DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL

POWER SUPPLY PP 3941 /G INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS

HEADQUARTERS, DEPARTMENT OF THE ARMY

28 February 1966

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be extremely cautious when interconnecting or servicing the power supply. Voltages in excess of 500 *volt* exist in this equipment and may cause *death on contact*.

TM 11-6130-242-15
***C 4**

CHANGE

No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *20 December 1974*

Organizational, Direct Support, General Support, and Depot Maintenance Manual Including Repair Parts and Special Tools List POWER SUPPLY PP-3941/G

TM 11-6130-242-15, 28 February 1966, is changed as follows:

Page 1-1, paragraph 1-2. Delete paragraph 1-2 and substitute:

1-2. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment. Paragraph 1-3. Delete and substitute:

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army)/ NAVSUP Pub 378 (Navy)/AFR 71-4 (Air Force)/ MCO P4030.29 (Marine Corps), and DSAR 4145.8.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38(Army)/ NAVSUPINST 4610.33/AFM 75-18/MCO P4610.19A (Marine Corps), and DSAR 4500.15.

1-3.1. Reporting of Equipment Publication Improvements

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-C, Fort Monmouth, NJ 07703.

Page 2-1. After paragraph 2-1 add:

2-1.1. Item Comprising an Operable Power Supply PP-3941/G

Power Supply PP-3941/G (FSN 6130-985-8143) comprises an operable equipment and is shown in figure 1-1.

Page 7-11. Make the following changes:

Delete paragraph 7-17.

Delete figure 7-10.

Page A2-1, appendix II. Delete appendix II in its entirety.

Page A4-1, appendix IV. Delete appendix IV and substitute:

***This change supersedes C 2, 3 March 1967 and C 3, 5 November 1973 of TM 11-6130-242-15, 28 February 1966.**

APPENDIX IV
REPAIR PARTS LIST
Section I. INTRODUCTION

A4-1. Scope

This appendix lists repair parts and special tools required for the performance of organizational, direct support, general support, and depot maintenance of the PP-3941/G. The PCCN for the PP-3941/G is GCTAFG for all models. This appendix is current as of 3 October 1974.

A4-2. General

This repair parts and special tools list is divided into the following sections:

a. Prescribed Load Allowance (PLA) -Section II. Not applicable.

b. Repair Parts List -Section III. A list of repair parts authorized for the performance of maintenance at the organizational level. This repair parts list is arranged in alphabetical order.

c. Special Tools, Test and Support Equipment Section IV. Not applicable.

d. Repair Parts List -Section V. A list of repair parts authorized for the performance of maintenance at the direct support, general support, and depot level.

e. Special Tools, Test and Support Equipment Section VI. Not applicable.

f. Index - Federal Stock Number and Reference Number Cross-Reference to Figure and Item Number -Section VII. A list, in ascending numerical sequence, of all Federal stock numbers appearing in the listings, followed by a list, in alphanumeric sequence, of all reference numbers appearing in the listings. Federal stock number and reference numbers are cross-referenced to each illustration figure and item number or reference designation appearance.

A4-3. Explanation of Columns

The following provides an explanation of columns found in the tabular list.

a. Source, Maintenance, and Recoverability Codes (SMR).

(1*) Source code*. Indicates the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are-

Code	*Explanation*
PA -	Item procured and stocked for anticipated or known usage.
PB -	Item procured and stocked for insurance purposes because essentiality dictates that a minimum quantity be available in the supply systems.
PC -	Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
PD -	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfittings. Not subject to automatic replenishment.
PE -	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF -	Support equipment which will not be stocked but which will be centrally procured on demand.
PG -	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which because of probable discontinuance or shutdown of production facilities would prove uneconomical to reproduce at a later time.
KD -	An item of depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF -	An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or direct support or general support levels of maintenance.
KB -	Item included in both a depot overhaul/repair kit and a maintenance kit.
MO -	Item to be manufactured or fabricated at organizational level.
MF -	Item to be manufactured or fabricated at direct support maintenance level.
MH -	Item to be manufactured or fabricated at general support maintenance level.
MD -	Item to be manufactured or fabricated at depot maintenance level.
AO -	Item to be assembled at organizational level.

Code *Explanation*

AF - Item to be assembled at direct support maintenance level.

AH - Item to be assembled at general support maintenance level.

AD - Item to be assembled at depot maintenance level.

XA - Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.

XB - Item is not procured or stocked. If not available through salvage, requisition.

XC - Installation drawing, diagram instruction sheet, field service drawing, that is identified by manufacturers' part number.

XD - Support items can be requisitioned with justification.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XA and aircraft support items as restricted by AR 700-42.

(2) *Maintenance code*. Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and four positions of the Uniform SMR Code Format as follows-

(a) Use (third position). The maintenance code entered in the third position indicates the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position indicates one of the following levels of maintenance.

Code *Application/Explanation*

O - Support item is removed, replaced, used at the organizational level of maintenance.

NOTE

A code "C" may be used in this position to denote crew or operator maintenance performed within organizational maintenance.

F - Support item is removed, replaced, used at the direct support maintenance level.

H - Support item is removed, replaced, used at the general support maintenance.

D - Support items that are removed, replaced, used at depot only.

(b) Repair (fourth position). The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). When a maintenance code is not used a dash (-) sign is entered. For multi-service equipment/systems or when a code is entered, this position will contain one of the following maintenance codes as assigned by the service(s) that require the code-

Code *Application/Explanation*

O - The lowest maintenance level capable of complete repair of the support item is the organizational level.

F - The lowest maintenance level capable of complete repair of the support item is direct support.

H - The lowest maintenance level capable of complete repair of the support item is general support.

D - The lowest maintenance level capable of complete repair of the support item is the depot level.

L - Repair restricted to designated Specialized Repair Activity.

Z - Non-repairable. No repair is authorized.

B - No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

(3) *Recoverability code*. Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the uniform SMR Code Format as follows-

Code *Explanation*

Z - Nonrepairable item. When unserviceable, condemn and dispose at the level indicated in the first digit of the maintenance code.

O - Repairable item. When uneconomically repairable, condemn and dispose at organizational level.

F - Repairable item. When uneconomically repairable, condemn and dispose at the direct support level.

H - Repairable item. When uneconomically

Code *Explanation*

repairable. condemn and dispose at the general support level.

D - Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.

L - Repairable item. Repair, condemnation, and disposal not authorized below depot/Specialized Repair Activity level.

A - Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material or hazardous material).

b. Federal Stock Number. Indicates the Federal stock number assigned to the item.

NOTE

For requisitioning purposes, the Federal stock number must be converted to the National stock number by adding "-00-" after the Federal stock classification (FSC) code (first four digits). For example, FSN 6625553-0142 converts to NSN 662500-553-0142.

c. Description. Indicates the Federal item name and a minimum description required to identify the item. The last line indicates the reference number followed by the applicable Federal Supply Code for Manufacturer (FSCM) in parentheses. The FSCM is used as an element in item identification to designate manufacturer or distributor or Government agency, etc., and is identified in SB 708-42.

d. Unit of Measure (U/M). Indicates the standard or basic quantity by which the listed item is used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation; e.g., ea, in, pr, etc., and is the basis used to indicate quantities and allowances in subsequent columns. When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

e. Quantity Incorporated in Unit. This column indicates the quantity of the item used in the equipment. Subsequent appearances of the same item in the same assembly are indicated by the letters "REF"'.

f. 15-Day Organizational Maintenance Allowances.

(1) The repair parts indicated by an asterisk in the allowance column represent those authorized for use at the organizational category, and will be requisitioned on an "as required" basis, until stockage is based on demand in accordance with AR 710-2.

(2) Major Army commanders are authorized to approve reduction in the range of support items authorized for use in units within their commands. Recommendations for increase in range of items authorized for use will be forwarded to Commander, US Army Electronics Command, ATTN: AMSEL-MA-CR, Fort Monmouth, NJ., 07703.

(3) Allowance quantities are indicated in the special tools list section for special tools, TMDE, and other support equipment.

g. 30-Day DSIGS Maintenance Allowances.

NOTE

Allowances in GS column are for GS maintenance only.

(1) The repair parts indicated by asterisk entries in separate allowance columns for DS and GS represent those authorized for use at that category of maintenance to be requisitioned on an "as required" basis, until stockage is based on demand in accordance with AR 710-2.

(2) Allowance quantities are indicated in the special tool lists section for special tools, TMDE, and other support equipment.

h. 1-Year Allowances Per 100 Equipments/Contingency Planning Purposes. Column intentionally left blank.

i. Depot Maintenance Allowance Per 100 Equipments. This column indicates opposite the first appearance of each item the total quantity authorized for depot maintenance of 100 equipments.

j. Illustration.

(1) *Figure number*. Indicates the figure number of the illustration on which the item is shown.

(2) *Item number*. Indicates the item number or reference designation used to reference the item in the illustration.

A4-4. Special Information

Usable on codes are included in column 3.

Uncoded items are applicable to all models. Identification of the usable on codes used in this publication are

Code	*Used on*
B6Q	PP-3941/G

A4-5. Location of Repair Parts

a. This appendix contains one cross-reference index (sec VII) to be used to locate a repair part when either the Federal stock number or reference number (manufacturer's part number) is known. The first column in the index is prepared in numerical or alphanumeric sequence in ascending order. The reference numbers (manufacturer's part numbers) are listed immediately following the last listed Federal stock number in the index of Federal stock numbers.

b. When the Federal stock number or reference number is known, follow the procedures given in (1) and (2) below.

(1) Refer to the index of Federal stock numbers (sec VII), and locate the Federal stock number or reference number. The FSN and reference number are cross-referenced to the applicable figure and item number or reference designation.

(2) Refer to the repair parts list (sec III and V) and locate the figure number (col 7a - 20P, 10a - 34P) and item number or reference designation (col 7b - 20P, 10b - 34P) as noted in the FSN index.

c. When the figure and item number or reference designation are known, scrutinize columns 7a and 7b - 20P and 10a and 10b - 34P, of the repair parts list (sec III and V) until the item is located.

d. When the FSN, reference number, figure number, and item number are not known, scrutinize column 3 of the repair parts list (sec III and V), which is arranged in alphabetical order.

A4-6. Abbreviations

Not applicable.

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY. INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
XDOZZ		ELECTRON TUBE V1 6W6GT (81349)	EA	6	*	*	*	*	6-1	V1
XDOZZ		ELECTRON TUBE V2 6W6GT (81349)	EA	REF	*	*	*	*	6-1	V2
XDOZZ		ELECTRON TUBE V3 6W6GT (81349)	EA	REF	*	*	*	*	6-1	V3
XDOZZ		ELECTRON TUBE V4 6W6GT (81349)	EA	REF	*	*	*	*	6-1	V4
XDOZZ		ELECTRON TUBE V5 6W6GT 181349)	EA	REF	*	*	*	*	6-1	V5
XDOZZ		ELECTRON TUBE V6 6W6GT (81349)	EA	REF	*	*	*	*	6-1	V6
PAOZZ	5960-681-9741	ELECTRON TUBE V9 5R4WGB (81349)	EA	1	*	*	*	*	6-1	V9
PAOZZ	5960-272-9182	ELECTRON TUBE V10 6X4WA (81349)	EA	1	*	*	*	*	6-1	V10
XDOZZ		FUSE, CARTRIDGE F1 1/32 AMP, 250 V TIME DELAY 25 SEC MIN AT 200PCT LOAD, 8 SEC MIN AT 300PCT LOAD, 3 SEC MIN AT 500PCT LOAD SMC20B810-2 (80063)	EA	1	*	*	*	*	6-1	F1
PACZZ	5920-221-5892	FUSE, CARTRIDGE F2 10 AMP. 25 V TINE DELAY 25 SEC AT 200PCT LOAD, 3 SEC AT 500PCT LOAD MDL10 (71400)	EA	1	*	*	*	*	6-1	F2
PAOZZ	5355-538-3118	KNOB NO-REF-DESIG KNA21-002 (80103)	EA	2	*	*	*	*		
PAOZZ	5355-161-1179	KNOB NO-REF-DESIG KNA31-006 (80103)	EA	1	*	*	*	*		
PACZZ	6240-682-3411	LAMP, GLOW NO-REF-DESIG NE51H (81349)	EA	2	*	*	*	*		
PAOZZ	5945-643-6826	RELAY, THERMAL V7 115 VAC, 6 AMP NON CURRENT 6N030 (70563)	EA	1	*	*	*	*	6-1	V7
XDOZZ		SHIELD, ELECTRON TUBE NO-REF-DESIG BRASS NICKEL PLATED 151-12-20-123-20* 2 (71785)	EA	3	*	*	*	*		

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON CODE REF. NUMBER & MFR CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30 DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30 DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUS-TRATION (a) FIG. NO.	(b) ITEM NO.
PAHZZ	6625-821-6434	AMMETER M2 200 MA DC PORM2PCT AT 25 DEG. C INTERNAL SHUNT WESTON CLASS 57-11, BLACK FLUSH BAKELITE CASE MODEL 301 EDM20-012 (80103)	EA	1				*	*	*		3		M2
PAHZZ	5995-947-9383	CABLE ASSEMBLY, POWER NO-REF-DESIG RPP39-008 (80103)	EA	1				*	*	*		5		
PAHZZ	5910-581-8445	CAPACITOR, FIXED, CERAMIC DIELECTRIC C6 10,000 UUF. TOLERANCE NOT RATED 500 VDC GMV29C9B5 (56289)	EA	2				*	*	*		3	8-3	C6
PAHZZ	5910-581-8445	CAPACITOR. FIXED, CERAMIC DIELECTRIC C7 10,000 UUF, TOLERANCE NOT RATED 500 VDC GMV29C9B5 (56289)	EA	REF				*	*	*		3	8-3	C7
XDHZZ		CAPACITOR, FIXED, PAPER DIELECTRIC C1 CAM10-005 (80103)	EA	1				*	*	*			6-1	C1
XDHZZ		CAPACITOR, FIXED, PAPER DIELECTRIC C2 CAN81-007 (80103)	EA	1				*	*	*			6-1	C2
PAHZZ	5910-347-3678	CAPACITOR, FIXED, PAPER DIELECTRIC C3 CAM50-001 (80103)	EA	1				*	*	*		3	8-3	C3
PAHZZ	5910-347-3680	CAPACITOR, FIXED, PAPER DIELECTRIC C4 CAM25-004 (801031	EA	1				*	*	*		3	8-3	C4
PAHZZ	5910-617-3165	CAPACITOR, FIXED, PAPER DIELECTRIC C5 4-4-2 UF, M10P20PCT, 600 VDC CAP10-001 (14655)	EA	1				*	*	*		3	6-1	C5
PAHZZ	5925-944-4606	CIRCUIT BREAKER CB1 70-110B (74193)	EA	1				*	*	*		5	3-1	CB1
XDHZZ		CIRCUIT BREAKER CB2 70-110A (74193)	EA	1				*	*	*			3-1	CB2
XDHZZ		CLIP, SPRING NO-REF-DESIG KHJ10-002 (80103)	EA	2				*	*	*				
XDHZZ		CLIP, SPRING TENSION NO-REF-DESIG CADMIUM PLATED C44-90-022-24 (78553)	EA	5				*	*	*				
XDOZZ		ELECTRON TUBE V1 6W6GT (81349)	EA	6	*	*	*	*	*	*			6-1	V1
XDOZZ		ELECTRON TUBE V2 6W6GT (81349)	EA	REF	*	*	*	*	*	*			6-1	V2
XDOZZ		ELECTRON TUBE V3 6W6GT (81349)	EA	REF	*	*	*	*	*	*			6-1	V3
XDOZZ		ELECTRON TUBE V4 6W6GT (81349)	EA	REF	*	*	*	*	*	*			6-1	V4
XDOZZ		ELECTRON TUBE V5 6W6GT (81349)	EA	REF	*	*	*	*	*	*			6-1	V5
XDOZZ		ELECTRON TUBE V6 6W6GT (81349)	EA	REF	*	*	*	*	*	*			6-1	V6
XDHZZ		ELECTRON TUBE V8 12AX7WA (81349)	EA	3				*	*	*			6-1	V8
XDHZZ		ELECTRON TUBE V11 12AX7WA (81349)	EA	REF				*	*	*			6-1	V11
XDHZZ.		ELECTRON TUBE V12 12AX7WA (81349)	EA	REF				*	*	*			6-1	V12
PAOZZ	5960-681-9741	ELECTRON TUBE V9 5R4WGB (81349)	EA	1	*	*	*	*	*	*		100	6-1	V9

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON CODE REF. NUMBER & MFR CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30 DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30 DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUS-TRATION (a) FIG. NO.	(b) ITEM NO.
PAOZZ	5960-272-9182	ELECTRON TUBE V10 6X4WA (81349)	EA	1	*	*	*	*	*	*		100.	6-1	V10
PAHZZ	5960-503-4880	ELECTRON TUBE V13 OA2WA (81349)	EA	1				*	*	*		100	6-1	V13
PAHZZ	5960-167-0389	ELECTRON TUBE 14 5051 (81349)	EA	1				*	*	*		100	6-1	V14
XDCZZ		FUSE, CARTRIDGE FI 1/32 AMP, 250 V TIME DELAY 25 SEC MIN AT 200PCT LOAD, 8 SEC MIN AT 300PCT LOAD, 3 SEC MIN AT 500PCT LOAD SMC208810-2 (80063)	EA	1	*	*	*	*	*	*			6-1	F1
PACZZ	5920-221-5892	FUSE. CARTRIDGE F2 10 AMP, 25 V TIME DELAY 25 SEC AT 200PCT LOAD, 3 SEC AT 500PCT LOAD MDL10 (71400)	EA	1	*	*	*	*	*	*		5	6-1	F2
XDHZZ		FUSEHOLDER NO-REF-DESIG 250 V. 15 AMP EXTRACTOR POST TYPE 342001 (75915)	EA	2				*	*	*				
PAOZZ	5355-538-3118	KNOB NO-REF-DESIG KNA21-002 (80103)	EA	2	*	*	*	*	*	*		3		
PAOZZ	5355-161-1179	KNOB NO -REF-DESIG KNA31-006 (80103)	EA	1	*	*	*	*	*	*		3		
PACZZ	6240-682-3411	LANP, GLOW ND-REF-DES DG NE51H {81349)	EA	2	*	*	*	*	*	*		20		
PAHZZ	6210-954-5135	LIGHT. INDICATOR I1 5220-8H991-33S(72619)	EA	2				*	*	*		5	3-1	I1
PAHZZ	6210-954-5135	LIGHT, INDICATOR 12 52208H991-33K (72619)	EA	REF				*	*	*		5	3-1	I2
XDHZZ		REACTOR L1 6.0 HENRIES PORM20PCT AT 230. MA DC 80 OHMS PORM15PCT RESISTANCE BBM23-005 (80103)	EA	1				*	*	*			6-1	L1
XDHZZ		RELAY, ARMATURE K1 3 POLE, SINGLE THROW, NORMALLY OPEN 115 VAC MAX, 15 AMP P0X179 002881	EA	1				*	*	*			6-1	K1
PAOZZ	5945-643-6626	RELAY, THERMAL V7 115 VAC, 6 AMP NOM CURRENT 6N030 (70563)	EA	1	*	*	*	*	*	*		3	6-1	V7
XDHZZ		RESISTOR, FIXED, COMPOSITION R3. RC20GF225K (81349)	EA	1				*	*	*			8-3	R3
XDHZZ		RESISTOR. FIXED, COMPOSITION R4 RC20GF101J (81349)	EA	6				*	*	*			8-3	R4
XDHZZ		RESISTOR, FIXED, COMPOSITION R7 RC20GF101J (81349)	EA	REF				*	*	*			8-3	R7
XDHZZ		RESISTOR, FIXED. COMPOSITION R10 RC20GF101J (81349)	EA	REF				*	*	*			8-3	R10
XDHZZ		RESISTOR, FIXED, COMPOSITION R13 RC20GF101J (81349)	EA	REF				*	*	*			8-3	R12
XDHZZ		RESISTOR, FIXED, COMPOSITION R16 RC20GF101J (81349)1	EA	REF				*	*	*			8-3	R16
XDHZZ		RESISTOR, FIXED, COMPOSITION R22 RC20GF101J (81349)	EA	REF				*	*	*			8-3	R22
XDHZZ		RESISTOR, FIXED. COMPOSITION R5 RC32GF470K (81349)	EA	6				*	*	*			8-3	R5

