



Rockwell  
International

instructions

# Power Supply (635-9649-001)

Collins Telecommunications Products Division

523-0767948-202211

2nd Edition, 1 June 1978

2nd Revision, 1 January 1981

Printed in USA

Power Supply  
(635-9649-001)

## 1. DESCRIPTION

Power Supply 635-9649-001, shown in figure 1, is a module that contains a power transformer, a 2-section input power strapping switch, six power regulators, and a planar circuit card with full-wave rectifiers and an output fault circuit.

The power supply module consists of four primary functional areas: input power switching, power transformer and rectifiers, regulators, and the output fault summary circuit. Refer to figure 2 for a block diagram of the power supply module.

## 2. PRINCIPLES OF OPERATION

### 2.1 General

This power supply is fuse protected (2 A for 100/115 V ac; 1 A for 215/230 V ac) and supplies a loss-of-output fault indication. The input power is switchable between 100-, 115-, 215-, and 230-V ac single phase. Output voltages supplied are +24, +18, +15, +8, +5, and -15 V dc.

### 2.2 Input Power Switching (Refer to figure 3.)

The input power circuit consists of a fuse protector, power on-off switch S2, power control switch S1, and power transformer T1.

Note that power control switch S1 is a dual switch having two 2-position switches. S1A (low pin numbers) selects between series connection (215, 230 V ac) and parallel connection (110, 115 V ac) of transformer T1. S1B (high pin numbers) selects between less-turns ratio (115, 230 V ac) and more-turns ratio (110, 215 V ac) of transformer T1.



