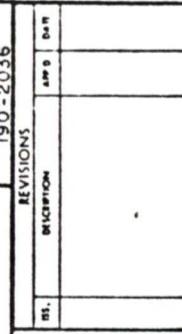


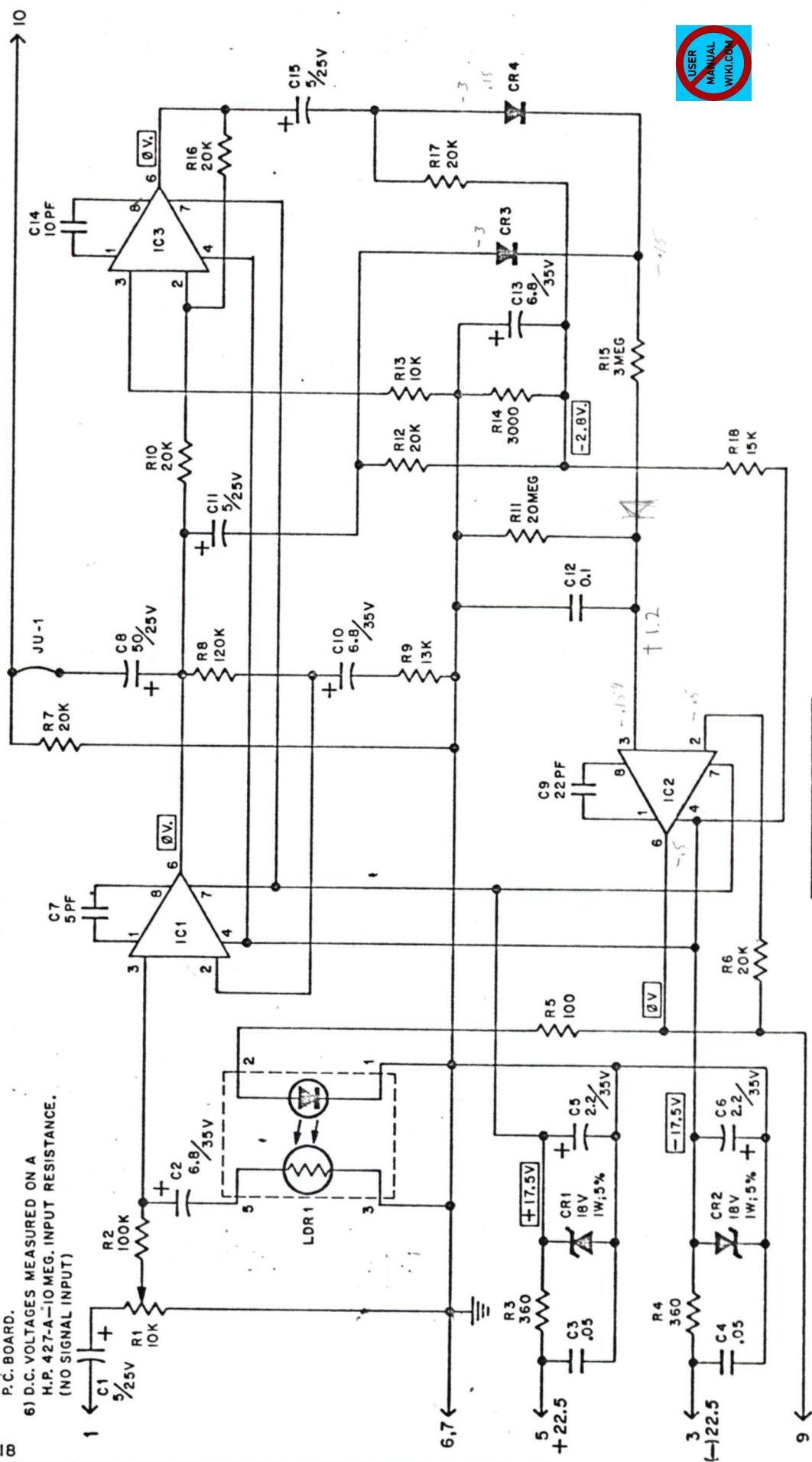
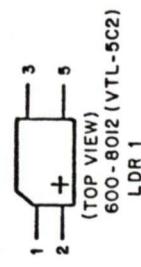
COMMUNICATIONS SYSTEMS SERVICE MANUAL

COM 16



NOTES -
UNLESS OTHERWISE SPECIFIED:
1) ALL RESISTORS ARE 1/2 WATT.
2) ALL RESISTANCE VALUES IN OHMS.
K = 1000 OHMS; MEG = 1,000,000 OHMS.
3) TOLERANCE ON FIXED RESISTORS = $\pm 5\%$.
4) CAPACITANCE VALUES IN MICROFARADS.
5) \leftarrow DENOTES CONTACT FINGERS ON
P.C. BOARD.
6) D.C. VOLTAGES MEASURED ON A
H.P. 427-A-10 MEG. INPUT RESISTANCE.
(NO SIGNAL INPUT)