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF. NUMBER & MFR CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30 DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30 DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUS-TRATION (a) FIG. NO.	(b) ITEM NO.
XDHZZ		RESISTOR, FIXED, COMPOSITION R8 RC32GF470K (81349)	EA	REF				*	*	*			8-3	R8
XDHZZ		RESISTOR, FIXED, COMPOSITION R11 RC32GF470K (61149)	EA	REF				*	*	*			8-3	R11
XDHZZ		RESISTOR, FIXED, COMPOSITION R14 RC32GF470K (81349)	EA	REF				*	*	*			8-3	R14
XDHZZ		RESISTOR, FIXED, COMPOSITION R17 RC32GF470K (81349)	EA	REF				*	*	*			8-3	R17
XDHZZ		RESISTOR, FIXED, COMPOSITION R23 RC32GF470K (81349)	EA	REF				*	*	*			8-3	R23
PAHZZ	5905-192-3973	RESISTOR, FIXED, COMPOSITION R6 RC20GF471J (81349)	EA	6				*	*	*		3	8-3	R6
PAHZZ	5905-192-3973	RESISTOR, FIXED, COMPOSITION R9 RC20GF471J (81349)	EA	REF				*	*	*		3	8-3	R9
PAHZZ	5905-192-3973	RESISTOR, FIXED, COMPOSITION R12 RC20GF471J (81349)	EA	REF				*	*	*		3	8-3	R12
PAHZZ	5905-192-3973	RESISTOR, FIXED, COMPOSITION R15 RC20GF471J (81349)	EA	REF				*	*	*		3	8-3	R15
PAHZZ	5905-192-3973	RESISTOR, FIXED, COMPOSITION R18 RC20GF471J (81349)	EA	REF				*	*	*		3	8-3	R18
PAHZZ	5905-192-3973	RESISTOR, FIXED. COMPOSITION R24 RC20GF471J (81349)	EA	REF				*	*	*		3	8-3	R24
PAHZZ	5905-192-0662	RESISTOR, FIXED, COMPOSITION R26 RC20GF184K (81349)	EA	3				*	*	*		3	8-3	R26
PAHZZ	5905-192-0662	RESISTOR, FIXED, COMPOSITION R39 RC20GF184K (81349)	EA	REF				*	*	*		3	8-3	R39
PAHZZ	5905-192-0662	RESISTOR, FIXED, COMPOSITION R40 RC20GF184K (813491	EA	REF				*	*	*		3	8-3	R40
PAHZZ	5905-279-2515	RESISTOR, FIXED, COMPOSITION R28 RC20GF474J (81349)	EA	3				*	*	*		3	8-3	R28
PAHZZ	5905-279-2515	RESISTOR, FIXED, COMPOSITION R29 RC20GF474J (81349)	EA	REF				*	*	*		3	8-3	R29
PAHZZ	5905-279-2515	RESISTOR, FIXED, COMPOSITION R2 RC20GF474J (81349)	EA	REF				*	*	*		3	8-3	R2
PAHZZ	5905-295-3410	RESISTOR, FIXED, COMPOSITION R37 RC20GF473K (81349)	EA	1				*	*	*		3	8-3	R37
PAHZZ	5905-444-9200	RESISTOR, FIXED, FILM R19 DCV50-011 (80103)	EA	1				*	*	*		3	8-3	R19
PAHZZ	5905-444-9190	RESISTOR, FIXED, FILM R32 DCT50-001 (80103)	EA	1				*	*	*		3	8-3	R32
PAHZZ	5905-444-9199	RESISTOR, FIXED, FILM R38 DCV25-013 (80103)	EA	1				*	*	*		3	8-3	R38
XDHZZ		RESISTOR, FIXED, WIRE WOUND RI 30,000 OHMS, PORM5PCT, 25 W 2 EA WIRED IN SERIES A30000WL (14841)	EA	2				*	*	*			8-3	R1
XDHZZ		RESISTOR, FIXED, WIRE WOUND R20 BWH0-82 (75042)	EA	2				*	*	*			8-3	R20
XDHZZ		RESISTOR, FIXED, WIRE WOUND R23 BWH0-82 (75042)	EA	REF				*	*	*			8-3	R23
XDHZZ		RESISTOR, FIXED, WIRE WOUND R25A DFT40-015 (80103)	EA	1				*	*	*			8-3	R25A
XDHZZ		RESISTOR, FIXED, WIRE WOUND R25B DFT40-015 (80103)	EA	REF				*	*	*			8-3	R25B

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON CODE REF. NUMBER & MFR CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30 DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30 DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUS-TRATION (a) FIG. NO.	(b) ITEM NO.
XDHZZ		RESISTOR, FIXED, WIRE WOUND R25C DFT40-015 (80103)	EA	REF				*	*	*			8-3	R25C
XDHZZ		RESISTOR, FIXED, WIRE WOUND R25D DFT40-015 (80103)	EA	REF				*	*	*			8-3	R25D
PAHZZ	5905-444-9165	RESISTOR, FIXED, WIRE WOUND R27A DFV16-001 (80103)	EA	1				*	*	*		3	8-3	R27A
PAHZZ	5905-444-9165	RESISTOR, FIXED, WIRE WOUND R27B DFV16-001 (80103)	EA	REF				*	*	*		3	8-3	R278
PAHZZ	5935-444-9165	RESISTOR, FIXED, WIRE WOUND R27C DFV16-001 (80103)	EA	REF				*	*	*		3	8-3	R27C
XDHZZ		RESISTOR, FIXED, WIRE WOUND R34A DFT19-035 (80103)	EA	1				*	*	*			8-3	R34A
XDHZZ		RESISTOR, FIXED, WIRE WOUND R34B DFT19-035 (80103)	EA	REF				*	*	*			8-3	R348
PAHZZ	5905-853-1987	RESISTOR, FIXED, WIRE WOUND R41 BWH3-9 (75042)	EA	1				*	*	*		3	8-3	R41
PAHZZ	5905-050-7383	RESISTOR, FIXED, WIRE WOUND R42 BWH1-0-0 (75042)	EA	1				*	*	*		3	8-3	R42
PAHZZ	5905-444-9321	RESISTOR, VARIABLE R21 DPT50-002 (80103)	EA	1				*	*	*		3	3-1	R21
PAHZZ	5905-946-6402	RESISTOR, VARIABLE R30 L83756 (71453)	EA	1				*	*	*		3	3-1	R30
XDHZZ		RESISTOR, VARIABLE R1 LB3759 (71450)	EA	1				*	*	*			3-1	R31
PAHZZ	5905-957-5087	RESISTOR, VARIABLE R35 5000 OHMS PORM10PCT, 4 WATT LINEAR TAPER LA2668 (71450)	EA	1				*	*	*		3	6-1	R35
XDHZZ		RESISTOR. VARIABLE R36 2000 OHMS PORM10PCT, 4 W LA2667 (71450)	EA	1				*	*	*			6-1	R36
XDHZZ		RETAINER, CAPACITOR NO-REF-DESIG CWD15-003 (80103)	EA	1				*	*	*				
XDHZZ		RETAINER, CAPACITOR NO-REF-DESIG CWD36-001 (80103)	EA	2				*	*	*				
XDHZZ		RETAINER, ELECTRON TUBE NO-REF-DESIG HPJ00-D11 (80103)	EA	7				*	*	*				
XDHZZ		SHIELD, ELECTRON TUBE NO-REF-DESIG BRASS. NICKEL PLATED 150-12-30-052-20* 2 (71785)	EA	2				*	*	*				
XDOZZ		SHIELD, ELECTRON TUBE NO-REF-DESIG BRASS, NICKEL PLATED 151-12-20-123-20* 2 (71785)	EA	3	*	*	*	*	*	*				
XDHZZ		SHIELD, ELECTRON TUBE NO-REF-DESIG SMB290248-2 (80063)	EA	1				*	*	*				
PAHZZ	5935-820-9392	SOCKET. ELECTRON TUBE XV1 OCTAL PHENOLIC 101-21-10-130 (71785)	EA	7				*	*	*		3		XV1
PAHZZ	5935-820-9392	SOCKET, ELECTRON TUBE XV2 OCTAL PHENOLIC 101-21-10-130 (71785)	EA	REF				*	*	*		3		XV2

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON CODE REF. NUMBER & MFR CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30 DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30 DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUS-TRATION (a) FIG. NO.	(b) ITEM NO.
PAHZZ	5935-820-9392	SOCKET. ELECTRON TUBE XV3 OCTAL PHENOLIC 101-21-10-130 (71785)	EA	REF				*	*	*		3		XV3
PAHZZ	5935-820-9392	SOCKET. ELECTRON TUBE XV4 OCTAL PHENOLIC 101-21-10-130 (71785)	EA	REF				*	*	*		3		XV4
PAHZZ	5935-820-9392	SOCKET, ELECTRON TUBE XV5 OCTAL PHENOLIC 101-21-10-130 (71785)	EA	REF				*	*	*		3		XV5
PAHZZ	5935-820-9392	SOCKET, ELECTRON TUBE XV6 OCTAL PHENOLIC 101-21-10-130 (71785)	EA	REF				*	*	*		3		XV6
PAHZZ	5935-820-9392	SOCKET, ELECTRON TUBE XV7 OCTAL PHENOLIC 101-21-10-130 (71785)	EA	REF				*	*	*		3		XV7
XDHZZ		SOCKET. ELECTRON TUBE XV8 HPA09-001 (80103)	EA	3				*	*	*				XV8
XDHZZ		SOCKET, ELECTRON TUBE XV11 HPA07-001 (80103)	EA	REF				*	*	*				XV11
XDHZZ		SOCKET, ELECTRON TUBE XV12 HPA09-001 (80103)	EA	REF				*	*	*				XV12
PAHZZ	5935-222-9938	SOCKET. ELECTRON TUBE XV9 TYPE B, OCTAL. 146-101 (02660)	EA	1				*	*	*		3		XV9
XDHZZ		SOCKET, ELECTRON TUBE XV10 HPA07-O02 (80103)	EA	3				*	*	*				XV10
XDHZZ		SOCKET, ELECTRON TUBE XV13 HPA07-002 (80103)	EA	REF				*	*	*				XV13
XDHZZ		SOCKET, ELECTRON TUBE XV14 HPA07-002 (80103)	EA	REF				*	*	*				XV14
PAHZZ	5930-347-4109	SWITCH, TOGGLE S1 DPDT 250 V AC/DC, 3 AMP 8908K469 (15605)	EA	1				*	*	*		5	3-1	S1
PAHZZ	5930-112-5105	SWITCH, TOGGLE 52 SPOT, 3 POS 20 V AC/DC MAX, 1 AMP 8282K14 (15605)	EA	1				*	*	*		5	3-1	S2
PAHZZ	5940-944-4243	TERMINAL BOARD TB1 HAJ10-301 (80103)	EA	3				*	*	*		3		TB1
PAHZZ	5940-944-4243	TERMINAL BOARD TB2 HAJ10-301 (80103)	EA	REF				*	*	*		3		TB2
PAHZZ	5940-944-4243	TERMINAL BOARD TB3 HAJ10-301 (80103)	EA	REF				*	*	*		3		TB3
XDHZZ		TRANSFORMER, POWER, STEP-DOWN T1 PRI 104-127VAC, 55-400CPS 1 PH PRI TAP 6.4VAC SEC A PLUS B 6.6VAC, 5.0AMP C 6.3V, 0.9AMP 0 6.3V, 6.0AMP E 6.3V, 2.1AMP F 5.0V, 2.0AMP AAN65-002 (80103)	EA	1				*	*	*			6-1	T1
PAHZZ	5950-853-1054	TRANSFORMER, POWER, STEP-DOWN T4 PRIMARY 115 V, 50-400 CPS, 1 PHASE SEC 80.7 V, 250 NA 10051992 (20800)	EA	1				*	*	*		3	6-1	T1
PAHZZ	5950-853-1053	TRANSFORMER, POWER, STEP-UP T12 PRIMARY CONTINUED	EA	1				*	*	*		3	6-1	T2

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON CODE REF. NUMBER & MFR CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30 DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30 DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUS-TRATION (a) FIG. NO.	(b) ITEM NO.
		CONTINUED 115 V, 50-400 CPS, 1 PHASE CENTER TAPPED SECONDARY 1140 V, 230 MA 10051995 (20800)												
XDHZZ		TRANSFORMER, POWER, STEP-UP T3 PRIMARY 115 V, 50-400 CPS, 1 PHASE SEC 800 V, 20 MA, CENTER TAP 10051993 (20800)	EA	1				*	*	*			6-1	T3
PAHZZ	5950-688-2881	TRANSFORMER, VARIABLE, POWER T5 120 V, 50-60 CYCLE, 1 PHASE OUTPUT 0-120 V, 1.75 AMP MAX 10051886 (20800)	EA	1				*	*	*		3		T5
PAHZZ	6625-444-9327	VOLTMETER M1 1.0 MA DC, PORM2PCT FULL SCALE DEFLECTION SCALE DESIGN PER LAMBDA DWG NO ELR50-046 EXTERNAL MULTIPLIER EBR50-047 (80103)	EA	1				*	*	*		2		M1

INDEX - FEDERAL STOCK NUMBER AND REFERENCE NUMBER CROSS-REFERENCE TO FIGURE AND ITEM NUMBER

STOCK NUMBER	FIG. NO.	ITEM NO.
5355-161-1179		
5355-538-3118		
5905-050-7383	8-3	R42
5905-192-0662	8-3	R26
5905-192-0662	8-3	R39
5905-192-0662	8-3	R40
5905-192-3973	8-3	R12
5905-192-3973	8-3	R15
5905-192-3973	8-3	R18
5905-192-3973	8-3	R24
5905-192-3973	8-3	R6
5905-192-3973	8-3	R9
5905-279-2515	8-3	R28
5905-279-2515	8-3	R29
5905-279-2515	8-3	R2
5905-295-3410	8-3	R37
5905-444-9165	8-3	R27A
5905-444-9165	8-3	R27B
5905-444-9165	8-3	R27C
5935-444-9190	8-3	R32
5905-444-9199	8-3	R38
5905-444-9200	8-3	R19
5905-444-9321	3-1	R21
5905-853-1987	8-3	R41
5905-946-6402	3-1	R30
5905-957-5087	6-1	R35
5910-347-3678	8-3	C3
5910-347-3680	8-3	C4
5910-581-8445	8-3	C6
5910-581-8445	8-3	C7
5910-617-3165	6-1	C5
5920-221-5892	6-1	F2
5925-944-4606	3-1	CB1
5930-112-5105	3-1	S2
5930-347-4109	3-1	S1
5935-222-9938		XV9
5935-820-9392		XV1
5935-820-9392		XV2
5935-820-9392		XV3
5935-820-9392		XV4
5935-820-9392		XV5
5935-820-9392		XV6
5935-820-9392		XV7
5940-944-4243		TB1
5940-944-4243		TB2
5940-944-4243		TB3
5945-643-6826	6-1	V7
	6-1	
5950-688-2881		T5
5950-853-1053	6-1	T2
5950-853-1054	6-1	T4
5960-167-0389	6-1	V14
5960-272-9182	6-1	V10
5960-503-4880	6-1	V13
5960-681-9741	6-1	V9
5995-947-9383		
6210-954-5135	3-1	I1
6210-954-5135	3-1	I2
6240-682-3411		
6625-444-9327		M1
6625-821-6434		M2

Reference No.	Mfg. Code	Figure No.	Item No.
AAN65-002	80103	6-1	T1
A30000WL	14841	8-3	R1
BBM23-005	80103	6-1	L1
BWH0-82	75042	8-3	R20
BWH0-82	75042	8-3	R23
BWH1-0-0	75042	8-3	R42
BWH3-9	75042	8-3	R41
CAM10-005	80103	6-1	C1
CAM25-004	80103	8-3	C4
CAM50-001	80103	8-3	C3
CAN81-007	80103	6-1	C2
CAP10-001	14655	6-1	C5
CWD15-003	80103		
CWD36-001	80103		
C44-90-022-24	78553		
DCT50-001	80103	8-3	R32
DCV25-013	80103	8-3	R38
DCV50-011	80103	8-3	R19
DFT19-035	80103	8-3	R34A
DFT19-035	80103	8-3	R34B
DFT40-015	80103	8-3	R25A
DFT40-015	80103	8-3	R25B
DFT40-015	80103	8-3	R25C
DFT40-015	80103	8-3	R25D
DFV16-001	80103	8-3	R27A
DFV16-001	80103	8-3	R27B

Reference No.	Mfg. Code	Figure No.	Item No.
DFV16-001	80103	8-3	R27C
DPT50-002	80103	3-1	R21
EBR50-047	80103		M1
EDM20-012	80103		M2
GMV29C985	56289	8-3	C6
GMV29C985	56289	8-3	C7
HAJ10-301	80103		TB1
HAJ10-301	80103		TB2
HAJ10-301	80103		TB3
HPA07-002	80103		XV10
HPA07-002	80103		XV13
HPA07-002	80103		XV14
HPA09-001	80103		XV8
HPA09-001	80103		XV11
HPA09-001	80103		XV12
HPJ00-011	80103		
KHJ10-002	80103		
KNA21-002	80103		
KNA31-006	80103		
LA2667	71450	6-1	R36
LA2668	71450	6-1	R35
L83756	71450	3-1	R30
L83759	71450	3-1	R31
MDL10	71400	6-1	F2
NE51H	81349		
P0X179	02288	6-1	K1
RC20GF101J	81349	8-3	R4
RC20GF101J	81349	8-3	R7
RC20GF101J	81349	8-3	R10
RC20GF101J	81349	8-3	R13
RC20GF101J	81349	8-3	R16
RC20GF101J	81349	8-3	R22
RC20GF184K	81349	8-3	R26
RC20GF184K	81349	8-3	R39
RC20GF184K	81349	8-3	R40
RC20GF225K	81349	8-3	R3
RC20GF471J	81349	8-3	R6
RC20GF471J	81349	8-3	R9
RC20GF471J	81349	8-3	R12
RC20GF471J	81349	8-3	R15
RC20GF471J	81349	8-3	R18
RC20GF471J	81349	8-3	R24
RC20GF473K	81349	8-3	R37
RC20GF474J	81349	8-3	R2
RC20GF474J	81349	8-3	R28
RC20GF474J	81349	8-3	R29
RC32GF470K	81349	8-3	R5
RC32GF470K	81349	8-3	R8
RC32GF470K	81349	8-3	R11
RC32GF470K	81349	8-3	R14
RC32GF470K	81349	8-3	R17
RC32GF470K	81349	8-3	R23
RPP39-008	80103		
SMC290248-2	80063		
SMC208810-2	80063	6-1	F1
OA2WA	81349	6-1	V13
10051886	20800	T5	
10051992	20800	6-1	T4
10051993	20800	6-1	73
10051995	20800	6-1	T2
101-21-10-130	71785		XV1
101-21-10-130	71785		XV2
101-21-10-130	71785		XV3
101-21-10-130	71785		XV4
101-21-10-130	71785		XV5
101-21-10-130	71785		XV6
101-21-10-130	71785		XV7
12AX7WA	81349	6-1	V8
12AX7WA	81349	6-1	V11
12AX7WA	81349	6-1	V12
146-101	02660		XV9
150-12-30-052-202	71785		
151-12-20-123-202	71785		
342001	75915		
5R4WGB	81349	6-1	V9
5220-8H991-33K	72619	3-1	11
5220-8H991-33K	72619	3-1	12
5651	81349	6-1	V14
6N030	70563	6-1	V7
6W6GT	81349	6-1	V1
6W6GT	81349	6-1	V2
6W6GT	81349	6-1	V3
6W6GT	81349	6-1	V4
6W6GT	81349	6-1	V5
6W6GT	81349	6-1	V6
6X4WA	81349	6-1	V10
70-110A	74193	3-1	CB2
70-110B	74193	3-1	CB1
8282K14	15605	3-1	S2
8908K469	15605	3-1	S1

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DEPARTMENT OF THE ARMY
WASHINGTON, D. C. 20315, 28 *February* 1966

POWER SUPPLY PP-3941/G

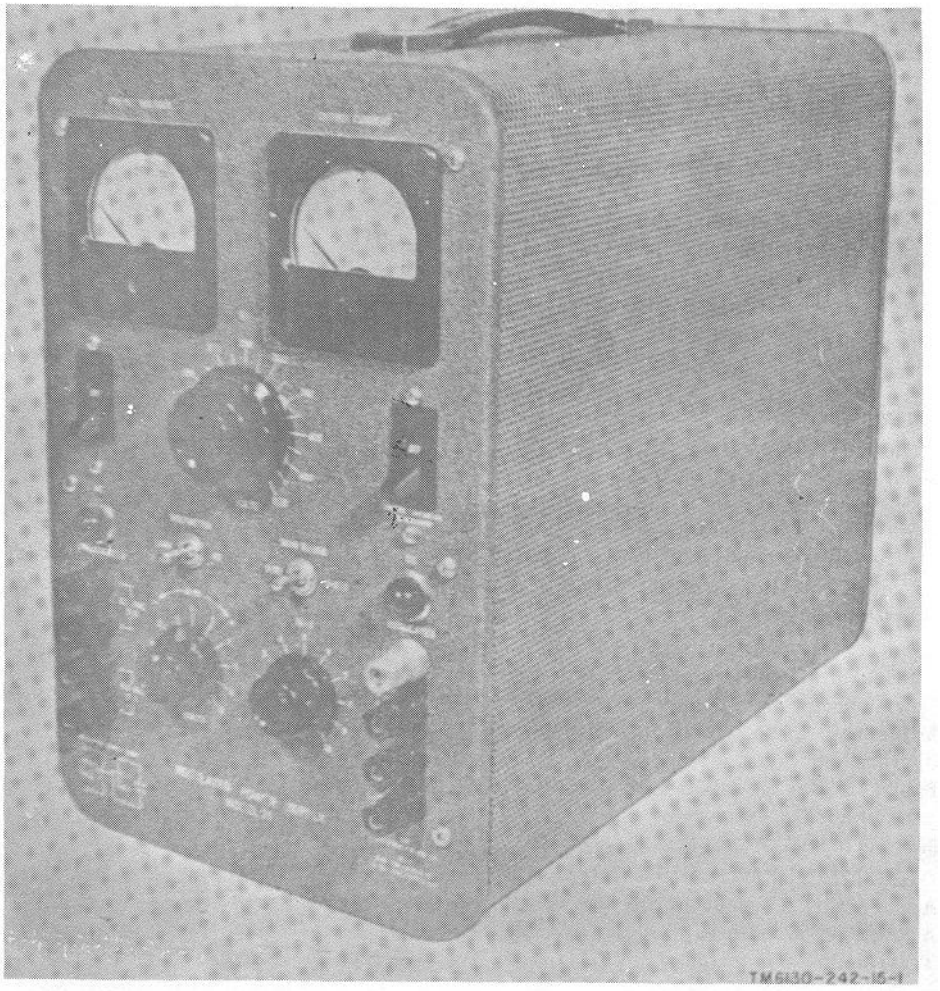


Figure 1-1. Power Supply PP-3941/G.

CHAPTER 1

INTRODUCTION

1-1. Scope

This manual describes Power Supply PP3941/C and provides instructions for operation, operator and organizational maintenance, and direct and general support and depot maintenance.

1-2. Index of Equipment Publications

Refer to the latest issue of DA Pam 3104 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. Department of the Army Pamphlet No. 310-4 is an index of current technical manuals, technical bulletins, supply manuals (types 7, 8, and 9), supply bulletins, lubrication orders, and modification work orders available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes to and revisions of each equipment publication.

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and -records in accordance with instructions in TM 38-750.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form o (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71-4 (Air Force).

c. Reporting of Equipment Manual Improvements. The direct reporting of errors, omissions, and recommendations for improving this equipment manual by the individual user is authorized and encouraged. DA Form 2028 will be used for reporting these improvements. This form may be completed by use of pencil, pen, or typewriter. DA Form 2028 will be completed by the individual using the manual and forwarded direct to: Commanding General, U.S. Army Electronics Command, ATTN: AMSEILMR-(NMP)-MA, Fort Monmouth, New Jersey 07703.

