JERROLD®

INSTRUCTION SHEET

435-387.1

TRANSISTORIZED

SINGLE-CHANNEL PREAMPLIFIER

Model TPR-*

DESCRIPTION

Model TPR-* is a fully solid-state engineered single-channel preamplifier for use at the head-end of CATV systems. The unit is designed to take maximum advantage of the signal strength available at the antenna array and to compensate for down-lead losses between antenna and head-end without degrading the system noise figure.

The preamplifier comes in two basic types: a low-band (ch. 2 to 6) type employing one transistor, and a high-band (ch. 7 to 13) type employing two transistors. Both types have 6 mc bandwidth and feature high-Q preselector circuitry employing helical resonators. The preselector is factory-tuned to the required channel. The unit exhibits excellent rejection of non-adjacent channels while maintaining optimum noise figure. Input and output are well matched.

The preamplifiers have a low noise figure and a frequency response which is flat ±0.25 db over the entire bandwidth. Zener diode circuitry assures self-regulation of operating voltages. The units are ac powered, dispensing with any electrolysis problems. The input voltage required at the pre-amplifier is 22 to 30 vac at 120 ma max. delivered from its remote power supply Model PPS-8 (optional). Where Jerrold power supply Model 405-P is employed in existing installations, it will readily supply the necessary voltage to the preamplifier.

AC power up to and amplified r.f. signal down from the pre-amplifier are transported over the same coaxial cable.

Model TPR-* has a mounting bracket designed for mast, tower or wall mounting. Housed in a rugged cast aluminum case, the preamplifier is capable of withstanding the most adverse weather conditions. Low power consumption, de-rated use of components and a cadmium-plated brass chassis assure long life, minimum maintenance and low operating cost.

*Check channel number on package against your order and requirements.

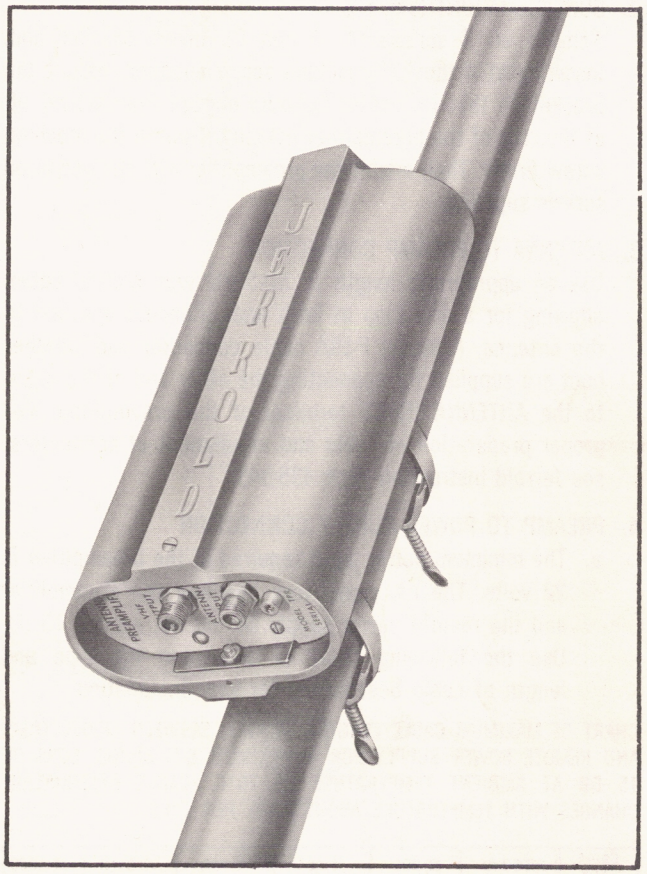


Fig. 1—Mast-Mounted Model TPR-*

CONTENTS OF PACKAGE

- 1 Model TPR-*
- 2 Mast Straps with Clamps
- 2 Thumb Screws
- 2 Male Connectors F-59A
- 2 Protective Cable Boots
- 1 Machine Screw ⅝"
- 2 Wood Screws ¾"
- 1 Warranty Card
- 1 Instruction Sheet

