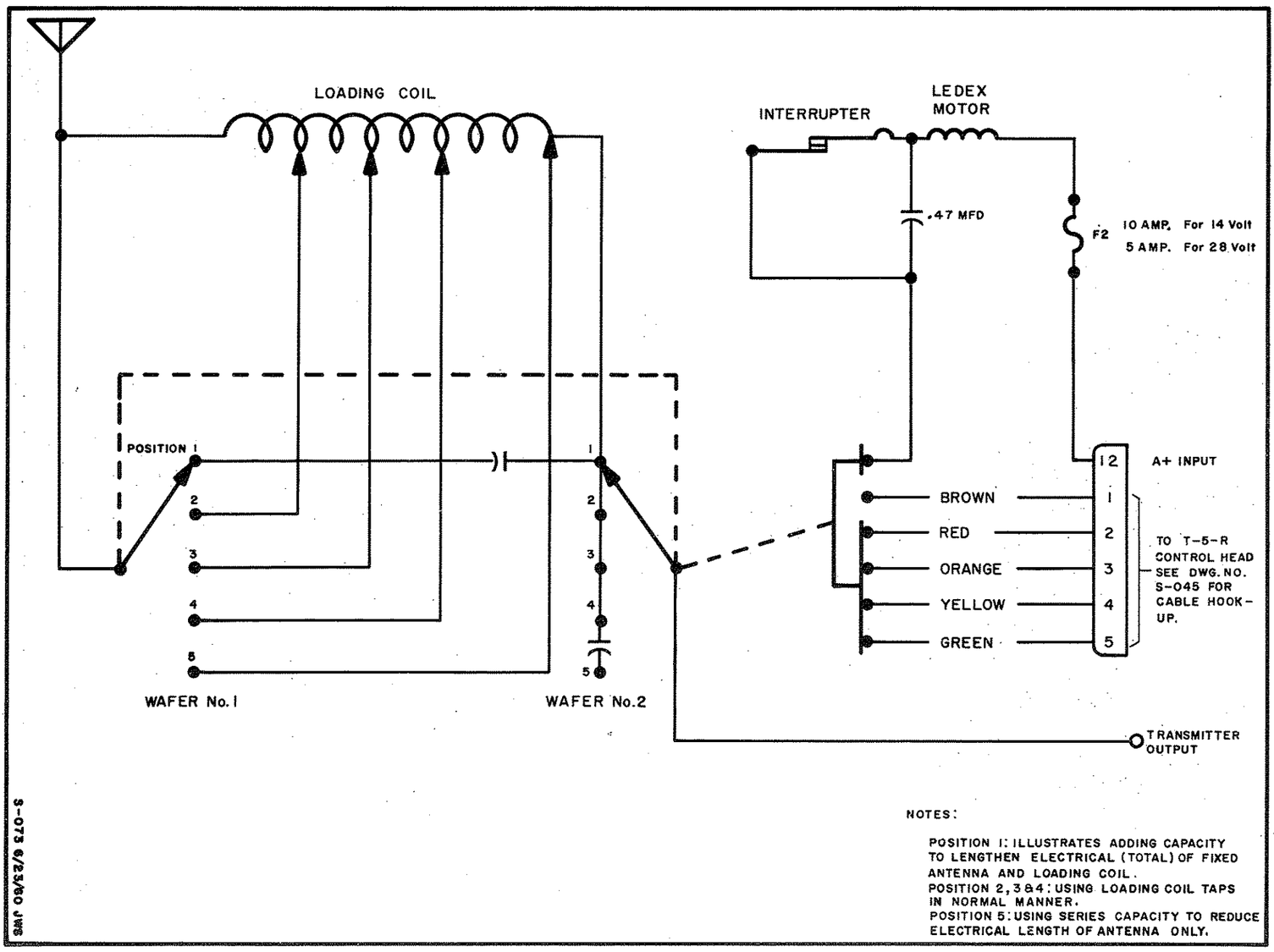

1
2
RY3
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A+
ON-OFF SW
ON REM. HEAD
TO JUNCTION
OF R3 AND R4
VOLUME CONTROL
ON REM. HEAD
MICROPHONE A.F.
TO FIL AND POWER SUPPLY
OUTPUT 500Ω
OUTPUT 3.2Ω
ANTENNA
LEDEX
GROUND
A+
SELECTOR
REMOTE HEAD
HOMING - SW1
BACK
SIDE
C79
.47uf
BRN
RED
ORN
YEL
GRN
N.C.
N.C.
AUTO
REMOTE
LOADING
UNIT
MIC KEY
S-062 11/12/59 LBH.

