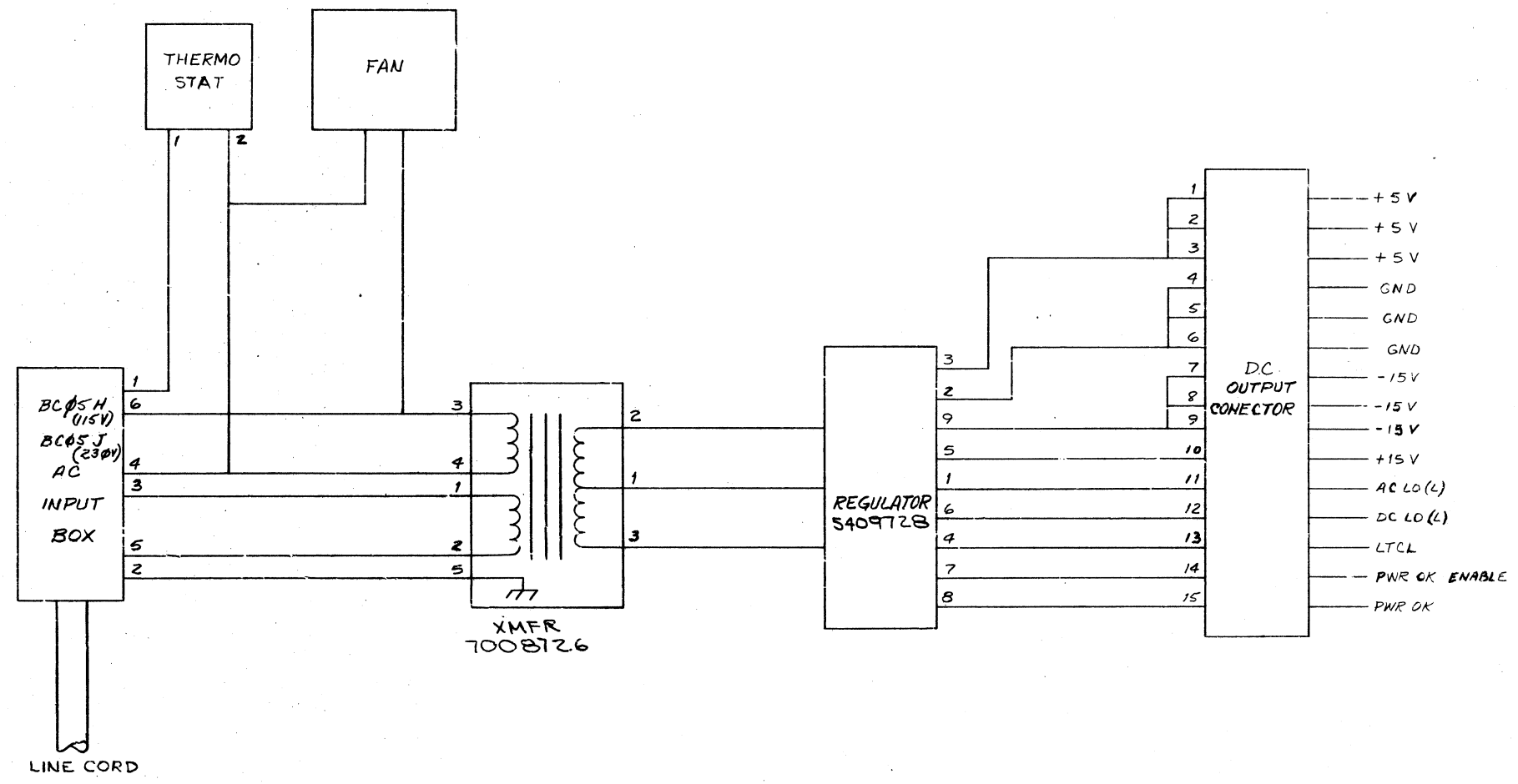


TITLE	POWER SUPPLY (H740-D)	SIZE CODE	B DD	NUMBER	H740-0	REV	H
SHEET 2 OF 3							

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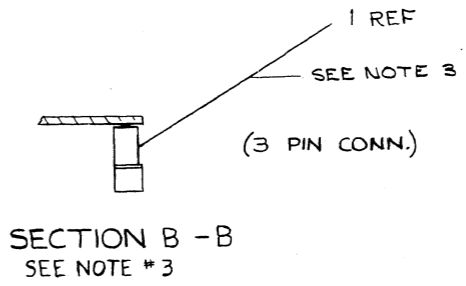
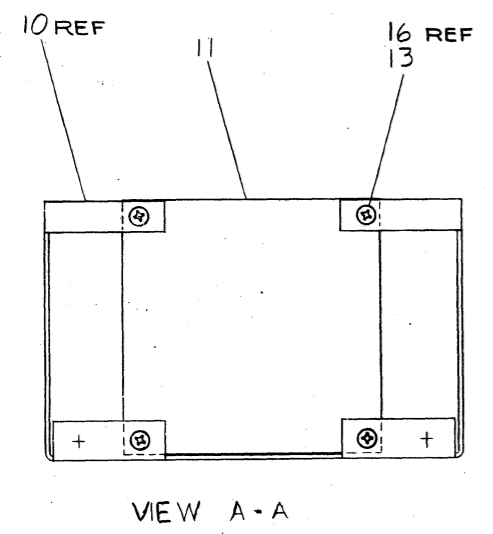
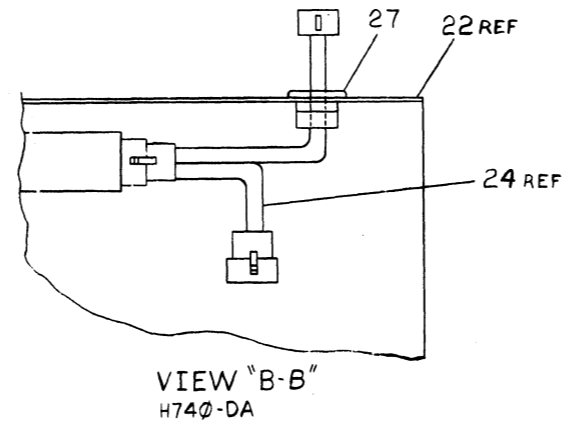


REVISIONS	NO.	REV.
CHK	CHANGE NO.	REV.
	H740D-00001	A
	BURTON	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
H740-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHK	DATE	TITLE	
ANGLES	ENG	DATE	H740-D	
.XXX = .005	PROJ. ENG.	DATE	CIRCUIT	
.XX = .02	PROD.	DATE		
.X = .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.		SIZE CODE	NUMBER
	D-UA-H740-D-0		D BD	H740-D-1
FINISH	SCALE			REV
	SHEET 1 OF 1			A