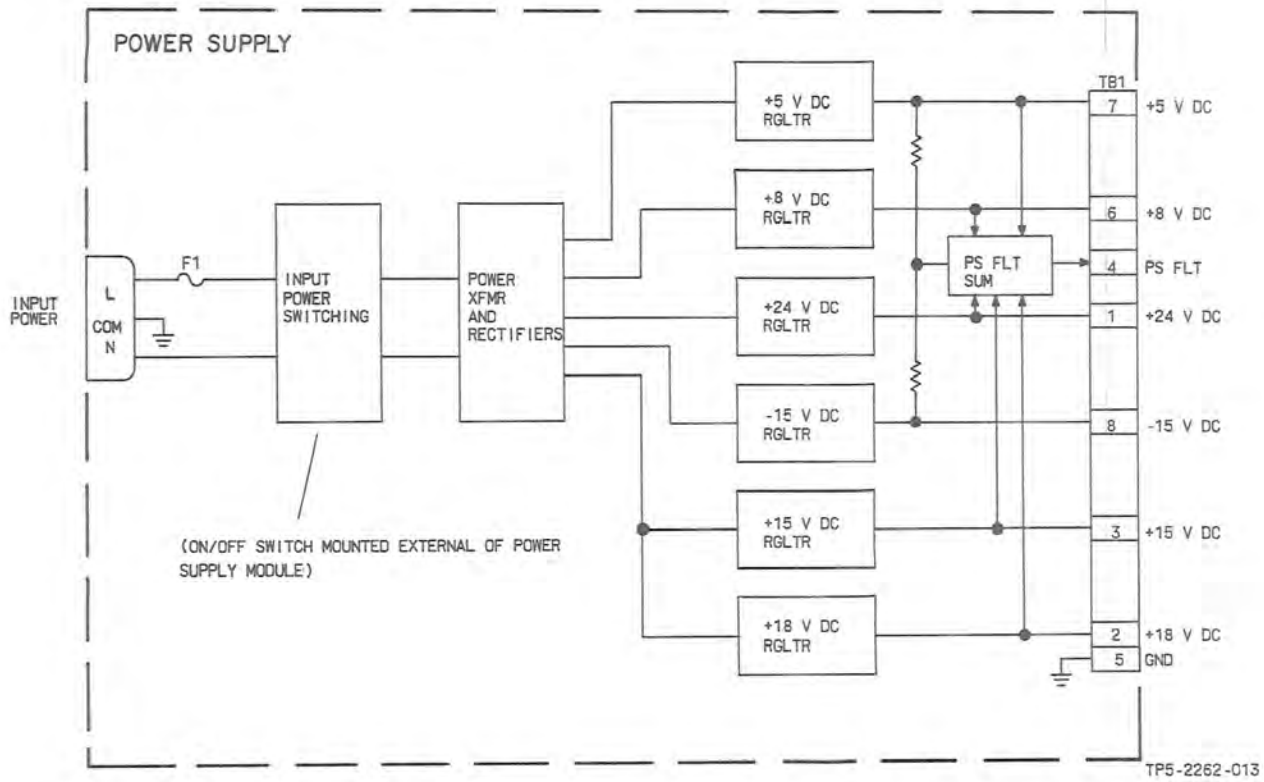
Power Supply  
Figure 1

### 2.3 Power Transformer, Rectifiers, and Regulators (Refer to figure 4.)

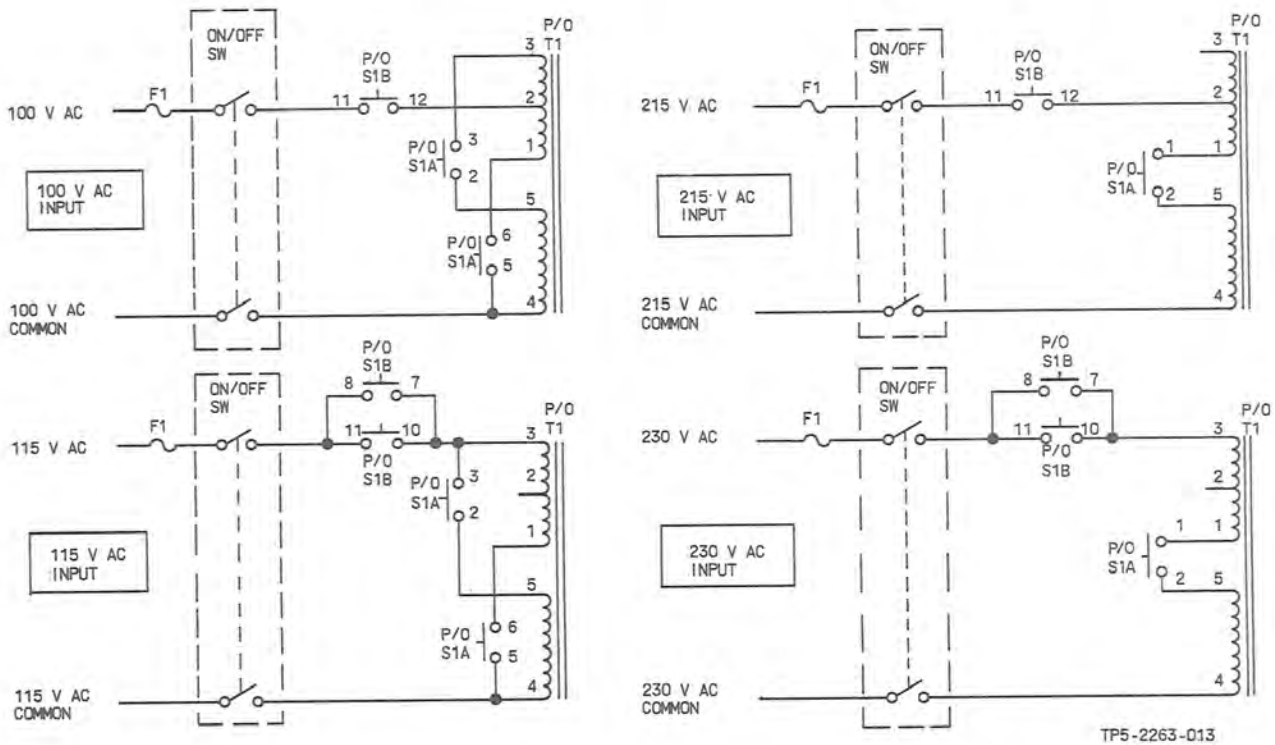
Power supply outputs are generated by the dual secondary of T1, full-wave rectified by five rectifier circuits, and regulated by six micromodule regulators. Each regulator has its own input rectifier circuit, except the +18- and +15-V dc regulators share a rectifier.

### 2.4 Fault Summary (Refer to figure 5.)

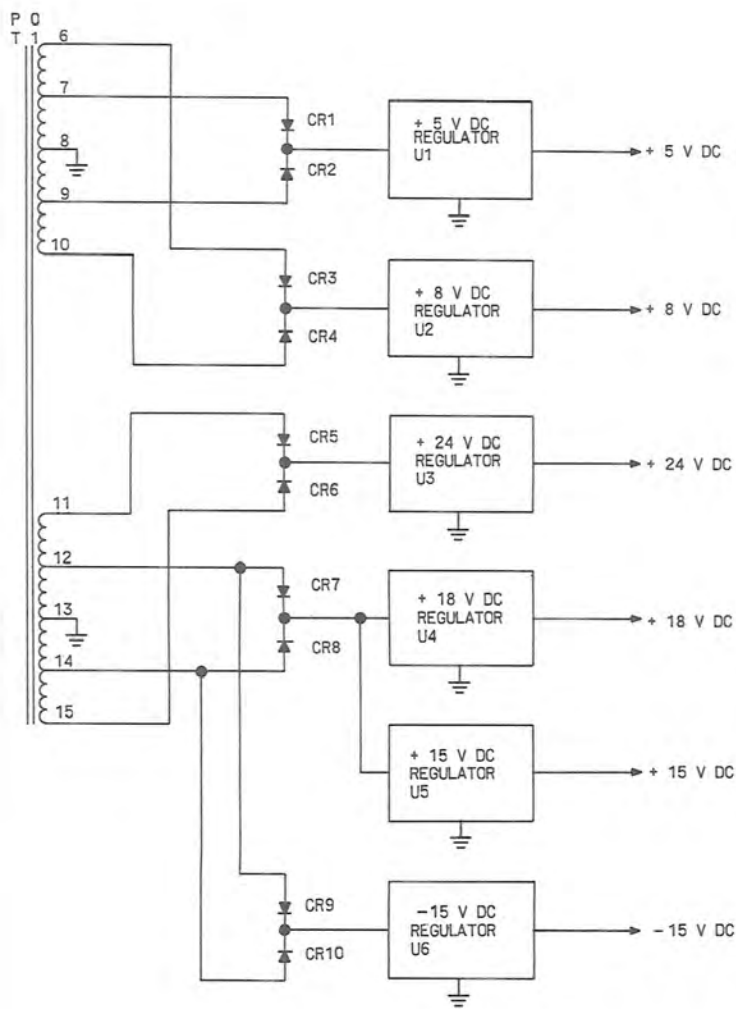
A fault summary circuit provides constant monitoring of power supply outputs and generates a fault output if any positive output drops below +5 V dc or if the negative output goes any more positive than -5 V dc.



Power Supply, Block Diagram  
Figure 2

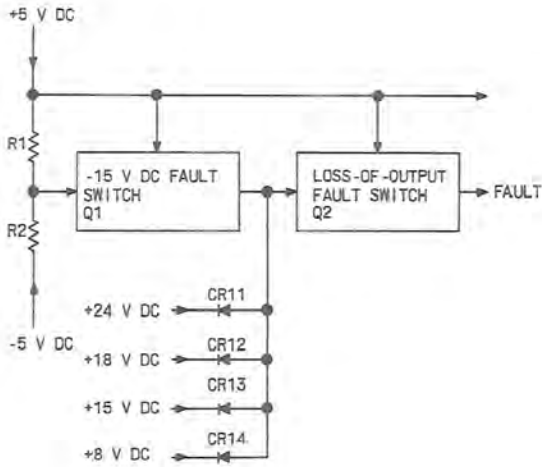


Input Power Transformer Switching  
Figure 3



TP5-2260-013

Power Transformer, Rectifiers, and Regulators  
Figure 4



TF5-2261-013

Fault Summary  
Figure 5

With all outputs normal, Q1 is cut off and +5 V dc is supplied through R4 and R6 to switch on Q2. This provides a logic 0 (ground) fault summary output, indicating all supplies are operating.

