

PS-451

2 Channel Power Supply



PS-451

DESCRIPTION

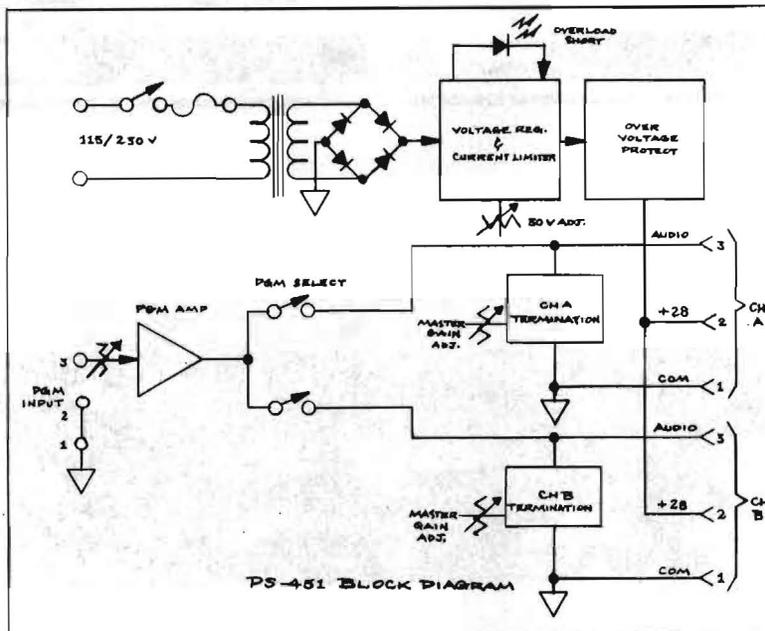
The PS-451 is a 2-channel intercom power supply compatible with all Clear-Com Intercom products. It supplies 30v at 2 amps, and provides the audio termination for both channels of the intercom system. The PS-451 is capable of supporting 100 Clear-Com Series II remote stations or 15 Clear-Com speaker stations. The PS-451 has complete protection against internal failure, and indicates shorts in the intercom system by an illuminated LED on the front panel; with an automatic reset feature when the short is removed.

The unit has provisions for selecting a program input to either channel, A, B, or both of the intercom system, with level adjustable from the front panel. The PS-451 provides separate Master Gain Controls for each channel. It is designed to the highest standards of reliability to provide years of trouble free service over a wide range of environmental conditions. It can be rack mounted in an enclosed space with an ambient temperature of 120° F without failure.

FEATURES

- 100 REMOTE STATION CAPACITY
- 2 CHANNELS
- SELECTABLE PROGRAM INPUT
- ADJUSTABLE PROGRAM LEVEL
- REGULATED POWER SUPPLY
- LED SHORT CIRCUIT INDICATOR
- 2 MASTER GAIN CONTROLS
- 3½" RACK MOUNT
- HEAVY DUTY CONSTRUCTION
- CAN BE PARALLELED FOR BACKUP OPERATION





SPECIFICATIONS

Power Supply

Output Voltage: 30v
 Output Current: 2A before foldback
 Load Regulation: ± 1 volt from 0-2A output current
 Line Regulation: ± 0.1 volt from 105-125 VAC input voltage
 Ripple: $< 1\text{mV}$
 Protection Circuitry: Short circuit protected with current foldback (LED indicator) and automatic reset when short is removed. An internal crowbar circuit to protect remote stations in case of internal power supply failure

Program Amplifier

Frequency Response: 150-18kHz (± 2 dB)
 Input Impedance: 47,000 ohms unbalanced
 Input Level: +2dB for maximum output; -15dB nominal

System Specs

Impedance: 200 ohms nominal
 Level: -15dB nominal; 0dB before clipping
 Remote Station Capacity: 100 RS-100A or MR-102 Series II remote stations; 15 KB series speaker stations

Connectors

Auxiliary Input: 1 D3F (3-pin female)
 Auxiliary Output: 4 D3M's (3-pin male)
 2 in parallel for Channel A
 2 in parallel for Channel B

Power Requirements

105-125 VAC or 210-250 VAC, 50-60 Hz
 maximum power consumption 110 VA

Environmental

Temperature Range: $0^\circ - 50^\circ \text{C}$. ($32^\circ - 122^\circ \text{F}$)

Dimensions:

19" x 3.5" x 4" deep
 standard rack mount

Weight:

6 lbs.

ARCHITECTURAL & ENGINEERING SPECIFICATIONS

The power supply shall be of the solid state rack mount type. It shall have all the necessary controls and connectors to interface to standard Clear-Com products. The power supply shall supply an output of 30v at 2 amps. It shall have short circuit protection with an LED indicator. When the power supply detects a short circuit, the LED shall light removal of the short shall restore the power supply to normal operation. The power supply shall also be protected from an over-voltage condition in the event of power supply failure. The power supply shall have a hum and ripple factor of less than 1mv. The power supply shall operate from 105-125 VAC or 210-250VAC; 50-60Hz, with maximum power consumption of 110 VA. It shall have the capacity to power 100 RS-100A or MR-102 Series II remote stations; or 15 KB series speaker stations. The power supply shall have a program input with a frequency response of 150-18kHz (± 2 dB), and an input impedance of 47,000 ohms unbalanced with an input level of +2dB for maximum output. The program input shall be selectable to channel A or B, or both. The power supply shall terminate the intercom system with an impedance of 200 ohms for each channel. The power supply shall have a master gain control for each channel. The power supply shall have a program level control and input connector on the front panel. The power supply shall have 4, 3-pin XLR type connectors on the rear panel for channel A and B outputs. The power supply shall have an operating temperature range of $0^\circ - 50^\circ \text{C}$. $32^\circ - 122^\circ \text{F}$. The dimensions shall not exceed 19" x 3.5" x 4" deep, and the weight shall not exceed 6 lbs. The power supply shall be called a PS-451.

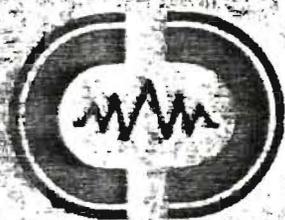


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Clear-Com® intercom systems

INSTRUCTION and SERVICE MANUAL

PS-451



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CLEAR-COM

INSTRUCTION AND SERVICE MANUAL

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SECTION IINTRODUCTION1.1 GENERAL

The Clear-Com system is a closed circuit intercommunication system designed for clear, two-way communication in high noise environments. The basic system consists of either a 2 channel main control station (CS-200), a 2 channel power supply (PS-451) or a single channel power supply (PS-10) connected to from one (1) to forty (40) remote stations. All stations are inter-connected with 2 conductor shielded microphone cables using professional 3 pin audio connectors. There are several different interchangeable remote stations available: the RS-100A "belt pack" headset station, the MR-102 "wall mount" headset station and several different speaker stations including a hands free portable speaker station. Other special purpose stations are also available. These include paging speaker stations, multiple channel switchboards, interfacing adapter for connecting Clear-Com to telco lines or other intercom systems, 2 channel split headphone belt packs with separate program, remote station module kit, and a battery adapter. A full line of accessories are available including wall plates, microphones, headsets, telephone type handsets, interconnecting cable and splitters. Specific instructions regarding these individual stations are included with the product.

