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TECHNICAL MANUAL

for

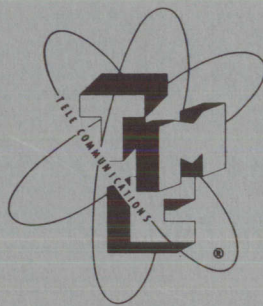
POWER SUPPLY

MODEL PSP-1

(PP-2232/U)

and

MODEL PSP-2



THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N. Y.

OTTAWA, ONTARIO

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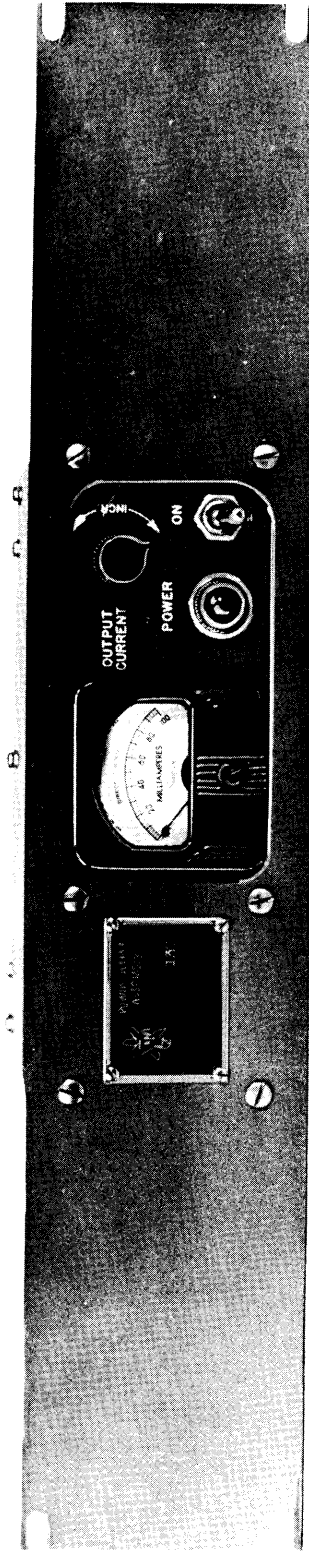
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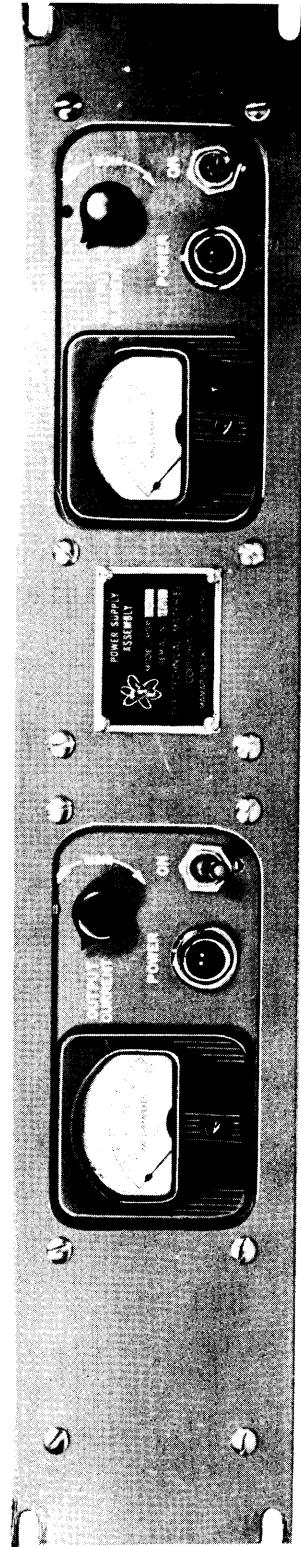
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Figure 1-1. Front View Models PSP-1 and PSP-2

PH-259
259A

SECTION 1 GENERAL DESCRIPTION

1.1 GENERAL DESCRIPTION

The Power Supplies, Models PSP-1 and PSP-2 provide a source of DC current, for use in communication circuits where d-c battery is used for keying relays, teleprinter equipment or any other similar terminal equipment. They have been designed to provide a steep wave front when keyed to promote more positive action of relay or magnet operated equipment.