If the +5-V dc output decreases to a level low enough to cut off Q2, the logic 0 (ground) fault signal is removed and a logic 1 (open circuit) fault signal is supplied.

With +5 V dc at normal, if the -15-V dc output goes positive to a level at approximately -5 V dc or less, Q1 switches on and supplies a ground signal through R6 to cut off Q2. The logic 0 (ground) fault signal is removed and a logic 1 (+5-V dc) fault signal is supplied.

With +5 V dc at normal, if the +24-, +18-, +15-, or +8-V dc output falls below approximately +5 V dc, Q2 is cut off, the logic 0 (ground) fault signal is removed, and a logic 1 (+5-V dc) fault signal is supplied.

2.5 Voltage Regulators (Refer to figure 6 and to table 1.)

The LM340/320 series of three terminal regulators is available with several fixed output voltages, making them useful in a wide range of applications. One of these is local on-card regulation, eliminating the distribution problems associated with single-point regulation. The voltages available allow these regulators to be used in logic systems, instrumentation, and other solid-state electronic equipment. Although designed as fixed-voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

Table 1. Electrical Characteristics.

CHARACTERISTIC	LM340T-5/ 7805KC	LM340T-8/ 7808KC	LM340T-15/ 7815KC	LM320K-15	LM340T-18/ 7818KC	LM340T-24/ 7824KC
Max input voltage	35 V (except LM340T-24, 40 V)					
Operating temperature	0 to -70 °C (-32 to -158 °F)					
Storage temperature	-65 to +150 °C (-85 to +302 °F)					
Line regulation						
100 mA out	50 mV max	80 mV max	150 mV max	150 mV max	180 mV max	240 mV max
500 mA out	100 mV max	160 mV max	300 mV max	300 mV max	360 mV max	480 mV max
Output voltage	4.75 V min 5.25 V max	7.6 V min 8.4 V max	14.25 V min 15.75 V max	14.25 V min 15.75 V max	17.1 V min 18.9 V max	22.8 V min 25.2 V max
Ripple rejection	60 dB typical	55 dB typical	50 dB typical	50 dB typical	48 dB typical	44 dB typical

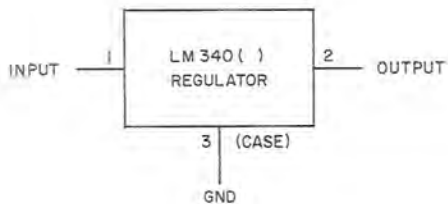
### 3. TESTING/TROUBLESHOOTING PROCEDURES

#### 3.1 Test Equipment and Power Requirements

Test equipment and power sources required to test, troubleshoot, and repair the power supply module are listed in the maintenance section of this instruction book.

#### 3.2 Testing

The test procedures in table 2 check total performance of the power supply module. These test procedures permit isolation of a fault to a specific component or circuit when the results are used with the schematic to circuit trace the fault.



TP5-2377-012

Voltage Regulator  
Figure 6

Table 2. Power Supply, Testing and Troubleshooting Procedures.

TEST	PROCEDURE	NORMAL INDICATION	IF INDICATION IS ABNORMAL																					
1. Setup	<p>a. Remove bottom cover of unit containing power supply to be tested.</p> <p style="text-align: center;"><b>Note</b></p> <p style="text-align: center;">For a quick check these loads need not be installed. Leave power supply connected in unit and perform all test procedures.</p> <p>b. Disconnect all output leads from A1TB1.</p> <p>c. Connect the following loads between A1TB1 pins indicated and A1TB1-5 (black wire).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>A1TB1-</th> <th>(WIRE COLOR)</th> <th>LOAD</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>(violet)</td> <td>5 Ω</td> </tr> <tr> <td>6</td> <td>(blue)</td> <td>10 Ω</td> </tr> <tr> <td>1</td> <td>(brown)</td> <td>40 Ω</td> </tr> <tr> <td>2</td> <td>(red)</td> <td>22 Ω</td> </tr> <tr> <td>3</td> <td>(orange)</td> <td>15 Ω</td> </tr> <tr> <td>8</td> <td>(gray)</td> <td>22 Ω</td> </tr> </tbody> </table>	A1TB1-	(WIRE COLOR)	LOAD	7	(violet)	5 Ω	6	(blue)	10 Ω	1	(brown)	40 Ω	2	(red)	22 Ω	3	(orange)	15 Ω	8	(gray)	22 Ω		
A1TB1-	(WIRE COLOR)	LOAD																						
7	(violet)	5 Ω																						
6	(blue)	10 Ω																						
1	(brown)	40 Ω																						
2	(red)	22 Ω																						
3	(orange)	15 Ω																						
8	(gray)	22 Ω																						
2. LINE SELECTOR switch  (Cont)	<p>a. Connect power supply to 50-V ac source and set power on.</p> <p>b. Measure dc voltage at A1E5 with LINE SELECTOR switch set at each of the following positions:</p> <p>100 V</p>	11.8 to 16.0 V dc	Check CR5, CR6, S1A, S1B, and T1.																					

Table 2. Power Supply, Testing and Troubleshooting Procedures (Cont).

TEST	PROCEDURE	NORMAL INDICATION	IF INDICATION IS ABNORMAL
2. (Cont)	115 V 215 V 230 V c. Set power off and remove 50-V ac source.	13.0 to 14.0 V dc 6.9 to 7.5 V dc 6.5 to 7.0 V dc	
3. Output voltage	a. Connect power supply to 103-V ac source. b. Set LINE SELECTOR switch to 115 V and set power on. c. Measure dc voltage at each of the following outputs: <u>A1TB1-</u> 7 (+5 V) 6 (+8 V) 1 (+24 V) 2 (+18 V) 3 (+15 V) 8 (-15 V) d. Set power off. Disconnect 103-V ac source and connect power supply to 127-V ac source. e. Set power on and measure dc voltage at each of the following outputs: <u>A1TB1-</u> 7 (+5 V) 6 (+8 V) 1 (+24 V) 2 (+18 V) 3 (+15 V) 8 (-15 V) f. Set power off and disconnect 127-V ac source.	+4.8 to +5.2 V dc. +7.6 to +8.4 V dc. +23 to +25 V dc. +15.5 to +18.7 V dc. +14.4 to +15.6 V dc. -14.6 to -15.4 V dc. +4.8 to +5.2 V dc. +7.6 to +8.4 V dc. +23 to +25 V dc. +17.3 to +18.7 V dc. +14.4 to +15.6 V dc. -14.6 to -15.6 V dc.	Check the following components and circuits associated with each: U1, CR1, CR2, and T1. U2, CR3, CR4, and T1. U3, CR5, CR6, and T1. U4, CR7, CR8, and T1. U5, CR7, CR8, and T1. U6, CR9, CR10, and T1. U1, CR1, CR2, and T1. U2, CR3, CR4, and T1. U3, CR5, CR6, and T1. U4, CR7, CR8, and T1. U5, CR7, CR8, and T1. U6, CR9, CR10, and T1.