CHAPTER 2

DESCRIPTION

2-1. General

(fig. 1-1)

a. Power Supply PP-3941/G is designed for general purpose use. The direct current (dc) output voltages are electronically regulated, practically independent of normal line voltage fluctuations, and substantially free from hum and noise. The high voltage dc output is constant (within the specified limits) from zero to maximum load and features a continuously variable voltage control with an auxiliary vernier control for precise voltage adjustment. The dc bias-voltage output is also continuously adjustable and is closely regulated for line voltage variations. The following output voltages are supplied:

(1) *Output No.* 1: 0-500 VDC, 0-200 MA, regulated.

(2) *Output No.* 2: 0-200 VDC, 0-50 VDC, bias output. Regulated for line voltage variation.

(3) *Output No.* 3: 6.5 VAC, 5A, unregulated.

(4) *Output No.* 4: 6.5 VAC, 5A, unregulated.

b. The 3-1/2-inch panel meters permit monitoring of output voltage and current. Magnetic circuit breakers provide convenient alternating current (ac) and dc overload protection. A time-delay relay circuit protects the tubes during the initial warmup period. Sturdy, insulated binding posts are provided for front panel connections. A voltage reference tube insures long time stability for operation.

2-2. Technical Characteristics

Input: .....105 to 125 vac, 50 to 60 cps, 475 w (max).

Dc output No. 1 (regulated for line and load):

Voltage ..... 0 to 500 vdc (continuously variable).
Current ..... 0 to 200 ma (over entire voltage range).
Regulation (line)..... 0.15 percent or 0.3 volt (whichever is greater).
Regulation (load) ..... 0.15 percent or 0.3 volt (whichever is greater).
Internal impedance .. Less than 4 ohms.
Ripple and noise ..... Less than 5 millivolts rms.
Polarity ..... Either positive or negative terminal may be grounded.

Dc output No. 2 (regulated for line only):

Voltage ranges	*Internal resistance*
0 to 50 vdc (no load)	5,500 ohms
0 to 200 vdc (no load)	25,000 ohms

Current range .....Any value of external load impedance may be used including a continuously applied low impedance or short circuit. Insignificant interaction on output No. 1. Short circuit current: 9 ma (max).
Regulation (line) .....Better than 0.1 percent.
Ripple and noise .....Less than 5 millivolts rms.
Polarity .....Positive terminal connected internally to negative terminal of dc output No. 1.
Ac outputs (unregulated)..Two outputs, isolated and ungrounded. Each is 6.5 vac at 5 amperes (at 115 vac input). Allows for drop in connecting leads. May be connected in series for 13.0 vac (nominal) at 5 amperes, or in parallel for 6.5 vac (nominal) at 10 amp.

Ambient temperature and
duty cycle ..... Continuous duty .at full load up to 40°C (104°F) ambient.
Overload protection:
External ..... .Ac and dc systems utilize magnetic circuit breakers which are trip-free and instant manual reset.
Internal ..... Fuses, access through rear of cabinet.
Connections:
Input ..... 8-foot heavy-duty, rubber-covered line cord with integral molded plug, rear of cabinet.
Output ..... Sturdy insulated five-way binding posts.
Meters:
Output voltage ..... Multirange 3-1/2-inch rectangular voltmeter calibrated 0 to 50 vdc, 0 to 200 vdc, 0 to 500 vdc.
Output current ..... 3-1/2-inch rectangular milliammeter calibrated 0 to 200 ma.
Voltage reference tube..... A stable 5651 is used to obtain superior longtime voltage stability.
Time-delay relay circuit ..... A 30 sec time-delay circuit, utilizing a 6 N030 time-delay relay, allows tube heaters to come to proper operating temperature before high voltage is applied.

Tube complement:

Tube type	*Quantity*	*Function*
5R4-GYA	1	Rectifier
6X4	1	Rectifier
6W6-GT	1	Control tubes
12AX7A	6	Voltage amplifier
5651	3	Voltage references
OA2	1	Voltage stabilizer

2-3. Mechanical Characteristics

The PP-3941/G is painted a two-tone gray and weighs 49 pounds. It is 13 inches high by 8-3/4 inches wide by 14-1/2 inches deep.

CHAPTER 3

OPERATING INSTRUCTIONS

3-1. Operating controls

(fig. 3-1)

a. The ac circuit breaker is in series with the ac line, and controls power to the supply. When the ac circuit breaker is in the ON position, the pilot light indicator is illuminated, the heaters of all the tubes in the supply are energized, and a 30-second protective thermal time-delay relay is set into operation.

b. The dc circuit breaker contacts are in series with the plate power relay and control the application of plate voltage to the rectifiers of the high-voltage dc and bias supplies. The dc circuit breaker is interlocked with the thermal time-delay relay so that the delay cycle is completed after the tube heaters reach operating temperature. After the delay cycle is completed, the dc circuit breaker in the ON position applies power, and the adjacent pilot light indicator is illuminated. The de circuit breaker is used normally to turn de power on and off without delay.

c. The VOLTMETER toggle switch connects the OUTPUT VOLTAGE meter to either the high-voltage output or the bias output circuits so that either voltage can be monitored as desired. The voltmeter circuit is designed so that switching from bias to high-voltage reading will disturb neither output voltage.

d. The HV control consists of a variable transformer and a precision wirewound potentiometer ganged together, and permits the high-voltage dc output to be set at any value from 0 to 500 volts vdc. The calibration of this control indicates the value of the dc output voltage and permits presetting of the HV control before the dc circuit breaker is turned on. It also provides an indication of the high-voltage de output when the OUTPUT VOLTAGE meter is used to monitor the bias output voltage.

e. The Δ HV control is a wirewound potentiometer that permits vernier control of the high-voltage dc output for precise voltage adjustment. It has a range of $\pm$ 5 volts and a calibration accuracy of 5 percent.

f. The BIAS RANGE toggle switch provides 0 to 50 or 0 to 200 volts dc bias output voltage.

g. The BIAS control is a wirewound potentiometer that permits the bias output voltage to be set to any value from zero to the maximum output voltage of either bias voltage range.

h. The OUTPUT VOLTAGE meter is a 3-1/2-inch panel instrument that indicates either the HV output or BIAS voltage output, depending upon the position of the VOLTMETER switch. In the HV position of the switch, the meter reads 0 to 500 volts vdc full scale (black numerals). With the switch in the BIAS position, the meter reads either 0 to 200 vdc or 0-50 volts vdc (red numerals), depending on the position of the BIAS RANGE switch.

i. The OUTPUT CURRENT meter is a 3-1/2-inch instrument in series with the HV output and indicates the external load current of the high-voltage dc output only.

3-2. Output Terminals

a. Front Panel Terminals. The output terminals are sturdy insulated *captire-head* binding posts. They will accept wrap-around wire connections, alligator clips, banana plugs, spade lugs, and wire as large as # 12 AWG for permanent feed through clamping. The HV, BIAS, and each of the 6.5 VAC output terminal pairs are spaced or 3/4-inch centers so that they will accept standard double banana plugs.

b. HV Output Connection. The regulated high-voltage dc output is available at the front panel HV terminals. The positive connection is brought out through the red + (positive) binding post. The negative connection is brought out through the black - (negative) binding post. Normally, the negative terminal is at ground potential. In some cases, it may be desired that the positive terminal be placed at ground potential or that neither positive nor negative terminal be placed at ground potential. When either the positive or

negative terminal is at ground potential, the appropriate terminal on the panel should be connected by a-jumper wire to the INT GND binding post. For minimum output ripple, either the positive or negative high-voltage dc output terminal should be grounded.

c. BIAS Output Connections. The regulated dc bias output voltage is available at the front panel BIAS terminals. The positive BIAS connection is internally tied to the negative HV connection and is brought out through the black BIAS + and HV-binding posts. The negative BIAS connection is brought out through the black BIAS-binding post.

d. Ac Output Connections. The 6.5 VAC 5A output connections provide two independent sources of unregulated voltage for vacuum-tube heater circuits. Both output sources are available at the front panel binding posts. The ac output terminals may be connected in series to provide 13.0 volts vac at 5 amperes or in parallel to provide 6.5 vac at 10 amperes. The schematic diagram on the panel below the ac output binding posts shows the proper connections of the terminals for correct phasing of these voltages.

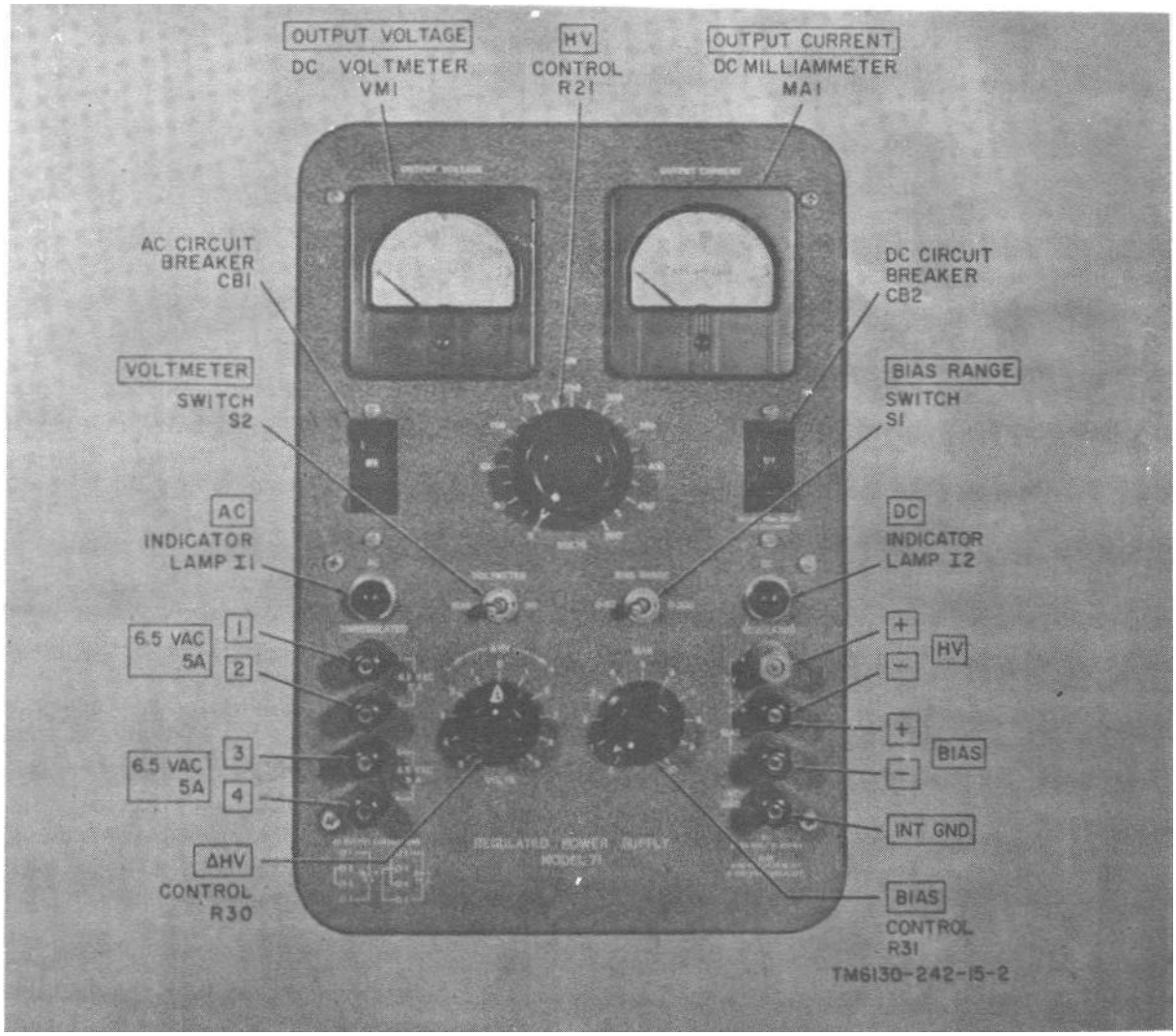


Figure 3-1. Panel view of power supply.

Warning

Dangerous voltages exist in this equipment. Observe the usual safety precautions when operating or servicing the equipment to avoid severe shock or injury.

3-3. Placing in Operation

a. Set the controls as follows:

(1) Ac and dc circuit breakers at OFF.

(2) The HV and BIAS controls fully counterclockwise.

(3) The Δ HV control at 0.

b. Plug the power cord into a 115-volt ac 50-60 cycle source.

c. Connect the desired ac and dc loads to the output terminals of the supply. Note the schematic diagram on the front panel showing proper phasing of the 6.5 volts ac outputs for series or parallel operation.

d. Set the ac circuit breaker to ON. The AC pilot indicator will illuminate and 6.5 volts ac will be present at the front panel binding posts. The thermal time-delay circuit will start its 30-second delay cycle.

e. After approximately 30 seconds, set the dc circuit breaker to ON. The dc pilot indicator will illuminate, and the internal plate power relay will close. If the dc circuit breaker is placed at ON before the 30-second time delay has elapsed, the pilot indicator will not light nor will the plate power relay close until the time-delay cycle is complete.

f. After the dc pilot indicator is illuminated, set the VOLTMETER switch to HV. Turn the HV control to the desired dc output voltage as indicated on the OUTPUT VOLTAGE meter. The Δ HV vernier control may be used for precise voltage adjustment. If an external load is connected to the HV output terminals, the output current will be indicated on the OUTPUT CURRENT milliammeter.

g. To use the BIAS output voltage, set the dc breaker at off, connect the bias-load to the BIAS terminals, set the BIAS RANGE switch to the bias voltage range desired, the VOLT-METER selector switch to BIAS, and the BIAS control to zero. Set the dc circuit breaker at ON. Turn the BIAS control clockwise to the required voltage as indicated on the proper red scale of the OUTPUT VOLTAGE meter. The OUTPUT VOLTAGE meter may be used to monitor the bias voltage; the calibration of the HV control then serves as an indication of the HV output voltage.

h. To turn off the dc output only, use the dc circuit breaker; leave the ac breaker in the ON position. The supply will be in a standby condition ready for instant use.

Caution

Turning the supply on and off rapidly by means of the ac circuit breaker (with the dc circuit breaker in the ON position) may seriously damage or impair the life of the high-voltage rectifier tube. If less than 1 minute elapses between the time the ac breaker is turned off and turned on again (the time required for the protective thermal time-delay relay to recycle), the dc circuit breaker should be kept in the OFF position for at least 20 seconds after the ac breaker is turned on to permit the rectifier heaters to return to proper operating temperature.

3-4. Overload Protection

a. Ac Output Circuits. An overload or short circuit of the 6.5-volt ac, 5-ampere output circuits will trip the ac circuit breaker, shutting off the entire supply. Removing the overload and turning the ac breaker on again will restore operation. If the supply is off for more than 1 minute, the thermal delay relay may recycle before dc voltage will be present at the output terminals. (Refer to the caution in paragraph 3-*3h*).

b. High-voltage Dc Output Circuits. An overload or short circuit of the hv output will trip the dc circuit breaker, releasing the plate power relay and disconnecting the plate voltage from the rectifier tubes of both the high-voltage dc and bias supplies. Removal of the overload or short circuit and setting the dc circuit breaker to the ON position will restore operation immediately.

c. Dc Bias Output Circuit. The bias output circuit is designed so that it may be short-circuited for indefinite periods of time without damage to any component or effect on the high-voltage dc output.

3-5. Internal Power Supply Failure Protection

a. In general, external overload of the output voltage circuits will result in tripping of

the circuit breakers. Internal failure if the power supply components may result in tripping of the circuit breakers or blowing of the internal protective fuses mounted at the rear of the unit. Failure of F1, the ½-ampere, 3AG slo-blo fuse, indicates failure of a component of the bias reference supply. Failure of this fuse will probably require servicing of the power supply. Refer to chapter 6 for maintenance data before servicing of equipment or replacement of the fuse.

Note

Failure of this fuse will result in removal of voltage from all dc output terminals.

b. Fuse. F2, a 10-ampere, 3AG slo-blo input line fuse located adjacent to F1, provides protection against failure of the powerstat TA-1 and input wiring. This fuse will also protect the power supply if the unit is accidentally plugged into a 220-volt ac circuit or into a dc circuit. This fuse will not fail in case of overloads of the dc or ac output circuits because it is protected by the circuit breakers.

3-6. Noise and Ripple Output

a. The noise and ripple output of the high-voltage dc supply should be less than 5 millivolts root mean square (rms) and the dc bias supply less than 5 millivolts rms at all voltages and load conditions within the specifications. Measurements of this level of voltage maybe made with an ac vacuum-tube voltmeter (vtvm) capable of reading 5 to 8 millivolts rms. Measurements of these low values of voltage should be made with a shielded cable connected to the power supply output to the ac vtvm.

b. Either the positive or negative terminal of the hv output should be connected by a jumper wire to the INT GND terminal for minimum ripple output.

3-7. Internal Impedance

a. Hv Output.

(1) The internal impedance of the high-voltage dc supply is approximately 4 ohms for dc. A 2-microfar (uf) oil-filled paper capacitor is in shunt with the dc output circuit for two purposes to maintain this low value of output impedance at audio, and at low and medium radiofrequencies (fr), and to provide a reservoir to suppress transient currents of short duration having peak values greater than 200 milliamperes (ma).

(2) An additional external capacitor shunted across the hv output will provide even lower ac output impedance and suppress even higher peak transient currents. For low impedance to high frequency rf currents, use a mica capacitor shunt close to the rf unit.

b. Dc Bias Output. The internal resistance of the bias supply in the 0- to 200-volt dc range is approximately 25,000 ohms. For low impedance to ac, an external capacitor should be shunted across the BIAS output terminals. For low impedance to high-frequency rf currents, use a mica capacitor shunt close to the rf unit. The internal resistance of the bias supply in the 0- to 50-volt dc range is 5,500 ohms.

CHAPTER 4

PREVENTIVE MAINTENANCE INSTRUCTIONS

4-1. Scope of Maintenance

The maintenance duties assigned to the operator of the power supply are listed below together with a reference to the paragraphs covering the specific maintenance function.

a. Daily preventive maintenance checks and services (para 4-4).

b. Weekly preventive maintenance checks and services (para 4-5).

c. Monthly preventive maintenance checks and services (.para 4-6).

d. Quarterly preventive maintenance checks and services (para 4-7).

e. Cleaning (para 4-8).

f. Touchup painting instructions (para 4-9).

4-2. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble; to reduce downtime, and to assure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 4-4 through 4-9 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (para 4-4 through 4-7) outline functions to be performed at specific intervals. These checks and services are to maintain Army electronic equipment in a combat-serviceable. condition; that is, in good general (physical) condition and in good Operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, how to check, and the normal conditions; the *References* column lists the illustrations; paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by performing the corrective actions listed, a higher category of maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

4-3. Preventive Checks and Service Periods

Preventive maintenance checks and services of the power supply are required daily, weekly, monthly, and quarterly.

a. Paragraph 4-4 specifies the checks and services that must be accomplished daily (or at least once each week if the equipment is maintained in standby condition).

b. Paragraphs 4-5, 4-6, and 4-7 specify *additional* checks and services that must be performed on a weekly, monthly, and quarterly basis, respectively.

4-4. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Completeness	See that the equipment is complete.	Appx II.
2	Exterior surfaces	Clean the exterior surfaces, including the panel and meter glasses. Check all meter glasses and indicator lenses for cracks.	Para 4-8.
3	Connections	Check the tightness of all connections.	None.
4	Controls and indicators	While making the operating checks (item 5), observe that the mechanical action of each knob, dial, and switch is smooth and free of external or internal binding, and that there is no excessive looseness. Also, check the meters for sticking or bent pointers.	None.
6	Operation	Operate the equipment according to paragraph 3-3.	Para 3-3.

4-5. Weekly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Cables	Inspect cords, cables, and wires for chafed, cracked, or frayed insulation. Replace connectors that are broken, arced, stripped, or worn excessively.	None.
2	Metal surfaces	Inspect exposed metal surfaces for rust and corrosion. Clean and touch up paint as required.	Para 4-9.

4-6. Monthly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1 -	Pluckout items	Inspect seating of pluckout items	None.
2	Transformer	Inspect the power transformer. All nuts must be tight. There should be no evidence of dirt or corrosion.	None.
3	Terminal strip	Insect the terminal strip for loose connections and cracked or broken insulation.	None.
4	Resistors and capacitors ..	Inspect resistors and capacitors for cracks, blistering, or other detrimental defects.	None.

4-7. Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Publications	See that all publications are complete, serviceable, and current.	DA Pam 310-4.
2	Modifications	Check DA Pam 310-4 to determine if new applicable MWO's have been published. ALL, URGENT MWO's must be applied immediately. ALL NORMAL, MWO's must be scheduled.	TM 38-750 and DA Pam 310-4.
3 -	Spare parts	Check all spare parts (operator and organizational) for general condition and method of storage. No over-stockage should be evident and all shortages must be valid requisitions.	Appx II.

4-8. Cleaning

Inspect the exterior of the power supply. The exterior surfaces should be clean and free of dust, dirt, grease, and fungus.

a. Remove dust and loose dirt with a clean soft cloth.

Warning

Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation. Do not use near a flame.

b. Remove grease, fungus, and ground-in dirt from the cases; use a cloth dampened (not wet) with Cleaning Compound (FSN 7930-395-9542).

c. Remove dust or dirt from the terminal strip with a brush.

Caution

Do not press on the meter face (glass) when cleaning; the meter may become damaged.

d. Clean the front panel and meters using -a soft clean cloth. If dirt is difficult to remove, dampen the cloth with water; mild soap may be used for more effective cleaning.

4-9. Touchup Painting Instructions

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect if from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TM 9-213 and TB SIG 364.

CHAPTER 5

PRINCIPLES OF OPERATION

5-1. General

Power Supply PP-3941/G may be broken down into four functional circuits; bias regulated supply (basic regulator), high-voltage regulated supply, bias voltage divider and metering circuit, and over-load and time-delay circuits.

5-2. Bias Regulated Supply

(fig. 5-1)

The output voltage of the low-voltage rectifying circuit (T3 and V10) is developed across VI, R31, and R25a. This bias regulated supply voltage is that potential developed across the network of R31 and R25a and is determined by the conduction of V1 Variation of the bias regulated supply voltage is felt at the grid of V12A and cathode coupled to V12B. Amplified by V12B and coupled to V8A for further amplification, this output variation signal is coupled to the grid of V1 as conduction controlling feedback. This results in an output potential the variations of which are canceled by degenerative feedback. Tubes V8A and V12B are bias stabilized by V13 and V14, respectively.