Clear-Com is a distributed amplifier system, with each remote station housing its own mic preamplifier and headset power amplifier. The two power supplies and a main control station/power supply delivers the dc voltage necessary to operate all the remote stations. It also terminates the audio line for the entire system. Low impedance lines (200 ohms) and specially designed circuitry make the system virtually immune to RF and dimmer noise. The main control station or power supply delivers 28 vdc which is carried to the remote stations via the same interconnecting cable which carries the audio signals. Main stations and remote stations all have the following common features: The mic preamp automatically shuts off when the station microphone or headset is disconnected. Visual signaling circuit is standard and is used to attract the attention of operators who have removed their headsets. The main station and power supplies also have an auxiliary line level input with its own volume control which allows mixing of an external program with the intercom line. This is useful for program monitoring. All remote stations have adjustable side tone. This enables the user to vary the level of their voice in the headset, handset or speaker for maximum intelligibility and to minimize the possibility of feedback. Other features include a volume control for adjusting the level in the earphones, mic on-off-call switch and signal light for signaling from other stations.

SECTION II
INSTALLATION

2.1 EQUIPMENT SELECTION

2.1.1 FIXED SYSTEM MAIN STATIONS

For permanent intercom systems, main station equipment is usually mounted in a standard 19" rack for security and convenience. For this reason, we recommend the CS-200K dual-channel main station. However, if an intercom station is not needed at the area where the equipment rack is located, then the two channel PS-451 power supply or the single channel PS-10K power supply (without intercom station) can be substituted.

2.1.2 FIXED SYSTEM REMOTE STATIONS

In permanent installations, it is usually desirable to run interconnecting cables through conduits, and to bring them to wall-mounted remote stations, or to wall plates for connection to portable remote stations. We recommend the MR-102 II wall-mount remote station, or the KB-111 wall-mount remote station. If you don't wish to have the remote station built into the wall, then use our WP-2 wall plate with any of our portable remote stations.

2.1.3 PORTABLE SYSTEM MAIN STATIONS

For portable intercom systems, main station equipment must be compact, lightweight, and easily moved for storage.

2.1.4 PORTABLE SYSTEM REMOTE STATIONS

The RS-100A "belt pack" is the key to our truly flexible portable intercom system. Because each RS-100A has a pair of input and extension connectors, many stations may be "daisy chained" together along one interconnect path. This saves cable and simplifies installation and break down.

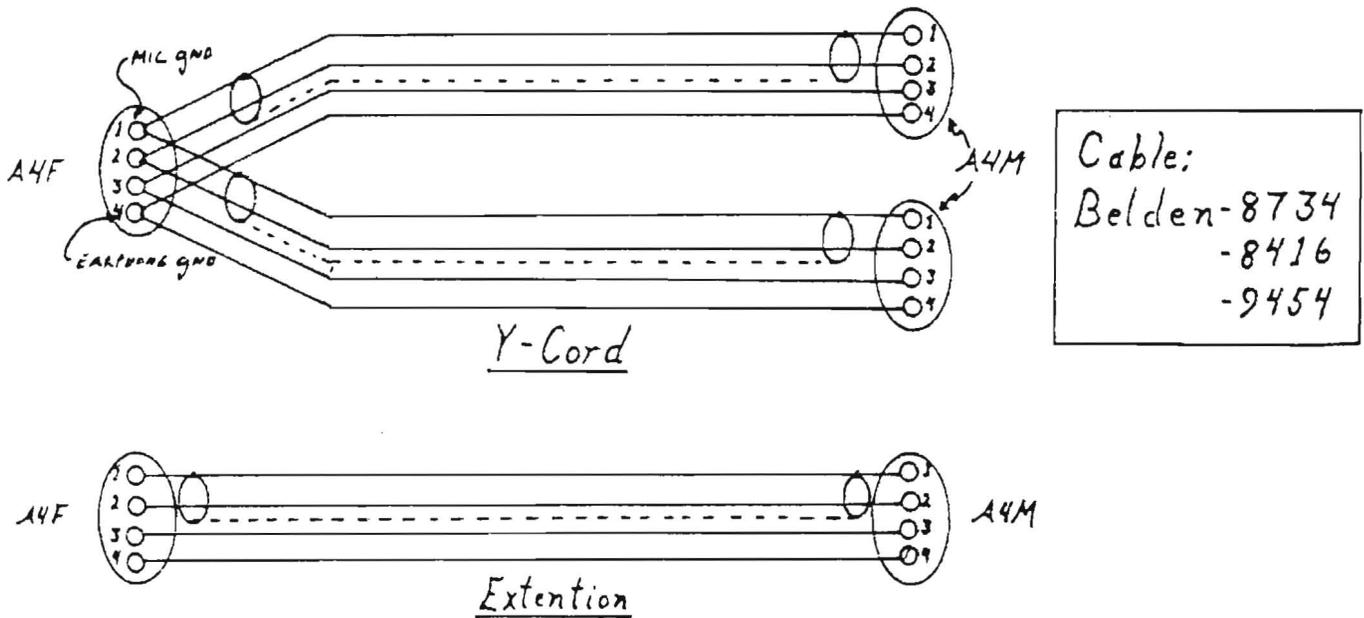
A two channel version is available in both monoaural and binaural output allowing simultaneous monitoring of both Channels A & B with the RS 202M or RS 202S. Portable speaker stations include the KB-111P with PT/4 (Push to talk mic) or Hands-Free KB -124 with built-in mic. Both products are ideal for use in remote trucks, studio control rooms, flyrail and other locations where a headset with boom mic would be impractical.

2.1.5 CLEAR-COM HEADSETS, HANDSETS, AND PUSH TO TALK MICS

Clear-Com has three standard headsets available, all with boom-mounted, noise-cancelling microphones. The CC-240 is a double-muff headset, and the CC-75 is a single-muff headset, both with boom-activated mics. The PH-7 is a double-muff headset which has wider frequency response, greater isolation from ambient noise, and sturdier physical construction than the CC-240, and no mic switch in the boom. All units have field-replaceable cords. The HS-6 telephone-style handset is interchangeable with the above headsets.

All remote stations can drive two (2) headsets with only a slight reduction in level. A Y-cord can be made up using the diagram below and the specified wire. Extension cords for the headset can also be made out of this same cable or other separately shielded cable such as Belden 8734, 8416 or 9454. Extensions should be limited to approximately 15' due to the possibility of capacity coupling between the microphone signal and the headset signal which would cause a loss of high frequency response or oscillation.