Table 2. Power Supply, Testing and Troubleshooting Procedures (Cont).

TEST	PROCEDURE	NORMAL INDICATION	IF INDICATION IS ABNORMAL
4. Output ripple	<p>a. Connect power supply to 103-V ac source.</p> <p>b. Set LINE SELECTOR switch to 115 V and set power on.</p> <p>c. Measure ac ripple voltage at each of the following outputs:</p> <p><u>A1TB1-</u></p> <p>7 (-5 V)</p> <p>6 (+8 V)</p> <p>1 (-24 V)</p> <p>2 (+18 V)</p> <p>3 (+15 V)</p> <p>8 (-15 V)</p> <p>d. Set power off. Disconnect 103-V ac source and connect power supply to 127-V ac source.</p> <p>e. Set power on and measure ac ripple voltage at each of the following outputs:</p> <p><u>A1TB1-</u></p> <p>7 (+5 V)</p> <p>6 (+8 V)</p> <p>1 (+24 V)</p> <p>2 (+18 V)</p> <p>3 (+15 V)</p> <p>8 (-15 V)</p> <p>f. Set power off and disconnect 127-V ac source.</p>	<p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 350 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p> <p>NMT 5 mV.</p>	<p>Check the following components and circuits associated with each.</p> <p>C14, CR1, CR2, and T1.</p> <p>C15, CR3, CR4, and T1.</p> <p>C16, CR5, CR6, and T1.</p> <p>C17, CR7, CR8, and T1.</p> <p>C18, CR7, CR8, and T1.</p> <p>C18, CR9, CR10, and T1.</p> <p>C14, CR1, CR2, and T1.</p> <p>C15, CR3, CR4, and T1.</p> <p>C16, CR5, CR6, and T1.</p> <p>C17, CR7, CR8, and T1.</p> <p>C18, CR7, CR8, and T1.</p> <p>C19, CR9, CR10, and T1.</p>

Table 2. Power Supply, Testing and Troubleshooting Procedures (Cont).

TEST	PROCEDURE	NORMAL INDICATION	IF INDICATION IS ABNORMAL
5. Fault	<p>a. Connect power supply to 103-V ac source.</p> <p>b. Set LINE SELECTOR switch to 115 V and set power on.</p> <p>c. Measure dc output voltage at A1TB1-4 (fault) as each of the following dc output voltages is shorted to A1TB1-5 (ground).</p> <p style="text-align: center;"><b>Note</b></p> <p style="text-align: center;">Only one short applied at a time.</p> <p><u>A1TB1-</u></p> <p>7 (+5 V)</p> <p>6 (+8 V)</p> <p>1 (+24 V)</p> <p>2 (+18 V)</p> <p>3 (+15 V)</p> <p>8 (-15 V)</p> <p>d. Measure dc output voltage at A1TB1-4 (fault) with no shorted outputs applied.</p> <p>e. Check that all output voltages are restored when shorts are removed.</p> <p>f. Set power off and disconnect 103-V ac source.</p>	<p style="text-align: center;"><b>Note</b></p> <p>There is no +5-V dc output fault indication in the power supply. +5-V dc output fault indicated by associated control card circuits and front-panel indicator.</p> <p>NMT 0.10 V dc.</p> <p>+4.5 to +5.5 V dc.</p> <p>+4.5 to +5.5 V dc.</p> <p>+4.5 to +5.5 V dc.</p> <p>+4.5 to +5.5 V dc.</p> <p>+4.5 to +5.5 V dc.</p> <p>+4.5 to +5.5 V dc.</p> <p>NMT 0.2 V dc.</p>	<p>Check the following components and circuits associated with each.</p> <p>R5, Q2, and Q1.</p> <p>CR14.</p> <p>CR11.</p> <p>CR12.</p> <p>CR13.</p> <p>R1 and Q1.</p> <p>R2, Q1, R4, R6, R3, and Q2.</p>
6. Transformer regulation	<p>a. Remove all output loads.</p> <p>b. Connect power supply to 125-V ac source.</p> <p>c. Set LINE SELECTOR switch to 115 V and set power on.</p> <p>d. Measure dc voltage at CR5 and CR6 cathode.</p> <p>e. Set power off and disconnect 127-V ac source.</p>	<p>NMT 45.0 V dc.</p>	<p>Check T1 and associated circuits.</p>



#### 4. REPAIR

Repair of the power supply module is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

#### 5. PARTS LIST/DIAGRAMS

##### 5.1 Introduction

##### Caution

This equipment contains electrostatic discharge sensitive (ESDS) devices. Special handling methods and materials must be used to prevent equipment damage. Refer to the maintenance section for the equipment before assembly/disassembly or repair is performed. ESDS items are identified in the description column of the parts list by (ESDS).

All supporting parts list illustrations that contain ESDS items are shown with the following symbol.



This paragraph assists in identification, requisition, and issuance of parts and also in maintenance of the equipment. A parts location illustration, schematic diagram, parts list tabulation, and modification history are included in the schematic diagram (figure 7). The parts location illustration is a design engineering drawing that shows exact component placement on the circuit cards.

Use the reference designator indicated on the schematic and parts location diagram to locate parts in the parts list tabulation. The Collins part number and description are listed for each reference designator. In addition, the manufacturer's code and part number are listed when applicable.