1.2 REFERENCE DATA

- a. Output Current: Direct Current, 5.0 ma to 75 ma, variable by means of a front panel control.
- b. Output Load: 75 ma maximum into 2000 ohms with lower values of current into higher impedances, available ungrounded or either side grounded.
- c. Controls:
 - (front panel)
 - 1. S1 Power switch
 - 2. R1 OUTPUT CURRENT control
 - (rear chassis)
 - 1. R2 Auxiliary current control
 - 2. S2 Output current polarity reversal switch
- d. Metering: Zero to 100 ma output current meter.
- e. Input Power Requirements: 110/220 volts, 50/60 cycles, approximately 40 watts for the PSP-1 and approx. 80 watts for the PSP-2.
- f. Mounting: Standard WE Relay Rack type mounting.
- g. Weight: PSP-1 approx 20 lbs, PSP-2 approx 30 lbs.

Table 1-1. VACUUM TUBE COMPLEMENT

SYMBOL	TYPE	CIRCUIT
V1	5Y3GT	Full Wave Rectifier
V2	6Y6G	Current Control

NOTE: Above for the PSP-1, two sets of the above tubes are in the PSP-2

SECTION 2 THEORY OF OPERATION

2.1 GENERAL DESCRIPTION OF CIRCUITS

The PSP Power Supply was designed primarily to provide plate power for the current amplifier in the TMC Model CFA Frequency Shift Converter. Circuit details are shown on the Schematic Diagram Figure 5-1.

2.2 Basically the Power Supply consists of a transformer and full wave rectifier (V-1), an inductance-capacitance filter, and a current control tube (V-2). The Current control tube is in series with the external load, hence by varying the grid bias of V-2 (adjust R-1) the output current can be varied through a wide range.

2.3 A DC meter (M-1) is in series with the output and monitors the output current in the loop. In order to increase the range of the main current control (R-1), the screen voltage of the current control tube can be adjusted by potentiometer (R-2) thus giving an even wider range of current control; this potentiometer is usually adjusted to a fixed position to suit the prevailing load condition and to obtain the desired maximum and minimum current.

SECTION 3 INSTALLATION

3.1 When the equipment is received it should be checked for any damage that may have occurred during shipment or storage. NOTICE: UNLESS OTHERWISE INDICATED BY AN APPROPRIATE TAG ON THE EQUIPMENT, THIS PSP HAS BEEN WIRED FOR 110 VOLT OPERATION. IF THE EQUIPMENT IS TO BE USED ON A 220 VOLT SOURCE IT MUST BE RECONNECTED FOR 220 VOLT OPERATION.

3.2 Rear Chassis terminals 1, 2 and 3 are the output terminals. When the PSP is to be connected to the CFA Converter, connect two number 20 wires from terminals 1 and 2 to terminals 6 and 7 of the CFA. Switch S-2 should be placed in a position so that positive voltage appears at terminal 6 of the CFA.

SECTION 4 OPERATION

4.1 The PSP is a simple straight forward electronic power supply. In operation the controls function as follows:

- a. **Primary Power Switch: S1** The primary power switch located on the front panel connects or disconnects both sides of the power line from the equipment.

- b. **Output Current Control: R1** The Output Current Control is located on the

front panel of the equipment and controls the magnitude of the output current delivered by the power supply to the output circuit.