CAUTION: DO NOT connect microphone ground and earphone ground together at any point.



2.1.6 OTHER HEADSETS

Non-Clear-Com headsets are available from Clear-Com or local dealers. These are recommended for special applications:

- | | |
|--------------|---|
| Beyer DT-108 | Single-Muff, high-fidelity earpiece with boom mic; may be used for monitoring and intercom. |
| Beyer DT-109 | Double-Muff, high fidelity earphone with boom mic; may be used for monitoring and intercom. |

2.1.6 INTERFACE TO OTHER COMMUNICATION SYSTEMS

The AC-10 Adapt-a-Com is a universal adapter which enables Clear-Com to be interfaced with any other intercom or communications link. When existing non-Clear-Com installations are being upgraded to Clear-Com equipment, portions of the older system can be retained. Since Adapt-a-Com works in 2-, 3- and 4-wire systems, it virtually guarantees compatibility with any house intercom equipment.

Because it will simulate a carbon mic, Adapt-a-Com can be plugged into the headset jack on a TV camera, control unit, or other 2-wire systems. Adapt-a-Com operates with telephone company and competitive model 3-wire intercoms, facilitates on-line intercom via standard telephone systems, and aids in direct communication between the studio and remote locations via 2 or 4 wire dedicated TEL. CO. pairs.

2.1.7 AUDIO ISOLATION OF PARTS OF THE INTERCOM SYSTEM

In certain applications, it may be desirable to isolate conversations in one section of the system. In these instances, the BA-1 in-line isolator may be used to block audio while allowing power to flow to the isolated leg of the system. This inexpensive, passive device creates a quasi-dual channel system from a single channel, except that the main station cannot contact or be called by the isolated leg of the system. The BA-1 enables you to have private local conversations along a common interconnect cable without need for multiple cabling or several main stations. Any number of BA-1's may be used, so long as the power capacity of the main station is not exceeded.

2.2 MAXIMUM NUMBER OF STATIONS AND CABLE CONSIDERATIONS

2.2.1 MAIN STATION CURRENT AND IMPEDANCE LIMITS

The Clear-Com CS-200 main station and the PS-451 power supply have the same maximum output current capacity of 2 amps. For both stations, the total current draw on both channels cannot exceed 2 amps.

The Clear-Com PS-10 power supply has a maximum output of 0.6amps.

Due to impedance considerations, regardless of the cable lengths or mix of remote stations, forty (40) stations are the maximum that can be driven from one main station. The PS-10 can only support approximately 12. (With certain stations, it may be possible to use more than forty (40) stations; contact the factory for details.)

2.2.2 CALCULATING THE MAXIMUM NUMBER OF REMOTE STATIONS

In installations with less than 500 feet total interconnecting cable, only the remote station current requirements need be considered. One main station will support up to forty (40) RS-100A or MR-102 remote stations, or up to fifteen (15) KB-100 or KB-111 remote stations.

When calculating the maximum current drain, only two figures need be considered; a maximum current drain of 40ma in the RS-100A or MR-102, and an average current drain of 130ma in the KB-100 or KB-111. Thus, an equation for maximum stations would be as follows:

$$X = \text{Number of RS-100A's} + \text{MR-102's} \leq 40.$$

$$Y = \text{Number of KB-100's} + \text{KB-111's} \leq 15.$$

Therefore,

$$\begin{array}{ll} \text{CS-200 or PS-451} & 0.04X + 0.13Y < 2.0\text{amps} \\ \text{PS-10} & 0.04X + 0.13Y \leq 0.6\text{amps} \end{array}$$

2.2.3 CABLES

Where cable lengths greater than 500 feet are involved, the maximum number of remote stations, depends on four factors; the current requirements of each remote station, the length of the wire, the wire gauge, and the cable capacitance. In all instances, 2-conductor, shielded interconnecting cable should be used.

A. PORTABLE INSTALLATIONS: rubber-installed and jacketed cable should be used due to its superior strength and durability. Belden 8413 miniature cable (24 ga. stranded conductors) is usable up to 500 feet. Belden 8412 (20 ga. stranded conductors) is usable up to 5,000 feet.

B. PERMANENT INSTALLATIONS: Vinyl-insulated and jacketed cable may be used; it costs less and is easier to pull through conduit than rubber insulated types. However, low capacitance cable must be used. Belden 8762 (20 ga. stranded conductors) is usable up to 500 feet. Belden 8670 (18 ga. stranded conductors) is usable up to 5,000 feet. NOTE: In systems where conduit is not used, and where equipment may not share a common ground, it may be necessary to run an additional ground wire to tie chassis together. This may be accomplished with Belden 8770 3-conductor shielded cable.

C. 2-CHANNEL PERMANENT INSTALLATIONS: Permanent systems can be wired in one of two ways. First, Channel A and Channel B may be routed to two distinct areas, for use by different people. Second, both channels may be routed together and brought to WP-2 wall plates so the user can select either channel A or B. The second method can be wired with two 2-conductor shielded cables or one multi-pair shielded cable.

Cables equivalent to the Belden types may be used, so long as their capacitance and wire gauge are comparable. Particularly in longer runs, it is desirable to use cable which has low resistance (large diameter conductors) and low inter-conductor capacitance.

2.3 LAYING OUT THE SYSTEM

2.3.1 PORTABLE INSTALLATIONS

Having determined the number and type of remote stations you wish to use, decide on a location for the main station or power supply. It should be near a source of 115V AC (power consumption is approximately 80 watts.) Route all cables from the remote stations to the main station or power supply. The routing can be in any way that is convenient to the installation. Individual stations can be brought to the main station and then paralleled if there is not enough connectors on the main station or the remote stations can be "daisy chained" together.

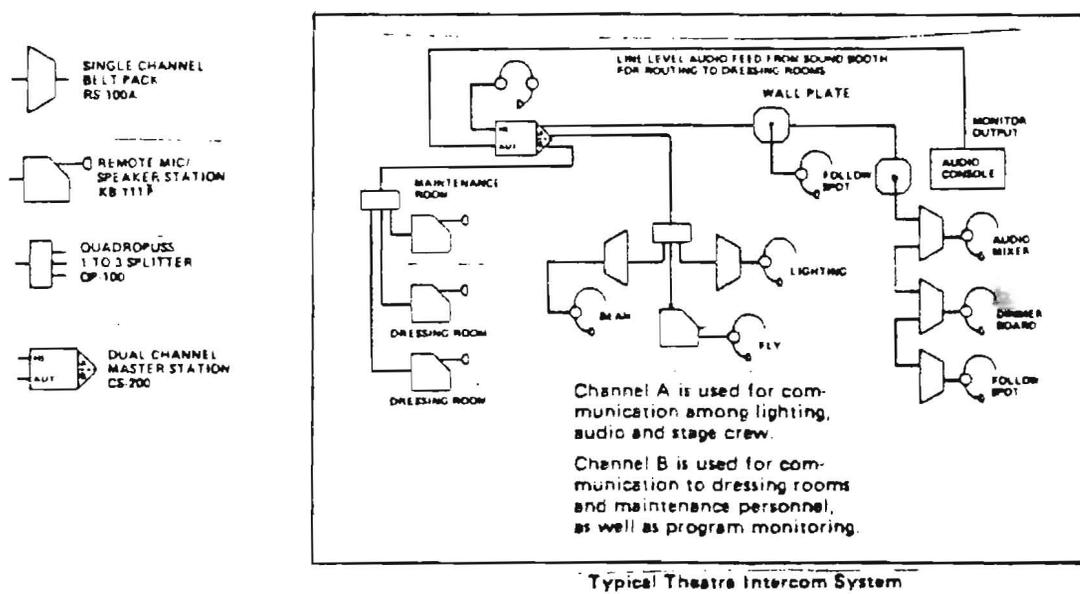
Additionally, remote stations can be added by "daisy chaining" them to one another and/or by using the OP-100 Quadrapuss splitter. Cables should be routed away from heavy AC power sources, such as lighting panels, electric motors, etc.