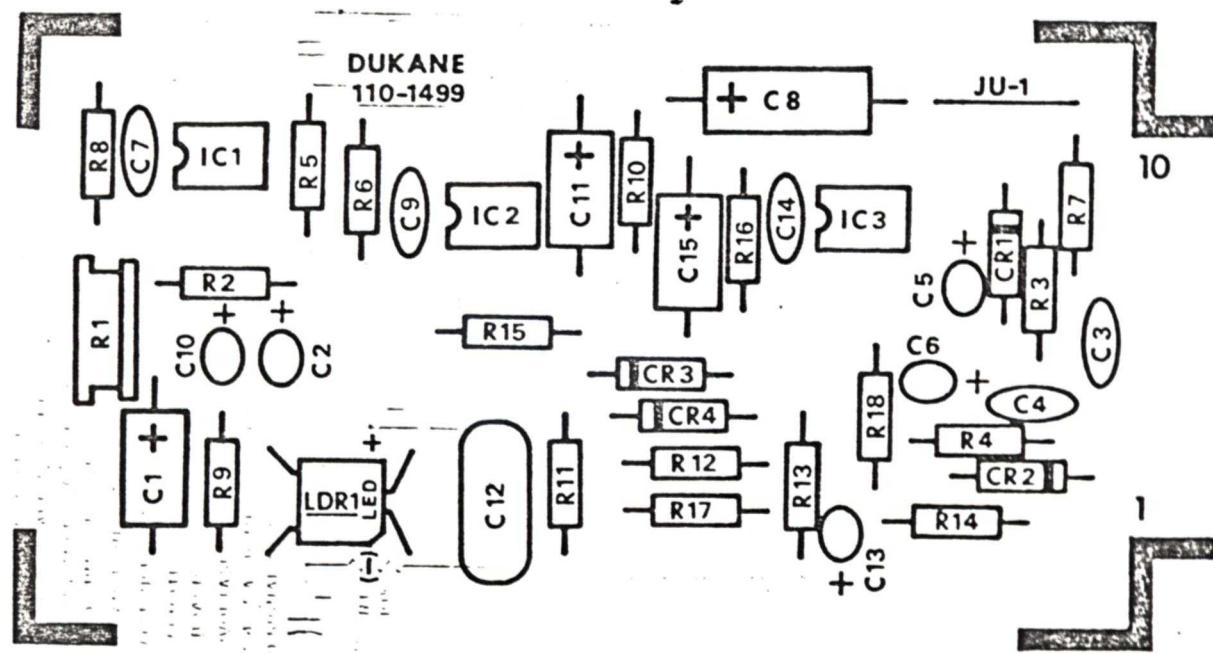
404-918



REPAIR PARTS LIST

2A1G5

LEGEND	DESCRIPTION	DUKANE PART NUMBER
C1,11,15	Capacitor, 5 MF, 'lytic 25 WVDC	199-2021-505
C2,10,13	" , 6.8 MFD, 35V Tant. Elec.	199-2036-685
C3,4	" , .05 MF, ceramic 50 WVDC	199-1011-503
C5,6	" , 2.2 MF, 35 WVDC Tantalum	199-2036-225
C7	" , 5 PFD	199-1013-050
C8	" , 50 MF, 25 WVDC, 'lytic	199-2021-506
C9	" , 22 PF, ceramic	199-1013-220
C12	" , .1 MF 100 WVDC, mylar	199-4043-104
C14	" , 10 PFD	199-1013-100
R1	Resistor, Potentiometer 10 K ohm	601-1007-103
R2	" , 100 K ohm, 5 % ½ watt	600-0073-104
R3,4	" , 360 ohm, 5 % ½ watt	600-0073-361
R5	" , 100 ohm, 5 % ½ watt	600-0073-101
R6,7,10, 12,16,17	" , 20 K ohm, 5 % ½ watt	600-0073-203
R8	" , 120 K ohm, 5 % ½ watt	600-0073-124
R9	" , 13 K ohm, 5 % ½ watt	600-0073-133
R11	" , 20 meg ohm, 5 % ½ watt	600-0073-206
R13	" , 10 K ohm, 5 % ½ watt	600-0073-103
R14	" , 3000 ohm, 5 % ½ watt	600-0073-302
R15	" , 3 meg ohm, 5 % ½ watt	600-0073-305
R18	" , 15 K ohm, 5 % ½ watt	600-0073-153
LDR1	" , special light dependant	600-8012
CR1,2	Diode, zener 18.0 V	230-19-00018
CR3,4	Rectifier, silicon	595-44
IC 1,2,3	Integrated circuits	408-12



