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SKIPPER 300 BI-LINEAR AMPLIFIER

INSTRUCTION SHEET

FREQUENCY RANGE 26 Mhz to 54 Mhz

OUTPUT POWER 275-300 Watts with the "PWR" switch in the "hi" position. 50-100 watts with the "PWR" switch in the "low" position. ~~Maximum output is obtained using~~ a 50-72 ohm load with 3 watts RF drive.

DESCRIPTION Stable grounded grid circuitry provides a minimum transmitted power gain 30 to 100 times throughout the tuning range, will work on any signal of 1 watt or more. Silicon transistor preselector provides an approximate gain of 3 decibels on received signal. Automatic switching using RF power from your transceiver--no internal connections are required to your existing equipment. Self-contained 117 VAC power supply. Illuminated front panel meter indicates relative RF strength of transceiver and linear amplifier. Dependable PI output circuitry for easy tune-up.

TUBE COMPLEMENT (4) 8950

Transistors & Diodes (2) 2N2905-A (1) 1N4002 or equivalent
(5) 1N4005 or equivalent (3) 1N914

INSTALLATION

DO NOT BLOCK AIRFLOW at bottom and top of unit. Connect line cord to 117 VAC source. Skipper 300 is protected by a 10 ampere fuse. Connect a good outside ground to grounding stud on rear of unit. Observe above precautions about airflow and cooling. Connect coaxial cable from transmitter to xmitter connector and antenna to antenna connector.

OPERATION

Turn "PWR switch" "ON" and turn "MODE" switch to the "STBY" position. Pilot lamp, fan, and tube filaments will be activated. Your transceiver will now be producing its normal output. Switch the "REC AMP" to the "ON" position, immediately you will hear an increase in the received signal. Now turn the "MODE" switch to the "OPERATE" position. Set tune and load knob at 12 o'clock. Wait approximately 30 seconds before depressing mike button. Depress mike button and immediately adjust tune control for maximum meter reading. Now adjust load control for maximum meter reading. NOTE: WHILE TUNING THE AMPLIFIER, DO NOT TRANSMIT FOR MORE THEN 30 SECONDS AT ONE TIME, AS THIS WILL SHORTEN TUBE LIFE CONSIDERABLE. It will be necessary to repeat the adjusting of the tune and load controls several times before maximum meter reading