MANUAL LOADING COIL SELECTOR SWITCH



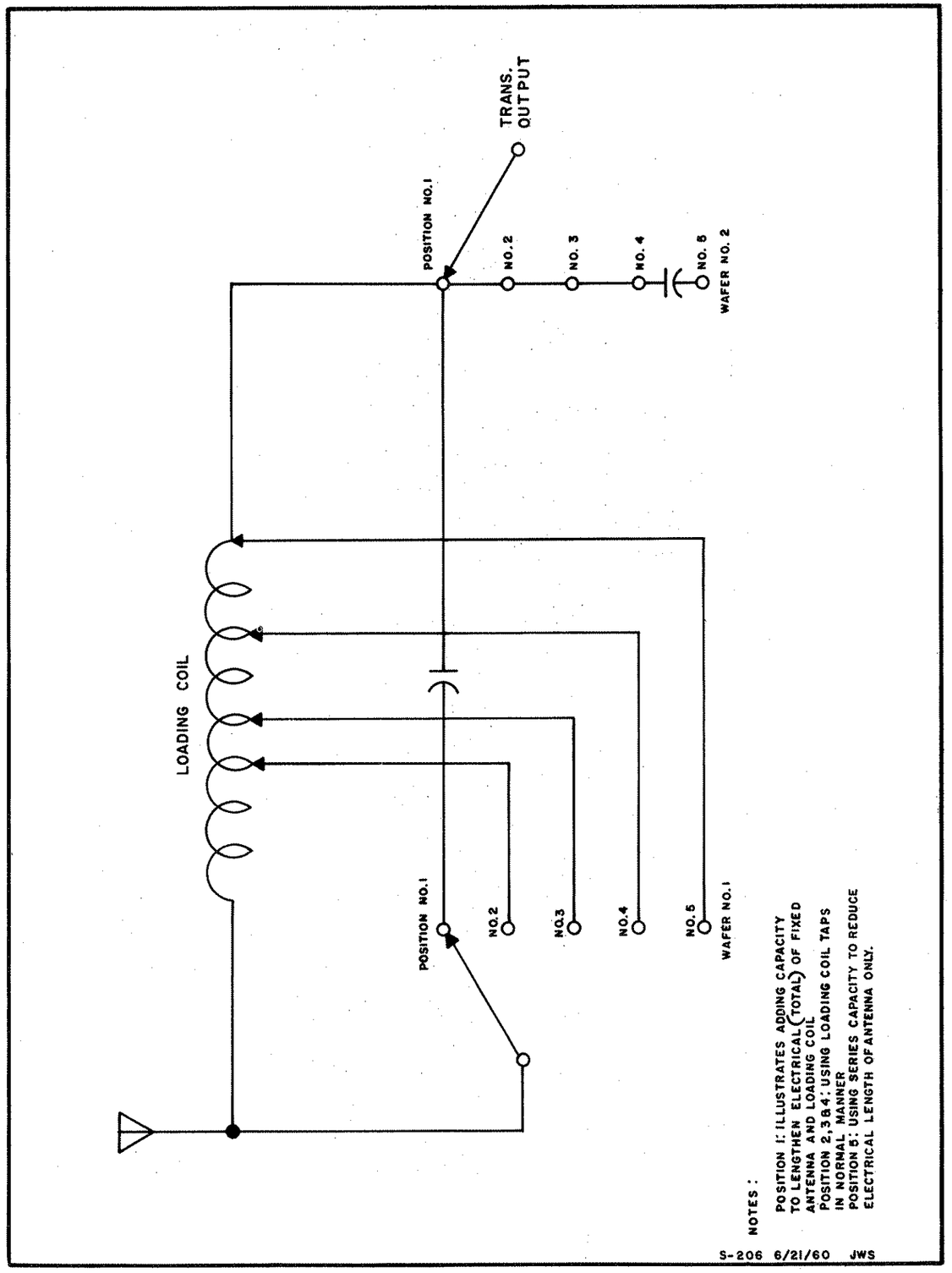
NOTE: SELECTOR SWITCH FORMS APART OF THE MANUAL LOADING COIL KIT.



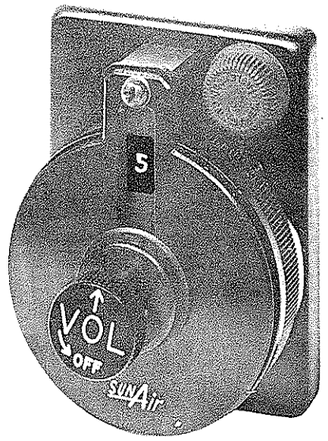


NOTES:

POSITION 1: ILLUSTRATES ADDING CAPACITY TO LENGTHEN ELECTRICAL (TOTAL) OF FIXED ANTENNA AND LOADING COIL.
POSITION 2, 3 & 4: USING LOADING COIL TAPS IN NORMAL MANNER.
POSITION 5: USING SERIES CAPACITY TO REDUCE ELECTRICAL LENGTH OF ANTENNA ONLY.

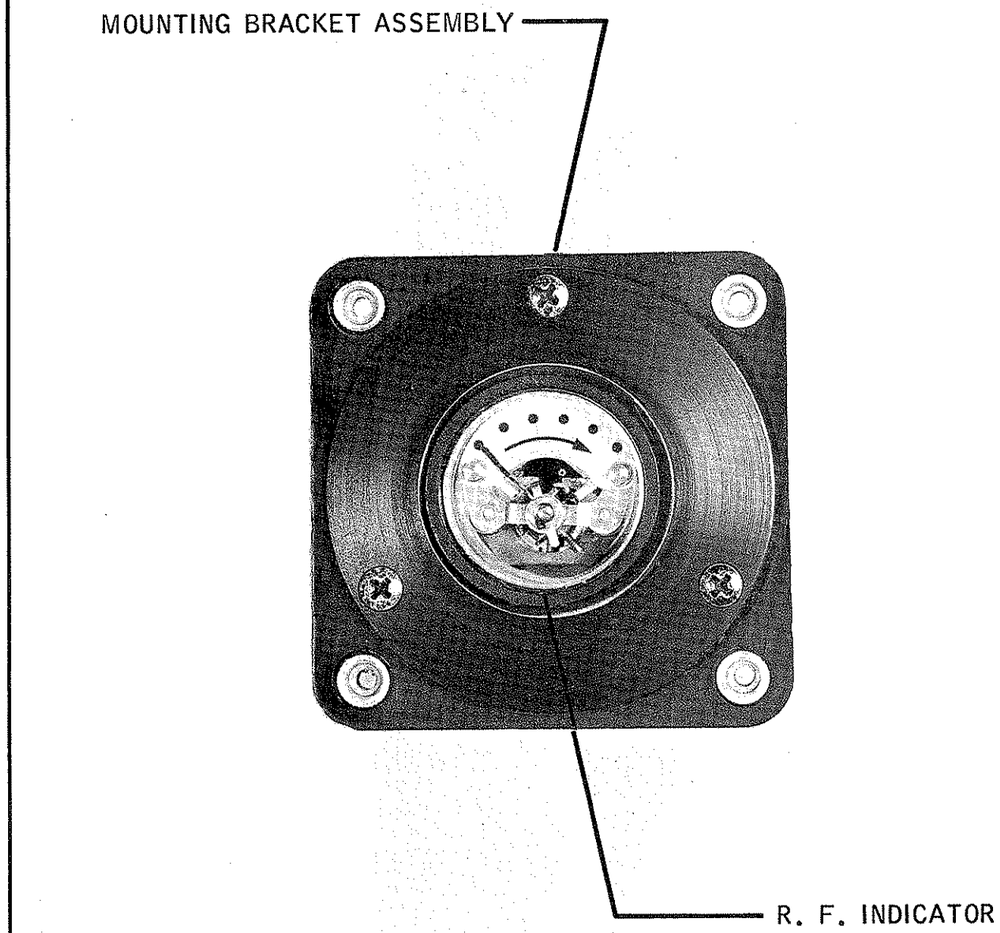


Manual Loading Unit (5 Position)