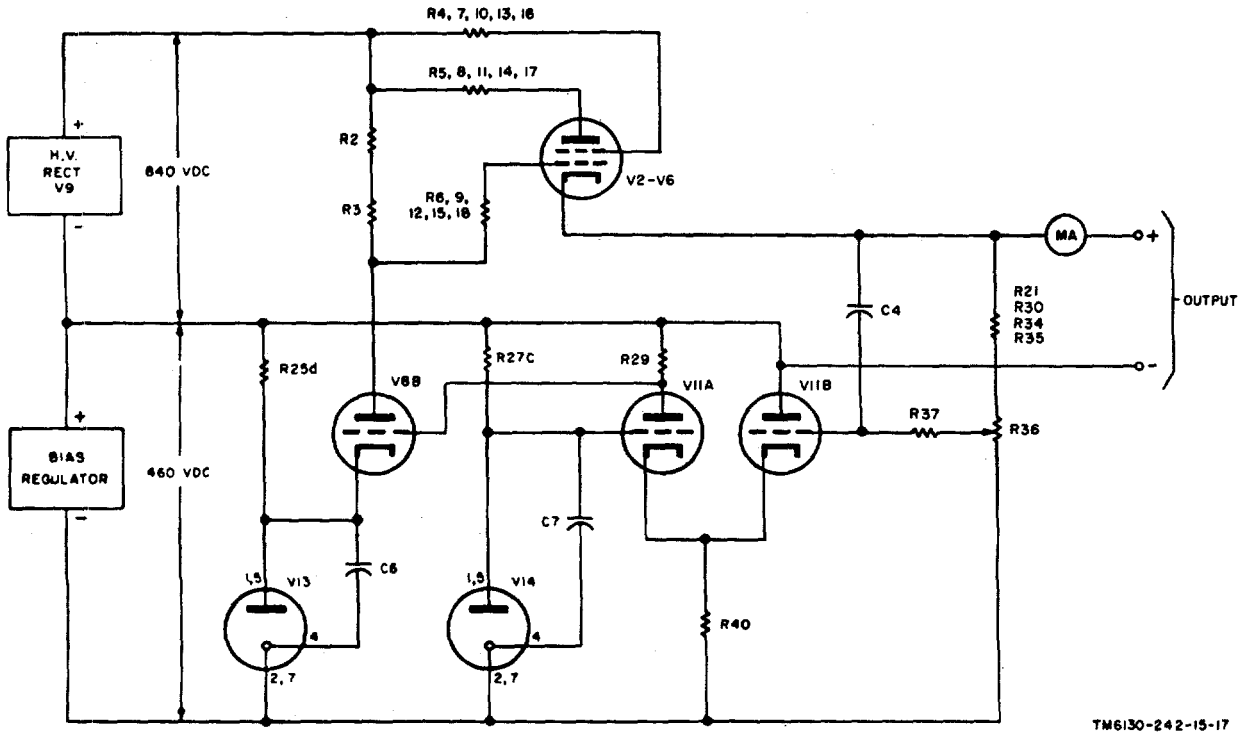


Figure 5-1. Bias regulator, simplified schematic diagram.

5-3. High-Voltage Regulator

(fig. 5-2)

That portion of the' high-voltage supply output from the cathodes of V2 through V6 (connected in parallel) to the center tap of the secondary of transformer T2 is regulated by the voltage regulator circuit consisting of V8B; V11, and voltage regulator tubes V13 and V14. Variations in the de voltage across resistors R36 and R34b are amplified by V11 and V8B. This voltage change, is applied. to the grids of series regulators V2 through V6, which react in such a way as to oppose the dc voltage variations and thereby maintain a constant dc voltage level. Voltage reference tubes V13 and V14 perform an identical function in both regulator portions of the power supply, that of providing stable bias for the regulator control tubes. Transformer T4 offsets line voltage fluctuations in the primary of transformer T2.

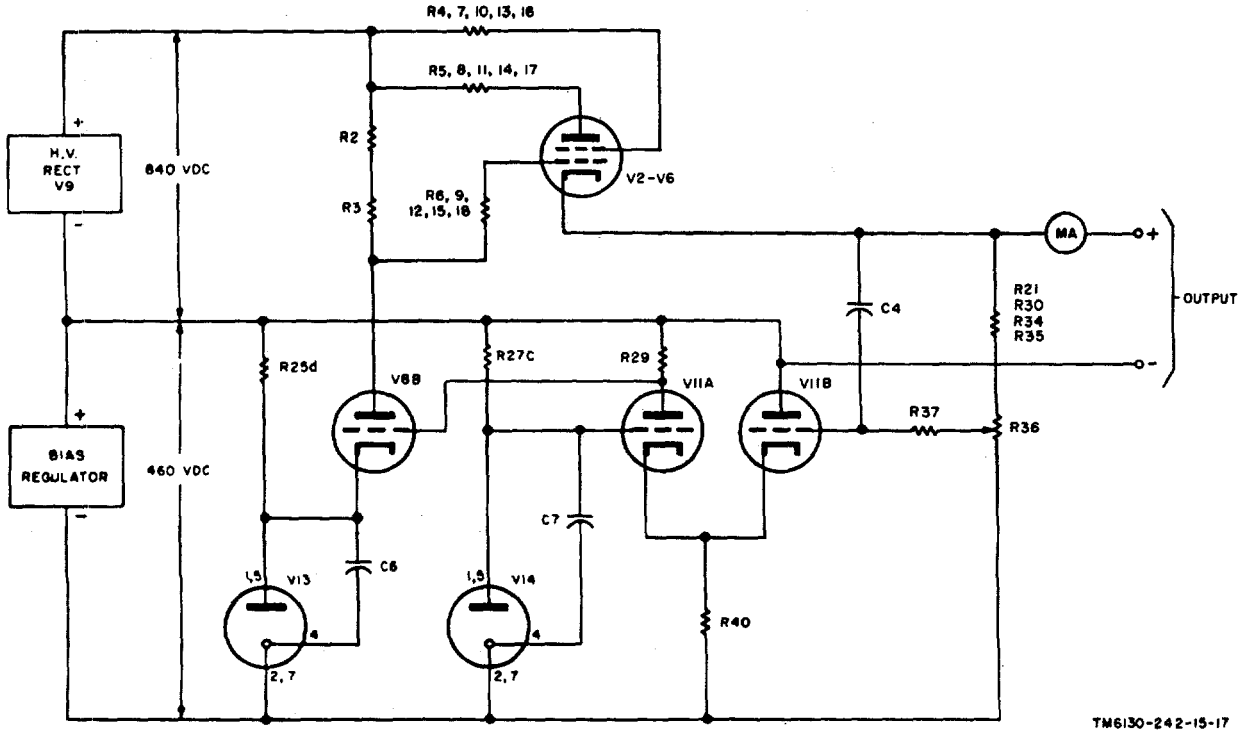


Figure 5-2. High-voltage regulator, simplified schematic diagram.

5-4. Bias Voltage Divider and Meter Multiplier (fig. 5-3)

The voltages available at the BIAS terminals are a portion of the dc output voltage of the low-voltage rectifier circuit. These voltages are set to any value of the bias voltage range by resistor R31. BIAS RANGE switch S1 serves two purposes: it changes the bias voltage range, and it changes the value of the meter multiplier. In the 0-50 volts position of switch 1, resistors R25b and R25c form a voltage divider with the bias voltage taken across R25c (B, fig. 5-3). Switch S2 also place multiplier resistor R32 in series with the voltmeter to keep it reading within scale. With switch S1 in the 0-200 colts position, R38 serves as the multiplier resistor for metering circuit and R25b serves as a current limiter for the bias supply. (See equivalent circuit (C, fig. 5-3).)

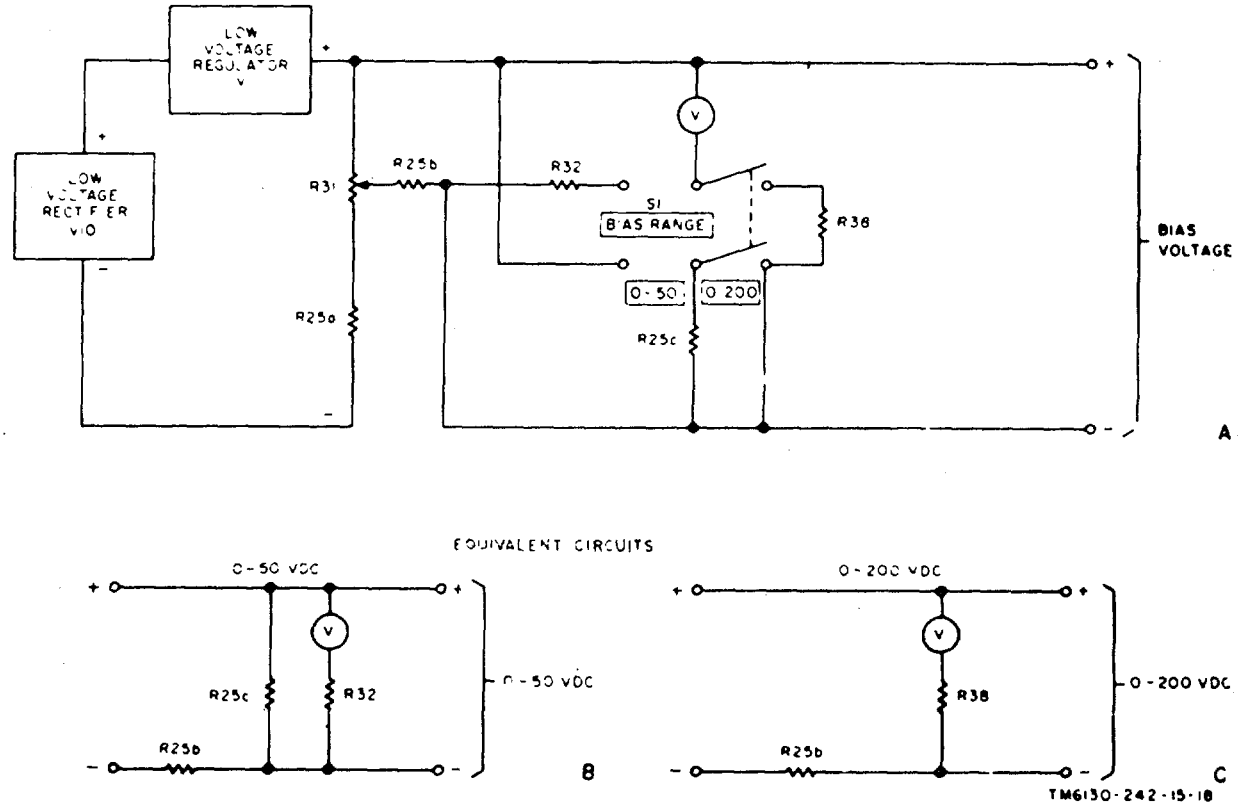


Figure 5-3. Bias voltage divider and meter multiplier, simplified schematic diagram.

5-5. Overload and Time-Delay Circuits

(fig. 5-4)

Filament transformer T1 is protected from overload by circuit breaker CB1. Transformers T2, T4, and variable transformer TA-1 are protected from overload by circuit breaker CB2. If circuit breakers CB1 and CB2 fail to trip on overload, 10-ampere fuse F2 serves as a protection against transformer overload. Time-delay relay V7 prevents application of high voltage to either of the rectifier tubes, until at least 30 seconds after application of filament voltages, thus allowing the rectifier tube filaments to warm up before the high voltage is applied to their plates. Plate power relay K1 will not operate until after the contact of the time-delay relay have closed. Relay K1 provides control circuits for all high-voltage transformers and a set of holding contacts across the contact of the time-delay relay, Time-delay relay V7 and transformer T3 are protected from overload by use F1.

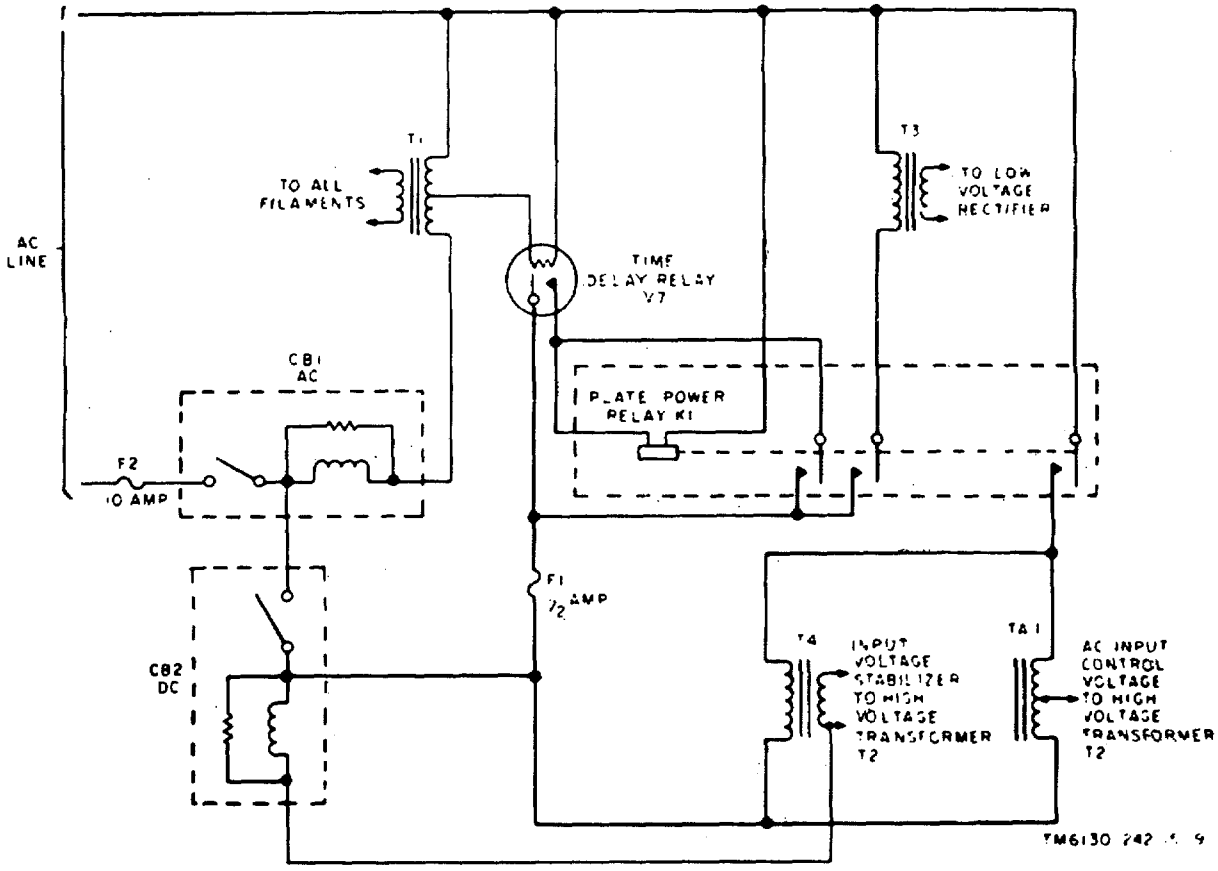


Figure 5-4. Overload and time-delay circuits, schematic diagram.

CHAPTER 6

MAINTENANCE

Warning

Dangerous voltages exist in this equipment. Observe the usual safety precautions when operating or servicing the equipment to avoid shock or injury.

6-1. General

Under normal conditions, no special maintenance of the regulated power supply is required except for occasional tube replacement. If the regulated dc output circuits fail to function properly, a list of typical symptoms and their probable causes is given in paragraph 6-6.

6-2. Removal of Power Supply Unit from Cabinet

If tube replacement or servicing of the unit is necessitated, the power supply unit must be removed from its cabinet. This is accomplished by removing the four large diameter nickel-plated screws on the rear face of the cabinet and sliding the unit out.

Note

It is not necessary to loosen any screws other than the four mentioned above for removal of the supply from the cabinet. At no time should removal of the painted screws in the rear of the cabinet be attempted.

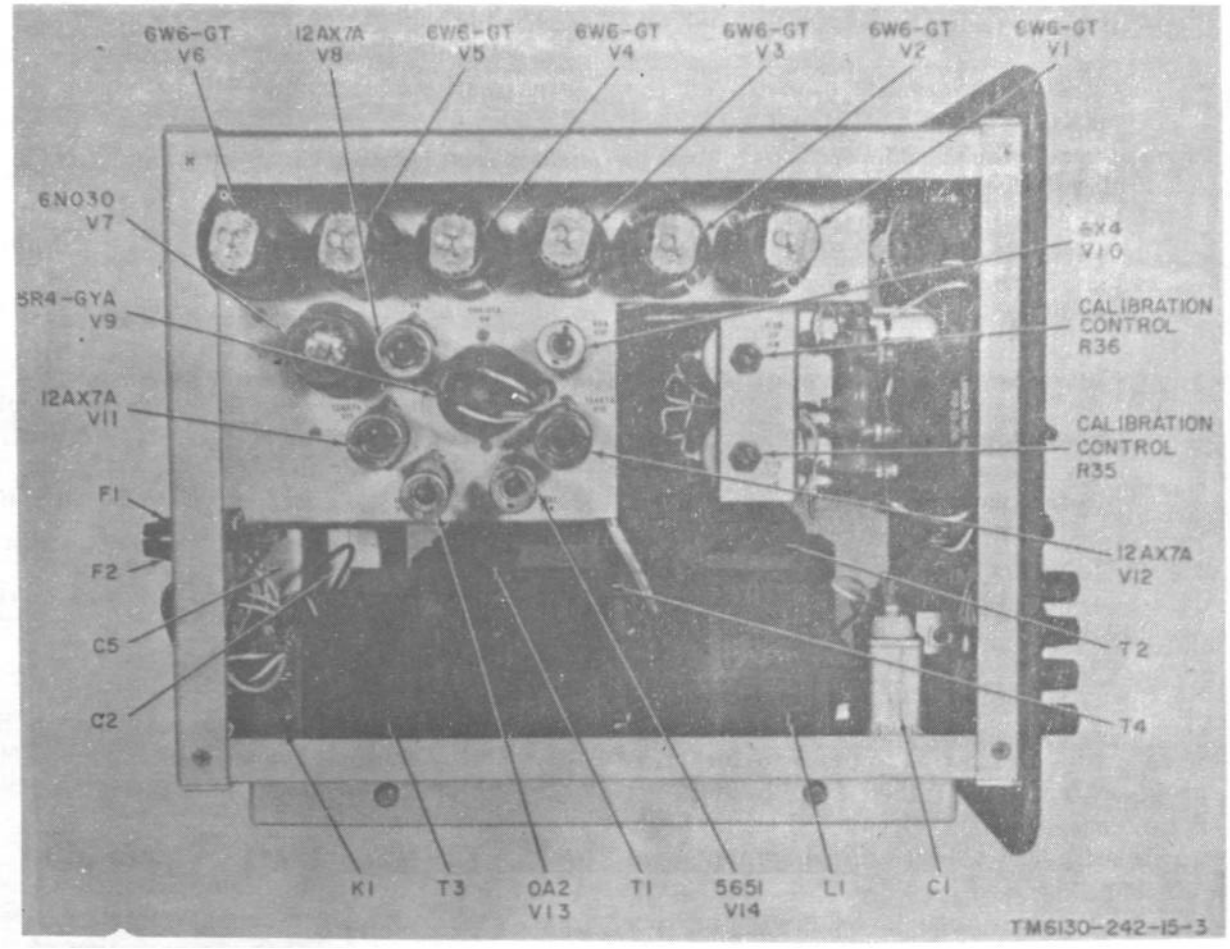


Figure 6-1. Internal view of equipment.

6-3. Servicing of Power Supply When Removed from Cabinet

(fig. 6-1)

a. General. Upon removal of the cabinet, all tubes are made accessible, and tube replacement is accomplished simply. The 6W6-GT tubes and the 6N030 relay are secured to their sockets by spring-type retainer clamps. These retaining clamps must be depressed and held in a flattened position before removing these tubes. When replacing the miniature-type tubes, they should be inserted into a pin straightener before putting them into the sockets to avoid bending the pins. Bent pins create strain on the glass bases with the resulting possibility of breakage or cracking in time. When tubes are replaced, adjustment of calibrating potentiometers should be checked.

b. 6N030 Time-Delay-Relay.

(1) The 6N030 is most readily checked under actual operating conditions. If the power supply is turned on from a cold start and the dc circuit breaker left in the ON position,: the internal plate power relay will close with an audible click and the DC ON pilot light indicator will be illuminated within 30 to 45 seconds.

(2) At high ac line voltages, the relay may close as early as 20 seconds; at low line voltages as late as 1 minute. If the plate power relay closes much earlier than 20 seconds or later than 1 minute from a cold start, the 6N030 should be replaced.

c. OA2 Voltage Regulator Tube. Upon placing the power supply into an operating condition at any setting of output voltage, the OA2 should exhibit an internal pale purple glow. If the tube fails to glow or appears to flicker, it should: be replaced. If the- new tube does not operate properly, the circuit voltages should be checked against the circuit diagram.

d. 5651 Voltage, Reference Tube. No special check of the 5651 tube is required. The tube operates normally with a bright orange glow on the surf: ace of its disk-shaped cathode. If the tube fails to glow or appears to flicker, it should be replaced. If the fault is not removed, a voltage check should be made of the tube and its associated circuits. The voltage across the 5651 should range between 82 and 92 volts vdc and should not fluctuate.