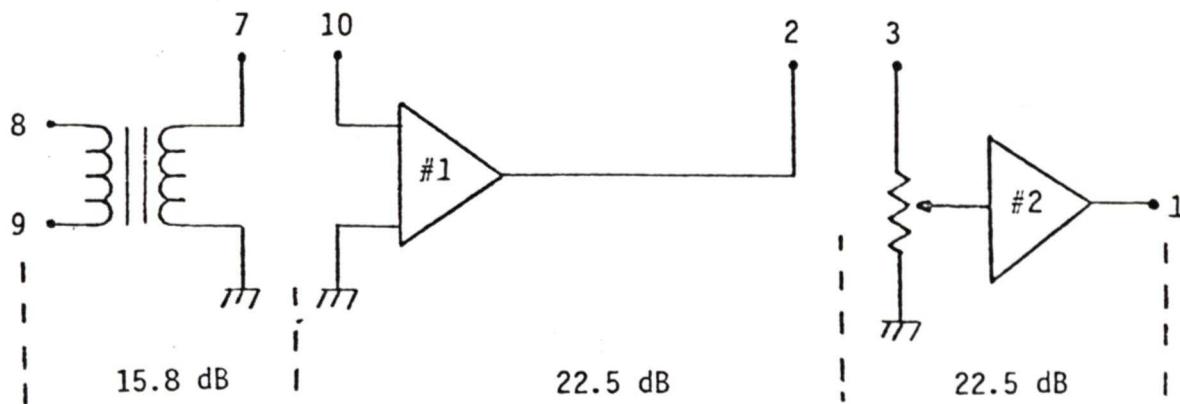
DUKANE

**External Connections
MICROPHONE PREAMPLIFIER-MODEL 2A135**

The 2A135 module is a transformer input two-stage amplifier with about 60dB gain. It requires positive 22.5 Vdc at 15 mA. A gain control is available on the pcb for setting at installation.

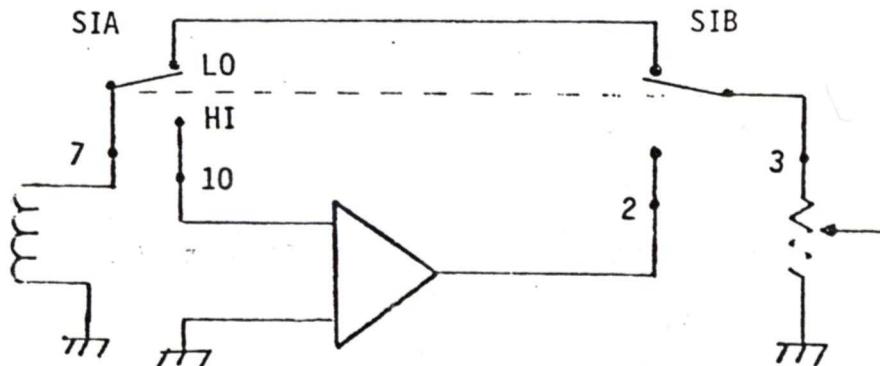
INPUT: 150, 250 or 600 ohm microphones
OUTPUT: Load impedance 3000 ohms or more, Source impedance less than 50 ohms.
GAIN: 60dB ±3dB

COM 13 Sept. 74



The unit may be used (1) as a straight amplifier, (2) as a dual gain amplifier, or (3) as a variable gain amplifier. The variable gain amplifier may be single or switched gain.

1. For fixed 60dB gain amplifier, pins 7 and 10 are connected together and pins 2 and 3 are connected together. Level may be adjusted by the variable gain control on the pcb after installation.
2. For hi/lo gain amplifier, a DPDT switch is connected to switch the first stage amplifier in or out of the circuit. The level adjustment affects both modes of operation. See diagram below.