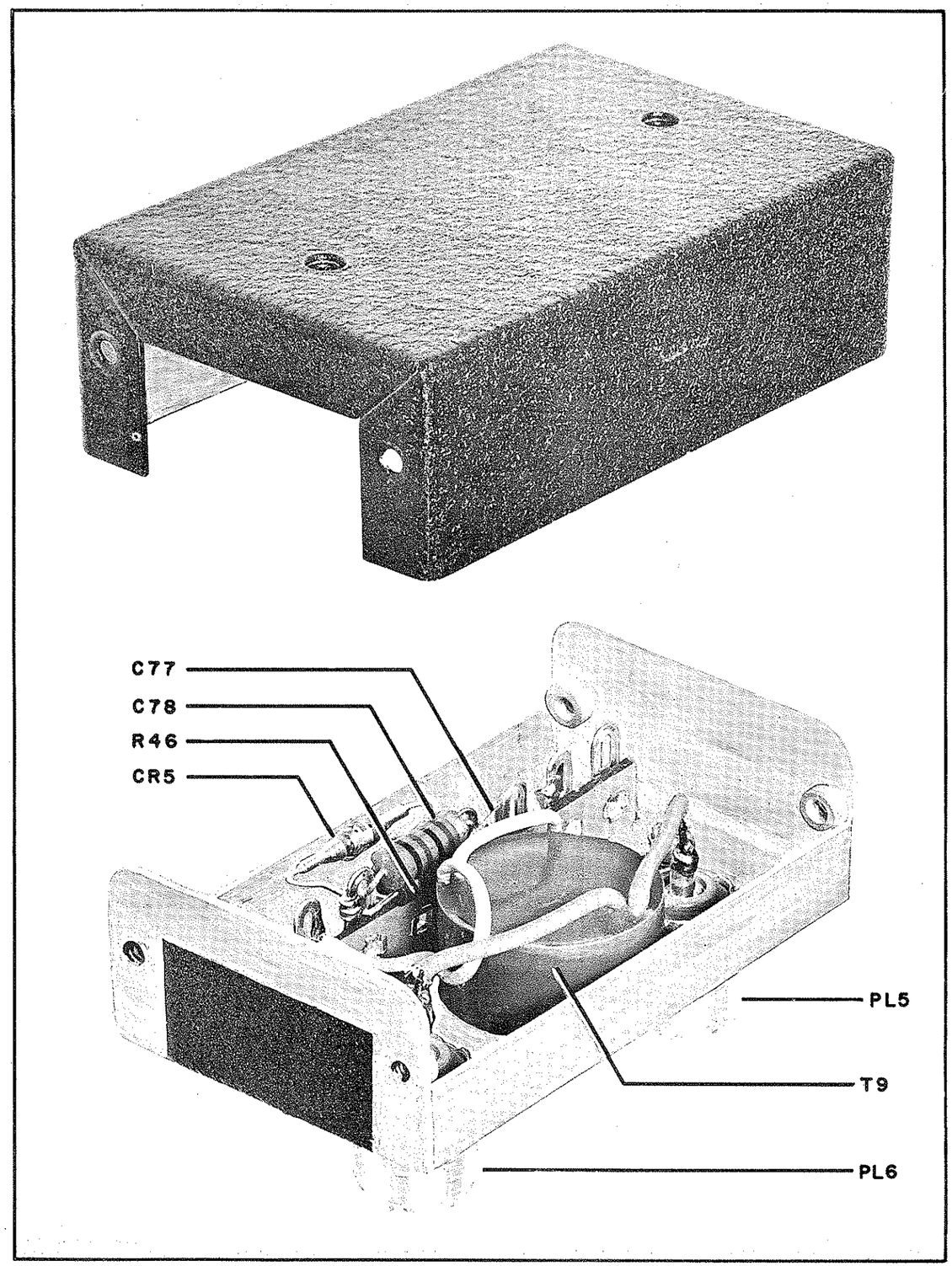


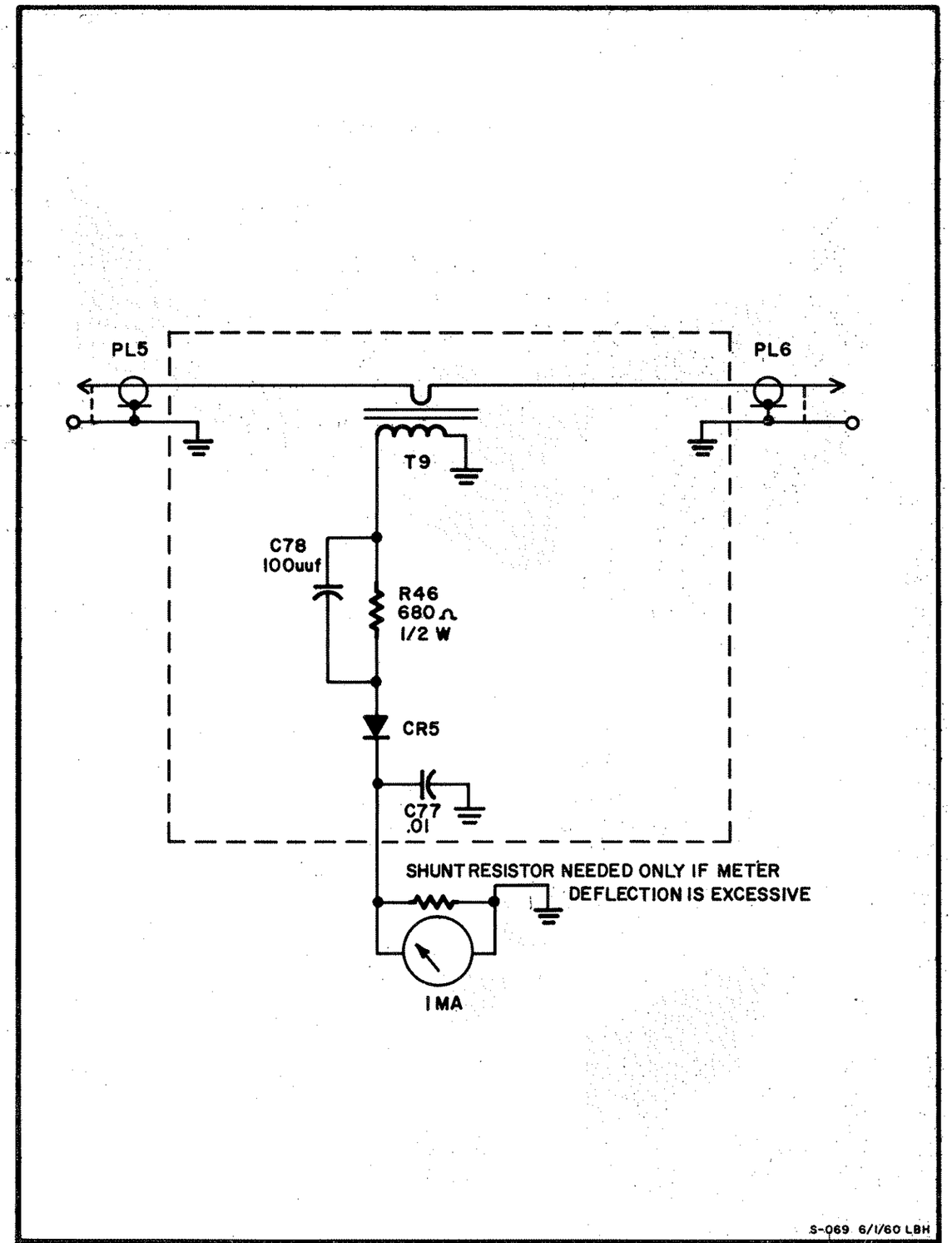
DRUM TYPE
CONTROL HEAD

DIGITAL TYPE
CONTROL HEAD

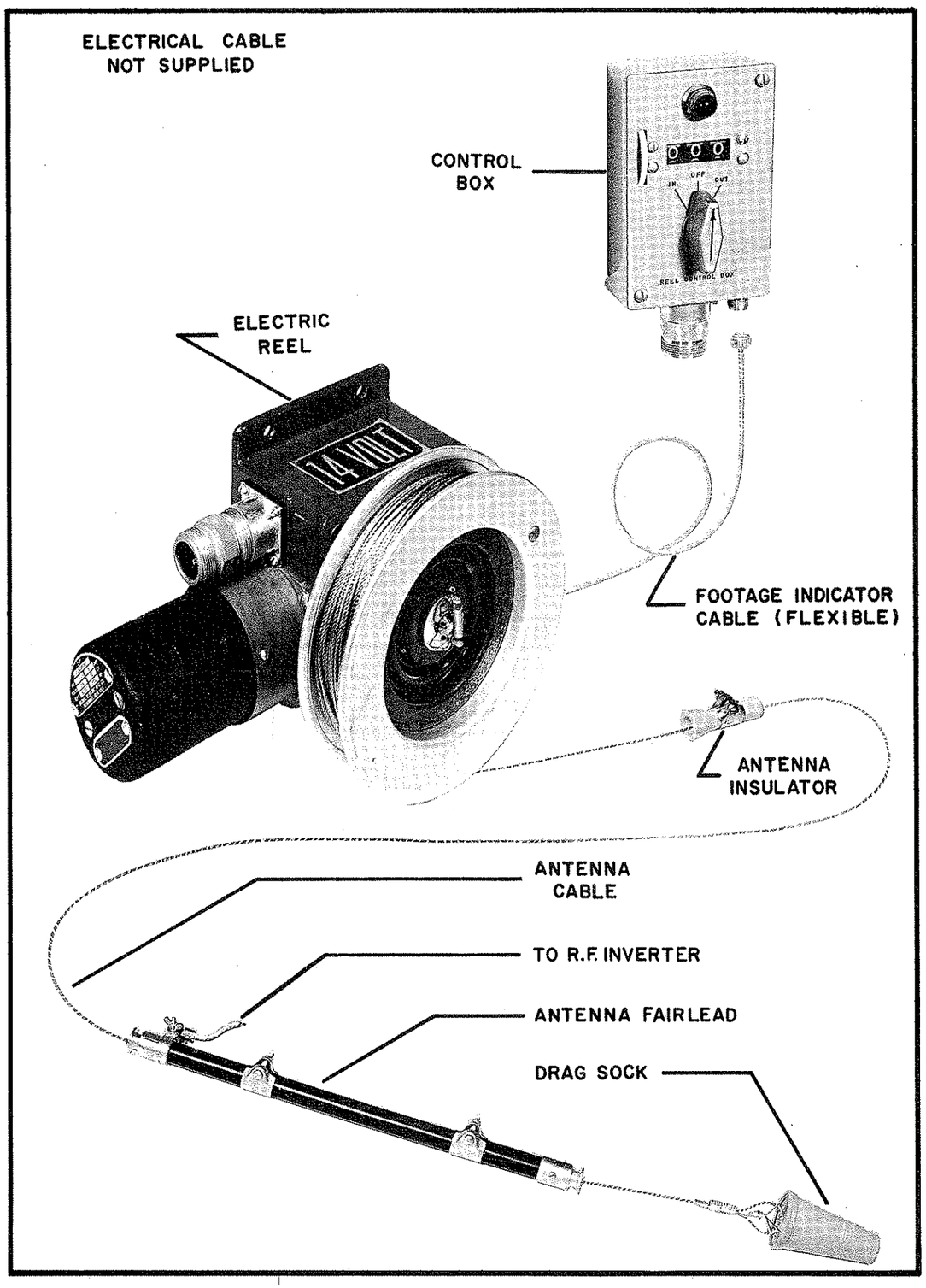


R.F. Indicator

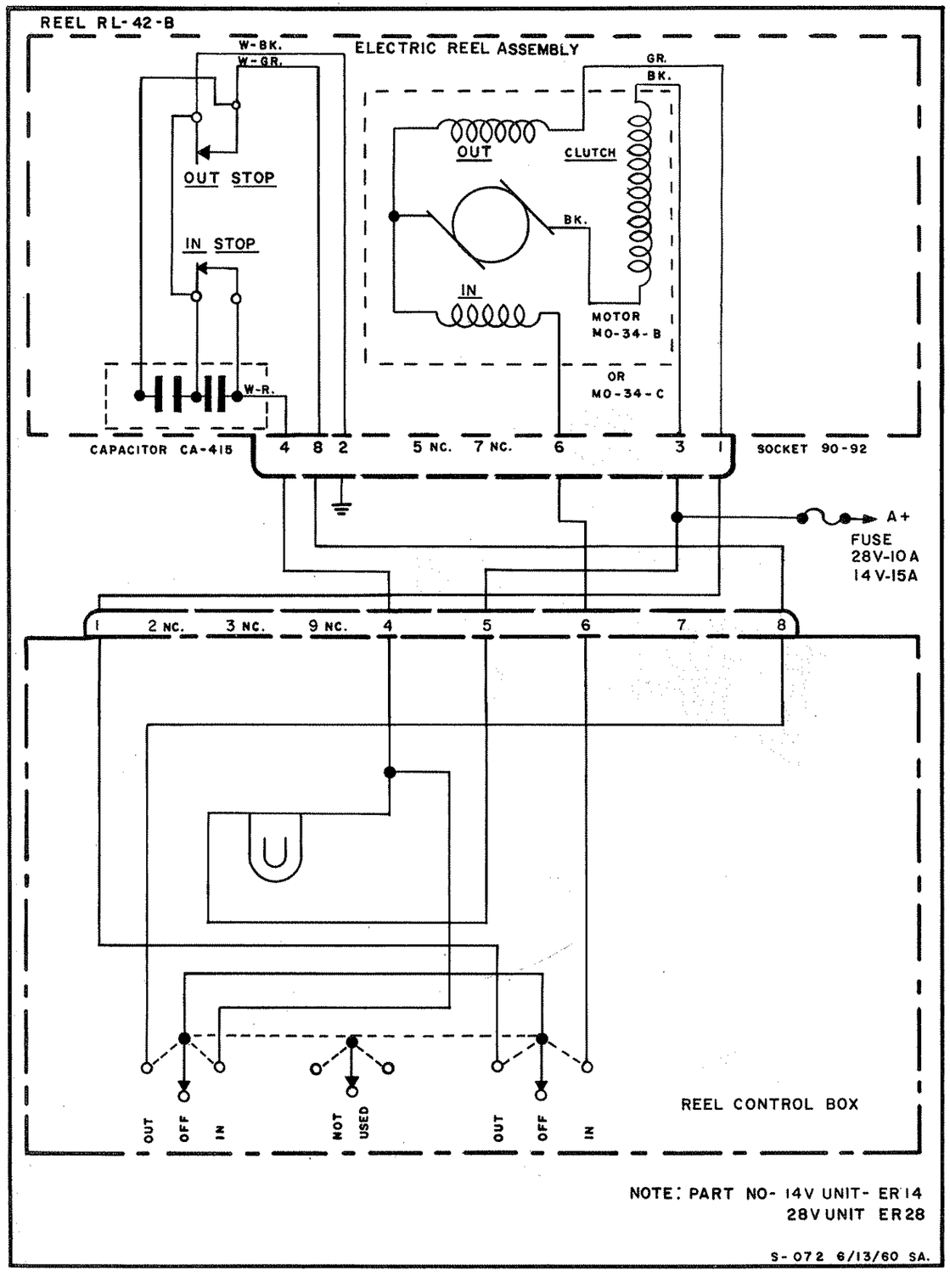

C77
C78
R46
CR5
PL5
T9
PL6



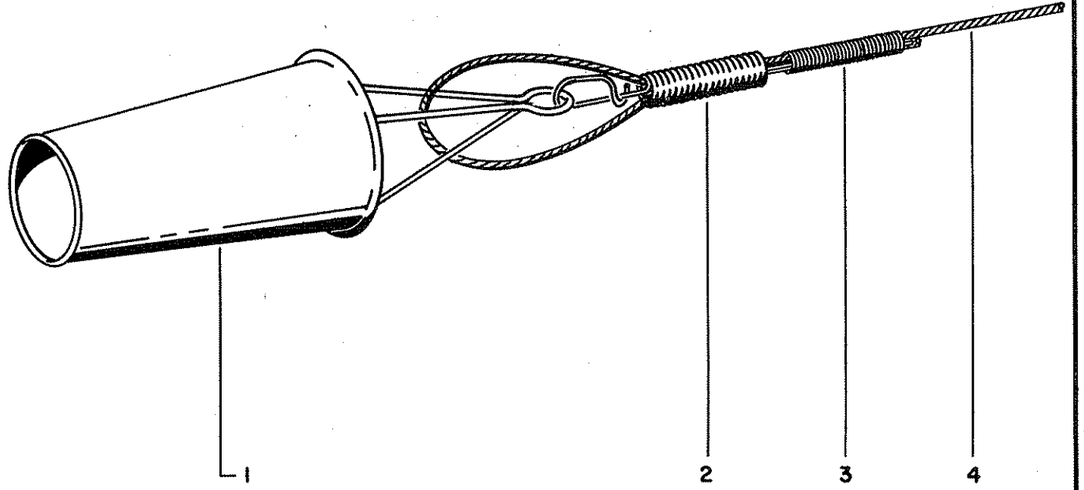
R.F. Inverter Schematic



ANTENNA INSTALLATION



Wiring Diagram For Electric Reel & Control Box



1. DRAG SOCK
2. SPRING
3. SOFT WIRE - WRAP TIGHTLY AND SOLDER FOR 3/4" CUT OFF EXCESS WIRE AND FORM A NEAT BRAID SO AS NOT TO HANG IN FAIRLEAD.
4. ANTENNA WIRE. FEED WIRE THROUGH SPRING, AROUND ARMS OF DRAG SOCK LEAVING LOOP APPROXIMATELY REACHING TOP OPENING OF DRAG SOCK. THEN FEED WIRE BACK UP THROUGH SPRING AND SECURE AS PER ITEM 3.

S-255 9/17/60 JWS

Drag Sock Installation

SECTION V

PARTS LIST INSTRUCTIONS

COMPANY POLICY

After your SunAir Transceiver (s) has been prepared for shipment, there is a considerable expense already involved in; alignment, special crystals and coil installation. For this reason cancellations must be subject to a 10 percent charge. Any equipment you may wish to return to SunAir is also subject to a 10 percent charge for re-stocking.