REV. A
H740-D-1

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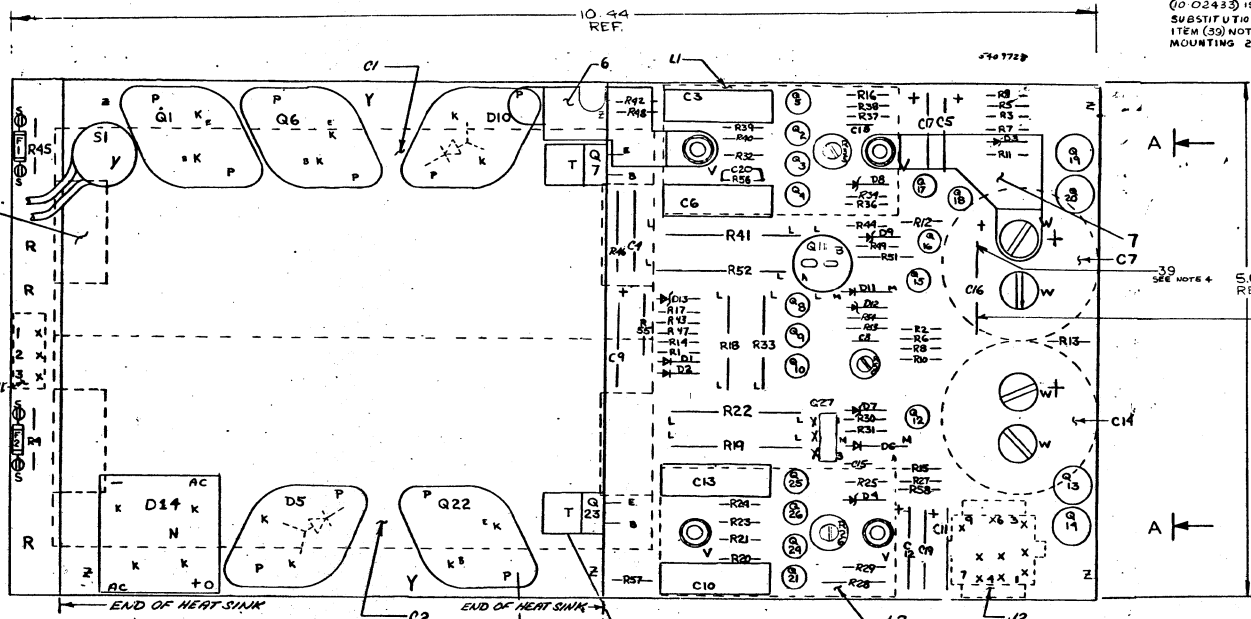
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN <i>M.C. Chy</i>	DATE 11/22/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS ANGLES		CHKD <i>W. H. ...</i>	DATE 2-2-72	
.XXX = .005	±0° 30'	ENG. <i>David D. ...</i>	DATE 1-4-72	TITLE POWER SUPPLY (H740-D)
.XX = .02		PROJ. ENG. <i>R. ...</i>	DATE 1-7-72	
.X = .1		PROD. <i>K. ...</i>	DATE 1/2/72	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		NEXT HIGHER ASSY.		
MATERIAL		SCALE	SIZE CODE	NUMBER
FINISH		SHEET	DUA	H740-D-0
		2 OF 2	DIST.	H

REVISIONS
 CHANGE NO. REV.
 CHK

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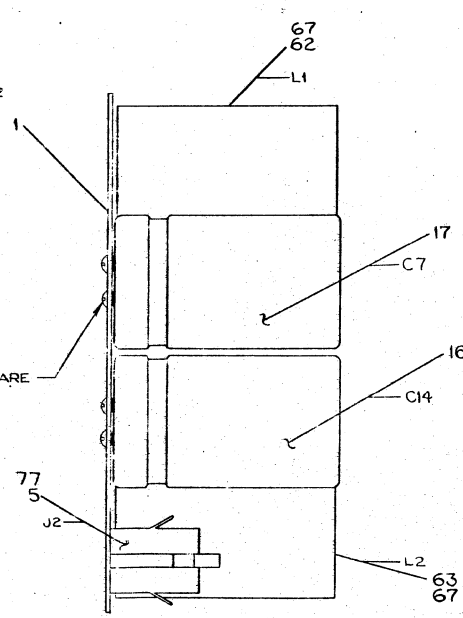
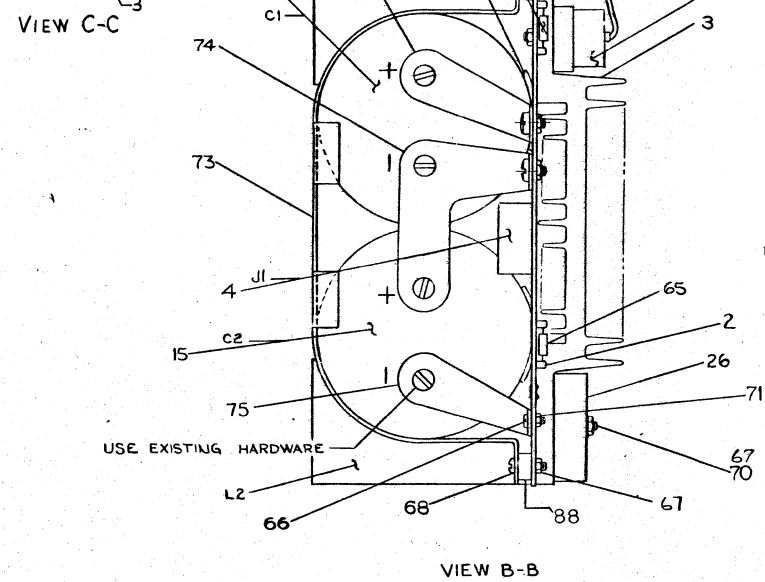
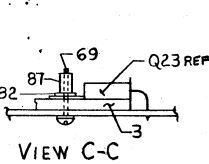
NOTE:
4. 22UF 35V CAPACITOR (002433) IS ALLOWABLE SUBSTITUTION FOR C16. ITEM (30) NOT REQUIRED WHEN MOUNTING 22 UF CAP.

NOTES:
1. APPLY ITEM #8 (THERMAL COMPOUND) BETWEEN TRANSISTOR AND HEAT SINK FOR Q1, Q6, Q7, Q22, Q23. D5, D10, D14 & S1.
2. TRIM LEADS ON ITEM #76 (THERMOSTAT) TO (5) INCHES AND ATTACH ITEM #84 (PINS) AND ITEM #83 (HOUSING) AS SHOWN.
3. APPLY FLAT WASHER ITEM #72 BETWEEN SCR. HD. AND ETCHED BOARD WHEN MOUNTING COMPONENTS Q1, Q6, Q22, D5 + D10.



ADHERE FOAM TAPE TO EACH END OF CAPACITOR. ITEM #15.