SPECIFICATIONS

FREQUENCY RANGE	Any single vhf-tv channel (2 thru 13).
BANDWIDTH	6 mc.
GAIN	18 db min. on low-band channels. 20 db min. on high-band channels.
AMBIENT TEMPERATURE RANGE	—50° F to + 150° F.
NOISE FIGURE	4.0 db max. on low-band channels. 5.5 db max. on high-band channels.
FLATNESS OF RESPONSE	±0.25 db across 6 mc.
OUTPUT CAPABILITY (at 0.5 db sync compression)	40 dbj** on low-band. 50 dbj on high-band.
VSWR	INPUT: 1.5:1 (14 db return loss). OUTPUT: 1.38:1 (16 db return loss).
OPERATING VOLTAGE REGULATION	Through Zener Diode circuitry.
INPUT POWER REQUIREMENT	22 to 30 vac at 120 ma max.
DIMENSIONS	8½" L, 3⅞" W, 2⅛" D.
FINISH	Clear aluminum.
NET WEIGHT	3½ lbs.
SHIPPING WEIGHT	5 lbs.

INSTALLATION

1. MAST MOUNT
   Mount the preamplifier conveniently near the antenna array, using the mast straps, clamps and thumb screws supplied. Tighten the screws securely.

2. SURFACE MOUNT (See Fig. 2)
   Remove all 3 screws (A, B and C), invert bracket and, inserting at A the ⅝" machine screw supplied, mount the bracket so that its center cut-outs engage the vertical rib at the rear of the preamplifier housing. Tighten the machine screw firmly. Then mount the preamplifier with the two wood screws supplied.

3. ANTENNA TO PREAMP CONNECTION
   Use an appropriate length of RG-59/U type coaxial cable, allowing for a drip loop at both ends. Connect one end to the antenna. A Model F-59A cable connector and weather boot are supplied for connecting the other end of the cable to the ANTENNA INPUT terminal of the preamplifier. For proper preparation of cable and attachment of connectors, see Jerrold Instruction Book 435-345.

4. PREAMP TO POWER SUPPLY CONNECTION
   a. The minimum power input required at the preamplifier is 22 volts. The r.f. signal loss between the preamplifier and the remote power supply should not exceed 15 db. Use the following chart to determine the type and length of cable best suited for your installation.

CHART OF MAXIMUM CABLE LENGTHS IN FEET, BETWEEN MODEL TPR-* AND REMOTE POWER SUPPLY FOR A MAXIMUM R.F. SIGNAL LOSS OF 15 DB AT AMBIENT TEMPERATURE OF 70°F. (CABLE ATTENUATION CHANGES WITH TEMPERATURE ABOUT 0.1% PER 1°F.)

Cable Type	RG-59/U	JT-201	JT-404	JT-408	JT-1412	JT-1500
Channel	ft.	ft.	ft.	ft.	ft.	ft.
2	500	1360	1440	1740	1920	2420
3	480	1270	1350	1640	1800	2240
4	445	1220	1290	1570	1720	2080
5	425	1130	1200	1470	1610	1920
6	400	1100	1150	1410	1420	1780
7	275	740	770	980	1020	1270
8	265	720	750	960	1000	1230
9	260	710	740	940	990	1190
10	260	700	720	920	970	1150
11	255	690	700	900	950	1120
12	250	680	690	890	920	1095
13	245	670	680	880	900	1070

**0 dbj = 1000 microvolts across 75 ohms.

   b. Prepare the coaxial cable and attach appropriate connectors. A weather boot is supplied for the cable end which is to be connected to the preamplifier VHF OUTPUT terminal. After connection of the cable, wrench-tighten both connectors at the VHF OUTPUT and the ANTENNA INPUT terminals not more than 1/6 of a turn.

   c. Cover both connections with silicone grease and slide the weather boots over the connections. Again arrange for a drip-loop of the down-lead cable before fastening to the first stand-off.

      In corrosive atmospheres it is recommended to spray the preamplifier with Jerrold Compound 661-008.

   d. Now connect the other end of the cable to the VHF/AC terminal on the remote power supply. Switch on the power supply. Then use a Jerrold Field Strength Meter Model 704B to check the signal strength at the r.f. output connector of the power supply.

      NOTE: Although Model TPR-* is designed with high-Q preselection before amplification, occasionally a trap or traps may be needed to prevent overloading the preamplifier where strong signals from local stations are encountered in adjacent or nonadjacent channels.