Factory authorization must be obtained prior to the return of any SunAir equipment. Shipment should be made prepaid and very carefully packed to avoid damage. It is imperative the Warranty Card be included in the shipment. Equipment returned to you under Warranty will be shipped prepaid.

EQUIPMENT RETURNED UNDER NON-WARRANTY BASIS

A charge of $7.00 per hour plus shipping charges will apply to all non-warranty work.

EQUIPMENT DAMAGED IN SHIPMENT

If you receive equipment which has been damaged, notify the carrier immediately.

RECEIPT OF DEFECTIVE EQUIPMENT

Upon receipt of defective equipment SunAir should be immediately notified and they will advise what action is to be taken.

EXPORT SHIPMENTS

A documentation fee of $5.00 will be charged on foreign shipments for shipments of SunAir Transceivers. A fee of $2.50 will be charged on parts orders on foreign shipments. In the event of combined orders for both transceivers and parts orders, only the $5.00 fee will be charged.

ORDERING YOUR EQUIPMENT

In order to avoid excessive delays in processing your SunAir Transceivers (s) and/or parts orders, please advise where applicable; voltages, frequencies, and methods of shipping. If you do not include shipping instructions we will ship via best means available.

PRICES

All SunAir prices are subject to change without notice.

PARTS LIST

SunAir Part No.	Description	Price
1001-14	T-5-D TRANSCEIVER, Complete and ready for installation including crystals, 14 volt operation.	$ 895.00
1001-28	T-5-D TRANSCEIVER, Complete and ready for installation including crystals, 28 volt operation.	895.00
4001-14	T-5-R TRANSCEIVER, Complete and ready for installation including crystals, 14 volt operation.	1,195.00
4001-28	T-5-R TRANSCEIVER, Complete and ready for installation including crystals, 28 volt operation.	1,195.00
1001-C	DUST COVER, T-5-D, Complete with plugs and cables.	62.50
4001-C	DUST COVER, T-5-R, Complete with shock-mounts, connector plug and cables.	75.00

CAPACITORS

Ref. Symbol	Description	Price
C1,C3	CAPACITOR, 220 MMF @ 500 VDC, Tubular.	.25
C2	CAPACITOR, 250 MMF @ 500 VDC, Tubular.	.25
C4,C5,C6, C7,C8	CAPACITOR, Tubular (Capacity Value specified with crystal frequency)	.25
C9,C10,C11,C18 C21,C22,C24,C26, C29,C31,C32,C35, C36,C40,C42,C43, C44,C65	CAPACITOR, .01 MF @ 500 VDC Disc	.25