END OF HEAT SINK



DO NOT USE ITEM #22 AT THIS SCREW MOUNTING POSITION

USE EXISTING HARDWARE

USE EXISTING HARDWARE

VIEW B-B

VIEW A-A

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	D7	DIODE 1N5248B 15V ZENER	1110766	28
2	D5, D10	DIODE 20AMP P45 RECTIFIER	1110715	27
1	D14	DIODE BRIDGE RECTIFIER	1110714	26
1	D3	DIODE 5.1V ZENER	1110235	25
2	D6, D11	DIODE 1N5624	1110420	24
2	D1, D2	DIODE 1N4004	11105796	23
2	D4, D8	DIODE 1N753A 6.2V ZENER	1110241	22
1	D9	DIODE AZ5 2.4V ZENER	1110138	21
1	D13	DIODE 1N748A 3.9V ZENER	1110122	20
1	C18	CAP 1000PF, 100V, DM	1000042	19
1	C9	CAP 204UF 60V 5% TANT	1010716	18
1	C7	CAP 6000UF 10V -10+75% STANT	1010704	17
1	C14	CAP 3000UF 25V -10+75% STANT	1010703	16
2	C1, C2	CAP 24000UF 50V -10+75% STANT	1010702	15
1	C16	CAP 100UF 25V 1% AL EL	1002781	14
4	C3, C6, C10, C13	CAP 100UF 10V 10%	1010374	13
2	C5, C17	CAP 22UF 50V	1010274	12
2	C5, C17	CAP 6.3UF 35V 10% STANT	1003306	11
2	C4, C11	CAPACITOR .033UF 100V 10% MLAR	1000050	10
1	C20	CAP 2200PF, 250V CER.	1000055	9
1	R/R	THERMAL COMPOUND	9008258	8
1	T	*2 THERMAL STRAP	C-MD-5510891-1	7
1	T	*1 THERMAL STRAP	C-MD-5510592-1	6
1	J2	MATE-N-LOCK CONNECTOR	1110350-09	5
1	J1	MATE-N-LOCK CONNECTOR	1211742-03	4
1	H	HEAT SINK	1210536	3
1	L	SPLIT LUG	9006735	2
1	E	ETCHED BOARD	9006727	1
1	D	WINDLE E-CARD HISTORY	C-MD-5510728-00	0
1	C	KEY COORDINATE - COLE LST	C-MD-5510729-00	0
1	B	CIRCUIT SCHEMATIC	C-MD-540928-00	0

IC TYPE	GN0	+5V	ITEM NO.	AWG	FROM PT	TO PT
IC PIN LOCATIONS						
JUMPER LIST						

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	540928	INTERPLANT/CUSTOMER PKG	A-PL3706615-04	93
1		MANUFACTURING SPECIFICATION	A-SP-540928-00	92
1		ASSEMBLY PROCEDURE	A-SP-540928-00	91
1		INSPECTION PROCEDURE	A-SP-540928-00	90
1		MANUFACTURER'S TEST PROCEDURE	A-SP-540928-00	89