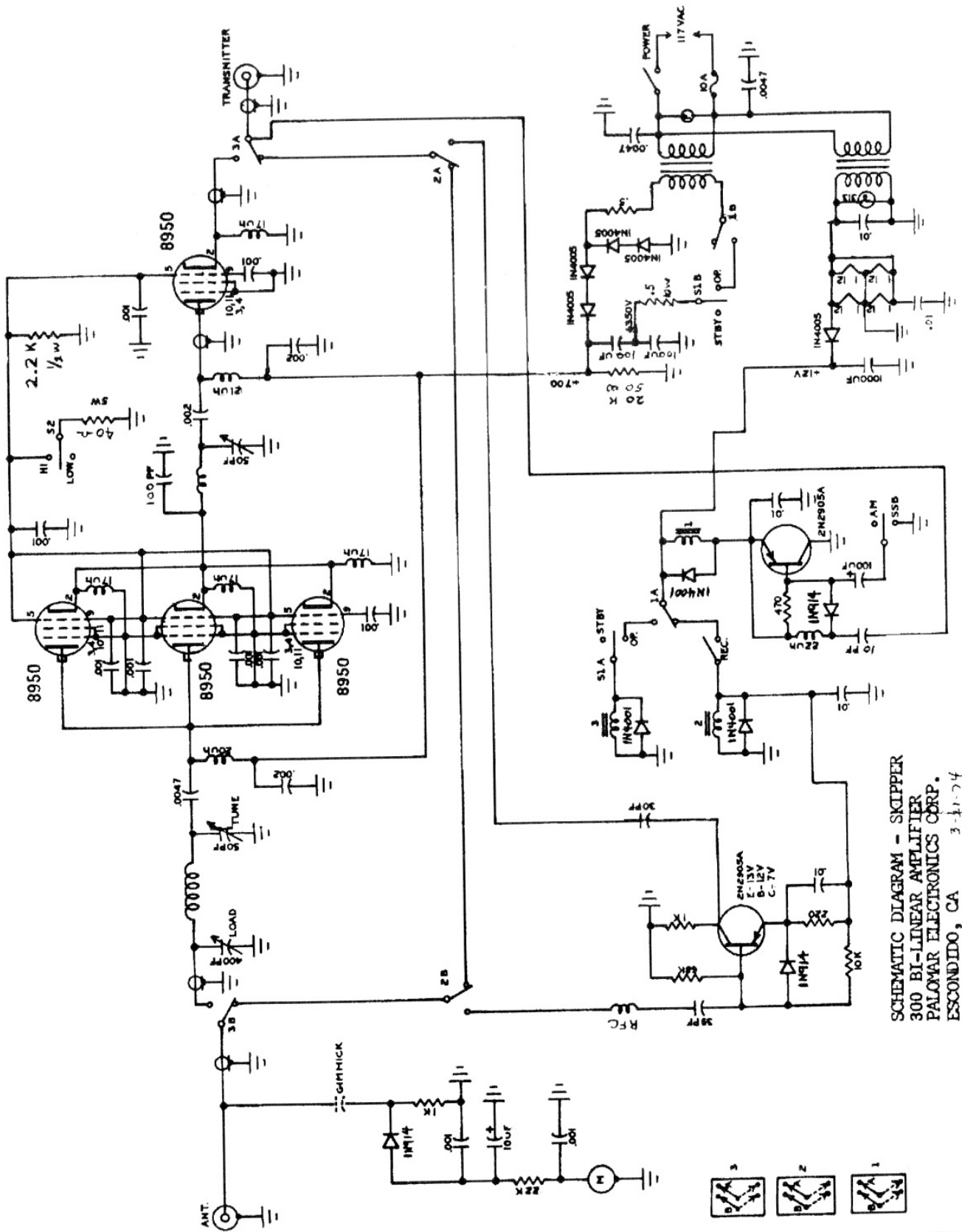
is obtained. After tune and load have been adjusted for maximum reading, the 1/4" shaft extending from the upper left corner of the rear panel will have to be tuned for maximum reading. After obtaining maximum reading, the amplifier must be overcoupled, this is accomplished by taking the load control and turning clockwise 1/4 inch. If this is not done, the transmitted audio will sound "fuzzy" or distorted.