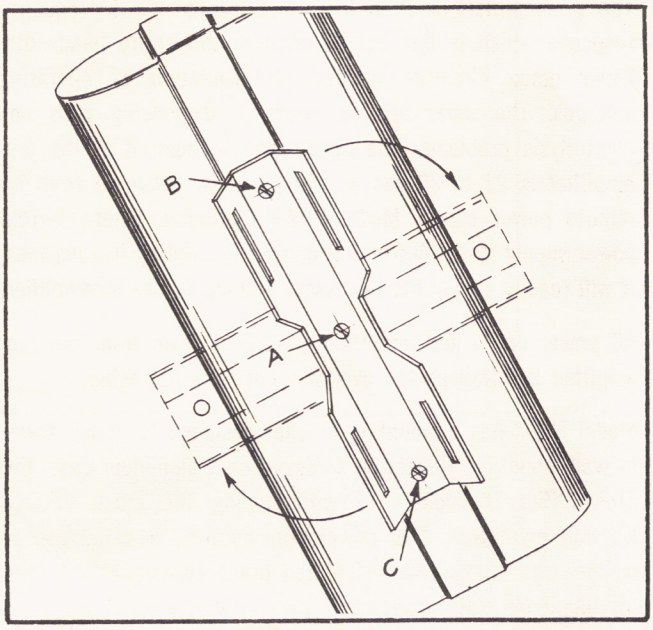


Fig. 2—Inverting and Pivoting Bracket for Wall Mount

MAINTENANCE

The solid-state design and rugged construction of Model TPR-* ensure long life at minimum maintenance. Should it ever become necessary to replace a transistor, such servicing should be carried out only by qualified personnel, experienced in servicing transistor circuitry. Schematic circuit diagrams with critical voltage check points and a parts list are given in this instruction sheet.

RETUNING TO A DIFFERENT CHANNEL***

Where it becomes necessary to retune the preselector to a different channel (e.g., when a station changes its broadcasting frequency) the standard sweep technique and instruments as described in Jerrold Technical News Letter, Vol. 1—No. 1, should be employed. Two tuning slugs are provided on the preselector. However, a check should first be made to be certain that the type and length of the coaxial cable between the preamplifier and the power supply in the existing installation will not have an attenuation exceeding 15 db at the new channel. Consult the chart given in the installation procedure.

***Model TPR-2 cannot be tuned to another channel.
Models TPR-3 and TPR-4, each can be tuned to either ch. 3 or 4.
Models TPR-5 and TPR-6, each can be tuned to either ch. 5 or 6.
Models TPR-7, 8 and 9, each can be tuned to either ch. 7, 8 or 9.
Models TPR-10, 11, 12 and 13, each can be tuned to either ch. 10, 11, 12 or 13.