ETCH BOARD REV #

DATE

SCALE

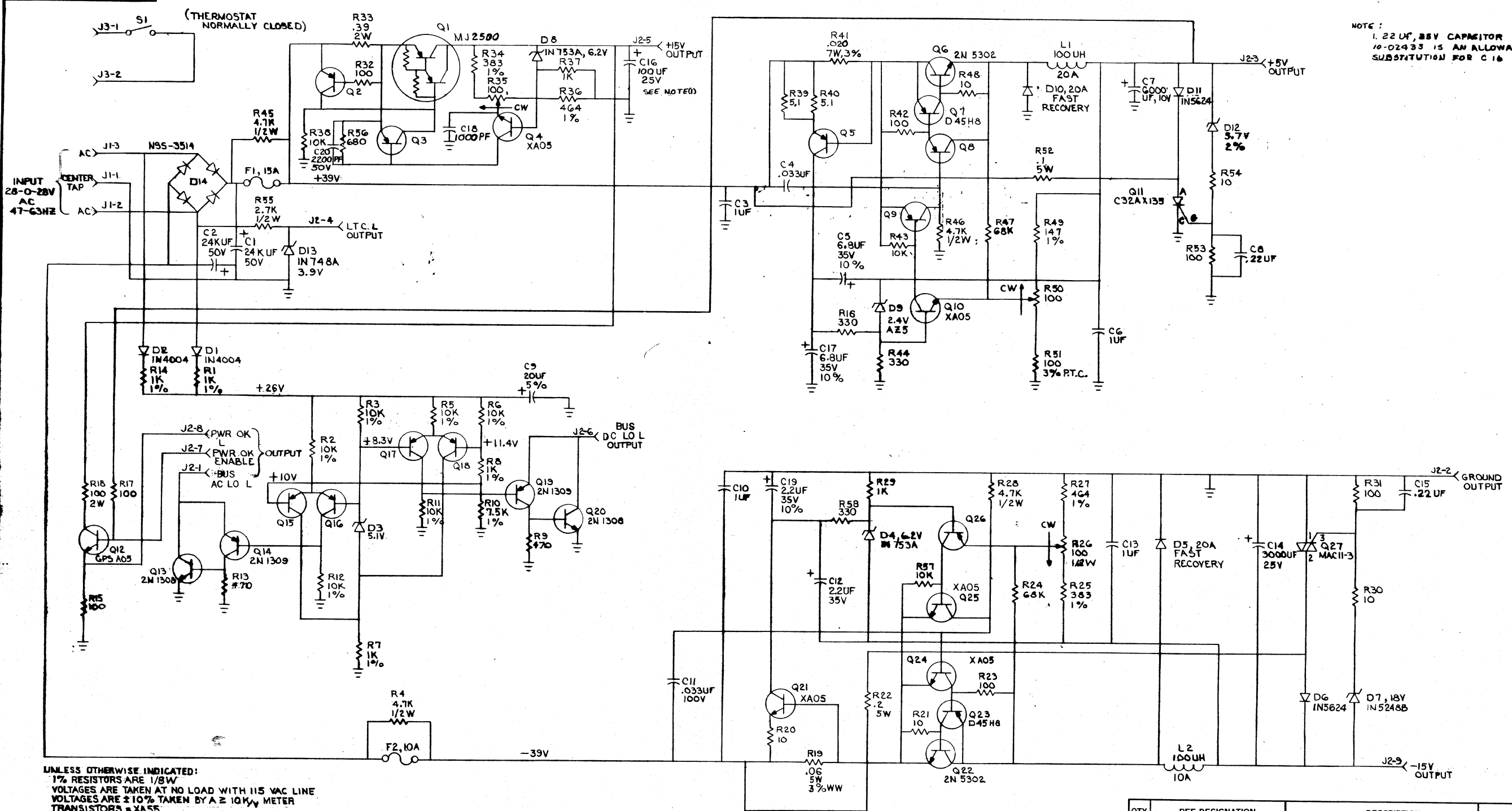
11/25

REGULATOR BOARD

540928-0-0

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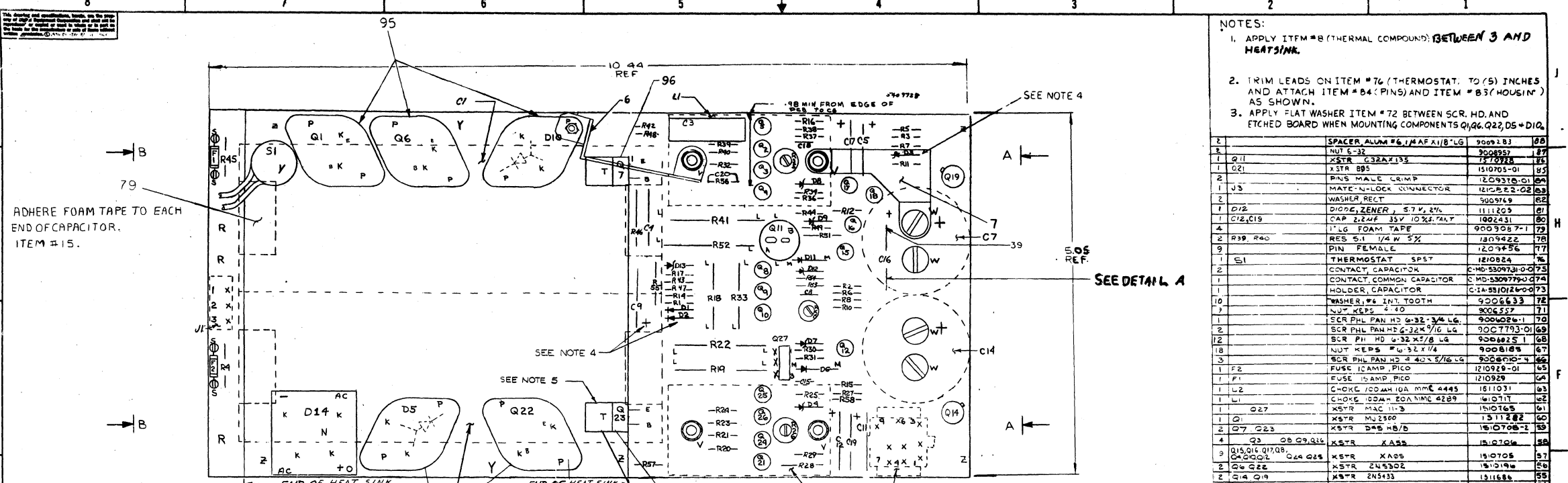
NOTE:
1. 22 UF, 35V CAPACITOR
10-02433 IS AN ALLOWABLE
SUBSTITUTION FOR C 16



UNLESS OTHERWISE INDICATED:
1% RESISTORS ARE 1/8W
VOLTAGES ARE TAKEN AT NO LOAD WITH 115 VAC LINE
VOLTAGES ARE ±10% TAKEN BY A ≥ 10KΩ METER
TRANSISTORS = XA55

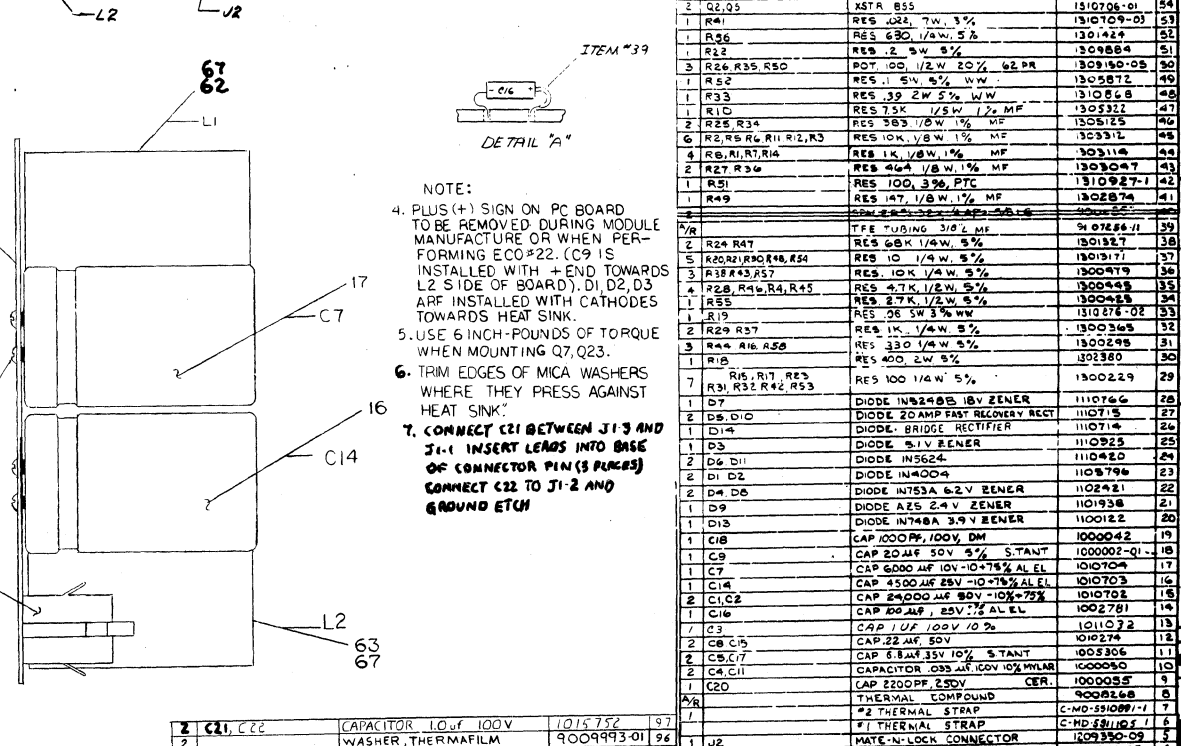
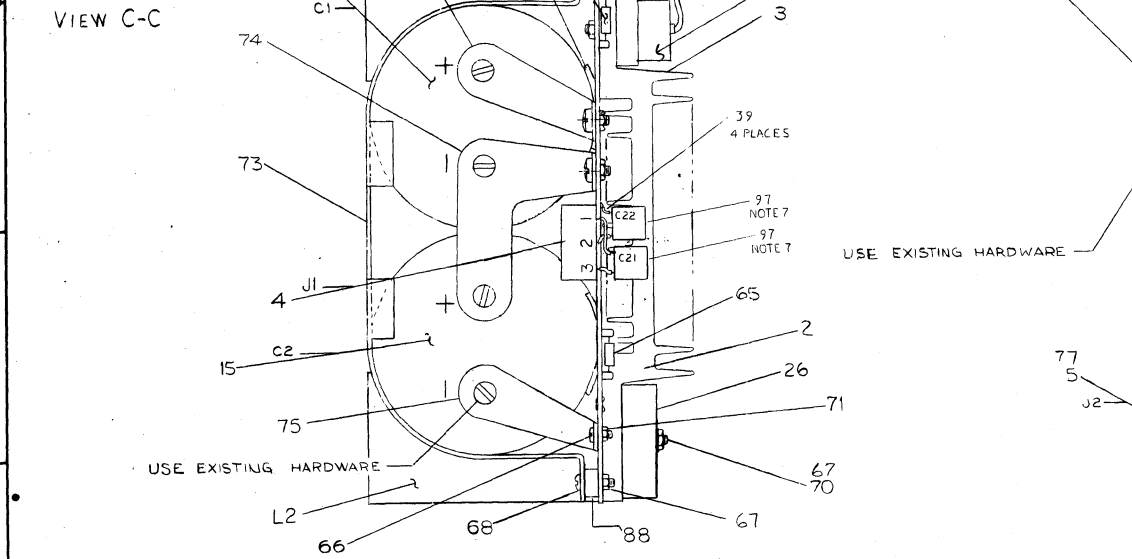
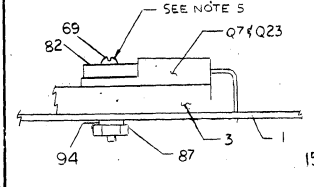
Jim Arroy 7/13/74	B. WOLFF	5409728-00017	IR	3-25-74	5409728-00016	P	1/21/74	5409728-00013	IN	1/22/74	5409728-00012	M	12/11/73	5409728-00011	IN	12/11/73	5409728-00010	K	1-25-73	5409728-00009	J	12-26-72	5409728-00008	J	12-30-72	5409728-00007	H	12-16-72	5409728-00006	F	9-29-72	5409728-00005	E	6-27-72	5409728-00004	D	5-1-72	5409728-00003	C	11-11-71	5409728-00002	B	1-11-71	5409728-00001	A	1-11-71
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QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
ETCH BOARD REV E				
DRN. Peter V. Doreste		DATE 12-20-74	 REGULATOR BOARD FOR H740	
CHK'D. NIKKI MOORE		DATE 12-21-74		
ENG. R. WOLFF		DATE 11-29-74		
PROJ. ENG. R. WOLFF		DATE 11-29-74		
PROD. R. WOLFF		DATE 11-29-74		
NEXT HIGHER ASSY			TITLE	
DEC NO.		EIA NO.	DEC NO.	EIA NO.
SEMICONDUCTOR CONVERSION CHART				
SCALE		SHEET		OF
SIZE CODE DCS		NUMBER 5409728-0-1		REV. R