WARRANTY POLICY

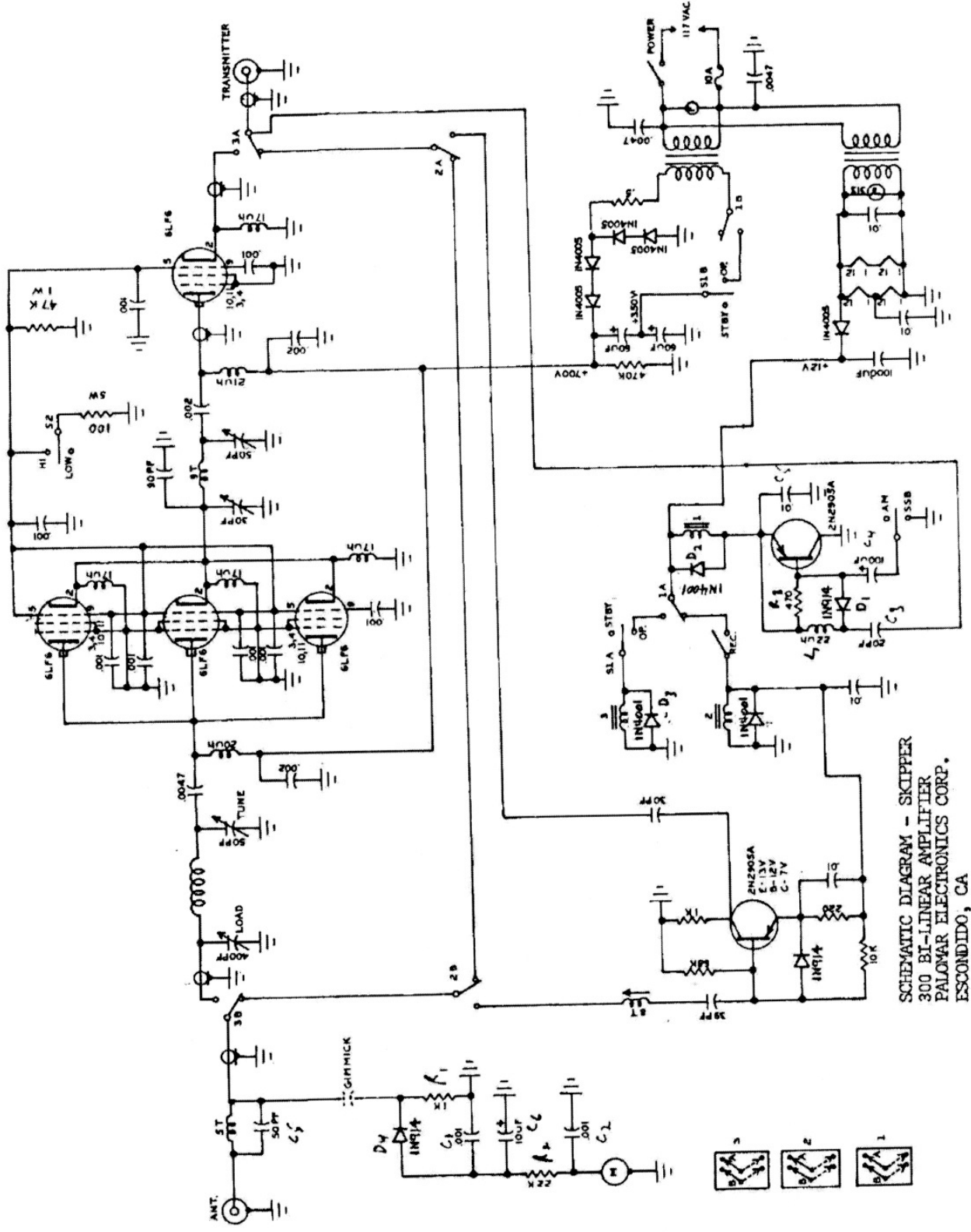
PALOMAR ELECTRONICS CORP. WARRANTS THIS EQUIPMENT AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP, EXCEPT FOR TUBES, TRANSISTORS, AND DIODES, UNDER NORMAL SERVICE FOR A PERIOD OF SIX MONTHS FROM DATE OF ORIGINAL PURCHASE. DO NOT SHIP TO THE FACTORY WITHOUT PRIOR AUTHORIZATION. ALL RETURNS FOR REPAIR MUST BE SENT FREIGHT PREPAID. PALOMAR WILL PREPAY THE RETURN FREIGHT. THIS WARRANTY IS LIMITED TO REPAIRING OR REPLACING ONLY THE DEFECTIVE PARTS, AND IS NOT VALID IF THE EQUIPMENT HAS BEEN TAMPERED WITH, MISUSED, OR DAMAGED.

WARNING

PALOMAR ELECTRONICS CORP., ITS REPRESENTATIVE OR AGENTS, WILL NOT BE RESPONSIBLE FOR THE IMPROPER OR ILLEGAL USE OF THIS UNIT.



SCHEMATIC DIAGRAM - SKIPPER
 300 BI-LINEAR AMPLIFIER
 PALOMAR ELECTRONICS CORP.
 ESCONDIDO, CA 92026
 3-1-74 JDL



SCHMATIC DIAGRAM - SKIPPER
300 BI-LINEAR AMPLIFIER
PALOMAR ELECTRONICS CORP.
ESCONDIDO, CA





**ELECTRONIC
INNOVATIONS**
IN ACTION

TUBES

PRELIMINARY

— PRODUCT INFORMATION —
BEAM PENTODE

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8950

LINEAR AMPLIFIER AND RF PO APPLICATIONS

- 400 MA DC CATHODE CURRENT
- 33 WATTS PLATE DISSIPATION
- 1.4 AMP PEAK CATHODE CURRENT

The 8950 is a compactron beam power pentode primarily designed for RF Power Output applications. Features of the 8950 are dual cathode and grid connections for lower lead inductance, and a 13.0 volt heater. The 8950 is suitable for mobile and marine equipment applications having 12 volt battery supplies.

