Palomar ELECTRONICS CORPORATION

BOX 2403, 563 N. CITRACADO PKWY. ESCONDIDO, CA. 92025
TELEPHONE (714) 746-2666

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. Output is rated 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 decibles 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

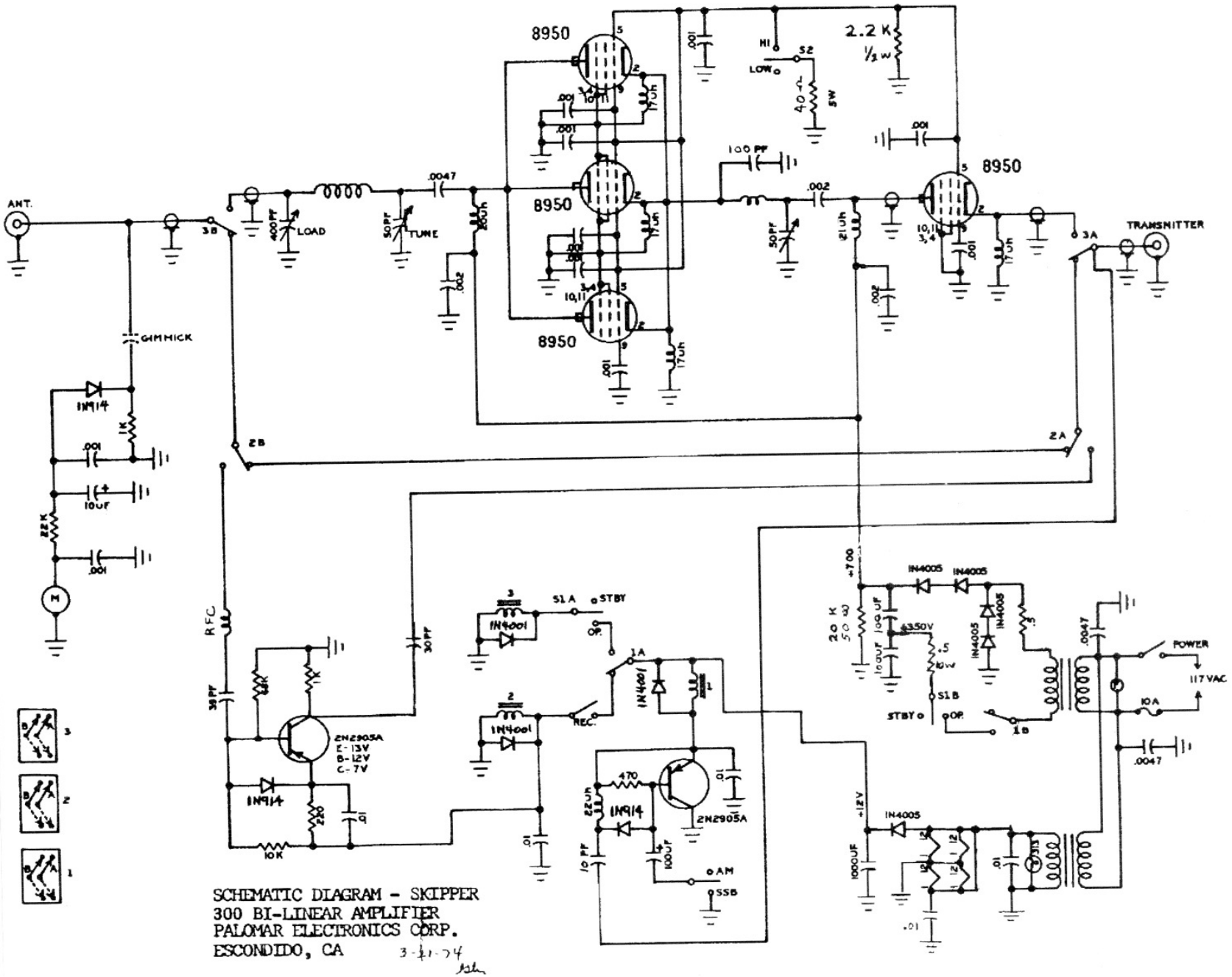
is obtained. After tune and load have been adjusted for maximum reading, the 1/4" shaft extending from the upper left corner of the rear panel will have to be tuned for maximum reading. After obtaining maximum reading, the amplifier must be overcoupled, this is accomplished by taking the load control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