6-4. Adjustment of Calibrating Potentiometers R35 and R36

(fig. 6-1)

If any of the tubes other than the rectifiers (5R4-GYA and 6X4), the series control tubes (6W6-GT), and the time-delay relay (6N030), are replaced, the calibrating and alignment potentiometers (R35 and R36) may require readjustment. This readjustment should be made according to the following procedure:

a. With ac and dc circuit breakers in their OFF positions, zero-set the OUTPUT VOLTAGE and OUTPUT CURRENT meters accurately.

b. Turn the HV control to its extreme clockwise position. The pointer on the control knob should line up with the 500-volt calibration line or very close to it. If a major discrepancy exists, loosening of the two setscrews in the knob will permit readjustment of its position.

c. Set the > HV control to its center or 0 position.

d. Set the VOLTMETER switch to the HV position.

e. With no external ac or dc load on the power supply, turn both AC and DC circuit breakers to ON and allow the supply to warm up for at least 10 minutes.

f. With the HV control set to 500, adjust R36 so that the OUTPUT VOLTAGE voltmeter reads 500 volts (black scale).

g. Turn the HV control to the zero mark. Adjust R35 so that the OUTPUT VOLTAGE voltmeter reads zero.

h. Repeat the procedures given in *f* and *g* above until the HV control reads zero in its extreme counterclockwise position and 500 volts in its extreme clockwise position.

6-5. Operational Check

a. Regulation with Load. After the tubes have been replaced or the equipment serviced, a simple check of the proper operation of the 0-500-volt dc output circuit supply may be made by alternately connecting and disconnecting a 200-ma load to the supply with the OUTPUT VOLTAGE meter in the HV position.

Except for a transient kick of the meter needle when the load is connected to the supply, the change in output voltage should be barely perceptible (less than 1/10 of 1 division on the meter scale) for proper operation: An ac vtvm capable of reading 5 millivolts rms may be used to check the noise and ripple level output of the supply when making this check. Shielded leads should be used to connect the ac vtvm to the power supply output terminals.

Note

The dc bias output circuit is not regulated for load variations.

b. Regulation With Line. A variac or powerstat connected between the ac power-line and the input may be used to check the regulation of the dc output circuits. With the OUTPUT VOLTAGE voltmeter in the circuit being monitored and the line voltage varied from 105 to 125 volts ac, the change in output voltage should be barely perceptible (less than 1 10 of 1 meter division) for proper operation.

6-6. Typical Power Supply Failure Conditions and Their Possible Causes

Caution

The input plug should be removed from the 115-volt ac source when removing or replacing tubes.

Refer to the schematic diagram (fig. 8-3) for proper operating voltages in the equipment.

Operating condition	*Remedy or solution*
a. Ac circuit breaker trips repeatedly.	Check ac output for overload or short circuit. Remove overload condition.
b. Dc circuit breaker trips repeatedly.	Check hv output load circuit for overload or short circuit. Remove overload condition. If this does not eliminate tripping of the dc breaker, then check for faulty 5R4-GYA tube. This tube should be tested in a tube checker. If found faulty, it should be replaced. If the tube is found to be good, or if replacement by a new tube does not eliminate breaker tripping, check capacitors., C1 and C2A for breakdown or short circuit. If these are found to be the cause of breaker tripping, replacement of these capacitors is required.
c. Presence of high dc positive voltage at terminals compared to that indicated on HV dial, along with high ripple and poor regulation. (No external load is applied to hv output.)	Shorted CW6-GT tubes V2 through V6. Shorting of tube elements within tube envelope will result in loss of control. A visual inspection of the individual tubes may lead to identification of the faulty tube. If this is not the case, each tube should be removed while the output voltage is monitored on the OUTPUT VOLTAGE meter. If this condition is eliminated upon removal of any tube V2-V6, replace this faulty tube with a new tube. Filament burnout tube V8 (12AX7A). If tubes V2-V6 are all found to be good, tube V8 may have a burned-out filament. This is checked by replacing the 12AX7A with ·a new tube. Loss of bias supply voltage will result in rise of output voltage. If the bias supply output voltage approaches 0 volts and tube V14 (5651) is extinguished, and voltage across CSA is zero, the bias supply system fuse F1 has failed. Check tube V10 (6X4) for short or gassy condition, and capacitor C5A-C5B for short circuit. If any of these components are faulty, replace them. Absence of voltage across filter capacitor C5A-C5B. Check V10., 6X4 tube, for open or burnout filament. This is accomplished by replacing the tube with a new tube. Presence of bias supply input filter voltage and absence of bias supply output voltage: 6W6-GT, V1 filament is burned out. Replace tube. Filament burnout of 12AX7A, V12. Check by replacement with a new tube.

Operating condition	*Remedy or solution*
d. Presence of positive low level HV voltage as compared with that indicated on the HV dial poor regulation and high ripple. (No external load applied to HV output.)	Filament burnout of 12AX7A, V11. This is checked by replacement with a new tube. Check the voltage across capacitor, C2A for voltage conditions specified on the schematic diagram. If far below the indicated voltage, check the filter capacitor for an open circuit. An abnormal increase of reference supply voltage results in reduced power supply hv output voltage. High bias supply voltage with associated high reference supply ripple voltage. This may be the result of internal grid-cathode or screen grid short of 6W6-GT, V1. Replace with a new 6W6-GT tube. Burnout of tube V8 (12AX7A) will cause the bias voltage to rise. It will have a similar effect but of greater magnitude in the hv supply. Therefore, the net result of filament burnout of this tube is a rise of hv voltage.
e. Apparent satisfactory operation at 200 ma load with rise of ripple voltage at zero external load.	Tubes V2 through V6 (6W6-GT tubes) exhibit poor cutoff characteristic. To check the cutoff characteristic, operate at zero load and low hv output voltage. Monitor the hv output with a vtvm or high impedance ac volt-meter; remove one tube at a time until faulty tube is identified. A faulty tube is identified by return to normal of hv output ripple voltage. **Warning** **Care should be used when handling 6W6-GT tubes to prevent burning of the hands when touching the hot glass envelope.** When removing 6W6-GT tube, depress retaining clamp. maintain this position of the clamp while tube is removed.
f. Apparent satisfactory operation at low current values with supply failure at 200 ma external and 105-volt ac line.	A faulty 6W6-GT tube, V2 through V6, will cause the remaining 6W6-GT tubes to carry excess load. Tubes should be visually inspected for filament burnout. If burnout is not apparent, then the tubes should be checked on a tube checker. Faulty rectifier tube V9 (5R4-GYA). A similar condition applies to the 5R4-GYA rectifier. If the tube voltage drop is excessive under load, then operation at 200 ma and at 105 vac line will be impaired. The tube should be checked in a tube checker, and if faulty, it should be replaced.
g. Apparent instability in power supply voltage, drift in the order of 1 volt magnitude or greater.	Faulty bias and main amplifier input tubes cause this voltage instability. The tubes involved are the 12AX7A tubes, V11 and V12. One tube should be first replaced and the output voltage monitored. If the condition is not remedied replace the second 12AX7A tube. The schematic diagram (fig. 6-2) contains typical operating voltages for a specific set of operating conditions. The pilot light indicator lamps are NE51 neon lamps. They are accessible from the front panel by unscrewing the pilot light dome.

6-7. Maintenance of Powerstat

a. Determining Defective Operation. When the brush contact of the powerstat indicates excessive wear (less than 1 32 inch of the carbon brush extends from the brush holder) or arcing occurs when the powerstat is rotated with a load on the supply resulting in high noise output from the equipment or hash in rf equipment, the brush contact should be examined.

A properly adjusted powerstat should not arc or spark under load when the rotor shaft is turned. If arcing is present, the powerstat should be examined and serviced.

b. Servicing Powerstat. The powerstat can be easily reached by removal of the cabinet from the power supply. If closer examination or adjustment of the powerstat is required, greater accessibility is realized by removal of the front panel. This is accomplished by unscrewing the six large Phillip's-head screws on the front panel. After removing the six screws, draw the panel forward, and then tilt it; be careful to clear the powerstat from the frame. The powerstat brush is now free and clear. If wear is indicated, replacement of the brush is effected by loosening the two setscrews in the brush holder and removing the holder. Care must be used when replacing the holder to insure that the new holder very nearly assumes its former position.

c. *Dirty or Pitted Commutator Segments*. Dirty or pitted commutator segments may be cleaned with carbon tetrachloride and/or sanded lightly with fine crocus cloth. Excessively pitted commutator segments are a result of failure to replace a worn brush or severe overload of a powerstat. Replacement of the entire powerstat assembly may be necessary. (See paragraph 6-8*a*.)

6-8. Service Notes

a. Removal of HV Powerstat and Precision Potentiometer Assembly.

(1) Remove the connections to the powerstat and the precision potentiometer. Identify the leads to facilitate replacement of the entire assembly.

(2) Remove the HV control knob.

(3) Separate the assembly from the panel by unscrewing the four Phillip's-head screws that hold the unit to the front panel.

(4) The powerstat and precision potentiometer assembly may now be separated -from the panel.

b. Replacement of Powerstat or Precision Potentiometer.

(1) Remove the powerstat potentiometer assembly from the equipment ((*a*) above).

(2) Loosen the setscrews that hold the flexible coupling between the two units.

(3) Loosen the nut that secures the powerstat to the bracket and remove the powerstat.

(4) Replace the powerstat if required; be sure that at the extremes of rotation of the potentiometer shaft, the powerstat brush takes symmetrical positions with regard to the mounting screw in the rear of the powerstat.

Note

At no time should the stop collar screws of the potentiometer be loosened and the collar moved with regard to the potentiometer shaft. These setscrews are set hard and should remain untouched.

(5) If the potentiometer is to be replaced after removal of the powerstat, loosen the three panhead Phillip's-head screws that secure the potentiometer to the bracket. Replace the potentiometer with the new unit. Before tightening the screws that secure the potentiometer to the bracket, estimate the center-to-center distance between the shaft of the potentiometer and the stop screw in the spacer plate. This is best done with a pair of calipers. This distance should approximate 1/2-inch. The powerstat should now be remounted, and the Millen coupling joined to the powerstat and potentiometer shafts. Rotation of the potentiometer should now be tried and the Millen coupling should be adjusted so that at the extreme clockwise and counterclockwise positions of the shaft, the brush holder of the powerstat should take symmetrical positions with regard to the mounting screw in the rear of the powerstat.

(6) Check the assembly for smooth rotation and reassemble into the equipment.

c. Replacement of the VOLTMETER And BIAS Range Switches. The replacement of either of these switches can be facilitated by removing the panel as outlined above.

CHAPTER 7

DEPOT INSPECTION STANDARDS

7-1. Applicability of Depot Inspection Standards

The tests outlined in this section are designed to measure the performance capability of a repaired equipment. Equipment that is returned to stock should meet the standards given in these tests.

7-2. Applicable References

a. Repair Standards. Applicable procedures of the depots performing these tests and the general standards for repaired electronic equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirements for testing this equipment.

b. Modification Work Orders. Perform all modification work orders applicable to this equipment before making the tests specified. DA Pam 310-4 lists all available MWO's.

7-3. Test Facilities Required

The following items are required for depot testing:

Item	Technical manual	Common name
Electronic Voltmeter AN/USM-98	TM 11-6625-320-12	Ac voltmeter
Electronic Voltmeter ME-30(*)/U[a]	TM 11-5527	
Multimeter TS-352/U	TM 11-6625-200-12	Multimeter
Multimeter ME-26B/U		VTVM
Variable Power Transformer TF-171 USM		Variable power transformer
Variable resistor 5K-ohms 200 Watt, FSN 5905-259-9230		Adjustable resistor

[a] Indicates ME-30A U, ME-30B U, ME-30C U, and ME-30E U.

7-4. General Test Requirements

a. Most of the tests to be performed on the power supply are done under different test hookups and control settings; however, the front panel control settings listed below are made initially and necessary modifications are performed as required by the individual tests.

b. Set the controls as follows:

Control	Position
Ac circuit breaker	OFF
Dc circuit breaker	OFF
HV control	Fully counterclockwise
BIAS control	Fully counterclockwise
HV control	0

7-5. Tests

The power supply will be tested in accordance with the sequence of test procedures given in the following paragraphs. Tests are to be performed with the power supply unit removed from its cabinet. To remove the unit from its cabinet, unfasten the four large-diameter, nickel-plated screws which are located on the rear face of the cabinet, and slide the unit out. The test hookups, which are required for each test, are indicated by individual illustrations. Refer to figures 3-1 and 6-1 for the location of the equipment controls and indicators.

Warning

Dangerous voltages exist in this equipment. Observe all safety precautions when operating the equipment and making connections to terminals. Serious injury or death may result from contact with these terminals. Don't take chances!

7-6. Power Circuit Test

This test is used to determine if short circuits exist in the ac input circuit or the dc output circuit. With no ac power applied to power supply (input power cable unplugged), use the VTVM to check for short circuits between HV and INT GND; -HV and INT GND; -BIAS and INT GND; +HV and -HV; BIAS and -BIAS; 1(6.5 VAC) and INT GND; 3(6.5 VAC) and INT GND each contact of the AC plug and INT GND. Insure that the INT GND binding post and the ground contact of the AC plug are at chassis ground.

7-7. Output Voltage Calibration Test (0-500 Volts at 0-200 Ma)

(fig. 7-1)

This test checks the calibration of the 0500-volt dc output range. Connect the equipment as shown in figure 7-1.

a. Rotate the HV control (fig. 3-1) to its minimum (counterclockwise) position.

b. Set the VOLTMETER switch to the HV position.

c. Apply 115 volts ac power to the power supply.

d. Place both ac and dc circuit breakers to their ON position, and allow the power supply to warm up for 2 minutes.

e. Rotate the HV control to its maximum clockwise position, and adjust CALIBRATION control R36 (fig. 6-1) so that the voltage indication on the multimeter reads a minimum of 500 volts.

f. Rotate the HV control to its minimum counterclockwise position and adjust CALIBRATION control R35 so that the voltage indication on the multimeter is 0.0 volt.

g. Repeat the procedures given in *e* and *f* above as necessary until the output voltage reads 500 volts with the HV control in its maximum clockwise position, and 0.0 volt with the HV control in its minimum (counterclockwise) position.

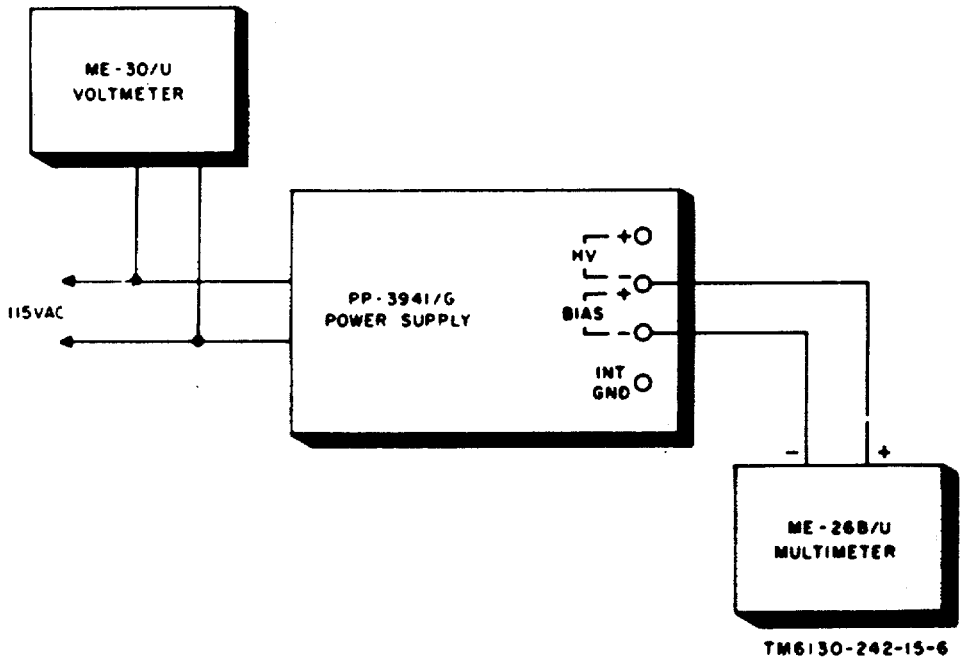


Figure 7-1. OUTPUT VOLTAGE CALIBRATION TEST, block diagram.

7-8. Meter Calibration Test

(fig. 7-2)

This test determines whether meter reading is within ± 2 percent of standard meter reading. Connect the equipment as shown in figure 7-2.

a. Set the multimeter for an appropriate ampere (200 ma) scale.

b. Set the VOLTMETER switch (fig. 3-1) to the HV position.

c. Apply 115 volts ac power to the power supply.

d. Set the HV control to its maximum clockwise (500V) position, and allow the unit to warm up until time-delay relay is actuated. The DC ON indicator under this circuit breaker will light after the warmup period (fig. 3-1).

e. Adjust the 5K-ohms, 200-watt variable resistor until the power supply is loaded to 200 ma.

f. Compare the readings of both ammeter and voltmeter which are mounted on the power supply to the readings on the external meters. These readings should be in the range listed below and within ±2 percent of the external meter readings.

(1) 490 to 510 volts dc.

(2) 196 to 204 ma.

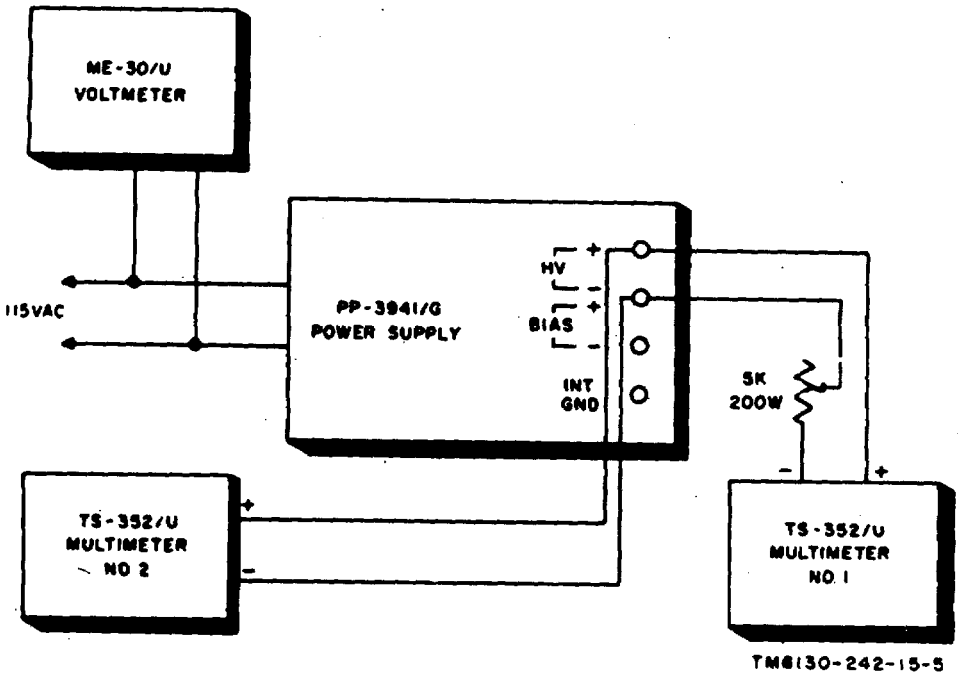


Figure 7-2. Meter calibration test, block diagram,

7-9. Bias Output Voltage Test (0-200 Volt, 0-50 Volts Dc)

(fig. 7-3)

This test verifies that bias voltage outputs cover the specified ranges. Connect the equipment as shown in figure 7-3.

a. Set the VOLTMETER switch to the BIAS position.

b. Set the BIAS RANGE switch to the 0-200 position.

c. Apply 115 volts ac power to the power supply.

d. Position the BIAS control to its maximum counterclockwise position.

e. Place the ac and dc circuit breakers to the ON position, and allow the unit to warm up until the time-delay relay actuates.

f. Rotate the BIAS control to its maximum clockwise position.

g. Observe that the voltage reading on the vtvm varies from 0 to 200 volts minimum.

h. Return the BIAS control to its maximum counterclockwise position.

i. Set the BIAS RANGE switch to its 0-50 position.

j. Rotate the BIAS control to its maximum clockwise position.

k. Observe that the voltage reading on the vtvm varies from 0 to 50 volts minimum.

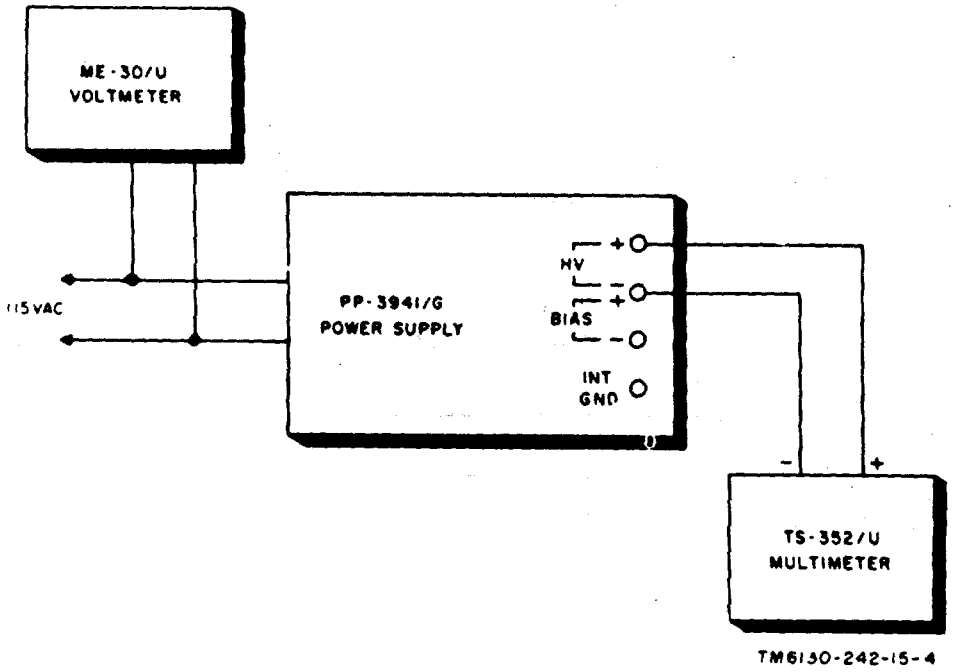


Figure 7-3. Bias output voltage test, block diagram.

7-10. Output Voltage Test (0-500 Volts at 0-200 Ma)

This test determines whether the 0-500-volt dc range is adequately covered. Connect the equipment as shown in figure 7-1.

a. Set the VOLTMETER switch to its HV position.

b. Rotate the HV control to its maximum counterclockwise position.

c. Apply 115 volts ac power to the power supply.

d. Place both the ac and dc circuit breakers to their ON positions and allow the power supply to warm up until the time-delay relay actuates.

e. Rotate the HV control from its zero (fully counterclockwise) position to its maximum clockwise position; then check to see that the output varies from 0 to 500 volts minimum as indicated on the multimeter.