2.3.2 PERMANENT INSTALLATIONS

The same general considerations apply here as for portable systems, as described in the preceding paragraph. Additionally, cables should be installed in accordance with approved local building codes. Class II wiring may be used. Connections to wall-plates or wall-mount remote stations are shown in the diagrams.

2.3.3 ISOLATED CHANNELS

The BA-1 In-Line Isolator can be installed anywhere in the system. For example, plug it into one output connector on the rear panel of the main station to create an entire isolated channel. Alternately, plug it into a remote station at the end of a cable run to isolate further remote stations while using a minimum of additional interconnect cable.



SECTION III
OPERATION OF THE PS-451

3.1 DESCRIPTION OF THE PS-451

The PS-451 is a 2-channel intercom power supply compatible with all Clear-Com Intercom products. It supplies 28v at 2 amps, and provides the audio termination for both channels of the intercom system. The PS-451 is capable of supporting 40 Clear-Com remote stations or 15 Clear-Com speaker stations. The PS-451 has complete protection against internal failure, and indicates shorts in the intercom system by an illuminated LED on the front panel; with an automatic reset feature when the short is removed.

The unit has provisions for selecting a program input to either channel, A, B, or both of the intercom system, with level adjustable from the front panel. The PS-451 provides separate Master Gain Controls for each channel. It is designed to the highest standards of reliability to provide years of trouble free service over a wide range of environmental conditions. The PS-451 can be mounted in a standard 19" rack. Because the PS-451 can dissipate a considerable amount of heat, it is recommended that at least an inch of space be allowed above the unit to facilitate ventilation.

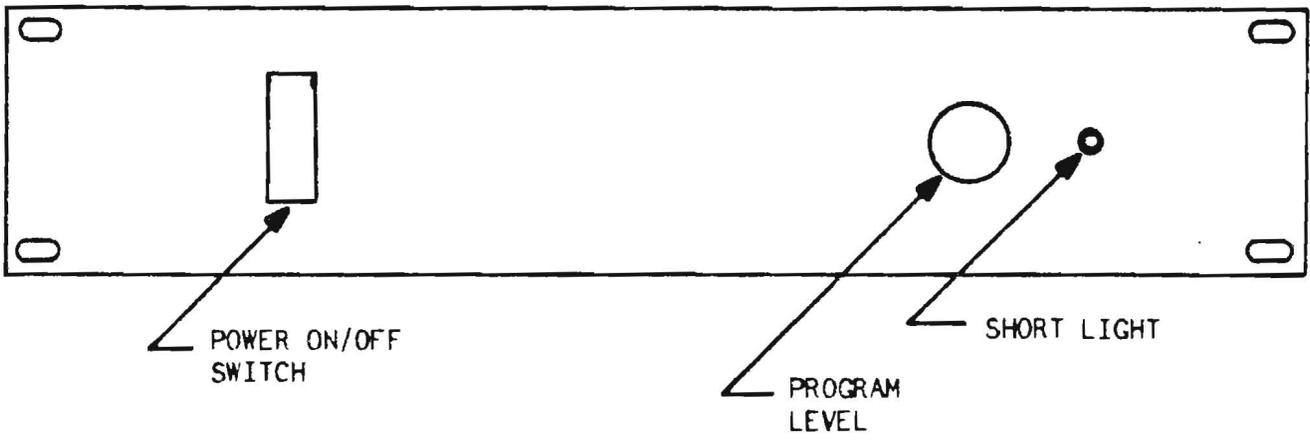
3.2 OPERATION OF THE PS-451

(See illustration on next page)

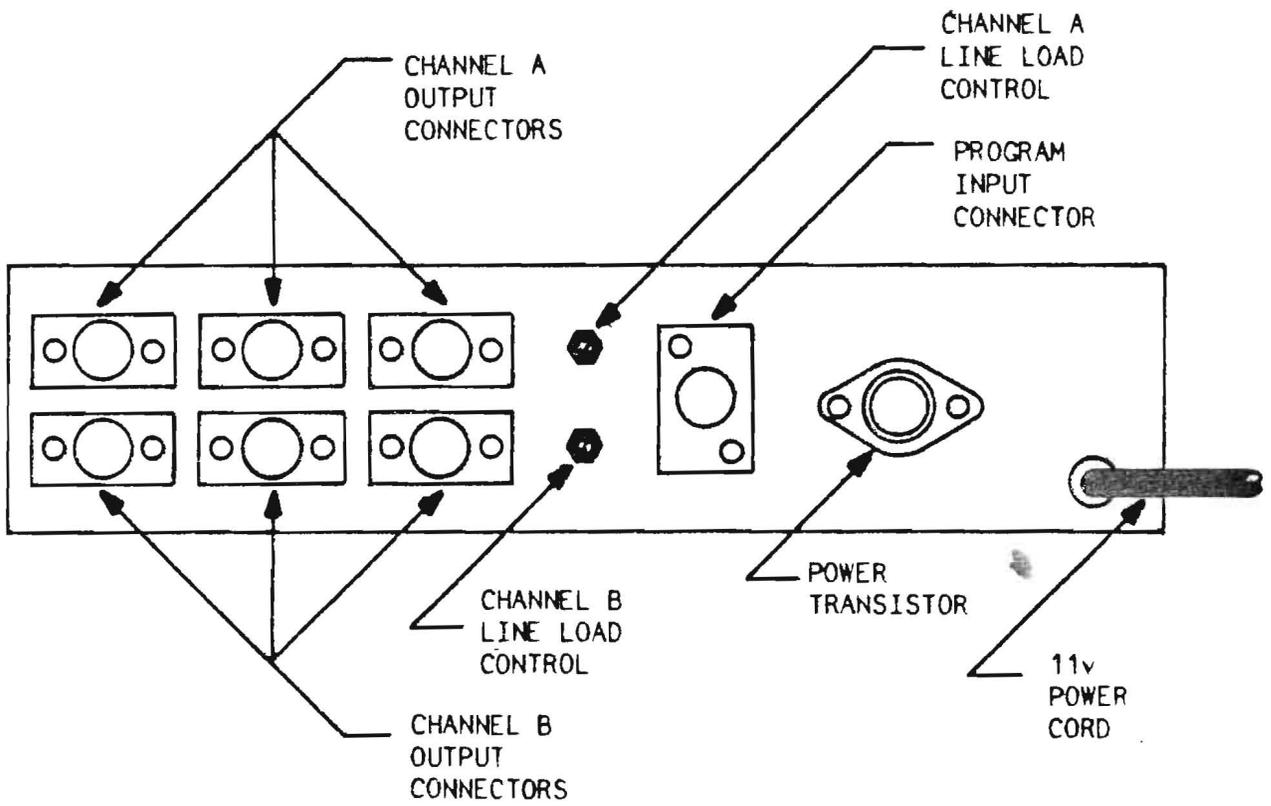
OPERATION OF THE CLEAR-COM SYSTEM IS QUITE SIMPLE, AS FOLLOWS:

1. CONNECT PS-451 POWER SUPPLY to all stations with interconnecting cable. Determine which stations are going to be on channel A and which are going to be on Channel B. Plug cable into appropriate connector. NOTE: Before connecting cables on rear panel shut power off and hold call button depressed until call light(s) go out.
3. SET MASTER GAIN CONTROLS on rear of power supply for over all system level or to compensate for number of remote stations in system. The PS-451 has one gain control for each channel. Under high noise conditions, turn master gain DOWN and speak closely into microphones at remote stations.
4. PLUG IN POWER CORD to a 115 AC circuit. Turn on power switch. The power switch should now illuminate.
5. SET HEADSET VOLUME CONTROLS at remote stations for individual volume level.
6. THE AUXILIARY INPUT CONNECTOR on the front panel of the main station provides for external program to be fed into the entire system. (See schematic for connecting details). The AUXILIARY VOLUME CONTROL is located directly on top of the auxiliary input connector and controls the auxiliary input volume to the system. Selection of the intercom channel that you want the program to appear on is made by 2 slide switches on the P.C. board of the PS-451. See drawing for switch location on page 11.

FRONT VIEW OF THE PS-451



REAR VIEW OF THE PS-451



9/80

SECTION VI

TROUBLESHOOTING THE PS-451

<u>SYMPTON</u>	<u>CAUSE</u>	<u>REMEDY</u>
1) System is totally dead, power switch light doesn't come on.	A) Loss of AC power B) Internal fuse has blown.	Plug main station into a known good outlet. Replace fuse.*
2) Circuit breaker trips repeatedly or short circuit LED remains lit.	Shorted or mis-wired interconnect cable. Defective remote unit.	Remove cables from main station one at a time until faulty line is isolated. Check for shorts between pins 1 and 2.
3) Hum or Buzz in system.	Inductive pickup caused by close proximity of main or remote station to power lines or transformers. Ground loop caused by improper grounding of system (see installation instructions). 10 ohm chassis ground resistor (R26) in power supply open.**	Relocate offending unit. Reverse power cord. Lift ground. Measure resistance between chassis and pin 1 of connector. It should be 10 ohms. If not open power supply, check resistor and replace.

-10-

*If internal fuse blows repeatedly there is a very good chance that the bridge rectifier or something else has shorted inside the power supply. Have the station repaired.

**Note: This is caused by the system ground coming in contact with something that is "hot" with respect to main station earth ground. Should this occur, a careful check of the system ground and A.C. distribution in your location is recommended.