- NOTES:
1. APPLY ITEM #8 (THERMAL COMPOUND) BETWEEN 3 AND HEATSINK.
 2. TRIM LEADS ON ITEM #76 (THERMOSTAT) TO (5) INCHES AND ATTACH ITEM #64 (PINS) AND ITEM #63 (HOUSING) AS SHOWN.
 3. APPLY FLAT WASHER ITEM #72 BETWEEN SCR. HD. AND ETCHED BOARD WHEN MOUNTING COMPONENTS Q1, Q6, Q22, D5 + D1Q.

ADHERE FOAM TAPE TO EACH END OF CAPACITOR. ITEM #15.



- NOTE:
4. PLUS (+) SIGN ON PC BOARD TO BE REMOVED DURING MODULE MANUFACTURE OR WHEN PERFORMING ECO#22. (C9 IS INSTALLED WITH +END TOWARDS L2 SIDE OF BOARD). D1, D2, D3 ARE INSTALLED WITH CATHODES TOWARDS HEAT SINK.
 5. USE 6 INCH-POUNDS OF TORQUE WHEN MOUNTING Q7, Q23.
 6. TRIM EDGES OF MICA WASHERS WHERE THEY PRESS AGAINST HEAT SINK.
 7. CONNECT C21 BETWEEN J13 AND J1-1. INSERT LEADS INTO GROoves OF CONNECTOR PIN(S) PURSES. CONNECT C22 TO J1-2 AND GROUND ETCH.

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
2	C21, C22	CAPACITOR 1.0UF 100V	1015752	97	1	C18	THERMAL STRAP	3008264	1
2		WASHER THERMAFILM	9009993-101	96	1	C19	PT THERMAL STRAP	C-MD-5309730-0	1
5		WASHER, MICA	9009993-00	95	1	C7	MATE-N-LOCK CONNECTOR	1209350-09	5
7		WASHER #2 SPLIT	3007801	94	1	J1	MATE-N-LOCK CONNECTOR	1214423-03	4
1		SP-972 BATTERY/CUSTOMER PKG	A-SP-9720045-0-0	93	1	J2	MATE-N-LOCK CONNECTOR	1214423-03	4
1		MANUFACTURING SPECIFICATION	A-SP-5409728-0-0	92	1		HEAT SINK	1210956	3
1		ASSEMBLY PROCEDURE	A-SP-909128-0-0	91	1		SPLIT LUG	9004735	2
1		INSPECTION PROCEDURE	A-SP-5409728-0-0	90	1		ETCHED BOARD	3009127	2
1		MANUFACTURING TEST PROCEDURE	A-SP-5409728-0-0	89	1		MODULE ECO HISTORY	90-1-333728-0-0	2
1					1		X-Y COORDINATE HOLE LOC	600-240328-0-0	1
1					1		CIRCUIT SCHEMATIC	D-C-5409728-0-0	1