##### 5.2 Parts List

REF DES Column — Reference designators of each part/subassembly are listed in alphanumeric sequence. These are the reference designators shown on the parts location drawing and schematic diagram.

DESCRIPTION Column — Lists the noun name, modifier, descriptive information, and modifications.

Modifications are identified by an alphanumeric identifier assigned to each design change. These identifiers are referenced in the DESCRIPTION column

of the parts list in parentheses, and on the schematic diagram inside an arrow that points to the change. Each change relates to the revision identifier (REV) stamped on the circuit card/subassembly and is listed in the EFFECTIVITY column of the modification history.

COLLINS PART NUMBER Column — Lists the Collins part number for each item in the parts list.

USABLE ON CODE Column — Part variations within a group of equipment are indicated by a letter code (A, B, C, etc). Absence of a code indicates part applies to all models.

MFR CODE Column — Lists the manufacturer's code from which selected parts can be procured.

MFR PART NUMBER Column — Lists the manufacturer's part number for the selected parts.

Listed below are the manufacturer's names and addresses for the manufacturer's codes used in this parts list.

MFR CODE	MANUFACTURER'S NAME AND ADDRESS
00779	AMP INC P O BOX 3608 HARRISBURG PA 17105
03508	GENERAL ELECTRIC CO SEMI-CONDUCTOR PRODUCTS DEPT W GENESEE ST AUBURN NY 13021
07263	FAIRCHILD CAMERA AND INSTRUMENT CORP SEMICONDUCTOR DIV 464 ELLIS ST MOUNTAIN VIEW CA 94042
13103	THERMALLOY CO INC 2021 W VALLEY VIEW LANE P O BOX 34829 DALLAS TX 75234
13499	ROCKWELL INTERNATIONAL CORP COLLINS TELECOMMUNICATIONS PRODUCTS DIV PO BOX 728 855 35TH STREET NE CEDAR RAPIDS IA 52406
14099	SEMTECH CORP 652 MITCHELL ROAD NEWBURY PARK CA 91320
27014	NATIONAL SEMICONDUCTOR CORP 2900 SEMICONDUCTOR DR SANTA CLARA CA 95051

MFR      MANUFACTURER'S NAME  
CODE      AND ADDRESS

56289      SPRAGUE ELECTRIC CO  
            NORTH ADAMS MA 01247

71400      BUSSMANN MFG DIV MCGRAW-EDISON CO  
            502 EARTH CITY PLAZA  
            P O BOX 14460  
            ST LOUIS MO 63178

71785      TRW CINCH CONNECTORS  
            1501 MORSE AVE  
            ELK GROVE VILLAGE IL 60007

77147      PATTON-MACGUYER CO  
            DIV OF AVID CORP  
            17 VIRGINIA AVE  
            PROVIDENCE RI 02905

77250      PHEOLL MFG CO  
            DIV OF ALLIED PRODUCTS CORP  
            5700 W ROOSEVELT RD  
            CHICAGO IL 60650

79807      WROUGHT WASHER MFG INC  
            2100 S O BAY ST  
            MILWAUKEE WI 53207

80205      NATIONAL AEROSPACE STANDARDS  
            COMMITTEE AEROSPACE INDUSTRIES  
            ASSOCIATION OF AMERICA INC  
            1725 DE SALES N W  
            WASHINGTON DC 20036

81349      MILITARY SPECIFICATION

82389      SWITCHCRAFT INC SUB OF RAYTHEON CO  
            5555 N ELSTON AVE  
            CHICAGO IL 60630

91314      LEWIS SPRING AND MFG CO  
            2652 W NORTH AVE  
            CHICAGO IL 60647

91886      MALCO A MICRODOT CO  
            12 PROGRESS DR  
            MONTGOMERYVILLE PA 18936

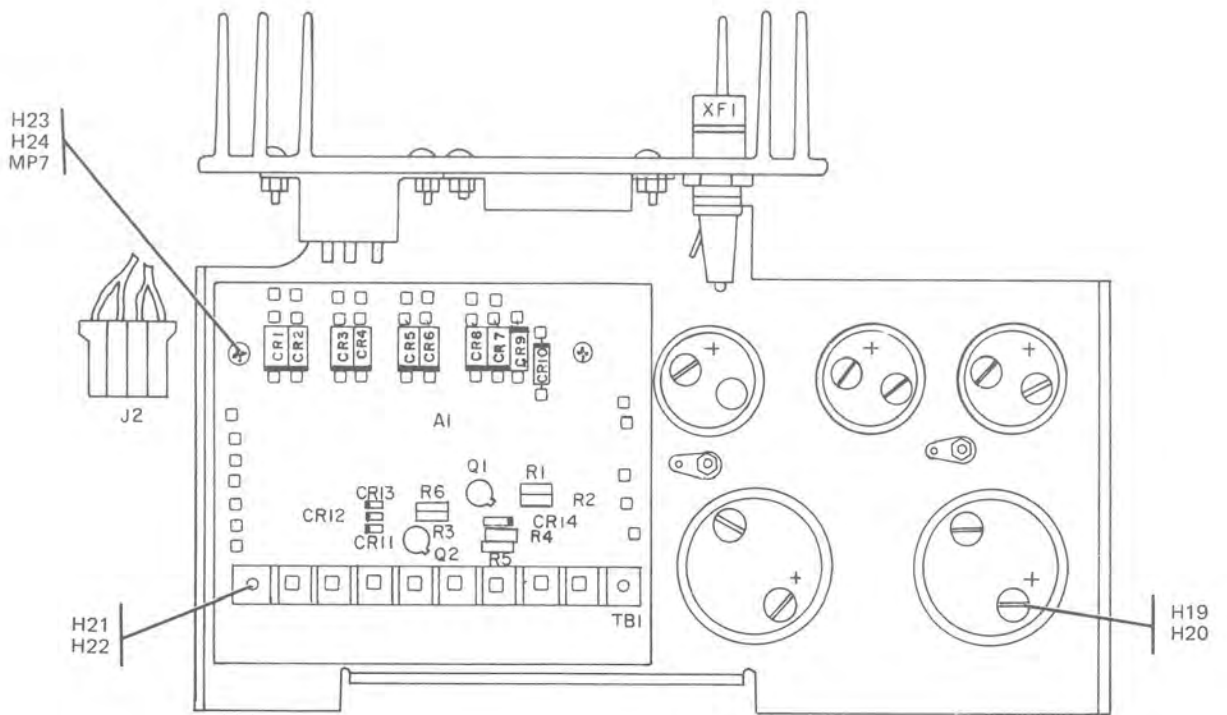
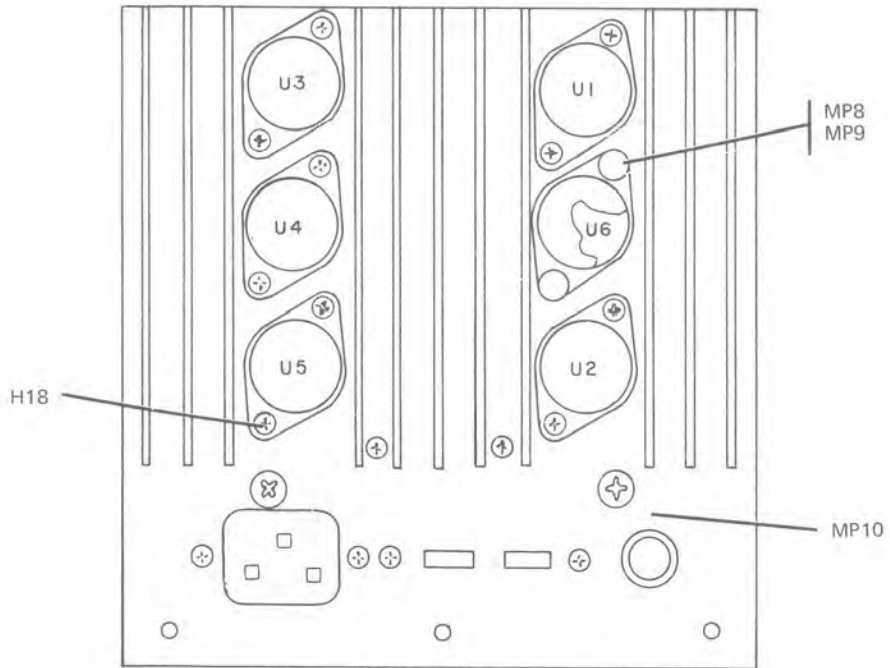
96906      MILITARY STANDARD