402-332

PRICE 10 CENTS

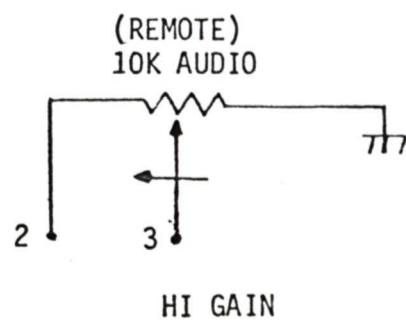
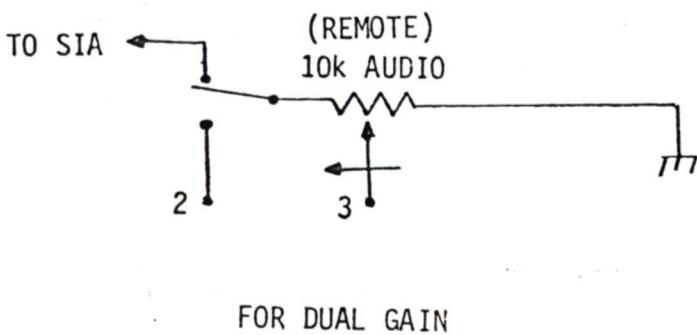
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3. For a remotely controlled channel, either straight through or hi/lo, the remote control is connected between pins 3 and 2. A Dukane part #601-322, with a knob made up of one 440-253 and one 440-255 cemented together, is recommended. A standard Allen Bradley type J, audio taper, 10K control may be used. A suggested method of connection is shown below.



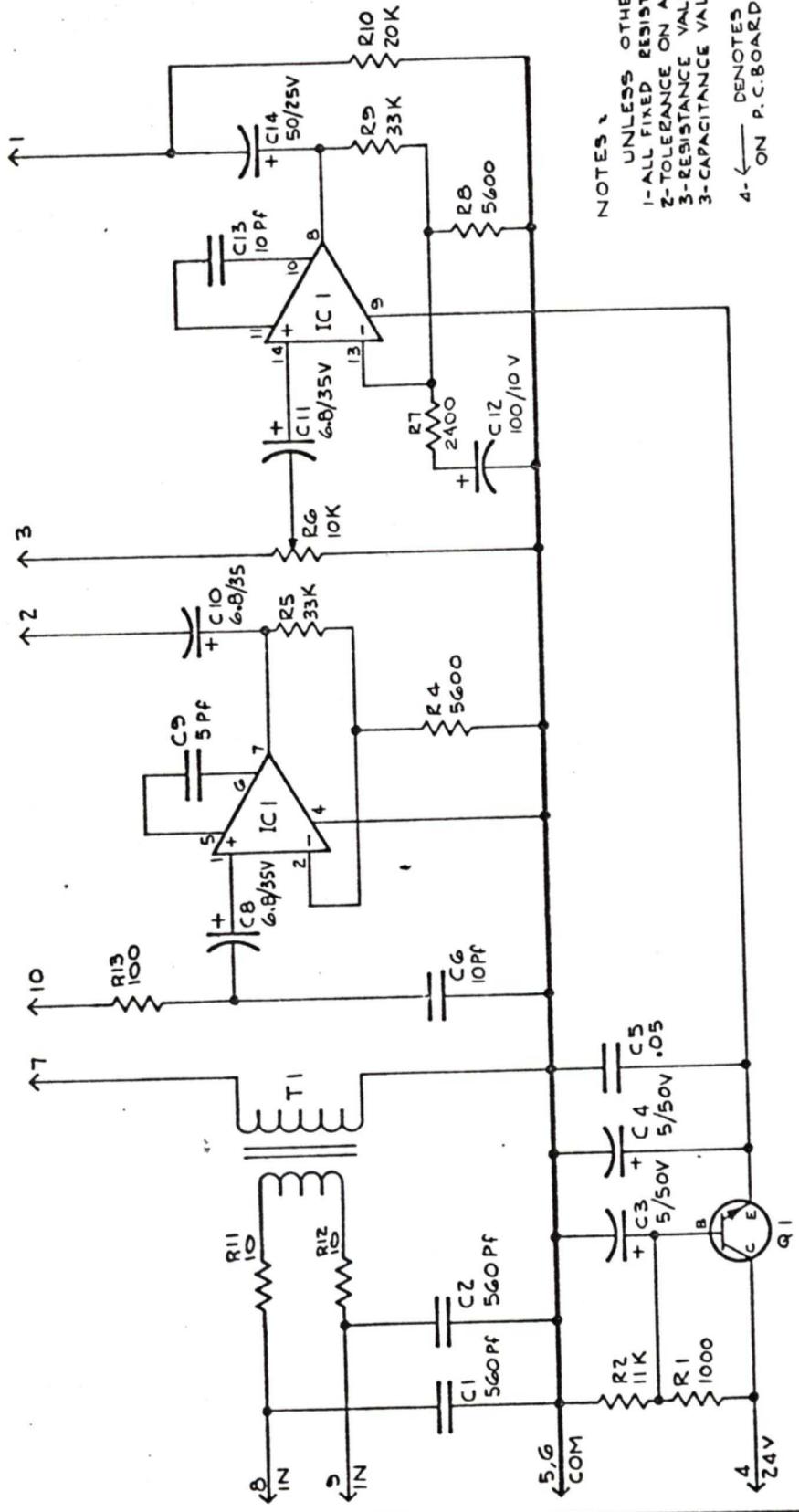
When the connector is installed in a 110-1453 rack, pin #1 should be at the top. Boards should be inserted with the components on the left. Pins 1 and 10 are identified on the component side of the board.