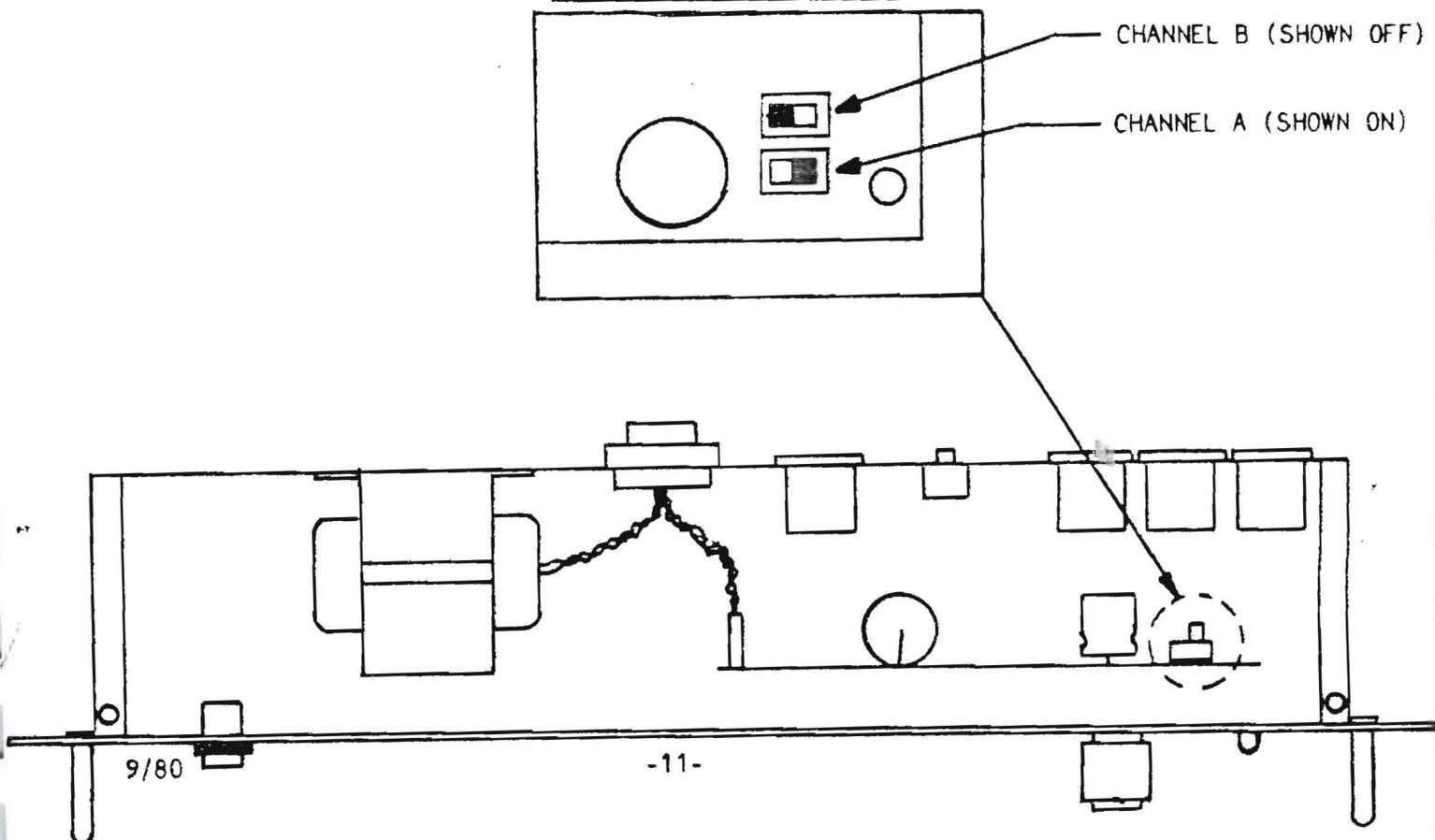
451

SECTION V

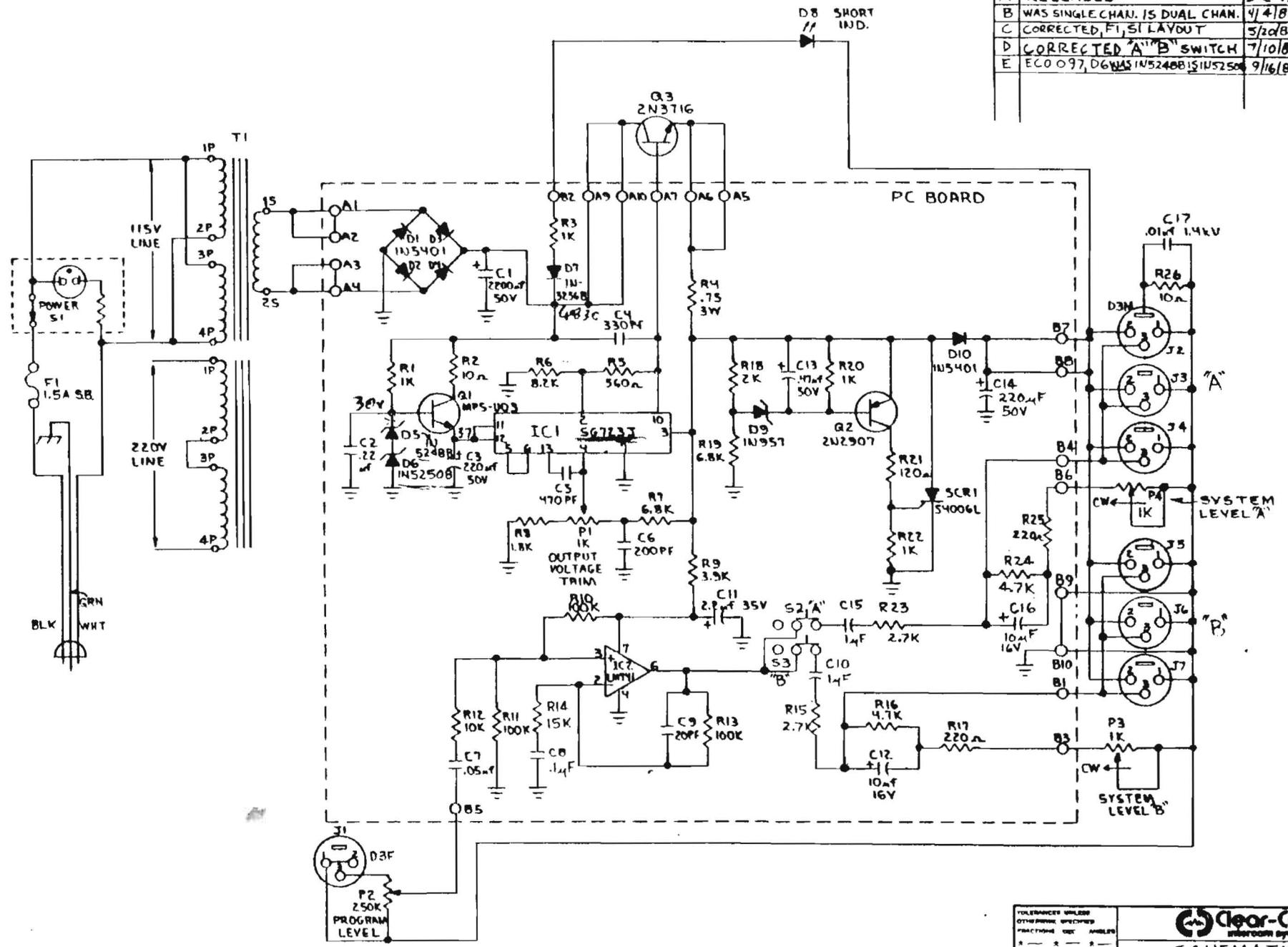
PS-451 PARTS LIST

ITEM	PART #	DESCRIPTION	REF. DES.	QTY.
1	1529	.01PF 150VAC CAP	C17	1
2	2401	KNOB		1
3	4701	250K POT 1/4" SHAFT	P2	1
4	4702	1K OHM POT 1/8" SHAFT	P3, P4	2
5	4705	1K TRIMPOT	P1	1
6	4820	VOLTAGE REGULATOR	IC1	1
7	5102	POWER SWITCH	S1	1
8	5204	1.5 AMP FUSE	F1	1
9	5604	POWER TRANSFORMER	T1	1

SWITCH LOCATION DIAGRAM



REV	DESCRIPTION	DATE	APPROVED
A	RELEASED	2-2-79	F
B	WAS SINGLE CHAN. IS DUAL CHAN.	4/4/80	
C	CORRECTED F1, S1 LAYOUT	5/20/80	
D	CORRECTED "A" "B" SWITCH	7/10/80	
E	ECO 097, D6 WAS 1N5240B S1 IN 5250A	9/16/80	



451

TOLERANCES UNLESS OTHERWISE SPECIFIED		FRACTIONS USE ANGLES	
APPROVALS		DATE	
MARK	12-1-79	SCALE	SIZE
CHECKED		SCALE	SIZE
		C SCD-C-313	
		DO NOT SCALE DRAWING	
		SHEET 1 OF 1	

4500-00000-01
12-1-79

VI. SPECIFICATIONS

PS-451POWER SUPPLY:

Output Voltage: 28v
 Output Current: 2A before foldback
 Load Regulation: ± 1 volt from 0-2A output current
 Line Regulation: ± 0.1 volt from 105-125 VAC input voltage
 Ripple: $< 1\text{mV}$
 Protection Circuitry: Short circuit protected with current foldback (LED indicator) and automatic reset when short is removed. An internal crowbar circuit to protect remote stations in case of internal power supply failure.