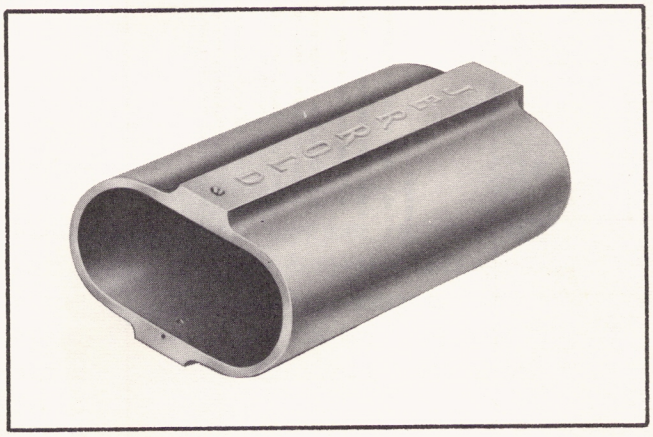


Fig. 3—Model TPR-* Housing

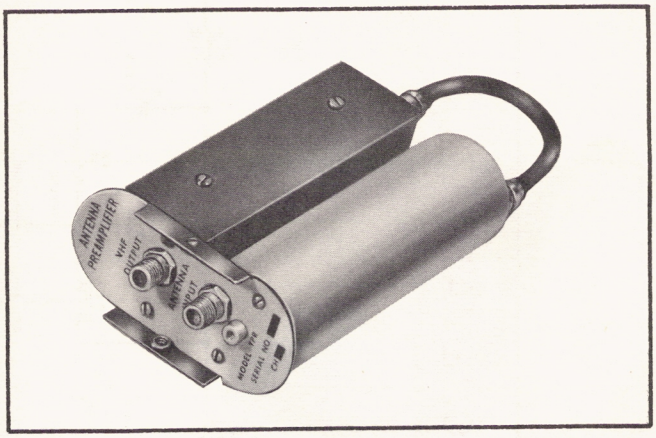


Fig. 4—Model TPR-* Preselector & Amplifier Module

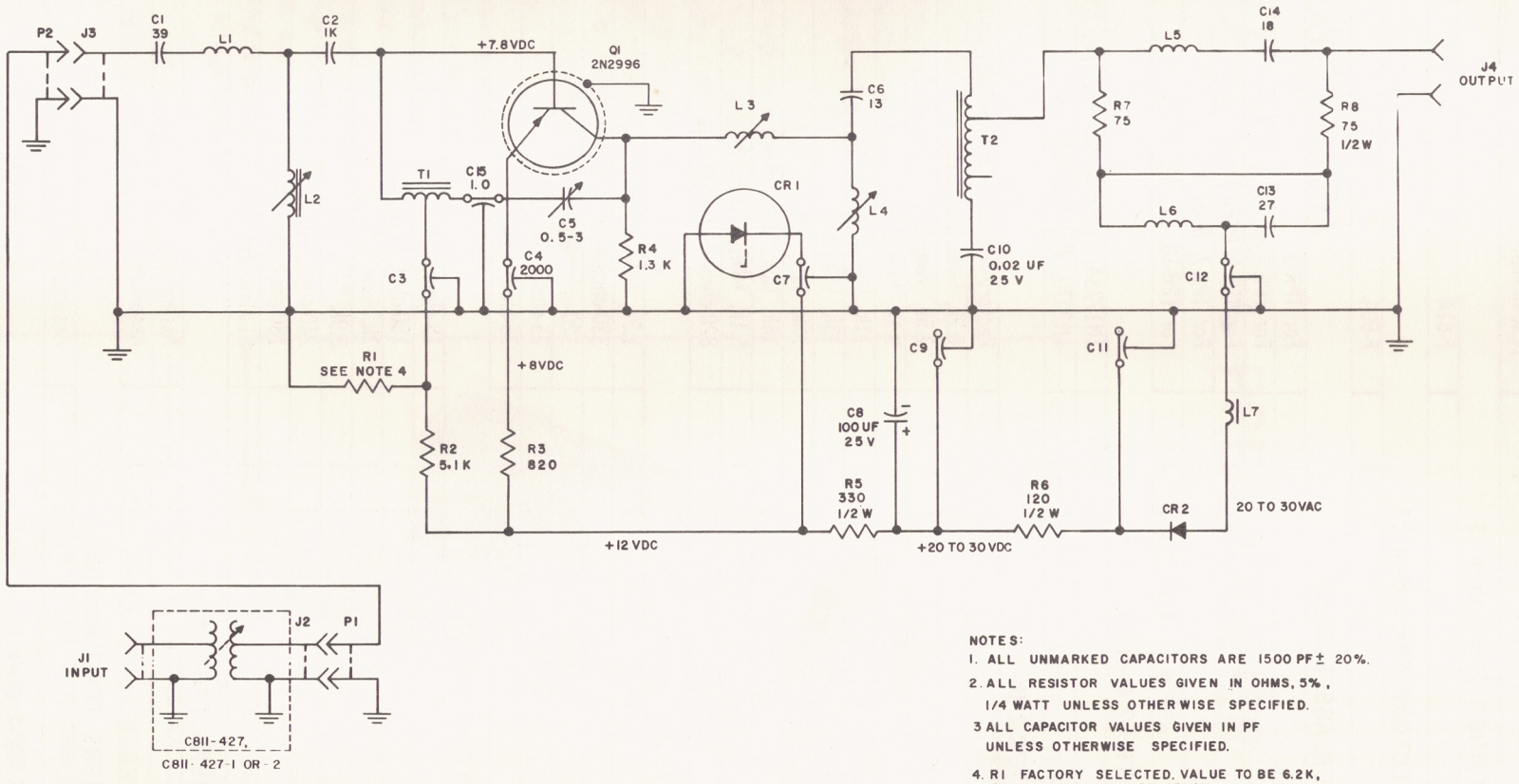
REPLACEMENT PARTS LIST
Models TPR-2 thru 13