C76	CAPACITOR, .1 MF @ 200 VDC	.35
C12	CAPACITOR, 5 MMF @ 500 VDC, Tubular	.35

Ref. Symbol	Description	Price
C13,C14,C15, C16,C17	CAPACITOR, Tubular (Capacity values specified with crystal frequency)	.25
C19,C38	CAPACITOR, 12 MMF @ 500 VDC, Tubular	.25
C20	CAPACITOR, 220 MMF @ 500 VDC Disc	.25
C23,C28	CAPACITOR, .1 MF @ 75 VDC Disc	.55
C25	CAPACITOR, 20 MMF @ 500 VDC Tubular	.25
C27,C33	CAPACITOR, 10 MF @ 25 VDC, Electrolytic	.95
C30,C34,C45 C47,C66	CAPACITOR, 1500 MMF @ 3 KVDC, Disc	.35
C69	CAPACITOR, .0033 MF @ 500 VDC Disc	.25
C37	CAPACITOR, 8 MF @ 350 VDC, Electrolytic	1.25
C39,C41	CAPACITOR, 100 MMF @ 500 VDC, Tubular	.25
C46,C61	CAPACITOR, .01 MF @ 1.6 KVDC, Disc	.35
C79	CAPACITOR, .47 MF @ 400 VDC (T-5-R Only)	.55
C68	CAPACITOR, 400 MF @ 15 VDC (14 volt units)	15.70
	CAPACITOR, 100 MF @ 30 VDC (28 volt units)	13.45
C48	CAPACITOR, 68 MMF @ 1.5 KVDC Disc	.25
C49,C50,C51, C52,C53	CAPACITOR, Disc. (Capacity value specified with crystal frequency)	.25
C54,C55,C56, C57,C58	CAPACITOR, Disc. (Capacity value specified with crystal frequency)	.25
C59, C60	CAPACITOR, 50 MF @ 50 VDC Electrolytic	1.10