7-11. Output Voltage Test (6.5 Volts Ac at 5 Amperes)

(fig. 7-4)

These tests determine whether filament voltage outputs are of the specified values. Connect the equipment as shown in figure 7-4.

a. Apply 115 volts ac power to the variable power transformer.

b. Place the ac circuit breaker to the ON position.

c. Check to see that the voltage on the ac voltmeter, which is connected across terminals 1 and 2 reads 6.8 ± 0.2 volts ac nominal.

d. Remove the ac voltmeter from terminals 1 and 2, and connect it to terminals 3 and 4 (6.5 volts ac at 5 amperes). Check to see that the voltage reads 6.8 ± 0.2 volts ac nominal.

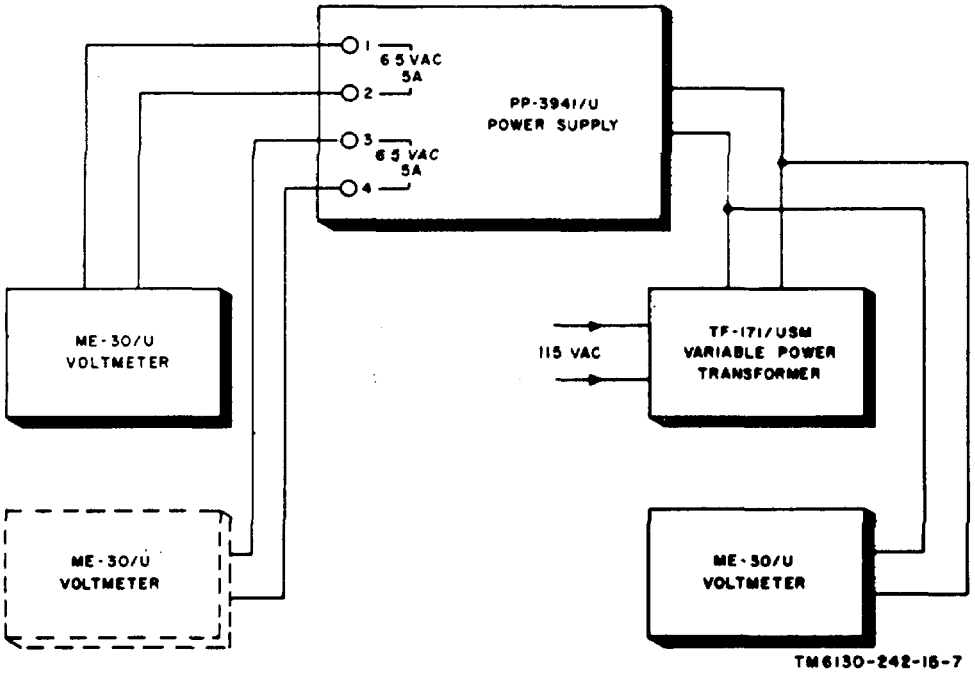


Figure 7-4. Output voltage test, block diagram.

7-12. Load Regulation and Ripple Test (0-500 Volt at 0-200 Ma)

This test determines whether the 0-500-volt dc output voltage remains constant within specified limits for load variations of full load to no load and no load to full load. In addition, the test determines whether the ripple voltage remains within specified limits as no load and full load. Connect the equipment as shown in figure 7-5.

a. Set the multimeter to the appropriate ampere (0.2 ampere) scale.

b. Apply 115 volts ac power to the power supply.

c. Place both ac and dc circuit breakers to their ON positions, and allow the power supply to warm up until the time-delay relay is actuated.

d. Set the VOLTMETER switch to the HV position.

e. Rotate the HV control until the output voltage meter reads 500 volts dc.

f. Adjust the 5K, 200-watt variable resistor from 0 load to 200 ma, and from 200 ma to 0 load in step changes. Check to see that regulation as indicated by the dc voltmeter is 0.3 volt maximum.

g. Check to see that the ripple voltage as indicated by the ac voltmeter is 5 mv rms at maximum.

Note

Measure the ripple voltage with the -DC terminal rounded.

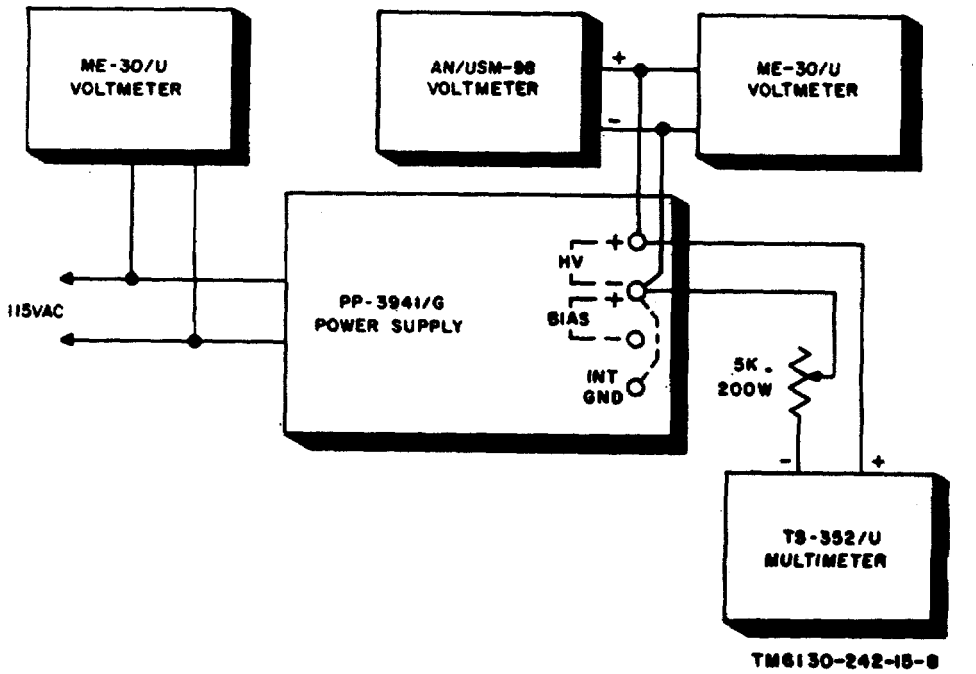


Figure 7-5. Load regulation and ripple test, block diagram.

7-13. Line Regulation Test (0-500 Volts at 0-200 Ma) (fig. 7-6)

This test determines whether the 0-500-volt dc output remains constant within specified limits when the line voltage is varied. Connect the equipment as shown in figure 7-6.

a. Set the multimeter for an appropriate ampere (0.2 ampere) scale.

b. Apply 105 volts ac power to the variable power transformer.

c. Place both ac and dc circuit breakers to their ON positions, and allow the power supply to warm up until its time-delay relay is actuated.

d. Set the VOLTMETER switch to its HV position.

e. Rotate the HV control until the output voltage meter is set to 500 volts dc.

f. Adjust the 5K, 200-watt variable resistor until the power supply is loaded to 200 ma.

g. Use the variable power transformer and vary the line voltage from 105 to 125 volts ac and from 125 to 105 volts ac. Check to see that the line regulation, as measured by the dc voltmeter, is 0.3 volt maximum.

h. Repeat the line regulation check in *g* above under a no-load condition.

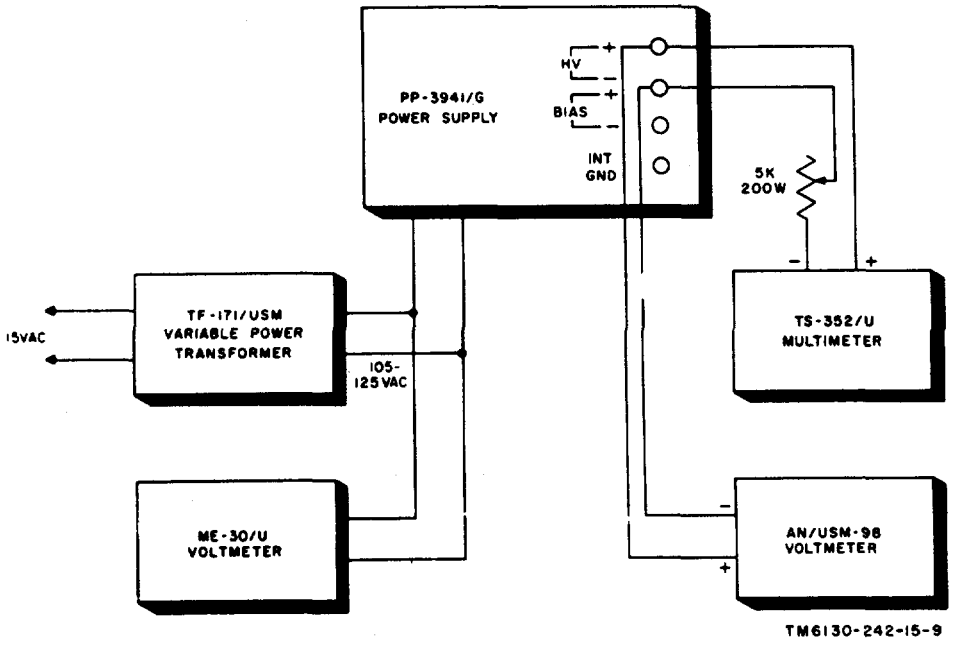


Figure 7-6. Line regulation test, block diagram.

7-14. Bias Output Ripple Check (0200 Volts Dc, 0-50 Volts Dc)

(fig. 7-7)

This test checks whether ripple voltage is within specified limits for the two bias output voltage ranges. Connect the equipment as shown in figure 7-7.

a. Set the VOLTMETER switch to its BIAS position.

b. Set the BIAS RANGE switch to its 0-200-volt position.

c. Apply 115 volts ac power to the power supply.

d. Turn both ac and de circuit breakers to their ON positions, and allow the power supply to warm up until the time-delay relay is actuated.

e. Set the bias voltage to 200 volts with the BIAS control, and check to see that the ripple voltage, as indicated by ac voltmeter, is 5 mv rms or less.

f. Set the BIAS RANGE switch to its 0-50-volt position.

g. Set the bias voltage to 50 volts, and check to see that the ripple voltage, as indicated by ac voltmeter, is 5 mv rms or less.

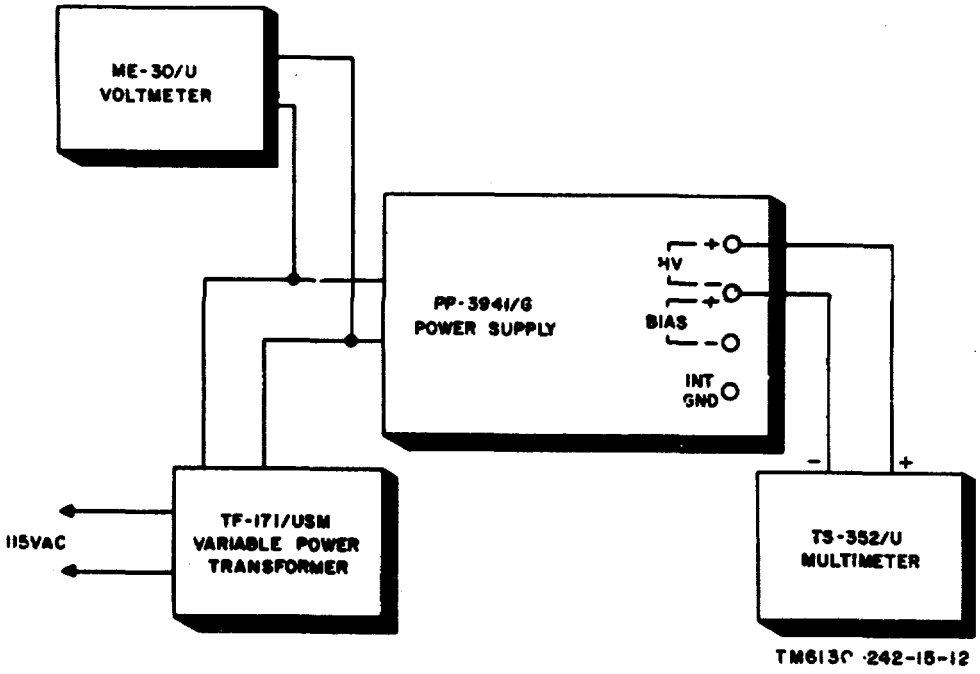


Figure 7-7. Bias output ripple check, block diagram.

7-15. Output Breakout Test (0-500 Volts at 0-200 Ma) (fig. 7-8)

This test determines the value of ac input voltage at which the unit under test fails to operate within specifications. Connect the equipment as shown in figure 7-8.

a. Apply 105 volts ac power to the power supply.

b. Set the VOLTMETER switch to its HV position.

c. Place both ac and de circuit breakers to their ON positions, and allow the power supply to warm up until its time-delay relay actuates.

d. Set the output voltage with the HV control to 500 volts dc, and load the power supply to 200 ma by varying the 5K, 200-watt variable resistor.

e. Use the variable power transformer, lower the ac input voltage until the ripple voltage measured on the ac voltmeter, which is connected across HV terminals, exceeds 5 mv rms.

f. Observe the reading on the ME-30/U voltmeter which is connected across the ac input to the power supply. This reading must be 104 volts ac or less.

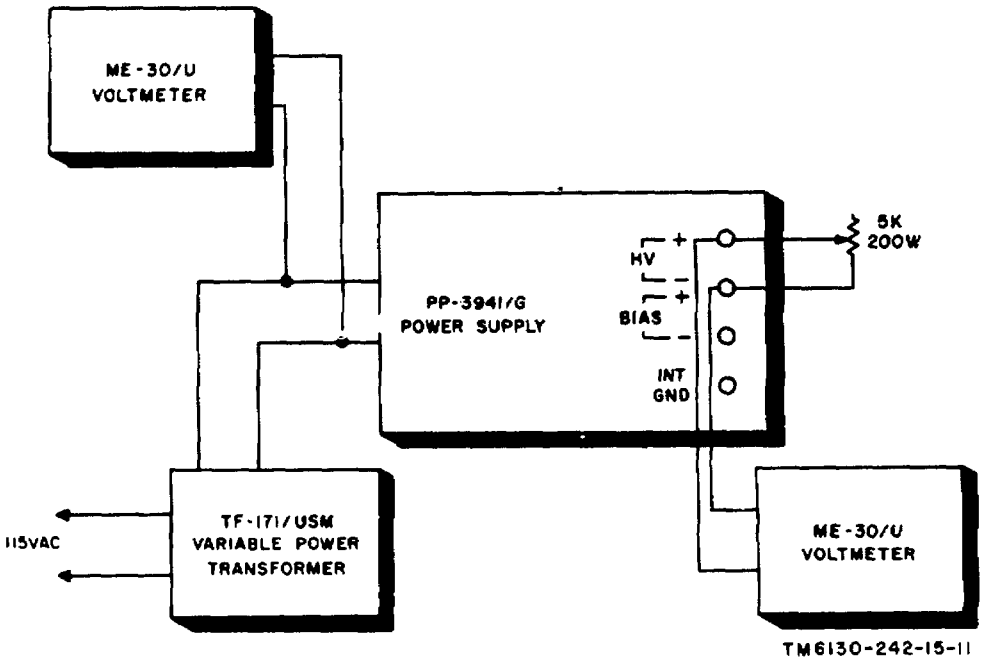


Figure 7-8. Output breakout test, block diagram.

7-16. Delta High-Voltage Control Test
(fig. 7-9)

This test determines whether the delta high-voltage control varies the output voltage ± 5 volts dc. Connect the equipment as shown in figure 7-9.

a. Set the VOLTMETER switch to its HV position.

b. Apply 115 volts ac power to the power supply.

c. Place both ac and dc circuit breakers to their ON positions and allow the unit to warm, up until its time-delay relay is actuated.

d. Set the HV control to its zero position.

e. Set the output voltage to 250 volts with the HV control.

f. Vary the HV control from its fully counterclockwise position to its fully clockwise position. The output voltage must vary by ± 5 volts.

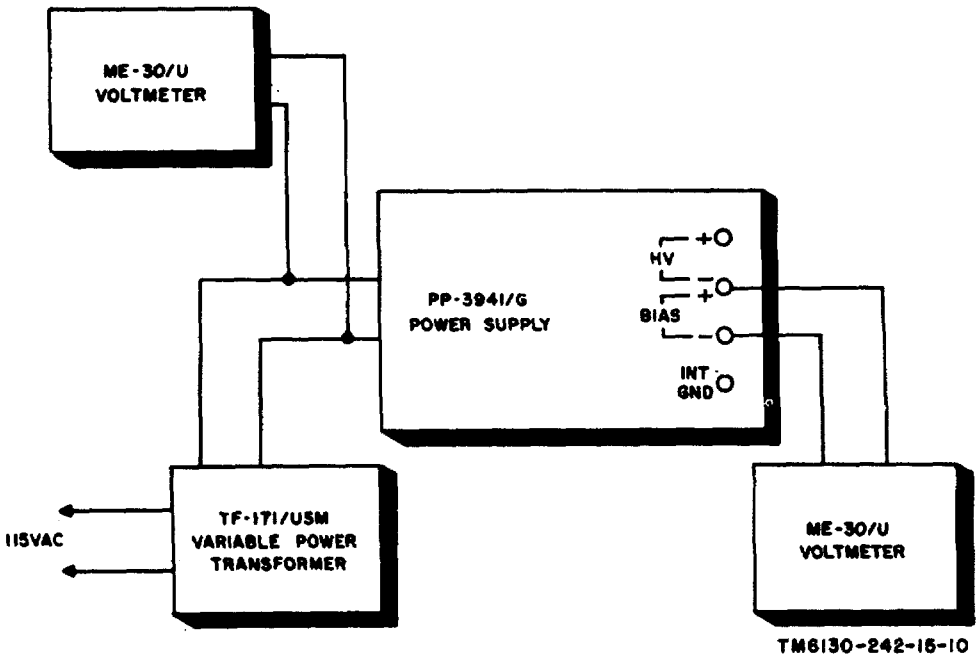


Figure 7-9. Delta high-voltage control test, block diagram.

7-17. Short Circuit Test

(fig. 7-10)

This test determines whether the circuit breaker trips when a short circuit is applied to the unit output and whether damage is done to the unit when a short circuit is applied. Connect the equipment as shown in figure 7-10.

a. Apply 115 volts ac power to the power supply.

b. Place both ac and dc circuit breakers to their ON positions, and allow the power supply to warm up until its time-delay relay actuates.

c. Set the VOLTMETER switch to its HV position.

d. Set the output voltage to 250 volts with the HV control.

e. Place a short circuit across the HV terminals of the power supply. The dc circuit breaker must trip to its OFF position.

f. Reset the dc circuit breaker, and check to see that the output voltage is still 250 volts, as indicated by the power supply meter.

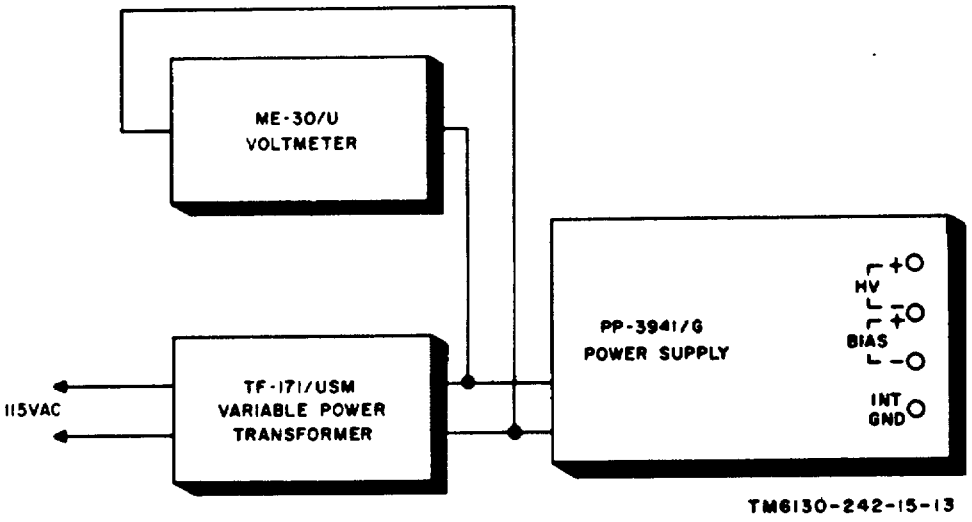


Figure 7-10. Short circuit test, block diagram.

7-18. Grounding Test

(fig. 7-11)

This test determines whether grounding of either plus or minus dc has any degrading effects on the ripple specification limits of the power supply output. Connect the equipment as shown in figure 7-11.

a. Set the VOLTMETER switch to its HV position.

b. Apply 115 volts ac power to the power supply.

c. Turn both ac and dc circuit breakers to their ON positions, and allow the power supply to warm up until its time-delay relay actuates.

d. Set the output voltage to 500 volts dc with the HV control.

e. Ground the -DC terminal of the power supply.

f. See that the ripple voltage as indicated by the ac voltmeter is 5 mv or less.

g. Remove the ground from the -DC terminal and from the + DC terminal.

h. Check to see that the ripple indication on the ac voltmeter remains at 5 mv or less.