PROGRAM AMPLIFIER:

Frequency Response: 150-18kHz (+ 2 dB)
 Input Impedance: 47 kohms balanced
 Input Level: +2dB for maximum output; -15 dB nominal

SYSTEM SPECS:

Impedance: 200 ohms nominal
 Level: 15dB nominal; 0dB before clipping
 Remote Station Capacity: 100 RS-100A or MR-102 Series II remote stations;
 15 KB series speaker stations

CONNECTORS:

Auxiliary Input: 1 D3F (3-pin female)
 Auxiliary Output: 4 D3M's (3-pin male)
 2 in parallel for Channel A
 2 in parallel for Channel B

POWER REQUIREMENTS:

105-125 VAC or 210-250 VAC, 50-60 Hz
 maximum power consumption 110 VA

ENVIRONMENTAL:

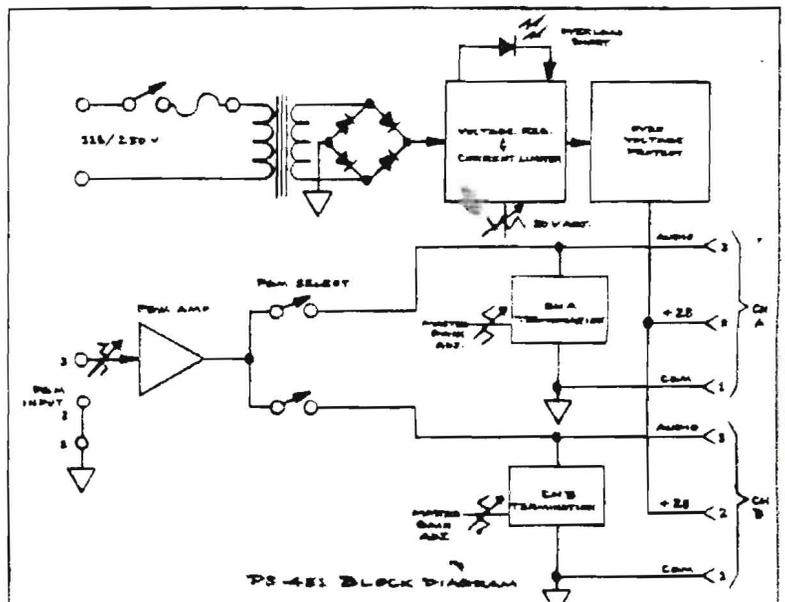
Temperature Range: 0 - 50 degrees C (32 - 122 degrees F)

DIMENSIONS:

19" x 3.5" x 4" deep, standard rack mount

WEIGHT:

6 lbs.



SPECIFICATIONS

PS-3000 INTERCOM POWER SUPPLY

Output Voltage:	28 VDC
Output Current:	2A before foldback
Load Regulation:	± 1 volt from 0 - 2A output current
Line Regulation:	± 20 mV from 105 - 125 VAC input voltage
Ripple:	<1mV
Protection Circuitry:	Short circuit protected with current foldback (LED indicator) and an internal crowbar circuit to protect remote stations in case of power supply failure.
Power Requirements:	105 - 125 VAC or 210 - 250 VAC, 50 - 60Hz 1.5A internal fuse. Maximum power consumption 110 VA.
Remote Station Capacity:	40 RS-100A's or MR-102's, or 15 KB-100's or KB-111's.

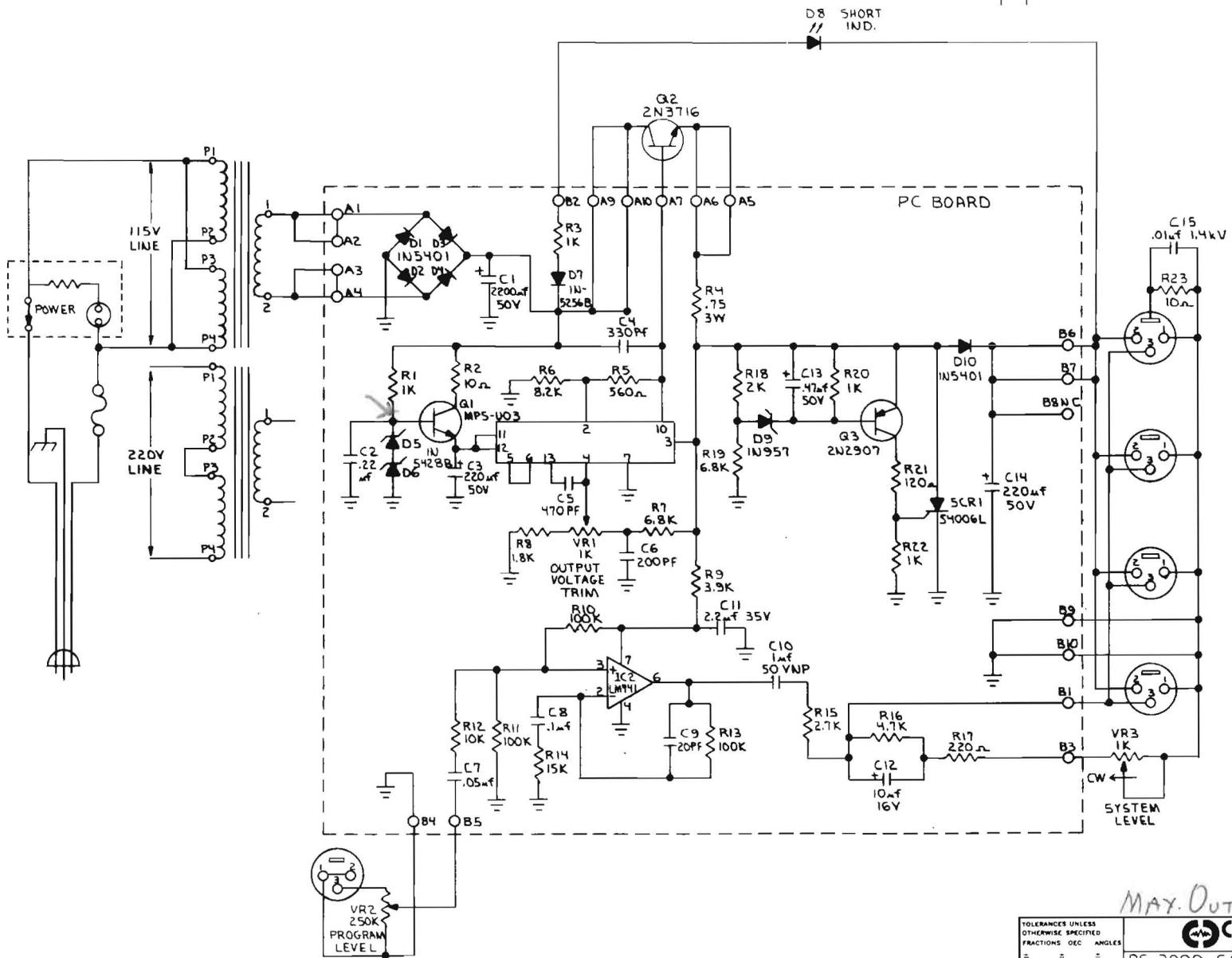
PROGRAM AMPLIFIER

Frequency Response:	150 - 18kHz
Input Impedance:	47,000 ohms
Input Level:	+2dB for maximum output, -15dB nominal
System Impedance:	200 ohms nominal; 570 ohms maximum with two (2) stations; 90 ohms maximum with thirty (30) stations (6dB drop in level).
Signal Level:	-15dB nominal; 0dB before clipping
Auxiliary Input Connector:	1 D3F (3-pin female)
Output Connectors:	4 D3M's (3-pin male) in parallel
Environmental Temperature Range:	0 ⁰ - 50 ⁰ C. (32 ⁰ - 122 ⁰ F)
Dimensions:	19" X 3.5" X 4" deep. Standard rack mounting.
Weight:	6 lbs.