IC TYPE	QND	±5V	ITEM NO	AWG	FROM PT	TO PT

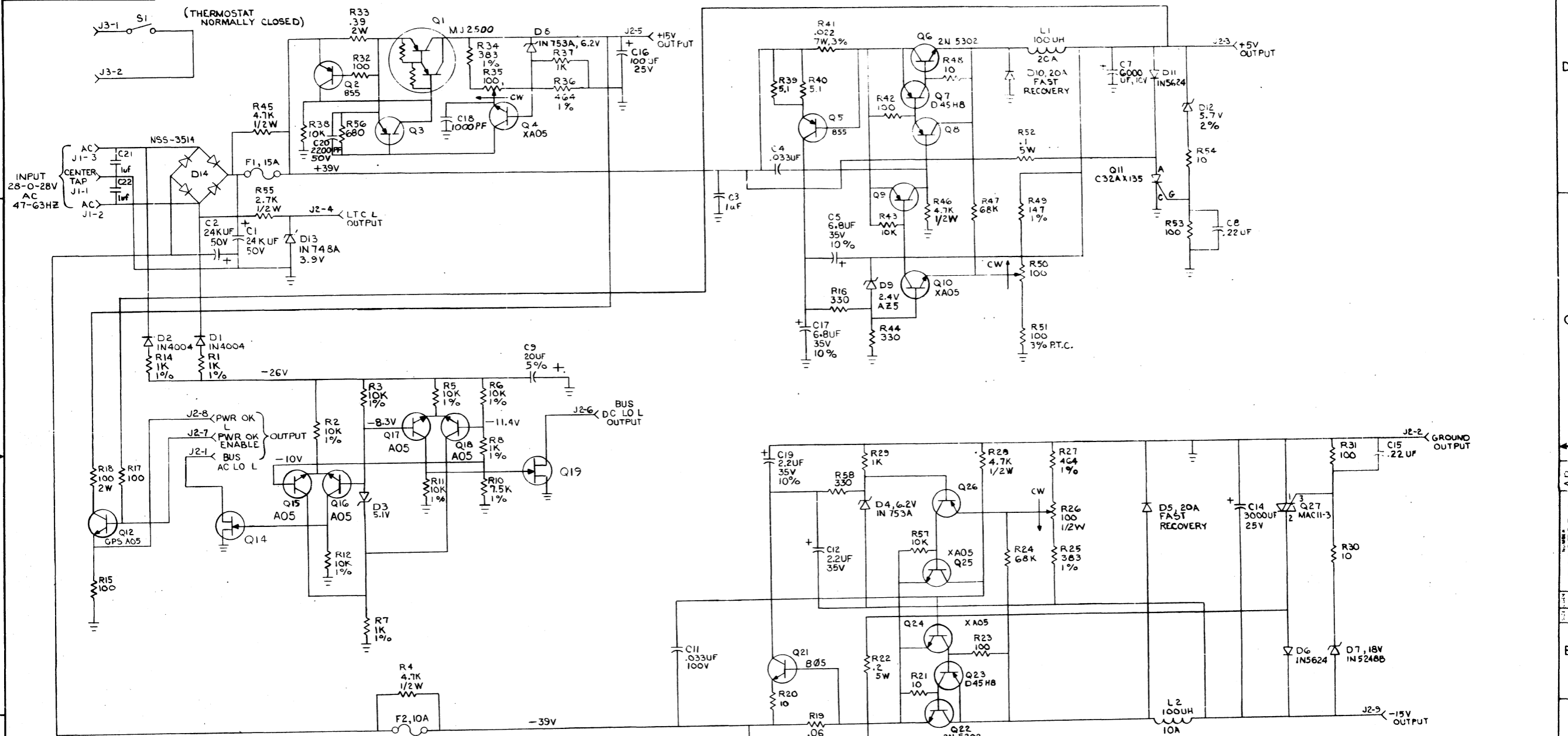
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	Q1	DIODE 1N4148	1010702	1
1	Q2	DIODE 1N4148	1010702	1
1	Q3	DIODE 1N4148	1010702	1
1	Q4	DIODE 1N4148	1010702	1
1	Q5	DIODE 1N4148	1010702	1
1	Q6	DIODE 1N4148	1010702	1
1	Q7	DIODE 1N4148	1010702	1
1	Q8	DIODE 1N4148	1010702	1
1	Q9	DIODE 1N4148	1010702	1
1	Q10	DIODE 1N4148	1010702	1
1	Q11	DIODE 1N4148	1010702	1
1	Q12	DIODE 1N4148	1010702	1
1	Q13	DIODE 1N4148	1010702	1
1	Q14	DIODE 1N4148	1010702	1
1	Q15	DIODE 1N4148	1010702	1
1	Q16	DIODE 1N4148	1010702	1
1	Q17	DIODE 1N4148	1010702	1
1	Q18	DIODE 1N4148	1010702	1
1	Q19	DIODE 1N4148	1010702	1

DEC NO.	EIA NO.	DEC NO.	EIA NO.

REGULATOR BOARD

EIA 5409728-0-0 AB

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UNLESS OTHERWISE INDICATED:
 1% RESISTORS ARE 1/8W
 VOLTAGES ARE TAKEN AT NO LOAD WITH 115 VAC LINE
 VOLTAGES ARE ± 10% TAKEN BY A ≥ 10K_v METER
 TRANSISTORS = XA55

Q. BARON 8-7-78	REV	2
A. BARON	CHANGE NO.	
B. BARON	REVISIONS	
C. BARON		
D. BARON		
E. BARON		
F. BARON		
G. BARON		
H. BARON		
I. BARON		
J. BARON		
K. BARON		
L. BARON		
M. BARON		
N. BARON		
O. BARON		
P. BARON		
Q. BARON		
R. BARON		
S. BARON		
T. BARON		
U. BARON		
V. BARON		
W. BARON		
X. BARON		
Y. BARON		
Z. BARON		

DEC NO.	EIA NO.	DEC NO.	EIA NO.

DRN. <i>Free</i>	DATE	12-20-77
CHK'D. <i>Amory Moore</i>	DATE	12-21-77
ENG. <i>P. Barone</i>	DATE	11-25-77
PROJ. ENG. <i>R. V. Peterson</i>	DATE	12-29-77
PROD. <i>R. V. Peterson</i>	DATE	11/29/77
NEXT HIGHER ASSY		