Wiring to or from pins 1,2,3,7,8,9, and 10 should be shielded.

- 1 OUTPUT (STAGE 2) Source less than 50 ohms, Load 3k ohms or more
- 2 OUTPUT (STAGE 1)
- 3 INPUT (STAGE 2)
- 4 24Vdc
- 5 COMMON
- 6 COMMON
- 7 TRANSFORMER SECONDARY
- 8 INPUT (TRANSFORMER PRIMARY)
- 9 INPUT (TRANSFORMER PRIMARY) 150,250, 600 ohm mic.
- 10 INPUT (STAGE 1)

402-332

150-1982			
REVISIONS			
REV.	DESCRIPTION	APP'D	DATE
01	R11, R12 / R13 WERE CHANGED	6/25/82	
02	R1 WAS 5100 REPLACED R3-5100 & C1-000/00 NOTE 3 - Z-520 WAS 10	6/25/82	



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PRINTED:	DATE DRAWN:	PLATE ELEC. NO.:
DUKANE	SCHEMATIC DIAGRAM	14312111098
NO. 1234567	MIC. PRE-AMP	14312111098
APPLICATION	2A135	02

REPAIR PARTS LIST

MODEL 2AI35

LEGEND	DESCRIPTION	DUKANE PART NUMBER
C1,C2	Capacitor, 560 pF, ceramic	199-1014-561
C3,C4	" , 5 uF, 50 WVDC, 'lytic	199-2048-505
C5	" , .05 uF, 50 WVDC, ceramic	199-1011-503
C6,C13	" , 10 pFD	199-1013-100
C12	" , 100 uF, 50 WVDC	199-2058-107
C8,C10,	" , 6.8 uFD, 35 V., 'lytic	199-2036-685
C11		
C9	" , 5 pFD	199-1013-050
C14	" , 50 uF, 25 WVDC, 'lytic	199-2021-506
R1	Resistor, 1000 ohms, 5% ½ watt	600-0073-102
R2	" , 11K ohm, 5% ½ watt	600-0073-113
R7	" , 2400 ohm, 5% ½ watt	600-0073-512
R4,R8	" , 5600 ohm, 5% ½ watt	600-0073-562
R5,R9	" , 33K ohm, 5% ½ watt	600-0073-333
R6	" , 10K ohm	601-1007-103
R10	" , 20K ohm, 5% ½ watt	600-0073-203
R11	" , 10 ohm, 5% ½ watt	600-0073-100
R13	" , 100 ohm, 5% ½ watt	600-0073-101
Q1	Transistor	720-30
IC1	Integrated Circuit	408-13
T1	Transformer Input	710-9014
<u>MISCELLANEOUS</u>		
	Socket Transistor PCB	635-99-00063
	Socket IC - 14 pin	635-99-00064
	Receptacle - 10 cont.	597-175