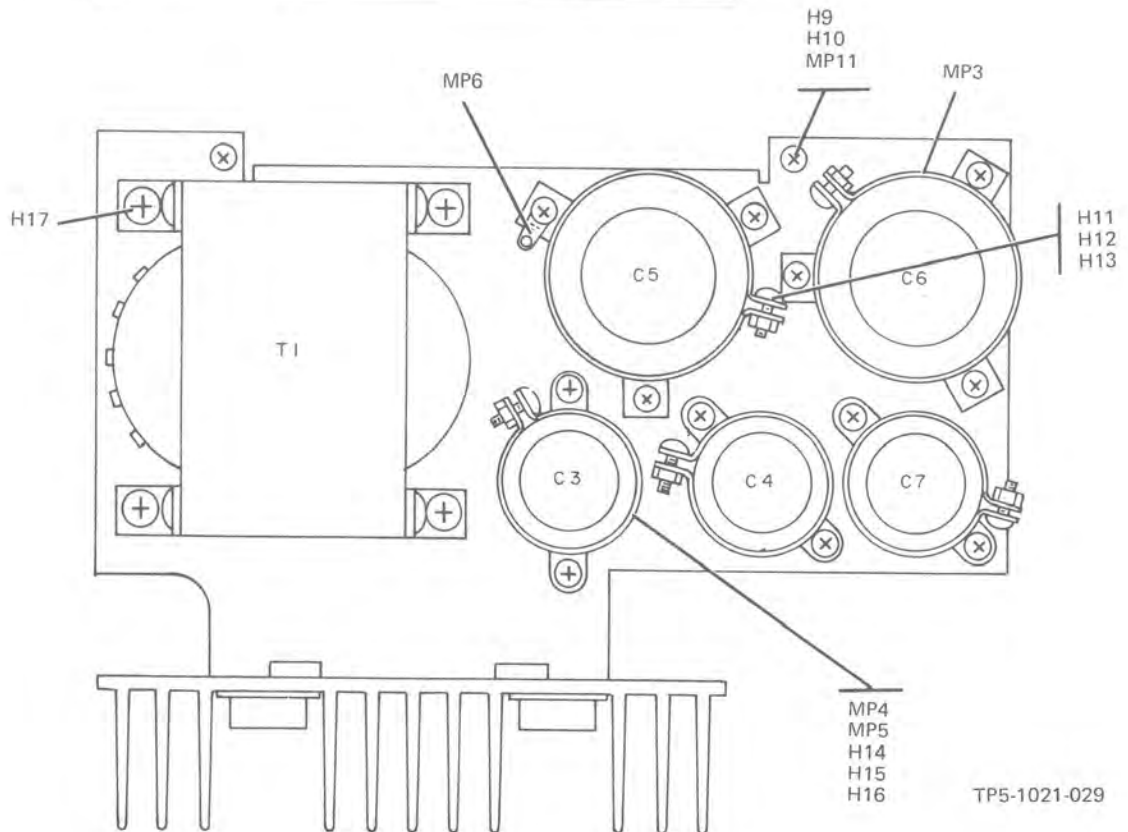
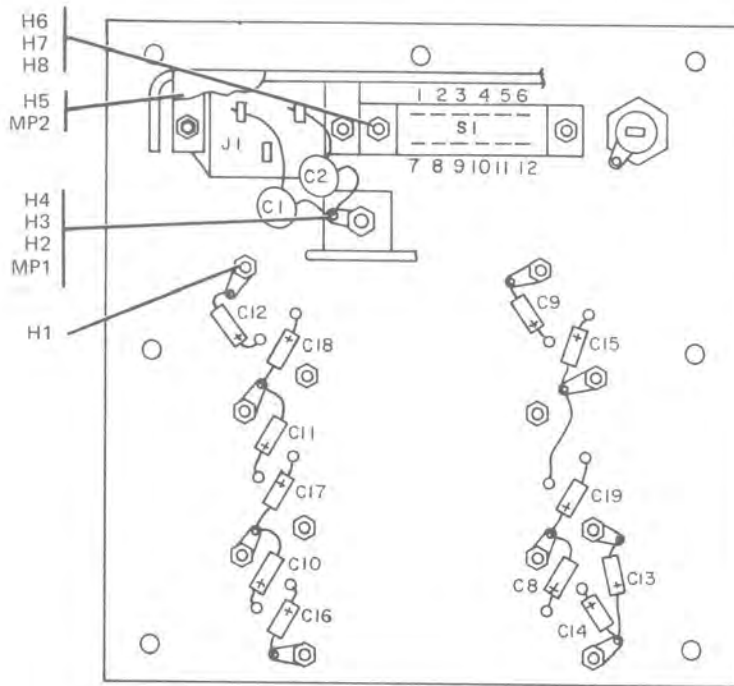
98330      POLYPHASE INSTRUMENT CO  
            E FOURTH ST  
            BRIDGEPORT PA 19405