SCHEMATIC DESIGNATION	QTY.	DESCRIPTION	JERROLD PART NO.
CAPACITORS TPR-2 thru 6			
C1	1	39 pf TCZ	121-022
C2	1	1000 pf Disc	123-115
C3, 4, 7, 9, 11, 12	6	1500 pf ±20% Feed-thru	129-208
C5	1	.5-3 pf Trimmer	128-527
C6	1	13 pf, 10% QC	122-039
C8	1	100 uf/25v Elect.	127-039
C10	1	.02 uf/25v Disc	124-065
C13	1	27 pf, 5%, QC	122-019
C14	1	18 pf, 10%, QC	122-045
C15	1	1.0 pf Feed-thru	129-226
CAPACITORS TPR-7 thru 13			
C1	1	27 pf TCZ	121-018
C2, 3, 8, 9, 10, 12, 14, 15, 17	9	1500 pf ±20% Feed-thru	129-208
C4, 11	2	.5-3 pf Trimmer	128-527
C5	1	.02 uf/25v Disc	124-065
C6	1	12 pf 10% QC	122-046
C7	1	1.8 pf	122-007
C13	1	100 uf/25v Elect.	127-039
C16	1	6.8 pf	122-013
C18	1	1.0 pf Feed-thru	129-226

REPLACEMENT PARTS LIST (Continued)

SCHEMATIC DESIGNATION	QTY.	DESCRIPTION	JERROLD PART NO.
CHASSIS FITTINGS TPR-2 thru 13			
J1, 2, 3, 4	4	F-61A	C821-155-1
MALE CONNECTORS TPR-2 thru 13			
P1, 2	2	F-59A	B821-196
PRE-SELECTOR ASSEMBLIES			
C811-*	1	For TPR-2	C811-427
	1	For TPR-3 or 4	C811-427-1
	1	For TPR-5 or 6	C811-427-2
	1	For TPR-7, 8 or 9	C811-427-3
	1	For TPR-10, 11, 12, or 13	C811-427-4
RECTIFIERS TPR-2 thru 13			
CR1	1	1N1773A, Zener Diode, 12v, 1w, 5%	137-720
CR2	1	1N2070, 750 ma, 400 piv	137-712
RESISTORS TPR-2 thru 13			
R1	1	Factory-selected for individual unit.	
		6.2k, ¼w, 5%	112-981
		7.5k, ¼w, 5%	112-986
		9.1k, ¼w, 5%	112-987
		11k, ¼w, 5%	112-988
		13k, ¼w, 5%	112-989
		15k, ¼w, 5%	112-990
		18k, ¼w, 5%	112-991
R2	1	5.1k, ¼w, 5%	112-980
R3	1	820-ohm, ¼w, 5%	112-976
RESISTORS TPR-2 thru 6			
R4	1	1.3k, ¼w, 5%	112-064
R5	1	330-ohm, ½w, 5%	112-296
R6	1	120-ohm, ½w, 5%	112-245
R7	1	75-ohm, ¼w, 5%	112-954
R8	1	75-ohm, ½w, 5%	112-221
RESISTORS TPR-7 thru 13			
R4	1	15-ohm, ¼w, 5%	112-973
R5	1	150-ohm, ¼w, 5%	112-974
R6	1	1k, ¼w, 5%	112-977
R7	1	3.9k, ¼w, 5%	112-979
R8	1	240-ohm, ¼w, 5%	112-975
R9	1	180-ohm, 1w, 10%	112-270
R10	1	51-ohm, 1w, 5%	112-201
TRANSFORMERS TPR-2 thru 6			
T1	1	Assembly	B144-072
T2	1	Assembly	B144-071
TRANSFORMERS TPR-7 thru 13			
T1, 2	2	Assembly	B144-072-1
TRANSISTOR TP-2 thru 13			
Q1	1	2N2996	130-111
TRANSISTOR TPR-7 thru 13			
Q2	1	2N1142	130-108

SCHEMATIC
LOW BAND PREAMP



NOTES:

1. ALL UNMARKED CAPACITORS ARE 1500 PF ± 20%.
2. ALL RESISTOR VALUES GIVEN IN OHMS, 5%, 1/4 WATT UNLESS OTHERWISE SPECIFIED.
3. ALL CAPACITOR VALUES GIVEN IN PF UNLESS OTHERWISE SPECIFIED.
4. R1 FACTORY SELECTED. VALUE TO BE 6.2K, 7.5K, 9.1K, 11K, 13K, 15K, OR 18K.
5. USE VTVM ONLY FOR VOLTAGE MEASUREMENTS.
6. DO NOT USE OHMMETER FOR MEASURING RESISTANCE WHEN TRANSISTORS ARE IN CIRCUIT.