DUKANE

Installation Instructions

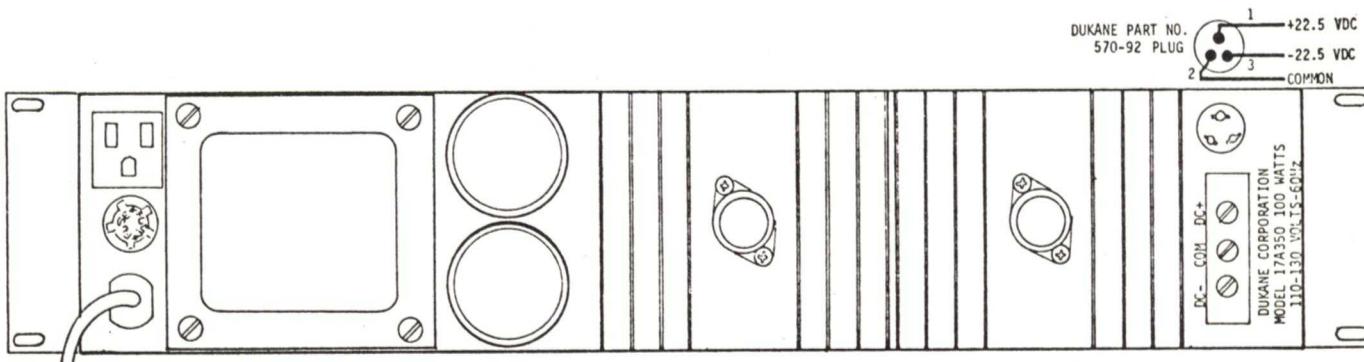
MODEL 17A350 +AND- 22.5-VOLT REGULATED POWER SUPPLY

GENERAL DESCRIPTION

The Dukane Model 17A350 +and- 22.5-volt power supply is designed for use with 110-130 VAC primary power, furnishing up to 2.25 amperes. This power supply features a special output current-limiting circuit that will maintain the regulated voltage up to a 2.25-ampere load. Then, as output load is increased, both voltage and current decline; short-circuit current is automatically limited to 0.7 ampere. This feature is known as "fold-back" or automatic current limiting. The power supply voltage is automatically restored after overload is removed.

PRIMARY POWER REQUIREMENT -

A 3-ampere slow-blow fuse protects the primary AC power supply. Power transformer has primary taps for 110-volt line, 120-volt line, and 130-volt line. As supplied, the 130-volt tap is connected. However, if line voltage is less than 125 volts, disconnect power cord connection at red/black tap and connect power cord at yellow/black transformer tap. If line voltage is less than 115 volts, connect cord at white/black transformer tap.



INSTALLATION NOTES -

Output connections are made at screw terminals on power supply chassis. Carefully observe correct electrical polarity of power supply, as indicated above. A Dukane part No. 570-92 plug may be used, wired as shown above for a power supply cable.

MAINTENANCE -

Readjustment of the potentiometers is not recommended. These controls are factory set for +and- 22.5 volts and 2.25-ampere output.

The recommended adjustment for the output voltage potentiometers is to set each to obtain 22.5 volts with no load connected, R110 to set +22.5 volts and R121 to set -22.5 volts with no load. Voltage may be measured with 20,000n/V VOM.