GENERAL

ELECTRICAL

Cathode Coated Unipotential

Heater Characteristics and Ratings
 Heater Voltage, AC or DC 13.0 Volts
 Heater Current 1.1 Amperes

Direct Interelectrode Capacitances, approximate
 Grid No. 1 to Plate: (g1 to p) 0.6 pf
 Input: 36 pf
 Output: 18 pf

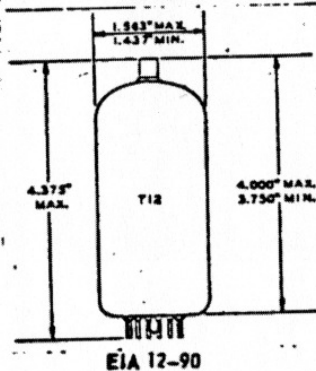
MECHANICAL

Operating Position Any
 Envelope T-12
 Top Cap C1-1, Small
 Base E12-74

Outline Drawing
 Maximum Diameter 1.563"
 Maximum Over all Length 4.375"
 Maximum Seated Height 4.000"

*Similar to 12F7
6J56*

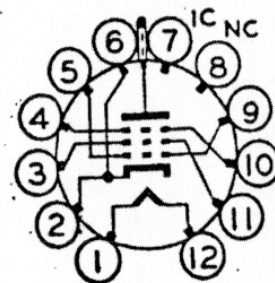
PHYSICAL DIMENSIONS



TERMINAL CONNECTIONS

- Pin 1 - Heater
- Pin 2 - Cathode
- Pin 3 - Grid 2
- Pin 4 - Grid 3 (Beam Plate)
- Pin 5 - Grid 1
- Pin 6 - Cathode
- Pin 7 - Internal Connection (Do not use)
- Pin 8 - No Connection
- Pin 9 - Grid 1
- Pin 10 - Grid 3 (Beam Plate)
- Pin 11 - Grid 2
- Pin 12 - Heater
- Cap - Plate

BASING DIAGRAM



GENERAL ELECTRIC

DESIGN-MAXIMUM VALUES

| | | |
|--|-----------------|--------------|
| DC Plate Voltage | 800 | Volts |
| Peak Positive Pulse Plate Voltage | 6500 | Volts |
| Screen Voltage | 250 | Volts |
| Peak Negative Grid-Number 1 Voltage | 250 | Volts |
| Plate Dissipation | 33 | Watts |
| Screen Dissipation | 5 | Watts |
| DC Cathode Current | 400 | Milliamperes |
| Peak Cathode Current | 1400 | Milliamperes |
| Heater-Cathode Voltage | | |
| Heater Positive with Respect to Cathode | | |
| DC Component | 100 | Volts |
| Total DC and Peak | 200 | Volts |
| Heater Negative with Respect to Cathode | | |
| Total DC and Peak | 200 | Volts |
| Grid-Number 1 Circuit Resistance Δ | | |
| With Fixed Bias | 0.1 | Megohm |
| With Cathode Bias | Not Recommended | |
| Bulb Temperature at Hottest Point ∇ | 240 | $^{\circ}$ C |

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

| | | |
|--|----------|--------------|
| Plate Voltage | 175 | Volts |
| Beam Plates-Connected to Cathode at Socket | | |
| Screen Voltage | 110 | Volts |
| Grid Number 1 Voltage | -21 | Volts |
| Plate Resistance, approximate | ∞ | Ohms |
| Transconductance | 16000 | Micromhos |
| Plate Current | 120 | Milliamperes |
| Screen Current | 2.0 | Milliamperes |
| Grid-Number 1 Voltage, approximate | 42 | Volts |
| $I_b = 1.0$ Milliamperes | ∞ | |
| Triode Amplification Factor | | |

NOTES

- The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.
- Heater current of a bogey tube at $E_f = 13.0$ volts.
- ▲ The type of input coupling network used should not introduce too much resistance in the grid-number 1 circuit. Transformer or impedance coupling devices are recommended.
- ♦ Measured with an infrared thermometer, Ircon Model 700 BC or equivalent.
- To be determined.

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