- c. **Auxiliary Current Control: R2**

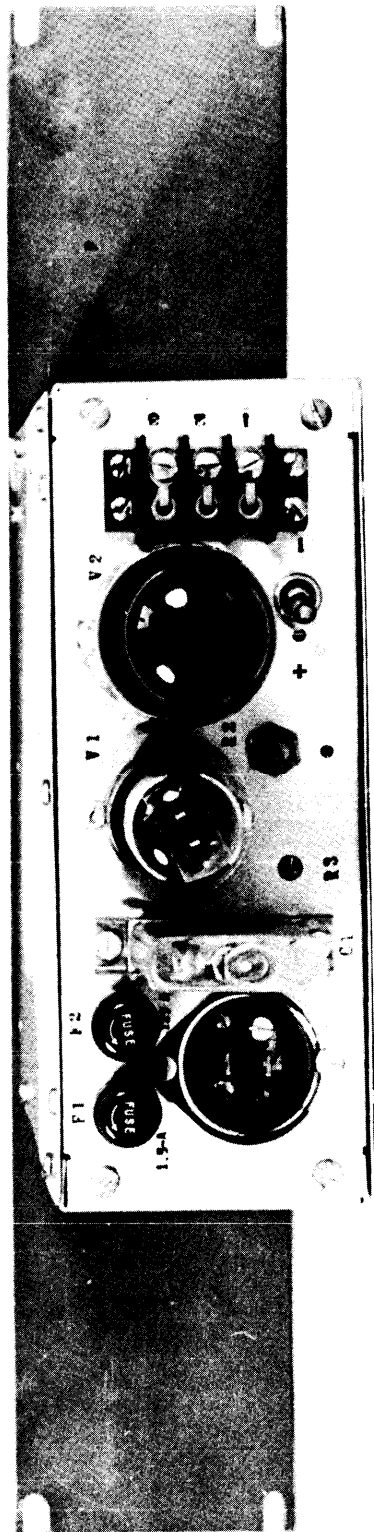
The Auxiliary control R-2 is a rear chassis control used to adjust the range of the front panel output.

This control is adjusted to suit the initial operating conditions. Once set, it should not be changed unless the operating conditions change.