PRICE 10 CENTS
402-301

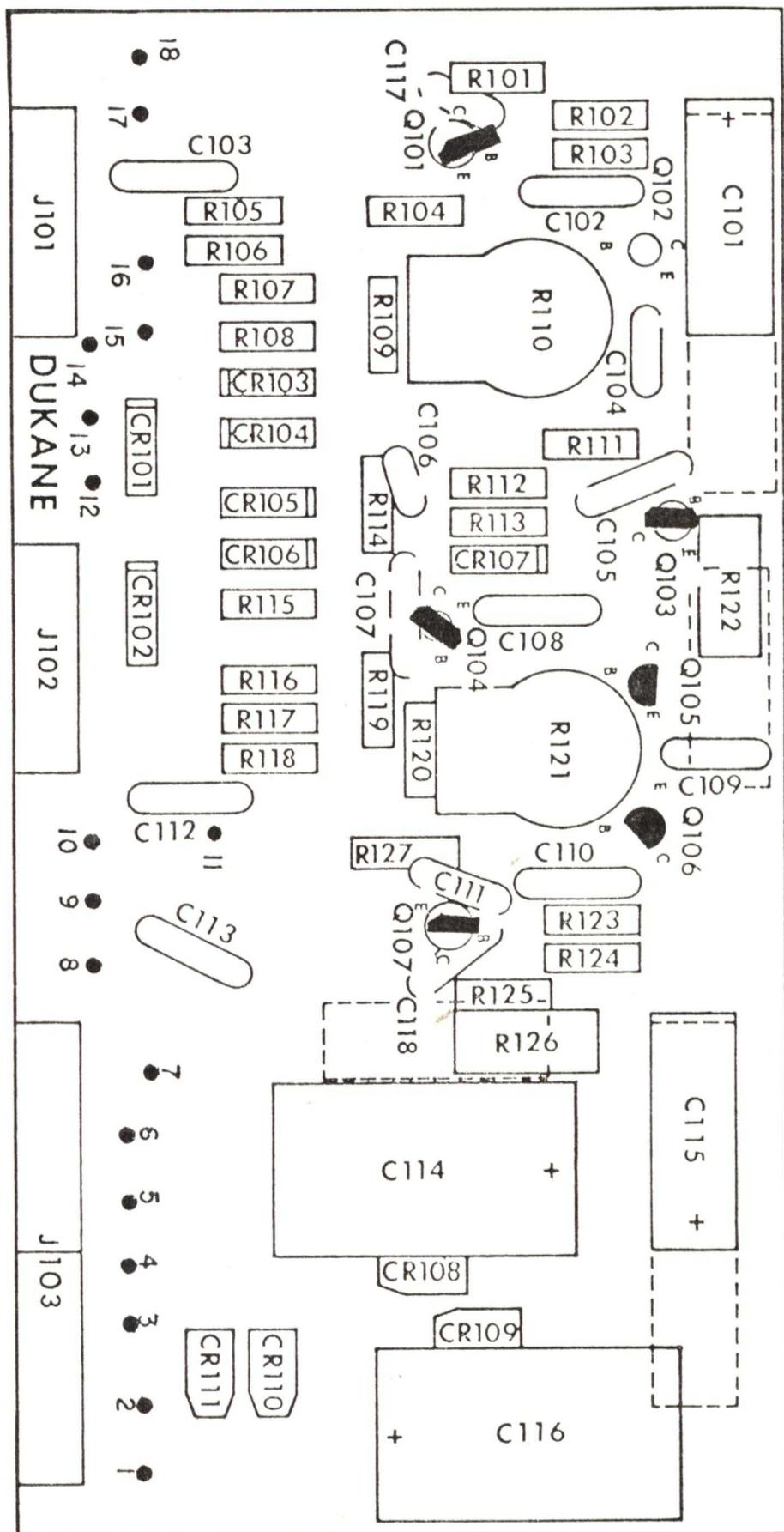


REPAIR PARTS LIST

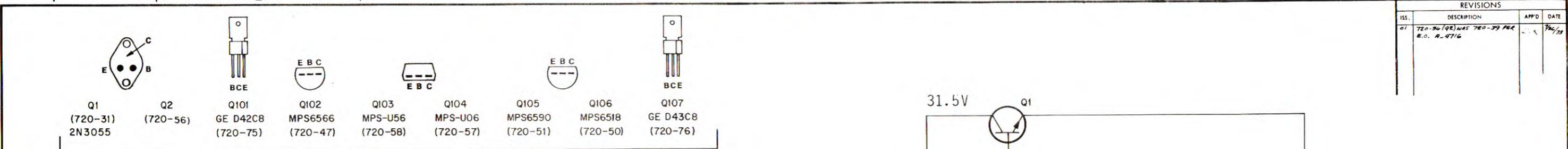
MODEL 17A350

	LEGEND	DESCRIPTION	DUKANE PART NUMBER
F	C1, C2	Capacitor, 3000 μ F, 35 WVDC 'lytic	199-2053-308
	C101,115	" , 150 μ F, 35 WVDC 'lytic	199-2035-157
	C102,108	" , .01 μ F, 100-volt ceramic disc	199-1012-103
	C110		
	C117,118	" , .0047 μ F, 500-volt ceramic disc	199-1006-472
E	CR101 - CR103,	Diode, silicon, 1N4385; 600 PIV	595-44
	CR106,		
	CR107		
	CR104, CR105	" , zener; 10-volt	230-19-00010
	CR108, CR111	Diode, silicon, 100 PIV	230-21-00100
D	F1	Fuse, 3 amperes, 125-volt	320-010-0300
		Fuse holder; for F1	321-10
	I1	Lamp, 70 mA, 28-volt; #1829	456-87
	J1	Receptacle, 3-wire, AC power	597-212
	J2	" , balanced DC power output	597-9627
C	Q1	Transistor, NPN; 2N3055	720-31
	Q2	" , PNP (special)	720-39
	Q101	" , NPN; D42C8 (red)	720-75
	Q102	" , NPN; MPS 6566	720-47
	Q103	" , PNP; MPS U56	720-58
	Q104	" , NPN; MPS U06	720-57
	Q105	" , NPN; MPS 6590	720-51
	Q106	" , PNP; MPS 6518	720-50
	Q107	" , PNP; D43C8 (green)	720-76
B	R102,124	Resistor, 560 ohms, 1/2 watt	600-0080-561
	R103,123	" , 180 ohms, 1/2 watt	600-0080-181
	R104,115	" , 5600 ohms, 1/2 watt	600-0080-562
	R106,117	" , 12,000 ohms, 1/2 watt	600-0080-123
	R107,108	" , 3300 ohms, 1/2 watt	600-0080-332
	R109,119	" , 30,000 ohms, 1/2 watt, 5%	600-0073-303
	R110,121	" , variable, 5000 ohms	601-1004-502
	R111,120	" , 390 ohms, 1/2 watt	600-0080-391
	R112	" , 47,000 ohms, 1/2 watt	600-0080-473
	R113	" , 120,000 ohms, 1/2 watt	600-0080-124
	R114	" , 18,000 ohms, 1/2 watt	600-0080-183
	R116	" , 2200 ohms, 1/2 watt	600-0080-222
	R122,126	" , 0.135 ohm, 3 watts; wire wound	600-9074
A	SW1	Switch, AC power	680-553
	T1	Transformer, step-down; AC power	710-4204
	TS1	Terminal strip; 3 screw terminals	703-229
		<u>MISCELLANEOUS PARTS AND HARDWARE</u>	
		Cord, AC power	200-204
		Cover, AC power switch	211-805
		Jewel, pilot light; red	420-45
		Knob	440-256
		Socket, pilot light	566-90