digital EQUIPMENT CORPORATION	
REGULATOR BOARD FOR H740	
SIZE CODE	NUMBER
DCS	5409728-0-1
REV	AB

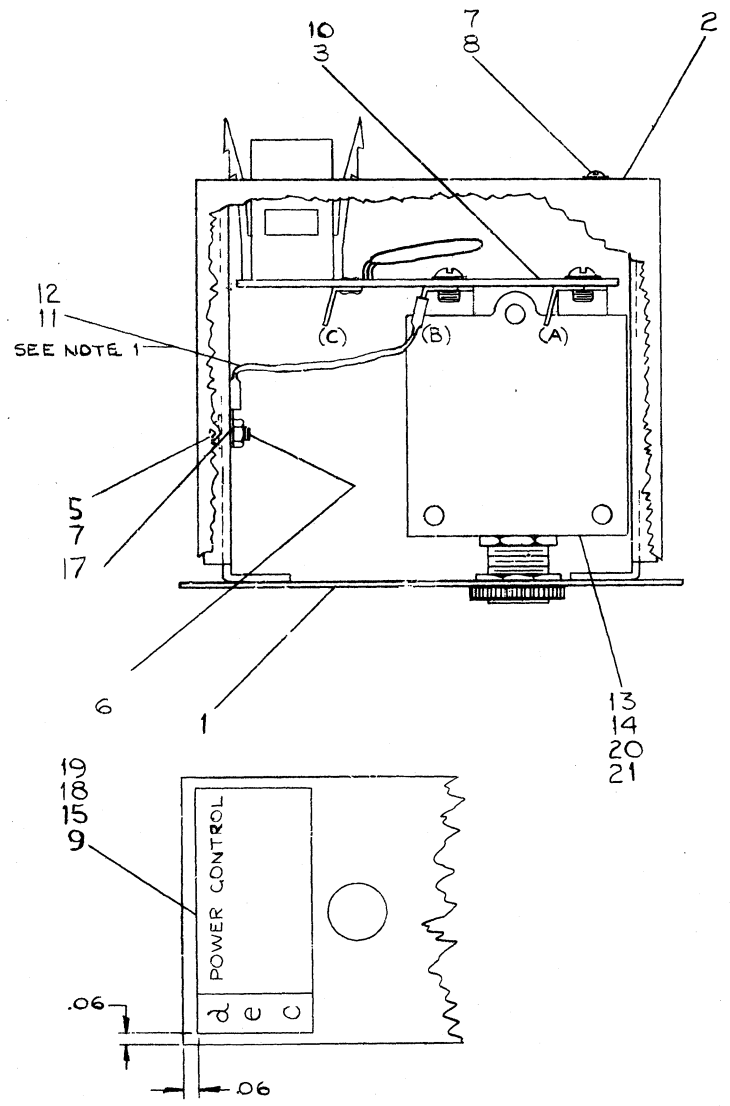
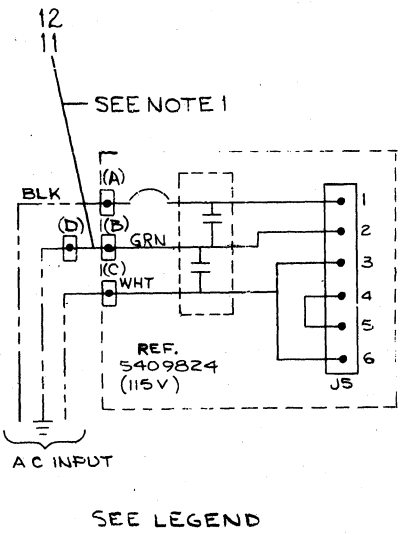
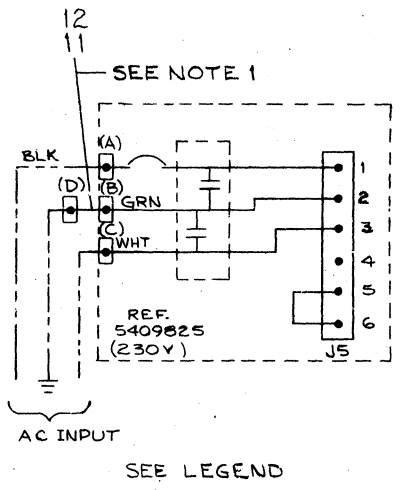
SEMICONDUCTOR CONVERSION CHART

SHEET 1 OF 1

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LEGEND		
NUMBER	VARIATION	USED ON
H400-A	115 VAC 7AMP	BC05H
H400-B	230VAC 4AMP	BC05J
H400-C	115 VAC 10AMP	BC05T
H400-D	230VAC 5 AMP	BC05U

NOTES:
 1. ITEM #11 (WIRE) AND TWO OF ITEM #12 (FASTON TABS) ARE TO BE CONNECTED FROM POINT D TO POINT B.



REV.	CHANGE NO.	REV.
A	H400-00002	A
B	H400-00003	B
C	H400-00004	C
D	H400-00005	D
E	H400-00007	E
F	H400-00008	F

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
D-UA-BC05H-0-0		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.		DRN	DATE	
TOLERANCES		CHKD	DATE	
DECIMALS	ANGLES	ENG	DATE	
.XXX = .005	±0° 30'	PROJ ENG	DATE	
.XX = .01		PROD	DATE	
X = .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY		
MATERIAL		D-UA-BC05H-0-0		SIZE CODE
FINISH		SCALE		NUMBER
		SHEET		REV
		OF		D
		DIST.		F

REV. E
 H400
 DUA

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 3/15/72

TITLE POWER SUPPLY SPECIFICATION - H740

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

1.0 GENERAL DESCRIPTION

1.1 Mechanical Configuration

The part numbers below are assigned to different mechanical versions of a power supply with identical electrical characteristics and identical subassembly design. Outline drawings are appended to this specification.

1.1.1 7008731-1 and 7008731-2 Mechanical Design

These two versions differ only in the size of a self-contained fan. The 7008731-1 has a 5" fan; the 7008731-2 has a 3" fan.

Fan, transformer (DEC part #16-10601, 7008726) and regulator module (DEC part #5409728) are mounted on a single chassis which is to be bolted inside the device to be powered.

ENG <i>Ronald W. Harty</i>	APPD <i>Ronald W. Harty</i>	SIZE A	CODE SP	NUMBER 5409728-0-8	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE POWER SUPPLY SPECIFICATION - H740

The power supply is designed for use with the BC05 AC Input Box which contains circuit breaker, RFI filter and line cord. The various versions of the AC input box determine length of line cord, AC plug style and choice of 115 V. or 230 V. AC input.

An external cable must be supplied to interconnect the transformer, fan and thermostat of the power supply. This cable should also be designed to interconnect the balance of the AC wiring of the device or computer to be powered, e.g. AC input box, fans, ON-OFF switch. A typical system is shown in Figure 1-2.

1.1.2 7008714 Mechanical Design

This version does not include a fan and uses an internal cable as well as an external cable to interconnect the balance of the AC wiring. The chassis mounts the transformer, regulator module and two

SIZE A	CODE SP	NUMBER 5409728-0-8	REV
------------------	------------	-----------------------	-----

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TITLE POWER SUPPLY SPECIFICATION - H740

fuses to protect an externally mounted power failure detector. External forced air cooling is required. The BC05 is also used.

1.1.3 H740D Mechanical Design

The H740D is a 3½ inch rack or door mounted version. It is completely self contained and includes a BC05 AC Input Box, the 16-10601 power transformer, an AC interconnecting cable, a 3" fan (airflow shown on outline drawing), the 5409728 DC module and a DC output cable to a chassis mounted DC output connector with sufficient fan-out for general system usage. Pin-out is shown on the outline drawing.

1.2 Electrical Configuration

This power supply converts single phase 115 or 230 V. nominal 47-63 Hz line voltage to three regulated DC output voltages. Included in the circuit are overload and over voltage protection, Bus AC LO and DC LO detectors, a real

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

SHEET 3 OF 25

TITLE POWER SUPPLY SPECIFICATION - H740

time clock square wave signal source and, in the 7008714, a 28-0-28 volt centertaped AC output for a power failure detector.

The supply is used in conjunction with the Model BC05 AC Input Box which contains line cord, circuit breaker and RFI filters. This device has several versions which determine input voltage, 115 V or 230 V, and line cord length and plug style.

A block diagram is shown in Figure 1-1 and the interconnection of the various components into a typical power system is shown in Figure 1-2.