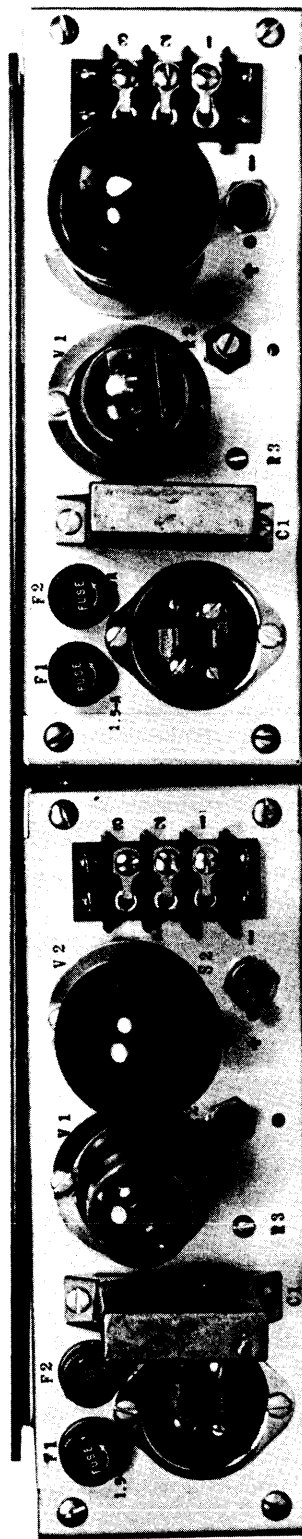
SECTION 5 PARTS LIST

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C1	CAPACITOR, fixed: paper dielectric 1 mfd., ±10%; 600 wvdc.	AC-RF Filter	CP69B1EF105K
C2	Not Used		
C3	CAPACITOR, fixed: paper dielectric; oil filled and impregnated; 4 mfd; ±10%, 600 wvdc.	B Plus Output Filter	CP41B1DF405K
C4	CAPACITOR, fixed: paper dielectric; oil filled and impregnated; 4 mfd; ±10%; 600 wvdc.	B Plus Output Filter	CP41B1DF405K
C5	CAPACITOR, fixed: paper dielectric; 0.1 mfd; 600 wvdc.	Output Filter	CP54B1EF104K
E1	BOARD, terminal: general purpose; barrier type; three brass nickel plated #6/32 binder head screws w/"Y" type solder terms.	Output Terminal Board	TM-100-3
F1	FUSE, cartridge: 1½ amp; oper in one hour at 135% load and in 25 sec at 200% load.	AC Line Fuse	FU-100-1.5
F2	FUSE, cartridge: 125 ma; oper in one hour at 135% load and in 25 sec at 200% load; rated continuous at 110% load; 250 volts.	B Plus Fuse	FU-100-.125
I1	LAMP, incandescent: 6-8 volts, 0.250 amp; bulb T-3-1/4 clear.	Pilot Lamp	BI-101-44
L1	REACTOR, filter choke; 15 h., 85 ma DC., 270 ohms DC resistance, 2,500 volts RMS test.	B Plus Filter Choke	TF-5000
M1	METER, milliammeter, DC: 0-100; rec- tangular bakelite flush mtng case; 2-3/8" sq. flange x 2-3/16" body x 1.45" behind flange; accuracy ±1%; d'Arsonval movement, 1.0 ma basic movement; 1,000 ohms per volt.	Output Current Meter	MR-100-4
J1	CONNECTOR, male contact: flush motor plug type; two parallel non-polarized straight contacts; 10 amp., 250 volts.	AC Input Receptacle	JJ-100
R1	RESISTOR, variable: composition, potentiometer; 100,000 ohms ±10% 2 watts; linear taper; 100° C Max. cont. operation.	Output Current Control	RV4ATSC104A

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R2	RESISTOR, variable: composition potentiometer; 100,000 ohms $\pm 10\%$ 2 watts; linear taper; 100° C Max. cont. operation.	Auxiliary Current Control	RV4ATSC104A
R3	RESISTOR, fixed: wire wound; 15,000 ohms, $\pm 10\%$; 10 watts.	Output Bleeder	RW-109-36
R4	RESISTOR, fixed: composition; 12 ohms, $\pm 10\%$; 2 watts.	Pilot Lamp Series Res.	RC42GF120K
R5	RESISTOR, fixed: composition; 1,000 ohms, $\pm 10\%$; 1/2 watt.	Screen Grid Res.	RC20GF102K
S1	SWITCH, toggle: DPST; 3 amp; 250 v; phenolic body.	Primary Power Switch	ST-22K
S2	SWITCH, toggle: DPDT: 3 amp; 250 v; phenolic body.	D.C. Polarity Reversing Sw.	ST-22N
T1	TRANSFORMER, filament power: input 110/220 v. 50/60 cps, sing phs; 4 output wndgs; Secdy #1-6.3 v Ct, 3 a; #2-6.3 v, 1.2 a; #3-300-0-300v 70 ma to cap inpt fil; #4-5v, 2 a; all windings ins 1,000 v.	Fil & HV Supply	TF-106
V1	TUBE, electron: RMA 5Y3GT duodiode rectifier.	B Plus Rectifier	5Y3GT
V2	TUBE, electron: RMA 6Y6G; Beam Power Amplifier.	Current Control Tube	6Y6G
XF1	HOLDER, fuse: extractor post type; for single AGC cartridge fuse 1-1/4" lg x 1/4" d; phenolic shell and body 1-13/16" lg x 11/16" d. overall; 15 amps, 250 v. max.	Holder For Line Fuse	FH-100-2
XF2	HOLDER, fuse: extractor post type; for single AGC cartridge fuse; 1-1/4" lg x 1/4" d; phenolic shell and body 1-13/16" lg x 11/16" d overall; 15 amp, 250 v max.	Holder for B Plus Fuse	FH-100-2
XI1	LIGHT, indicator: with lens; 1/2" d. red smooth lens; for miniature bayonet base T-3-1/4 bulb.	Power Indicator	TS-106-1
XV1	SOCKET, tube: octal; one piece saddle mtg w/4 tinned grnd lugs.	Socket for V1	TS101P01
XV2	SOCKET, tube: octal; one piece saddle mtg w/4 tinned grnd lugs.	Socket for V2	TS101P01



PSP-1



PSP-2

Figure 1-2. Rear View Models PSP-1 and PSP-2.