Ref. Symbol	Description	Price
C70,C71,C72,C73 C74,C75	CAPACITOR, Disc., (Capacity values specified with crystal frequency)	.25
PC-51	DIODE LIMITER	.55
	RESISTORS	
R1,R9,R6	RESISTOR, Carbon, 22K ohm 1/2 watt	.25
R2,R14,R22,R23 R44	RESISTOR, Carbon, 470K ohm 1/2 watt	.25
R3	RESISTOR, Carbon, 68 ohm 1/2 watt	.25
R4,R5,R12,R15 R17,R18,R27,R31	RESISTOR, Carbon, 100K ohm 1/2 watt	.25
R7,R13,R39	RESISTOR, Carbon, 1K ohm 1/2 watt	.25
R8,R11,R20	RESISTOR, Carbon, 270 ohm, 1/2 watt	.25
R10	RESISTOR, Carbon, 47K, 1/2 watt	.25
R16,R26,R29,R40 R45,	RESISTOR, Carbon, 1 meg. ohm, 1/2 watt	.25
R19	RESISTOR, Carbon, 390K ohm, 1/2 watt	.25
R21	RESISTOR, Carbon 2.5K ohm 2 watt potentiometer with Switch SW-2 (T-5-D only)	1.50
R24	RESISTOR, Carbon, 47K ohm 2 watt	.35
R25	RESISTOR, wire wound, 4.7K ohm, 3 watt	1.05
R28	RESISTOR, Carbon, 27K ohm, 1/2 watt	.25
R30	RESISTOR, Carbon 470 ohm, 1 watt	.25
R32,R33	RESISTOR, Carbon, 27K ohm, 1 watt	.25
R34	RESISTOR, wire wound, 100 ohm, 10 watt	1.70

Ref. Symbol	Description	Price
R35	RESISTOR, wire wound, 15K ohm, 10 watt	1.70
R36	RESISTOR, wire wound, 300 ohm, 5 watt	.80
R37	RESISTOR, wire wound, 75 ohm, 5 watt	.80
R38	RESISTOR, Carbon, 100 ohm, 2 watt	.35
	COILS AND CHOKES	
L1,L2,L3,L4,L5	COIL RF, 1/4" form, Ceramic, Iron Slug (See Page 9 for Part Number and frequency)	1.95
L6,L7,L8,L9,L10	COIL, Mixer, 1/4" form Ceramic, Iron Slug (See Page 9)	1.95
L11,L12,L13,L14, L15	COIL, Oscillator, Transmit, 3/8" form Phenolic, Iron Slug (See Page 9)	1.95
L16,L17,L18,L19 L20	COIL, P. A., 3/4" form Ceramic, Iron Slug (See Page 9)	4.50
L22	CHOKE, R. F. Air Core	2.55
L25,L26,L27,L28	COIL, Harmonic Trap, 1/4" Ceramic form, Iron Slug (See Page 9)	1.95
	TRANSFORMERS	
T1	TRANSFORMER, IF Input	2.85
T2	TRANSFORMER, IF Output	2.85
T3	TRANSFORMER, Audio Output	2.85
T4	TRANSFORMER, Mike Input	2.85
T5	TRANSFORMER, Modulation	3.70

Ref. Symbol	Description	Price
CR1 thru CR5	CRYSTALS, Reveiver	10.00 ea.
CT1 thru CT5	CRYSTALS, Transmitter	10.00 ea.
	RELAYS	
RY-1	RELAY, Antenna changeover (specify 14 or 28 volt)	8.80
RY-2	RELAY, Power changeover (specify 14 or 28 volt)	10.95
RY-3	RELAY, On-Off (specify 14 or 28 volt)	9.75
	TUBES	
V1	TUBE, 12BA6, RF Amplifier	2.35
V2	TUBE, 12BE6, Mixer, Osc.	2.50
V3	TUBE, 12BA6, IF Amplifier	2.35
V4	TUBE, 6T8, AF Preamp, det. noise limiter	4.50
V5	TUBE, 6AQ5, AF Amplifier	2.90
V6	TUBE, 12BH7 Transmitter, Osc., Amp.	3.30
V7	TUBE, 6883, Transmitter, P.A.	9.25
V8	TUBE, 6883, Transmitter, Modulator	9.25
	FUSE	
F1	FUSE, 10 amp. (28 volt units)	.25
F1	FUSE, 20 amp. (14 volt units)	.25
	ROTARY SOLENOIDS	
L-002	MOTOR, Rotary Solenoid (14 volt)	45.00
L-003	MOTOR, Rotary Solenoid (28 volt)	45.00

Ref. Symbol	Description	Price
	PLUGS AND ACCESSORIES	
PL1	PLUG, 16 Pin, Male, Chassis	2.75
PL2	PLUG, 16 Pin, Female, Dust Cover	6.50
1617	WEMAC, light assembly w/bulb (Specify 14 volt or 28 volt)	3.25
330	BULB, 12 volt	1.95
327	BULB, 28 volt	1.95
70-1-2G	KNOB, On-Off, Volume control	1.95
70-4-2G	KNOB, Index	1.95
	ELECTRO-VOICE MICROPHONE	47.50
	ROANWELL MICROPHONES	17.25
	MURDOCK HEADSET	12.00
	TELEX HEADSET	17.50
	INDEX ASSEMBLY, complete with switchdecks, Brackets, Crystal Sockets, wired ready for installation	60.00
	POWER SUPPLY	
	POWER SUPPLY, Complete (Specify 14 or 28 volt)	250.00
TR1,TR2,TR3,TR4	TRANSISTOR, 2N277, 14 volt	7.50 ea.
	TRANSISTOR, 2N174, 28 volt	17.25 ea.
CR1 thru CR4	RECTIFIER, CER-73	4.40 ea.
T-6	TRANSFORMER, TOROID (Specify 14 or 28 volt)	50.00
C63,C64,C67	CAPACITOR, 8 MF @ 350 VDC Electrolytic	1.25