PS-3000 PARTS LIST

ITEM	PART #	DESCRIPTION	REF. DES.	QTY.
1	4805	Diode, 3A 1N5401	D1, 2, 3, 4, 10	5
2	4809	Diode, Zener 18V 1N5248B	D5, 6	2
3	4830	Diode, Zener 30V 1N5256B	D7	1
4	4826	Diode, Zener 6.8V 1N957	D9	1
5	4825	SCR, 5A S4006L	SCR1	1
6	4836	Trans, MPS-U03 Motorola	Q1	1
7	4835	Trans, 2N3716	Q2	1
8	4807	Trans, 2N2907	Q3	1
9	4820	SC723J Voltage Reg.	IC1	1
10	4818	LM741 Op-Amp	IC2	2
11	2102	D3F Connector	J1	1
12	2103	D3M Connectors	J2 - J5	4
13	4701	250K Pot 3/8" Bushing	P1	1
14	4702	1K Pot 1/4" Bushing	P2	1
15	5204	Fuse, 3AG 1.5 Amp		1
16	7110	PC Module		1
17	5102	Power Switch	S2	1
18	5604	Power Transformer	T1	1
19	2401	Knob, Black		1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



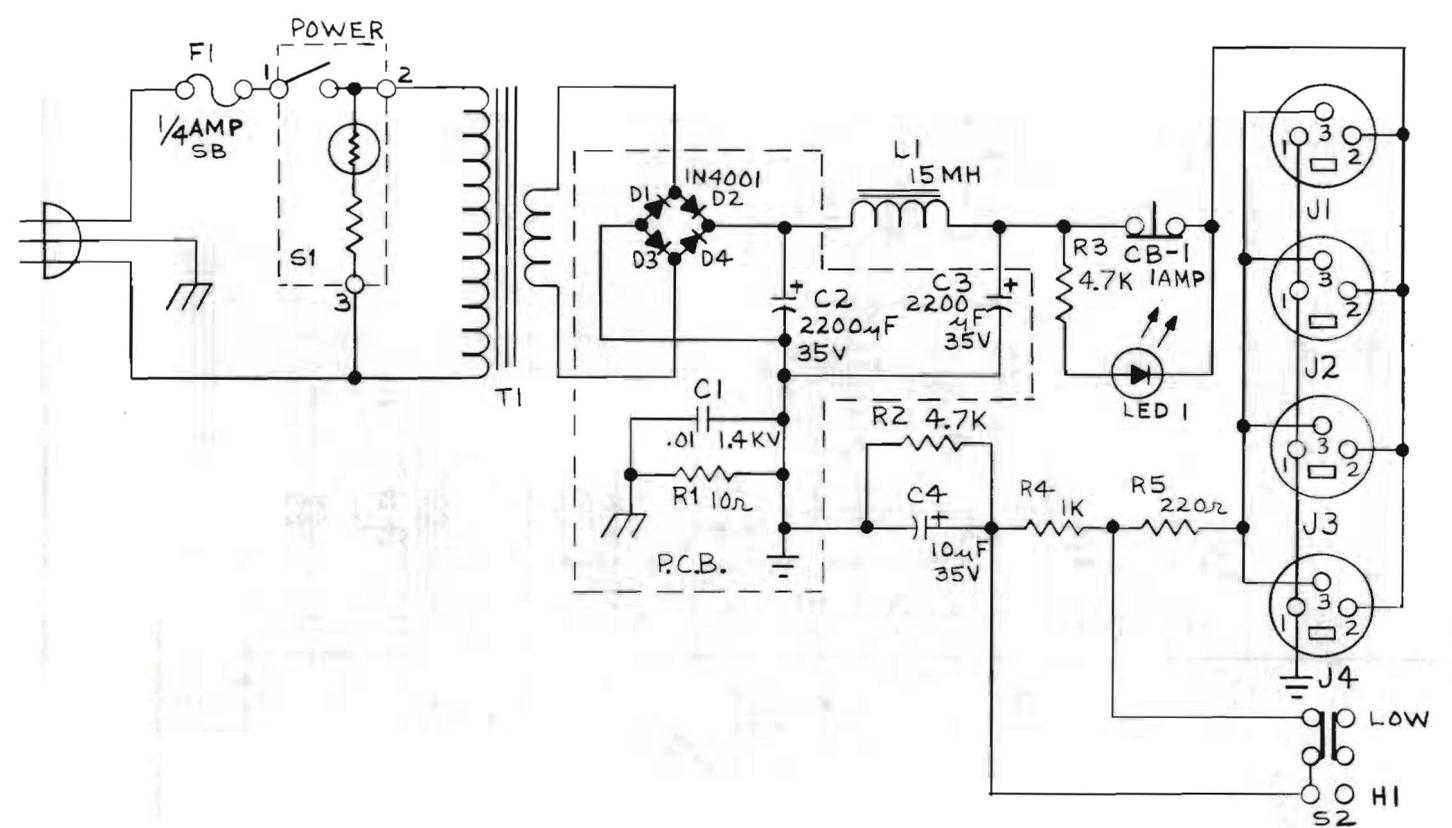
MAY. OUTPUT 2.0A.

TOLERANCES UNLESS OTHERWISE SPECIFIED		FRACTIONS DEC ANGLES	
= = =		= = =	
APPROVALS		DATE	
DESIGNED BY	MARK	12-1-78	
CHECKED			
	SCALE	SIZE	DRAWING NO.
		C	C-027
DO NOT SCALE DRAWING		SHEET 1 OF 1	



PS-3000 SCHEMATIC

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASE	12/7/79	



TOLERANCES UNLESS OTHERWISE SPECIFIED		FRACTIONS DEC. ANGLES		<p>Max. Output 0.6 AMP</p> <p>SCHEMATIC PS-10 POWER SUPPLY</p>
±	±	±	±	
APPROVALS	DATE	SCALE	SIZE	DRAWING NO.
DRAWN <i>S. Miles</i> CHECKED <i>G3</i>	12/7/79 1/1/79	NONE	B	SCD-B-352
DO NOT SCALE DRAWING			SHEET 1 OF 1	