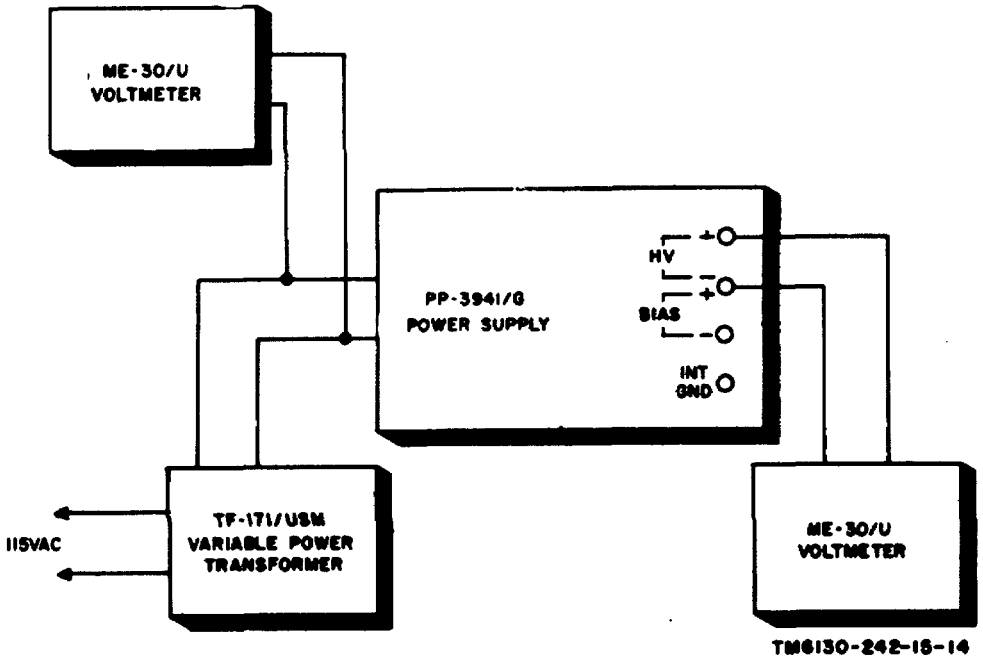


Figure 7-11. Grounding test, block diagram.

CHAPTER 8

SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE

8-1. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends on the material available and the conditions under which the equipment is to be shipped or stored.

a. Materials Required. The following materials are required for packaging the power supply. For stock numbers of the materials, consult SB 38-100.

Material	Quantity
Filler material	4 lb
Corrugated cardboard	27 sq ft
Gummed tape	17 ft
Gummed waterproof tape	20 ft
Waterproof paper	25 sq ft

b. Packaging. Package the power supply as follows:

(1) Cushion the power supply on all surfaces with pads of filler material.

(2) Place the cushioned unit within a wrap of corrugated cardboard.

(3) Secure the wrap with gummed tape.

(4) Protect the corrugated cardboard wrap with a waterproof paper barrier.

(5) Seal the seams of the paper barrier with waterproof tape.

c. Packing.

(1) Place the package containing the power supply into a wooden box.

(2) Nail a wooden lid on the box.

8-2. Demolition of Materiel to Prevent Enemy Use

The demolition procedures given in this paragraph will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished only upon the order of the commander. Any or all of the methods of destruction given below may be used. The time available will be the major determining factor for the methods to be used in most instances when destruction of equipment is undertaken. The tactical situation also will determine how the destruction order will be carried out. In most cases, it is preferable to demolish completely some portions of the equipment rather than partially to destroy all the equipment parts.

a. Smash. Smash the power supply; use sledges, axes, machetes, hammers, crowbars, or any other heavy tools available.

b. Cut. Cut cables, cords, and wires; use axes, machetes, and similar tools.

Warning

Be extremely careful with explosives and incendiary devices. Use these items only when the need is urgent.

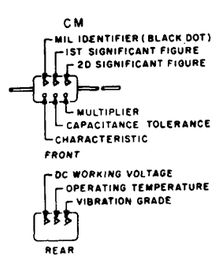
c. Burn. Burn the technical manuals first. Use gasoline, kerosene, flamethrowers, or incendiary grenades to complete the destruction of the set.

d. Explode. If explosives are necessary, use firearms, grenades, powder charges, or explosives to demolish the equipment where feasible or necessary.

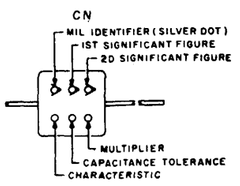
e. Dispose. Scatter or bury destroyed parts or throw them into waterways. This is particularly important if a number of parts have not been completely destroyed.

COLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS

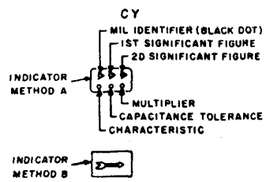
GROUP I Capacitors, Fixed, Various-Dielectrics, Styles CM, CN, CY, and CB



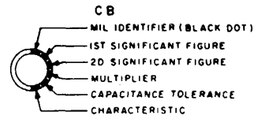
MICA-DIELECTRIC



PAPER-DIELECTRIC

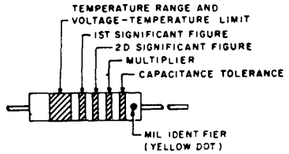


GLASS-DIELECTRIC, GLASS CASE

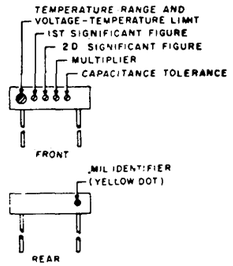


MICA, BUTTON TYPE

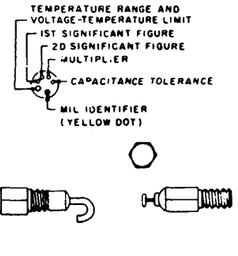
GROUP II Capacitors, Fixed Ceramic-Dielectric (General Purpose) Style CK



AXIAL LEAD

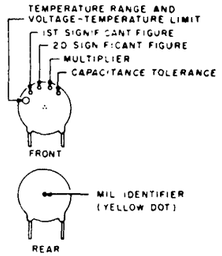


RADIAL LEAD



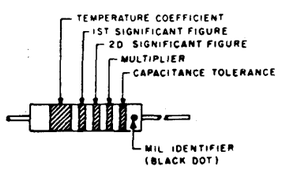
FEED-THROUGH

STAND-OFF

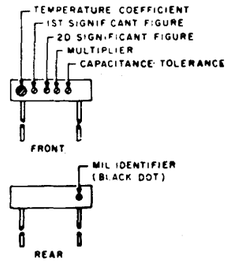


DISK-TYPE

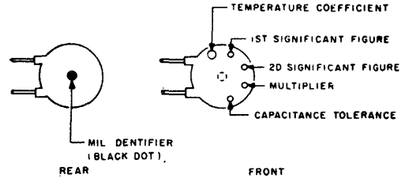
GROUP III *Capacitors, Fixed, Ceramic-Dielectric (Temperature Compensating) Style CC*



AXIAL LEAD



RADIAL LEAD



DISK-TYPE

COLOR CODE TABLES

TABLE I – For use with Group I, Styles CM, CN, CY and CB

COLOR	MIL ID	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE				CHARACTERISTIC[2]				DC WORKING VOLTAGE	OPERATING TEMP. RANGE	VIBRATION GRADE
					CM	CN	CY	CB	CM	CN	CY	CB	CM	CM	CM
BLACK	CM, CY, CB	0	0	1			± 20%	± 20%		A				−55° to +70°C	10–55 cps
BROWN		1	1	10					B	E		B			
RED		2	2	100	± 2%		± 2%	± 2%	C		C			−55° to +85°C	
ORANGE		3	3	1,000		± 30%			D			D	300		
YELLOW		4	4	10,000					E					−55° to +125°C	10–2,000 cps
GREEN		5	5		± 5%				F				500		
BLUE		6	6											−55° to +150°C	
PURPLE (VIOLET)		7	7												
GREY		8	8												
WHITE		9	9												
GOLD				0.1			± 5%	± 5%							
SILVER	CN				± 10%	± 10%	± 10%	± 10%							

TABLE II – For use with Group II, General Purpose, Style CK

COLOR	TEMP. RANGE AND VOLTAGE – TEMP. LIMITS[3]	1st SIG FIG	2nd SIG FIG	MULTIPLIER	CAPACITANCE TOLERANCE	MIL ID
BLACK		0	0	1	± 20%	
BROWN	AW	1	1	10	± 10%	
RED	AX	2	2	100		
ORANGE	BX	3	3	1,000		
YELLOW	AV	4	4	10,000		CK
GREEN	CZ	5	5			
BLUE	BV	6	6			
PURPLE (VIOLET)		7	7			
GREY		8	8			
WHITE		9	9			
GOLD						
SILVER						

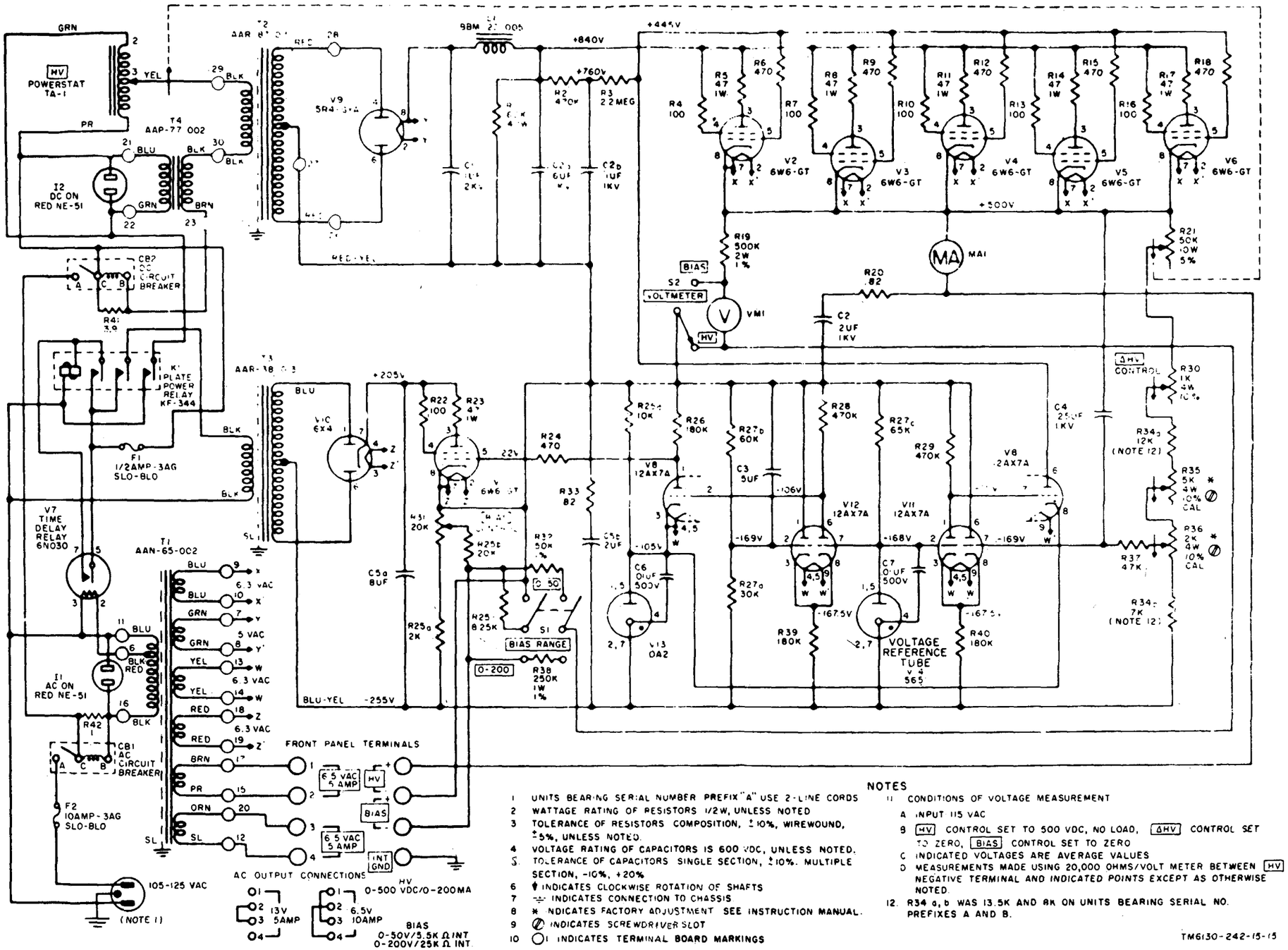
TABLE III – For use with Group III, Temperature Compensating, Style CC

COLOR	TEMPERATURE COEFFICIENT[4]	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE		MIL ID
					Capacitances over 10uuf	Capacitances 10uuf or less	
BLACK	0	0	0	1		± 2.0uuf	CC
BROWN	−30	1	1	10	± 1%		
RED	−80	2	2	100	± 2%	± 0.25uuf	
ORANGE	−150	3	3	1,000			
YELLOW	−220	4	4				
GREEN	−330	5	5		± 5%	± 0.5uuf	
BLUE	−470	6	6				
PURPLE (VIOLET)	−750	7	7				
GREY		8	8	0.01			
WHITE		9	9	0.1	± 10%		
GOLD	+100					± 1.0uuf	
SILVER							

1. The multiplier is the number by which the two significant (SIG) figures are multiplied to obtain the capacitance in uuf.
2. Letters indicate the Characteristics designated in applicable specifications: MIL–C–5, MIL–C–91, MIL–C–11272, and MIL–C–10950 respectively.
3. Letters indicate the temperature range and voltage-temperature limits designated in MIL–C–11015.
4. Temperature coefficient in parts per million per degree centigrade.

STD–C2

Figure 8-2. Color-code marking for MIL-STD capacitors.



NOTES

1. UNITS BEARING SERIAL NUMBER PREFIX "A" USE 2-LINE CORDS
2. WATTAGE RATING OF RESISTORS 1/2W, UNLESS NOTED
3. TOLERANCE OF RESISTORS COMPOSITION, ±10%, WIREWOUND, ±5%, UNLESS NOTED.
4. VOLTAGE RATING OF CAPACITORS IS 600 VDC, UNLESS NOTED.
5. TOLERANCE OF CAPACITORS SINGLE SECTION, ±10%. MULTIPLE SECTION, -10%, +20%
6. ↑ INDICATES CLOCKWISE ROTATION OF SHAFTS
7. ⏚ INDICATES CONNECTION TO CHASSIS
8. * INDICATES FACTORY ADJUSTMENT SEE INSTRUCTION MANUAL.
9. ⊘ INDICATES SCREWDRIVER SLOT
10. ○1 INDICATES TERMINAL BOARD MARKINGS
11. CONDITIONS OF VOLTAGE MEASUREMENT
    - A INPUT 115 VAC
    - B [HV] CONTROL SET TO 500 VDC, NO LOAD, [ΔHV] CONTROL SET TO ZERO, [BIAS] CONTROL SET TO ZERO
    - C INDICATED VOLTAGES ARE AVERAGE VALUES
    - D MEASUREMENTS MADE USING 20,000 OHMS/VOLT METER BETWEEN [HV] NEGATIVE TERMINAL AND INDICATED POINTS EXCEPT AS OTHERWISE NOTED.
12. R34 a, b WAS 13.5K AND 8K ON UNITS BEARING SERIAL NO. PREFIXES A AND B.

TM6130-242-15-15

Figure 8-3. Power Supply PP-3941/G, complete schematic diagram.

APPENDIX I

REFERENCES

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TB SIG 355-1	Depot Inspection Standard for Repaired Signal Equipment.
TB SIG 355-2	Depot Inspection Standard for Refinishing Signal Equipment.
TB SIG 355-3	Depot Inspection for Moisture and Fungus Resistant Treatment.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 9-213	Painting Instructions for Field Use.
TM 11-663	Electronic Power Supplies.
TM 11-5527	Multimeters TS-352/U, TS-352A/U, and TS-352B/U.
TM 11-6625-200-12	Operator and Organizational Maintenance Manual, Multimeters ME-26A/U, ME-26B/U, and ME-26C/U.
TM 11-6625-320-12	Operator's and Organizational Maintenance Manual, Voltmeter, Meter ME-30A/U, Voltmeter, Electronic ME-30B/U and ME-30C/U.
TM 11-6625-438-10	Operator's Manual, Voltmeter, Electronic AN/USM-98.
TM 11-6625-438-50	Depot Maintenance Manual, Voltmeter, Electronic AN/USM-98.
TM 38-750	Army Equipment Record Procedures.

APPENDIX II

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

A2-1. General

This appendix lists items supplied for initial operation and for running spares. The list includes tools, parts, and material issued as part of the major end item. The list includes all items authorized for basic operator maintenance of the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

A2-2. Columns

Columns are as follows:

a. Federal Stock Number. This column lists the l-digit Federal stock number.

b. Designation by Model. Not used.

c. Description. Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning enter the nomenclature and description.

d. Unit of Issue. The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

e. Expendability. Nonexpendable items are indicated by NX. Expendable items are not annotated.

f. Quantity Authorized. Under "Items Comprising an Operable Equipment", the column lists the quantity of items supplied for the initial operation of the equipment. Under "Running Spare Items" the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.

g. Illustration. Not used.

SECTION II. FUNCTIONAL PARTS LIST

FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	MAINT ORG ALLOW.	ILLUSTRATION	
							FIG. NO.	ITEM NO.
6130-985-8143		POWER SUPPLY PP-3941/G: Electronic type, output data: 0-500 VDC, 200 MA; 0-200 VDC-, 9 MA; 0-50 VDC, 9 MA; 6.5 VAC, 5 amp. Operating power requirements: 105-125 VAC, single phase. Overall dimensions; 13 inches high 8 3/4 inches wide by 14-1/2 inches deep. Manufacturer data: Lambda Electronics Corp. Model 71.		NX.				
		ITEMS COMPRISING AN OPERABLE EQUIPMENT						
GRD THRU AGC		TECHNICAL MANUAL TM 11-6130-242-15			2			
		RUNNING SPARE ITEMS						
5960-681-9741		ELECTRON TUBE: MIL type 5R4-GYA		1				
5960-556-1445		ELECTRON TUBE: MIL type 6W6GT		1				
5960-272-9182		ELECTRON TUBE: MIL type 6X4		1				
5920-553-5770		FUSE, CARTRIDGE: 1/2 amp 3 AG, SLO-BLO Bussman p/n MDL1/2		5				
5920-221-5892		FUSE, CARTRIDGE: 10 amp 3 AG, SLO-BLO Bussman p/n MDL10		3				
6240-682-3411		LAMP, GLOW: G.E. type NE-51H		1				
5945-273-6866		RELAY: Tube type, thermal, time delay, Amperite p/n 6N030		1				

APPENDIX III

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

A3-1. General

a. This appendix assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance category.

b. Columns in the maintenance allocation chart are as follows:

(1) *Part or component*. This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies which are part of a component are listed immediately below that component, and subassemblies which are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) is listed in disassembly order or alphabetical order.

(2) *Maintenance function.* This column indicates the various maintenance functions allocated to the categories.

(a) Service. To clean to preserve, and to replenish lubricants.

(b) Adjust. To regulate periodically to prevent malfunction.

(c) Inspect. To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.

(d) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(e) Replace. To substitute serviceable components, assemblies, or subassemblies, for unserviceable components, assemblies, or subassemblies.

(f) Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

(g) Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.

(h) Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or component of a weapons system.

(i) Overhaul. To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(j) Rebuild. To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and/or

specifications and subsequent reassembly of the item.

(3) *Operator, organization, direct support, general support and depot.* The symbol X indicates the categories responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Categories higher than those marked by X are authorized to perform the indicated operation.

(4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilized when necessary to. clarify any of the data cited in the preceding columns.

c. Columns in the allocation of tools for maintenance functions are as follows:

(1) *Tools required for maintenance functions*. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *Operator, organization, direct support, general support, and depot.* The dagger (†) indicates the categories normally allocated the facility.

(3) *Tool code.* This column lists the tool code assigned.

A3.2. Maintenance by Using Organizations

When this equipment is used by signal services organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including general support are authorized to the organization operating this equipment.

SECTION II. MAINTENANCE ALLOCATION CHART

PART OF COMPONENT	MAINTENANCE FUNCTION	ECHELON					TOOLS REQUIRED	REMARKS
		O/C	O	DS	GS	D		
POWER SUPPLY, PP-3941/G	service		X					
	adjust		X				5,10	Operational
	inspect		X					Visual
	test		X				5,6,7,10	
					X		2,3,4, 6,7,9,10,11,	
						X	1,2,3,4,6,8,9,	Depot facilities
	replace		X				5	Pluck out items
	repair				X		2,3,6,7,9,10,11	
	calibrate				X		2,3,4,6,7,9,10,11	
	rebuild					X		Depot facilities
	overhaul				X			Shop facilities

SECTION III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	MAINTENACE CATEGORY O/C	O	DS	GS	D	TOOL CODE	PROC SVC	TYPE CLASS	REMARKS
PP-3941/G (continued)									
VOLTMETER, AN/USM-98					†	1	Army	Std. A	
MULTILMTIMETER, TS-352/U				†	†	2	Army	Std. A	
MULTIMETER, ME-26B/U				†	†	3	Army.	Std. A	
VOLTMETER, ME-30/U				†	†	4	Army	Std. A	
MULTIMETER, AN/URM-105		†				5	Army	Std. A	
TRANSFORMER, VARIABLE TF-171/USM		†		†	†	6	Army	Std. A	
TEST SET, ELECTRON TUBE TV-7B/U		†		†		7	Army	Std. A	
TEST SET, ELECTRON TUBE TV-2/U					†	8	Army	Std. A	
RESISTOR VARIABLE TF200 WATT FSN-5905-259-9230				†	†	9	N/A	N/A	
TOOL KIT, ELECTRONIC EQUIPMENT REPAIR TK-105/G		†		†	†	10	Army	Std. A	
TOOL KIT, ELECTRONIC EQUIPMENT REPAIR TK-100/G				†	†	11	Army	Std. A	
NOTE: Above tool and test equipment is also available for the AN/FPA-15 in which this equipment is used, with the exception of items 1 and 9.									

APPENDIX IV
ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT, AND DEPOT REPAIR PARTS LIST

Section I. INTRODUCTION

A4-1. General

a. This appendix includes an organizational, direct and general support and depot special tools list.

(1) The organizational maintenance repair parts and special tools list lists the repair parts authorized for organizational maintenance and is a basis for requisitioning by organizations which are authorized the major item of equipment. End items of equipments are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

(2) The direct and general support and depot maintenance repair parts and special tools list lists the quantities of repair parts authorized for general support maintenance and is a basis for requisitioning authorized parts It is also a guide for depot maintenance in establishing initial levels of spare parts.

b. Columns are as follows:

(1) *Source, maintenance, and recoverability code.* Source, maintenance, and recoverability codes indicate the technical service responsible for supply, the maintenance category at which an item is stocked, categories at which an item is installed or repaired, and whether an item is repairable or salvageable. The source code column is divided into four parts.