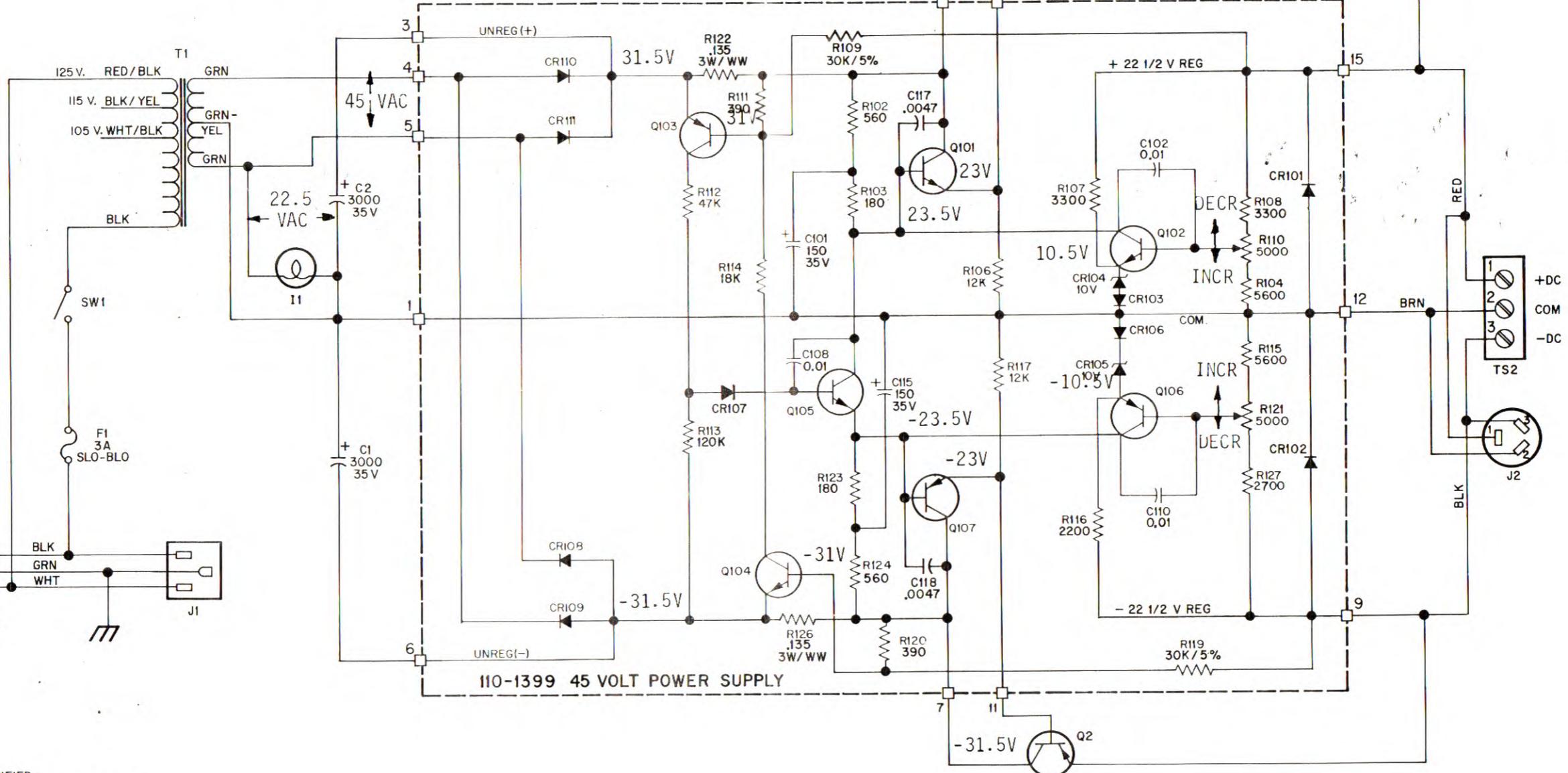
17A350



404-849



BOTTOM VIEWS



NOTES:

UNLESS OTHERWISE SPECIFIED-

1. ALL RESISTORS 1/2 WATT, 10% TOLERANCE.
2. RESISTANCE VALUES IN OHMS, K = 1000.
3. CAPACITANCE VALUES IN MICROFARADS.
4. □ DENOTES TAPER PINS ON P. C. BOARD.

5. VOLTAGES MEASURED WITH 20,000Ω/V VOM; MAY VARY ±10%. VOLTAGES MEASURED WITH NO LOAD.