Ref. Symbol	Description	Price
C62	CAPACITOR, 400 MF @ 15 VDC (14 V Units only)	15.70
C62	CAPACITOR, 100 MF @ 30 VDC (28 V Units only)	13.45
R41	RESISTOR, Carbon, 100 ohm, 2 watt (14 V Units only)	.35
R42	RESISTOR, Carbon, 47 ohm, 2 watt	.35
R43	RESISTOR, Carbon 470 ohm, 2 watt (14 V Units only)	.35
R43	RESISTOR, Carbon, 1K ohm, 1 watt (28 V Units only)	.25
L21	CHOKE, .4 MH	5.35
L23	CHOKE, 5 MH	1.25
L24	CHOKE, 400 MH	5.20

ANTENNA LOADING UNITS

EL-14-5	REMOTE LOADING UNIT, Complete and ready for installation (14 volt)	150.00
EL-28-5	REMOTE LOADING UNIT, Complete and ready for installation (28 volt)	150.00
RL-002	MOTOR, Rotary Solenoid (14 volt)	45.00
RL-003	MOTOR, Rotary Solenoid (28 volt)	45.00
C80	CAPACITOR, .47 MF @ 400 VDC	.55
PL3	CONNECTOR, Transmitter Coax.	1.50
PL4	PLUG, 16 Pin, Male, Complete with cover	5.30
	FEED-THRU, Ceramic	.60
	LOADING COIL	3.55

Ref. Symbol	Description	Price
F2	FUSE, 10 amp (14 volt)	.25
F2	FUSE, 5 amp (28 volt)	.25
	MANUAL LOADING KIT, Complete and ready for installation.	60.00
	CONTROL HEADS	
4002-NW	CONTROL HEAD, Drum type, 5 channel (not wired)	100.00
4002	CONTROL HEAD, Drum type, 5 channel (wired)	125.00
5002	CONTROL HEAD, Digital type, 5 channel (not wired)	190.00
	METER	
M1	METER, R.F. Indicator	38.50
	R. F. INVERTER	
1-4	R.F. INVERTER ASSEMBLY, Less Meter, complete and ready for installation	34.50
PL-5	CONNECTOR, Antenna coax	1.50
PL-6	CONNECTOR, Antenna coax	1.50
CR5	DIODE, 1N34	1.85
C77	CAPACITOR, .01 MF @ 500 VDC Disc.	.25
C78	CAPACITOR, 100 MF @ 500 VDC Tubular	.25
R46	RESISTOR, Carbon, 680 ohm, 1/2 watt	.25
T9	TRANSFORMER	9.40

TRAILING WIRE ANTENNA SYSTEMS

SunAir Part No.	Description	Price
MR-1	MANUAL REEL ANTENNA SYSTEM, complete and ready for installation	49.50
ER-14	ELECTRIC REEL ANTENNA SYSTEM, complete and ready for installation (14 volts)	165.00
ER-28	ELECTRIC REEL ANTENNA SYSTEM, complete and ready for installation (28 volts)	125.00

REPLACEMENT PARTS FOR ANTENNA SYSTEM

18" Fairlead	17.50
Fairlead Insulator, Ceramic	8.75
Dragcup	12.50
Dragcup Spring (Electric Reel Systems)	.95
Manual Reel, Bobbin Only	27.50
Trailing Antenna Wire	.10 per ft.
Coaxial Cable	.15 per ft.
Reel Control Box (Electric Reel only)	15.00
PL-112 Plugs	1.95
Bobbin (Electric Reel only)	2.25
28 Volt Electric Reel & Gear Case Assembly	75.00
14 Volt Electric Reel & Gear Case Assembly	95.00
MC-215 Flexible Drive Cable (Electric Reel)	14.75
Antenna Kit, Fixed	17.80

REPLACEMENT PARTS FOR ANTENNA SYSTEM, CONTINUED

Description	Price
SPEAKER	10.80
MOTOR, Electric Reel, 28V	45.00
MOTOR, Electric Reel, 14V	75.00
COAXIAL ANTENNA RELAY	39.00

IMPORTANT NOTICE

If you ever have occasion to return equipment to SUNAIR, please be certain of proper packaging. There have been recent cases of shipping damage due to insufficient attention to carton size and packing material. A few extra minutes spent in making sure of your package will save both time and money for both of us.

SUNAIR ELECTRONICS, INC.

REMEMBER - - - - -

Your SUNAIR Transceiver has been carefully aligned and each channel has been properly tuned prior to shipment. No further checking should be necessary under normal circumstances. If you have any doubt on the performance of your SUNAIR, refer to the technical manual before adjustment.

SUNAIR ELECTRONICS, INC.

SERVICE LETTER NO. 3

ALL SUNAIR TRANSCEIVERS

LOADING COILS FOR FIXED ANTENNA INSTALLATIONS:

The Transmitter outputs are in all cases tuned for a 52 ohm impedance. Since this quarter wavelength impedance is obtained by varying the length of the trailing wire antenna to match the frequency, the loading coils are necessary with fixed antennas in order to maintain the effective antenna impedance of 52 ohms.

The fixed antenna may be a straight wire or the conventional V pattern depending upon the installation. The fixed antenna length must not be more than one quarter wave length of the highest frequency. In this way, the loading coil taps can be arranged to tune the lower frequencies as required. For best performance, the highest frequency used with a fixed antenna should not be more than 8 mc. This will require a fixed antenna length of approximately 25 feet.

Starting June 1, 1960 all loading units will be supplied with an extra wafer to facilitate installation of the series condensers in the event the fixed antenna has to be electrically shortened for frequencies above 8 mc. The loading coil (whether remote or manual) will then tune all frequencies between 2.5 mc and 12 mc. The loading coil taps should be positioned for maximum indication on the R.F. output meter. Relative field strength should then be measured and final setting of the loading taps refined if necessary. A schematic illustrating the method for using capacitators can be located on pages 22 and 23.