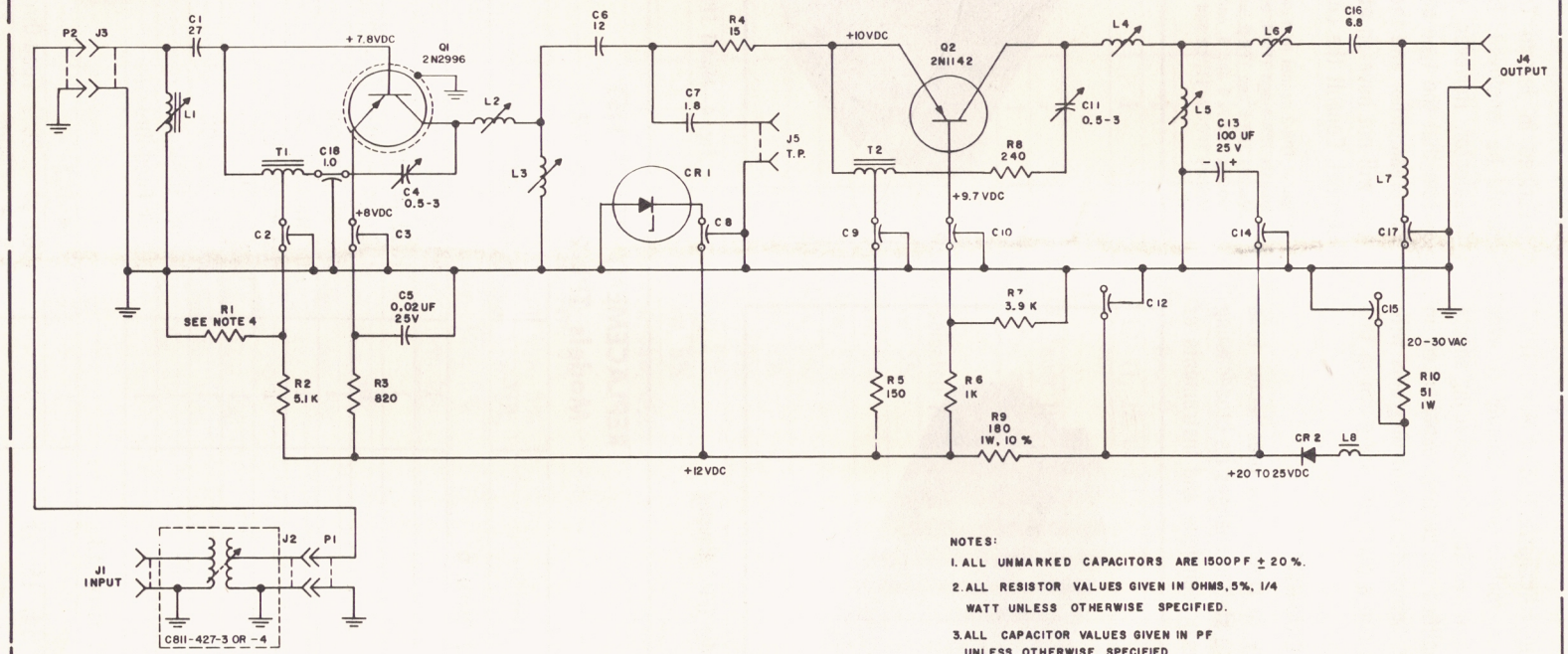
D861-536-E

SCHEMATIC LOW-BAND MODEL TPR-*

ALL DATA SUBJECT TO CHANGE WITHOUT NOTICE

SCHEMATIC

HIGH BAND PREAMP



NOTES:

1. ALL UNMARKED CAPACITORS ARE 1500PF ± 20 %.
2. ALL RESISTOR VALUES GIVEN IN OHMS, 5%, 1/4 WATT UNLESS OTHERWISE SPECIFIED.
3. ALL CAPACITOR VALUES GIVEN IN PF UNLESS OTHERWISE SPECIFIED.
4. R1 FACTORY SELECTED. VALUE TO BE 6.2K, 7.5K, 9.1K, 11K, 13K, 15K, OR 18K.
5. USE VTVM ONLY FOR VOLTAGE MEASUREMENTS.
6. DO NOT USE OHMMETER FOR MEASURING RESISTANCE WHEN TRANSISTORS ARE IN CIRCUIT.

D861-537-E

SCHEMATIC HIGH-BAND MODEL TPR-*

JERROLD ELECTRONICS • PHILADELPHIA, PA. 19132

COMMUNITY SYSTEMS DIVISION

JERROLD ELECTRONICS

A subsidiary of THE JERROLD CORPORATION

KEE, February 1965
LM, March 1964

Printed in U.S.A.

435-387.1