**6.3 Equipment Covered**

Listed below are the circuit cards/subassemblies with the latest effectivity covered by these instructions.

<u>CIRCUIT CARD/ SUBASSEMBLY</u>	<u>COLLINS PART NUMBER</u>	<u>LATEST EFFECTIVITY</u>
Power Supply	635-9649-001	REV E
Power Supply Card	635-0903-001	REV B





TP5-1021-029

Power Supply, Schematic Diagram  
Figure 7 (Sheet 1 of 3)

## PARTS LIST

## MODIFICATION HISTORY

REF DES	DESCRIPTION	COLLINS PART NUMBER	USABLE ON CODE	MFR CODE	MFR PART NUMBER	REVISION IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE
A1	POWER SUPPLY	635-9649-001			635-9649-001	A1	Changed:
C1,C2	POWER SUPPLY CARD	635-0903-001			635-0903-001		C3 from 10,000 $\mu$ F to 13,000 $\mu$ F
C3	CAPACITOR,FXD CER DIEL, 10000PF, 20%, 500V	913-3013-000		56289	36C175A		U1 from type 7805KC to type UA78H05SC
	CAPACITOR,FXD ELCTLT, 13000UF, P100%M10%, 15VDC	163-1278-080		56289	36D1336015AC2B		
C4	CAPACITOR,FXD ELCTLT, 8200UF, 40%, 50V	183-1278-580		56289	36DX8226040AC2A		
C5	CAPACITOR,FXD ELCTLT, 9000UF, P100%M10%, 50V	183-1278-380		56289	36D9026050BC2A		
C6	CAPACITOR,FXD ELCTLT, 12000UF, P100%M10%, 40VDC	183-1278-190		56289	36D12360408C2B		
C7	CAPACITOR,FXD ELCTLT, 8200UF, 40%, 50V	183-1278-580		56289	36DX8226040AC2A		
C8-C19	CAPACITOR,FXD ELCTLT, 4.7UF, 20%, 50V	184-9087-560		81349	M39003-01-2369		
M1	SCREW,MACH NP BRS, 6-32 X 1/2 (QTY 2)	343-0332-000		77250	P343-0332-000		
M2	SCREW,MACH SST, 10-32 X 1/2 (QTY 6)	343-0228-000		96906	M5S1958-63		
M3	WASHER,LOCK SST, 0.194 ID X 0.334 OD (QTY 14)	310-0284-000		96906	M535338-138		
M4	NUT,PLAIN,HEX SST, 10-32 (QTY 2)	313-0019-000		96906	M535650-304		
M5	SCREW,MACH STL, 4-40 X 7/16 (QTY 2)	343-0136-000		96906	M5S1957-16		
M6	SCREW,MACH SST, 4-40 X 5/16 (QTY 2)	343-0134-000		96906	M5S1957-14		
M7	WASHER,LOCK SST, 0.115 ID X 0.209 OD (QTY 2)	310-0279-000		96906	M535338-135		
M8	NUT,PLAIN,HEX SST, 4-40 (QTY 2)	313-0132-000		77250	P313-0132-000		
M9	SCREW,MACH SST, 6-32 X 5/8 (QTY 2)	343-0173-000		96906	M5S1957-31		
M10	WASHER,FLAT BRS, 0.147 ID X 0.312 OD (QTY 18)	310-0055-000		79807	310-0055-000		
M11	SCREW,MACH SST, 6-32 X 1/2 (QTY 2)	343-0171-000		96906	M5S1957-30		
M12	WASHER,LOCK SST, 0.150 ID X 0.317 OD (QTY 5)	373-8020-000		96906	M535335-58		
M13	NUT,PLAIN,HEX CRES,6-32 (QTY 5)	313-0002-000		96906	M535649-264		
M14	SCREW,MACH NP BRS, 6-32 X 3/8 (QTY 12)	343-0330-000		77250	P343-0330-000		
M15	NUT,PLAIN,HEX NP BRS, 6-32 (QTY 26)	313-0140-000		77250	P313-0140-000		
M16	WASHER,LOCK BRZ, 0.141 ID X 0.239 OD (QTY 28)	310-0078-000		79807	310-0078-000		
M17	WASHER,FLAT PSYT CRES, 0.195 ID X 0.354 OD (QTY 4)	310-0740-520		80205	NA5620C10L		
M18	SCREW,MACH NP BRS, 6-32 X 7/16 (QTY 10)	343-0331-000		77250	P343-0331-000		
M19	SCREW,MACH NP BRS, 10-32 X 1/4 (QTY 10)	343-0343-000		77250	P343-0343-000		
M20	WASHER,LOCK BRZ, 0.194 ID X 0.323 OD (QTY 10)	310-0081-000		79807	310-0081-000		
M21	SCREW,MACH SST, 6-32 X 1/2 (QTY 5)	343-0171-000		96906	M5S1957-30		
M22	NUT,PLAIN,HEX SST, 6-32 (QTY 4)	313-0045-000		77250	P313-0045-000		
M23	SCREW,MACH SST, 10-32 X 3/8 (QTY 4)	343-0226-000		96906	M5S1958-61		
M24	WASHER,FLAT BRS, 0.203 ID X 0.437 OD (QTY 6)	310-0059-000		79807	310-0059-000		
J1	CONNECTOR,RCPT ELEC	368-0385-010		82389	EAC301		
J2	HOUSING,SOCKET	372-5864-490		00779	1-480424-0		
MP1	TERMINAL,LUG (QTY 1)	304-1466-010		91886	2115		
MP2	COVER,CONN	635-9618-001					
MP3	CLAMP, MTG (QTY 2)	139-1183-000		56289	4586-48		
MP4	RETAINER, CAP (QTY 3)	139-3284-000		56289	4586-97A		
MP5	TERMINAL,LUG (QTY 12)	304-0016-000		77147	4007-6HT		
MP6	TERMINAL,LUG (QTY 10)	304-1259-000		96906	M525036-103		
MP7	POST, HEX (QTY 4)	540-9540-003			540-9540-003		
MP8	COVER,XSTR	352-9107-010		13103	8903HM		
MP9	BUSHING,INSULATOR (QTY 2)	547-8177-014			547-8177-014		
MP10	HEATSINK, POWER SUPPLY	635-9613-001					
MP11	RING,RETAINING (QTY 2)	340-0641-000		91314	340-0641-000		
S1	SWITCH,SLIDE	266-0217-030		82389	11E1067		
T1	TRANSFORMER,PMR	662-0605-010		98330	R103870		
U1	REGULATOR,VOLT	351-1342-010		07263	UA78H05SC		
U2	INTEGRATED CIRCUIT REGULATOR	351-1120-100		07263	7808KC		
U3	INTEGRATED CIRCUIT REGULATOR	351-1120-140		07263	7824KC		
U4	INTEGRATED CIRCUIT REGULATOR	351-1120-130		07263	7818KC		
U5	INTEGRATED CIRCUIT REGULATOR	351-1120-120		07263	7815KC		
U6	INTEGRATED CIRCUIT REGULATOR	351-1124-030		27014	LM320K15		
XF1	FUSEHOLDER	265-1171-000		71400	HKPH		
	POWER SUPPLY CARD A1	635-0903-001			635-0903-001		
CR1-CR10	SEMICOND DEVICE	353-3718-040		14099	1M5550		
CR11-	SEMICOND DEVICE	353-3644-010		03508	1N4454GE		
CR14							
Q1,Q2	TRANSISTOR	352-0661-020		07263	2N2222A		
R1,R2	RESISTOR,FXD CMPSN, 5.6K, 10%, 1/4W	745-0776-000		81349	RCR07G562KS		
R3,R4	RESISTOR,FXD CMPSN, 1.5K, 10%, 1/4W	745-0755-000		81349	RCR07G152KS		
R5,R6	RESISTOR,FXD CMPSN, 5.6K, 10%, 1/4W	745-0776-000		81349	RCR07G562KS		
TB1	TERMINAL,BOARD	367-1599-070		71785	8-176-2		