(a) Column A. This column indicates the materiel code and designates the area of responsibility for supply. AR 310-1 defines the basic numbers used to identify the materiel code. If the part is Signal materiel responsibility, the column is left blank:

(b) Column B. This column indicates the point within the maintenance system where the part is available. "P" indicates that the repair; part is a high mortality part; procured by technical services, stocked in and supplied from the technical service depot system, and authorized for use at indicated maintenance categories. "P1" indicates that the repair part is a low mortality part; procured by technical services, stocked only in and supplied from technical service key depots, and authorized for installation at indicated maintenance categories.

(c) Column C. This column indicates the lowest maintenance category authorized to install the part.

"O"-Organizational maintenance (operator and organizational).

"H"-General support maintenance.

(d) Column D. Not used.

(2) *Federal stock number*. This column lists the 11-digit Federal stock number.

(3) *Designation by model.* Not used.

(4) *Description.* Nomenclature or the standard item name. and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.

(5) *Unit of issue.* The, unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

(6) *Expendability.* Nonexpendable items are indicated by NX. Expendable items are not annotated.

(7) *Quantity incorporated in unit*. This column lists the quantity of each part found in a given assembly, component, or equipment.

(8) *Organizational.* An asterisk (*) -indicates that an item is not authorized for stockage but if required, may be requisitioned for immediate use only.

(9) Direct support. No parts authorized for stockage.

(10) *General support.* The numbers in this column indicate quantities of repair parts authorized for initial stockage for use in general support maintenance. The quantities are based on 100 equipments to be maintained for a 15-day period.

(11) *Depot.* The numbers in this column indicate quantities of repair parts authorized for depot maintenance and for initial stockage for maintenance, and for supply support to lower categories. The entries are based on the quantity required for rebuild of 100 equipments.

(12) *Illustration.* The "Item No." column lists the reference symbols used for identification of the items in the illustration or text of the manual.

A4-2. parts for Maintenance

When this equipment is used by signal service organizations organic to theater headquarters or communication zones to provide theater communications, those repair parts authorized up to and including general support are authorized for stockage by the organization operating this equipment.

A4-3. Electron Tubes

The consumption rates given for tubes are conservative theoretical estimates and are provided for use only when more complete information, such as data based on operating experience, is not available. These figures are based on levels and requirements for equipment actually in use, not on authorizations or equipment stored in depots.

A4-4. Requisitioning Information

a. The allowance factors are based on 100 equipments. In order to determine the number of parts authorized for initial stockage for the specific number of equipments supported, the following formula will be used and carried out to two decimal places.

$$\text{Specific number of equipments supported} \times \frac{\text{allowance factor}}{100} = \text{Number of parts authorized for initial stockage.}$$

b. Fractional values obtained from above computation will be rounded to whole numbers as follows:

(1) When the total number of parts authorized is less than 0.5, the quantity authorized will be zero.

(2) When the total number of parts authorized is between 0.5 and 1.0, the quantity authorized will be one.

(3) For all values above one, fractional values below 0.5 will revert to the next lower whole number and fractional value 0.5 and above will advance to the next higher whole number.

c. The quantities determined in accordance with the above computation represent the initial stockage for a 15-day period.

SECTION II. ORGANIZATIONAL FUNCTIONAL PARTS LIST

FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	ORGAN-ZATIONAL	ILLUS. FIG. NO.	ILLUS. ITEM NO.
		POWER SUPPLY PP-3941/G						
6130-985-8143		POWER SUPPLY PP-3941/0: Full wave rectification; output 0-500 vdc at0-200 ma; 0-200 vdc, no current rating; 0-50 vdc no current rating; 6.5 vdc (2 outputs), 5 amp; oper. power req: 105-125 vac, 50-60 cps, single phase; o/a dim 13 in lg X 8.75 i n w X 14.5 in deep; filter included; mfr data: Lambda Electronics Corp., Melville L.I., N.Y. model 71, general purpose use.		NX				
5960-556-1445		ELECTRON IUBE: MIL type 6W6-GT			6	*		V1 hru V6
5960-681-9741		ELECTRON TUBE: MIL type 5R4GYA			1	*		V9
5960-272-9182		ELECTRON TUBE: MIL type.6X4WA			1	*		V10
5920-553-5770		FUSE, CARTRIDE: 1/32 amp, 250 v; time delay: 25 see min at 200% load, 8 sec min at 300% load, 3 sec min at500% load; Sig dwg SM-C-208810-2			1	*		F1
5920-221-5892		FUSE, CARTRIDGE: 10 amp, 25 v; time delay: 25 sec at 200% load, 3 sec at 500% load;' Bussman No. MDL 10			1	*		F2
		KNOB: Lambda Electronics No. KNA-21-002 (M5RC30-A045)			2	*		
		KNOB: Lambda Electronics No. KNA-31-006 (M5RC30-A046)			1	*		
6240-682-3411		LAMP, GLOW: MIL type NE-51H			2	*		
5945-273-6866		RELAY, THERMAL: 115 VAC, 6 amp nom current; Amperite No. 6N030			1	*		V7
		SHIELD, ELECTRON TLUBE: brass, nickel plated; Cinch NO. 151-12-20-123-(2C2) (M5RC30-A112)			3	*		

SECTION III. DIRECT AND GENERAL SUPPORT, AND DEPOT FUNCTICNAL PARTS LIST

SOURCE CODE				FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT FIELD	GENERAL FIELD	DEPOT	ILLUS-TRATION	
A	B	C	D										FIG. NO.	ITEM NO.
						POWER SUPPLY PP-3941/0								
				6130-985-8143		POWER SUPPLY PP-3941/0: Full wave rectification; output 0-500 vdc at 0-200 ma; 0-200 vdc, no current rating; 0-50 vdc no current rating; 6.5 vdc (2 outputs), 5 amp; oper power req: 105-125 vac, 50-60 cps, single phase; o/a dim 13 in lg X 8. 75 in w X 14.5 in deep; filter included; mfr data: Lambda Electronics Corp.; Melville L.I., N.Y. model 71, general purpose use.		NX						
	P	H		6625-821-6434		AMMETER: 200 ma dc ±2%: at 25° C; internal shunt; Weston class 57-11, Black flush bakelite case, Model 301 Lambda Electronics No. EDM-20-012			1		2.2	3.0		M2
	P1	H				CABLE ASSEMBLY, POWER: Lambda Electronics No. RPR-39- 008 (M5RC30-A010)			1		2.2	5.0		
	P	H		5910-581-8445		CAPACITOR, FIXED, CERAMIC, DIELECTRIC: 10,000 uuf, tolerance not rated; 500 vdc; Sprague Elec. No. OMV-29C9B5			2		3.2	6.0		C6,C7
	P	H				CAPACITOR, FIXED, PAPER DIELECTRIC: Lambda Electronics No. CAM-10-005 (M5RC30-012)			1		2.2	3.0		C1
	P	H				CAPACITOR FIXED, PA?ER DIELE-CRIC: Lambda Electronics No. CAM:-81-007 (M5RC3C-A013)			1		2.2	3.0		C2
	P	H				CAPACITOR, FIXED, PAPER DIELECTRIC: Lambda Electronics No. CAM-50-001 (M5RC30-A014)			1		2.2	3.0		C3
	P	H				CAPACITOR, FIXED, PAPER DIELECTRIC: Lambda Electronics No. CAM-25-004(M5RC30-015)			1		2.2	3.0		C4
	P	H		5910-617-3165		CAPACITOR, FIXED, PAPER DIELECTRIC: 4-4-2 uF, -10 +20, 600 vdc; Cornell-Dubilier No. CAP-10-001			1		2.2	3.0		C5

SOURCE CODE				FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT FIELD	GENERAL FIELD	DEPOT	ILLUS-TRATION	
A	B	C	D										FIG. NO.	ITEM NO.
						PP-3941/G (continued)								
	P	H				CIRCUIT BREAKER: Heinemann Electric No. 70-110B (M5RC30-AG17)			1		2.2	3.0		CB1
	P	H				CIRCUIT BREAKER: Heinermann Electric No. 70-110A (M5RC30-AG18)			1		2.2	3.0		CB2
	P1	H				CLIP, SPRING: Lambda Electronics No. KHJ-10-002 (M5RC30-A022)			2		2.2	3.0		
	P1	H				CLIP, SPRING TENSION: cadmium plate; Tinnerman Products No. C-44-90-022-24 (M5RC30-A023)			5		3.6	5.0		
	P	C		5960-556-1445		ELECTRON TUBE: MIL type 6W6-GT			6		28.8	600.0		V1 THRU V6
	P	H		5960-841-2352		ELECTRON TUBE: MIL type 12AX7A			3		14.4	300.0		V8, V12 V11
	P	O		5960-681-9741		ELECTRON TUBE:MIL type 5RR4GYA			1		4.8	100.0		V9
	P	O		5960-272-9182		ELECTRON TUBE: MIL type 6X4WA			1		4.8	100.0		V1
	P	H		5960-183-3564		ELECTRON TUBE: MIL type 0A2			1		4.8	100.0		V13
	P	H		5960-167-0389		ELECTRON TUBF: MIL type 5651			1		4.8	100.0		V14
	P	O		5920-553-5770		FUSE, CAIRTRDGE: 1/32 amp, 250v; time delay: 25 sec min at 200% load, 8 sec min at 300% load, 3 sec min at 500% load; Sig dwg SM-C-208810-2			1		7.7	20.0		F1
	P	O		5920-221-5892		FUSE, CARTRIDGE: 10 amp, 25 v; time delay: 25 sec at 200% load, 3 sec at 500%, load; Russman No. MDL 10			1		7.7	20.0		F2
	P	H		5920-280-3144		FUSEHOLDER: 250 v, 15 amp;2 extractor post type; Littelfuse No. 342001			2		3.2	2.0		
	P	O				KNOB: Lambda Electronics No. KNA-21-002 (M5RC30-A045)			2		2.2	4.0		

SOURCE CODE				FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT FIELD	GENERAL FIELD	DEPOT	ILLUS-TRATION	
A	B	C	D										FIG. NO.	ITEM NO.
						PP-3941/G (continued)								
	P	H				KNOB: Lambda Electronics No. KNA-31-006 (M5RC30-A046)			1		1.5	2.0		
	P	O		6240-682-3411		LAMP, GLOW: MIL type NE-51H			2		1.9	20.0		
	P	H		6210-954-51355		LIGHT, INDICATOR: Diallght Co. No. 5220-8H-991-33K			2		3.2	4.0		I1, I2
	P	H		5950-853-1052		REACTOR: 6.0 henries ±20% at 230 ma dc; 80 ohms ±15% resistance; Lambda Electronics No. BBM-23-005			1		2.2	3.0		L1
	P	H		5945-878-1857		RELAY, ARMATURE: 3 pole, single throw, normally open; 115 VAC max, 15 amp; Allied Control No. P0X179			1		2.2	3.0		K1
	P	O		5945-273-6866		RELAY, THERMAL: 115 VAC, 6 amp nom current; Amperite No. 6N030			1		4.8	100.0		V7
	P	H		5905-295-3403		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF225K			1		2.2	3.0		R3
	P	H		5905-190-8889		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF101J (R4,7,10,13,16, 22.)			6		5.2	12.0		See desc column
	P	H		5905-258-6558		RESISTOR, FIXED, COMPOSITION: MIL type RC32GF470K (R5,8,11,14,17, 23.)			6		5.2	12.0		See desc column
	P	H		5905-192-3973		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF471J (R6,9,12,15,18, 24.)			6		5.2	12.0		See desc column
	P	H		5905-192-0662		RESISTOR, FIXED COMPOSITION: MIL type RC20G184K			3		3.9	6.0		R26, R39, R40
	P	H		5905-279-2515		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF474J			3		3.9	6.0		R28, R29, R2
	P	H		5905-295-3410		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF473K			1		2.2	3.0		R37
	P	H				RESISTOR, FIXED, FILM: Lambda Electronics No. DCV-50-011 (M5RC30-A072)			1		2.2	3.0		R19

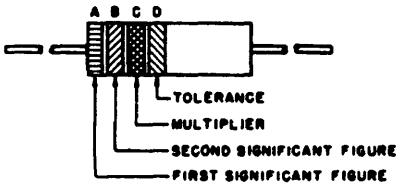
SOURCE CODE				FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT FIELD	GENERAL FIELD	DEPOT	ILLUS-TRATION	
A	B	C	D										FIG. NO.	ITEM NO.
						PP-3941/G (continued)								
	P	H				RESISTOR, FIXED, FILM.: Lambda Electronics No. DCT-50-001 (M5RC30-A073)			1		2.3	3.0		R32
	P	H				RESISTOR, FIXED, FILM: Lambda Electronics No. DCV-25-013 (M5RC30-A074)			1		2.2	3.0		R38
	P	H		5905-960-3770		RESISTOR, FIXED, WIREHOUND: 30,000 ohms, ± 5% 25 w; Ward Leonard No. A-30000WL (2 ea wired in series)			2		3.2	6.0		R1
	P	H		5905-731-1772		RESISTOR, FIXED, WIREWOUND: International Resistance No. BWH.82			2		3.2	6.0		R20, R23
	P	H				RESISTOR, FIXED, WIREWOUND: Lambda Electronics No. DFT-40-015 (M5RC30-A077)			1		2.2	3.0		R25a, R25b, R25c,
	P	H				RESISTOR, FIXED,WIREWOUND: Lambda Electronics No. DPV-16-001 (M5RC30-A078)			1		2.2	3.0		R27a, R27b, R27c
	P	H				RESISTOR, FIXED, WIREWOUND: Lambda Electronics No. DFT-19-035 (M5RC30-A079)			1		2.2	3.0		R34a, R34b
	P	H		5905-853-1987		RESISTOR, FIXED, WIREWOUND: International Resistance No. BWH3.9			1		2.2	3.0		R41
	P	H				RESISTOR, FIXED, WIREWOUND: International Resistance No. BWH1-.0 (M5RC30-A081)			1		2.2	3.0		R42
	P	H				RESISTOR, VARIABLE: Lambda Electronics No. DPT-50-002 (M5RC30-A082)			1		3.6	3.0		R21
	P	H				RESISTOR, VARIABLE: Chicago Telephone Supply Co. No. LB3756 (M5RC30-A083)			1		3.6	3.0		R30
	P	H				RESISTOR, VARIABLE: Chicago Telephone Supply Co. No. LB-3759 (M5RC30-A084)			1		3.6	3.0		R31

SOURCE CODE				FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT FIELD	GENERAL FIELD	DEPOT	ILLUS-TRATION	
A	B	C	D										FIG. NO.	ITEM NO.
						PP-3941/G (continued)								
	P	H		5905-957-5087		RESISTOR, VARIABLE: 5000 ohms ±10% 4 watt; linear taper; Chicago Telephone Supply Co. No. LA-2668			1		3.6	3.0		R35
	P	H		5905-583-7092		RESISTOR, VARIABLE: 2000 ohms, 4 w; Chicago Telephone Supply Co. No. LA-2667			1		3.6	3.0		R36
	P	H				RETAINER, CAPACITOR: Lambda Electronics CWD-15-003 (M5R30-A087)			1		1.5	2.0		
	P	H				RETAINER, CAPACITOR: Lambda Electronics No. CWD-36-001 (M5C30-A088)			2		1.5	2.0		
	P	H		5960-832-4430		RETAINER, ELECTRON TUBE: Lambda Electronics No. HPJ-00-011			7		1.5	2.0		
	P	H				SHIELD, ELECTRON TUBE: brass, nickel plated: Cinch No. 150-12-30-052(202). (M5RC30-A111)			2		2.2	2.0		
	P	O				SHIELD, ELECTRON TUBE: brass, nickel plated Cinch No. 151-12-20-123(202) (5RC30-A112)			3		2.7	3.0		
	P	H		5960-296-4051		SHIELD, ELECTRON TUBE: Sig dwg SM-B-29028-2			1		1.5	2.0		
	P	H		5935-820-9392		SOCKET, ELECTRON TUBE: Octal; phenolic; Cinch Mfg Co. 101-21-10-130			7		6.5	5.0		XV1 thru XV7
	P	H		5935-305-3554		SOCKET, ELECTRON TUBE: Lambda Electronics No. HPA-09-001			3		3.9	6.0		XV8, XV11, XV12
	P	H		5935-222-9938		SOCKET, ELECTRON TUBE: type B, octal; American Phenolic No. 146-101			1		2.2	2.0		XV9
	P	H		5935-838-9442		SOCKET, ELECTRON TUBE: Lambda Electronics No. HPA-07-002			3		3.9	6.0		XV10, XV13, XV14
	P	H		5930-347-4109		SWITCH, TOGGLE: DPDT; 250 v ac/dc, 3 amp; Cutler-Hammer No. 8908K469			1		2.2	3.0		S1

SOURCE CODE				FEDERAL STOCK NO.	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT FIELD	GENERAL FIELD	DEPOT	ILLUS-TRATION	
A	B	C	D										FIG. NO.	ITEM NO.
						PP-3941/G (continued)								
	P	H		5930-112-5105		SWITCH, TOGGLE: SPDT, 3 pos; 250 V ac/dc max, 1 amp Cutler-Hammer No. 8282K14			1		2.2	3.0		S2
	P	H				TERMINAL BOARD: Lambda Electronics No. HAJ-10-301 (M5RC30-A122A)			3		3.9	6.0		TB1 thru TB3
	P	H		5950-802-7526		TRANSFORMER, POWER: primary 104-127 VAC, 55-400 cps, 1 phase; primary tap 6.4 VAC secondary (a)+(b) 6.6 VAC at 5.0 amp; (c) 6.3 VAC at 0.9 amp; (d) 6.3 VAC at 6.0 amp; (e) 6.3 VAC at 2.1 amp; (f) 5.0 VAC at 2.0 amp; Lambda Electronics No. AAN-65-002			1		2.2	3.0		T1
	P	H		5950-853-1054		TRANSFORMER, POWER, STEP-DOWN: primary 115 v, 50-400 cps, 1 phase; sec 80.7 v, 250 ma Ordnance No. 10051992			1		2.2	3.0		T4
	P	H		5950-853-1053		TRANSFORMER, POWER, STEP-UP: primary 115 v, 50-400 cps, 1 phase; center tapped; secondary 1140 v, 230 ma; Ordnance No. 10051995			1		2.2	3.0		T2
	P	H		5950-853-1051		TRANSFORMER, POWER, STEP-UP: primary 115 v, 50-400 cps, 1 phase; sec 800 v, 20 ma, center tap; Ordnance No. 10051993			1		2.2	3.0		T3
	P	H		5950-853-1056		TRANSFORMER, VARIABLE, POWER: 120 v, 50-60 cycle, 1 phase; output 0-120 v, 1.75 amp max; Ordnance No. 10051886			1		2.2	3.0		T5
	P	H		6625-444-9327		VOLTMETER: 1.0 ma dc, ±2% full scale deflection; scale design per Lambda dwg No. ELR-50-046; external multiplier; Lambda Electronics No. EBR-50-047			1		2.2	3.0		M1

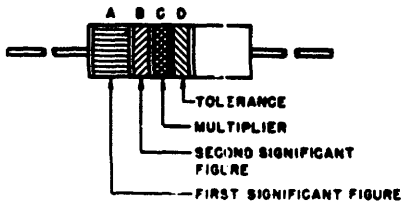
COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS

COMPOSITION-TYPE RESISTORS



BAND A— Equal Width Band Signifies Composition-Type

WIREWOUND-TYPE RESISTORS

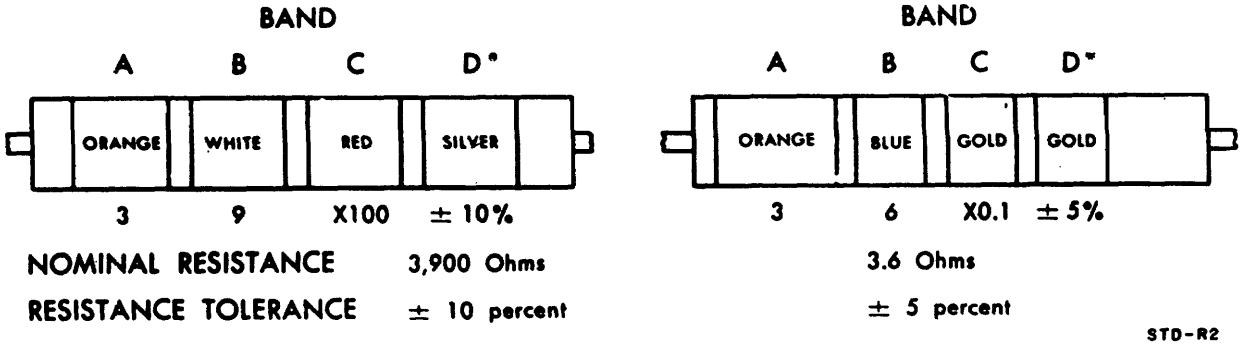


BAND A— Double Width Signifies Wire-wound Resistor

COLOR CODE TABLE

BAND A		BAND B		BAND C		BAND D*	
COLOR	FIRST SIGNIFICANT FIGURE	COLOR	SECOND SIGNIFICANT FIGURE	COLOR	MULTIPLIER	COLOR	RESISTANCE TOLERANCE (PERCENT)
BLACK	0	BLACK	0	BLACK	1		
BROWN	1	BROWN	1	BROWN	10		
RED	2	RED	2	RED	100		
ORANGE	3	ORANGE	3	ORANGE	1,000		
YELLOW	4	YELLOW	4	YELLOW	10,000	SILVER	± 10
GREEN	5	GREEN	5	GREEN	100,000	GOLD	± 5
BLUE	6	BLUE	6	BLUE	1,000,000		
PURPLE (VIOLET)	7	PURPLE (VIOLET)	7				
GRAY	8	GRAY	8	SILVER	0.01		
WHITE	9	WHITE	9	GOLD	0.1		

EXAMPLES OF COLOR CODING



*If Band D is omitted, the resistor tolerance is ±20%, and the resistor is not Mil-Std.

Figure 8-1. Color-code marking for MIL-STD resistors.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General United States Army,
Chief of Staff.

Official:
J. C. LAMRERT,
Major General, United States Army,
The Adjutant General.

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.365	metric tons	short tons	1.102
pound-inches	mewton-meters	.11375			

Temperature (Exact)

^{o}F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	^{o}C

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be extremely cautious when interconnecting or servicing the power supply. Voltages in excess of 500 *volts* exist in this equipment and may cause death on contact.