WARRANTY POLICY

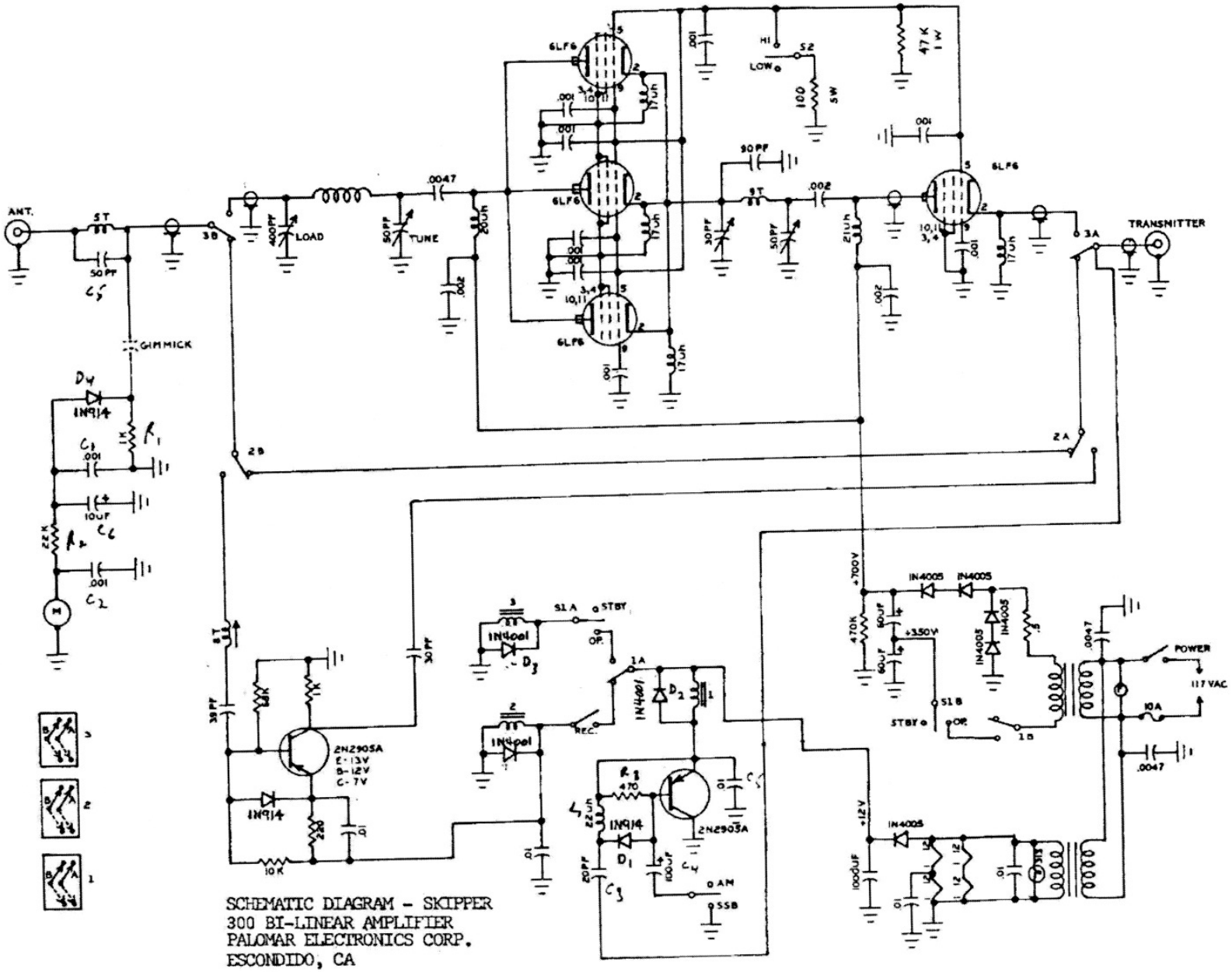
PALOMAR ELECTRONICS CORP. WARRANTS THIS EQUIPMENT AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP, EXCEPT FOR TUBES, TRANSISTORS, AND DIODES, UNDER NORMAL SERVICE FOR A PERIOD OF SIX MONTHS FROM DATE OF ORIGINAL PURCHASE. DO NOT SHIP TO THE FACTORY WITHOUT PRIOR AUTHORIZATION. ALL RETURNS FOR REPAIR MUST 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 3-21-74



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

ELECTRONIC INNOVATIONS IN ACTION

TUBES

PRELIMINARY

—PRODUCT INFORMATION—

BEAM PENTODE

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

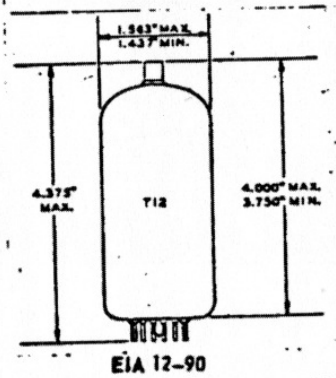
Heater Characteristics and Ratings
Heater Voltage, AC or DC . . . . . 13.0 Volts
Heater Current . . . . . 1.1 Amperes
Direct Interelectrode Capacitances, approximate
Grid No. 1 to Plate: (g1 to p) . . . 0.6 pf
Input: . . . . . 36 pf
Output: . . . . . 18 pf

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 12FY 6JS6

PHYSICAL DIMENSIONS

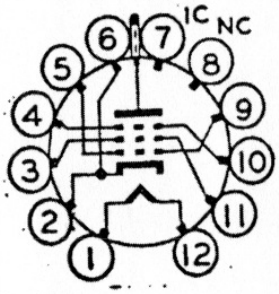


EIA 12-90

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 ▲		
With Fixed Bias	0.1	Megohm
With Cathode Bias	Not Recommended	
Bulb Temperature at Hottest Point ♦	240	°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	110	Volts
Screen Voltage	-21	Volts
Grid Number 1 Voltage	0	Ohms
Plate Resistance, approximate	16000	Micromhos
Transconductance	120	Milliamperes
Plate Current	2.0	Milliamperes
Screen Current	42	Volts
Grid-Number 1 Voltage, approximate		
Ib = 1.0 Milliamperes	0	
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 Ef= 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.

GENERAL ELECTRIC