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MODIFICATION HISTORY

COLLINS PART NUMBER	USABLE ON CODE	MFR CODE	MFR PART NUMBER	REVISION IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE	EFFECTIVITY
635-9649-001			635-9649-001	A1	Changed: C3 from 10,000 $\mu$ F to 13,000 $\mu$ F U1 from type 7805KC to type UA78H05SC	635-9649-001 REV E and above
635-0903-001		635-0903-001				
913-3013-000		56289 36C175A				
183-1278-080		56289 36D133G015AC2B				
183-1278-580		56289 36DX822G040AC2A				
183-1278-380		56289 36D902G050BC2A				
183-1278-190		56289 36D123G040BC2B				
183-1278-580		56289 36DX822G040AC2A				
184-9087-560		81349 M39003-01-2369				
343-0332-000		77250 P343-0332-000				
343-0228-000		96906 M551958-63				
310-0284-000		96906 MS35338-138				
313-0019-000		96906 MS35650-304				
343-0136-000		96906 M551957-16				
343-0134-000		96906 M551957-14				
310-0279-000		96906 MS35338-135				
313-0132-000		77250 P313-0132-000				
343-0173-000		96906 M551957-31				
310-0055-000		79807 310-0055-000				
343-0171-000		96906 M551957-30				
373-6020-000		96906 MS35335-58				
313-0002-000		96906 MS35649-264				
343-0330-000		77250 P343-0330-000				
313-0140-000		77250 P313-0140-000				
310-0078-000		79807 310-0078-000				
310-0740-520		80205 NAS620C10L				
343-0331-000		77250 P343-0331-000				
343-0343-000		77250 P343-0343-000				
310-0081-000		79807 310-0081-000				
343-0171-000		96906 M551957-30				
313-0045-000		77250 P313-0045-000				
343-0226-000		96906 M551958-61				
310-0059-000		79807 310-0059-000				
368-0385-010		82389 EAC301				
372-5884-490		00779 1-480424-0				
304-1466-010		91886 2115				
635-9618-001						
139-1183-000		56289 4586-48				
139-3284-000		56289 4586-97A				
304-0016-000		77147 4007-6HT				
304-1259-000		96906 MS25036-103				
540-9540-003		540-9540-003				
352-9107-010		13103 8903HW				
547-8177-014		547-8177-014				
635-9613-001						
340-0641-000		91314 340-0641-000				
266-0217-030		82389 11E1067				
662-0605-010		98330 R103870				
351-1342-010		07263 UA78H05SC				
351-1120-100		07263 7808KC				
351-1120-140		07263 7824KC				
351-1120-130		07263 7818KC				
351-1120-120		07263 7815KC				
351-1124-030		27014 LM320K15				
265-1171-000		71400 HKPH				
635-0903-001		635-0903-001				
353-3718-040		14099 1N5550				
353-3644-010		03506 1N4454GE				
352-0661-020		07263 2N2222A				
745-0776-000		81349 RCR07G562KS				
745-0755-000		81349 RCR07G152KS				
745-0776-000		81349 RCR07G562KS				
367-1599-070		71785 8-176-2				