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

SHEET 4 OF 25

TITLE Power Supply Specification - H740

DEC Part # BC05
 includes line cord and H400 Power Control
 DEC Part #H400A - - 115 V - BC05 Hxx (line cord length xx)
 #H400B - - 230 V - BC05 Jxx (line cord length xx)

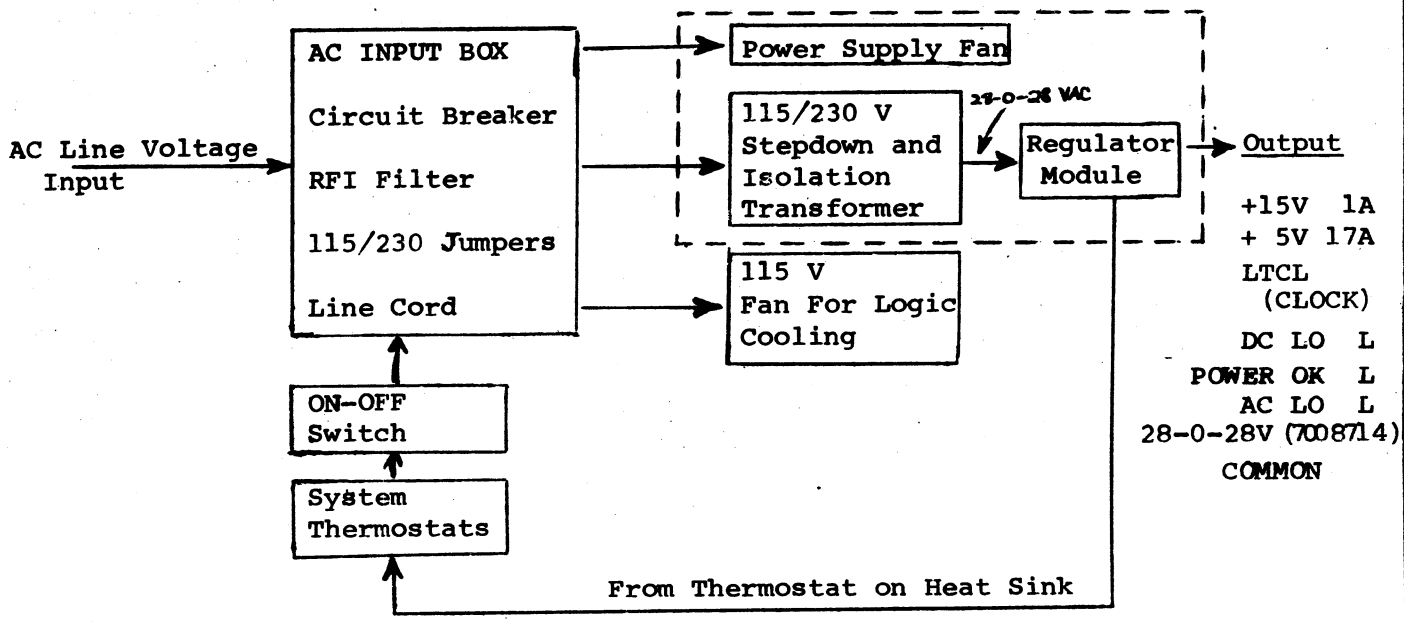


Figure 1-1: Block Diagram of Typical System Using H740 Power Supply.

DEC FORM NO DEC 16 (381)-1022-N370
 DRA 108

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

SHEET 5 OF 25

TITLE

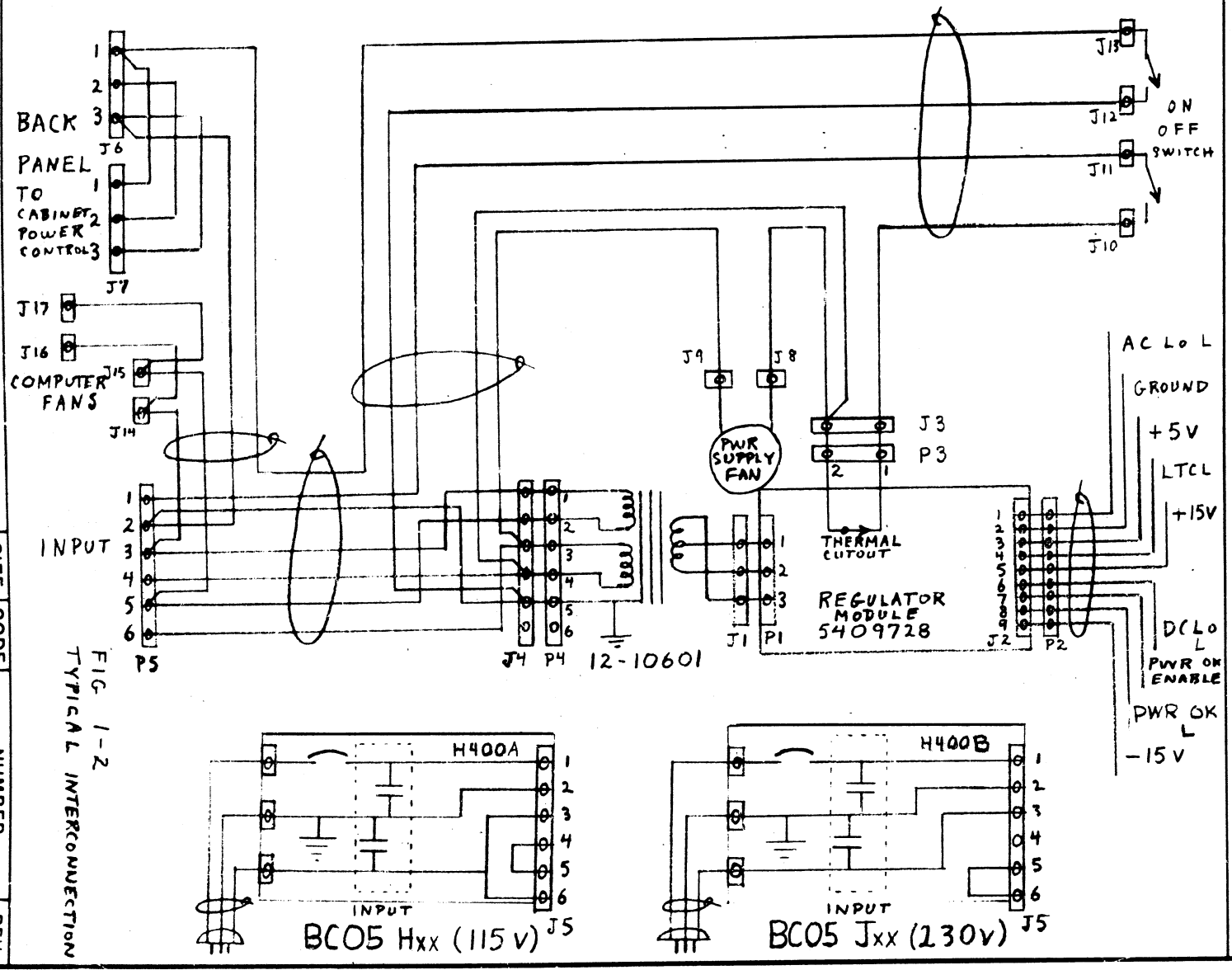


FIG. 1-2
 TYPICAL INTERCONNECTION

DEC FORM NO DEC 16 (381)-1022-N370
 DRA 108

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

SHEET 6 OF 25

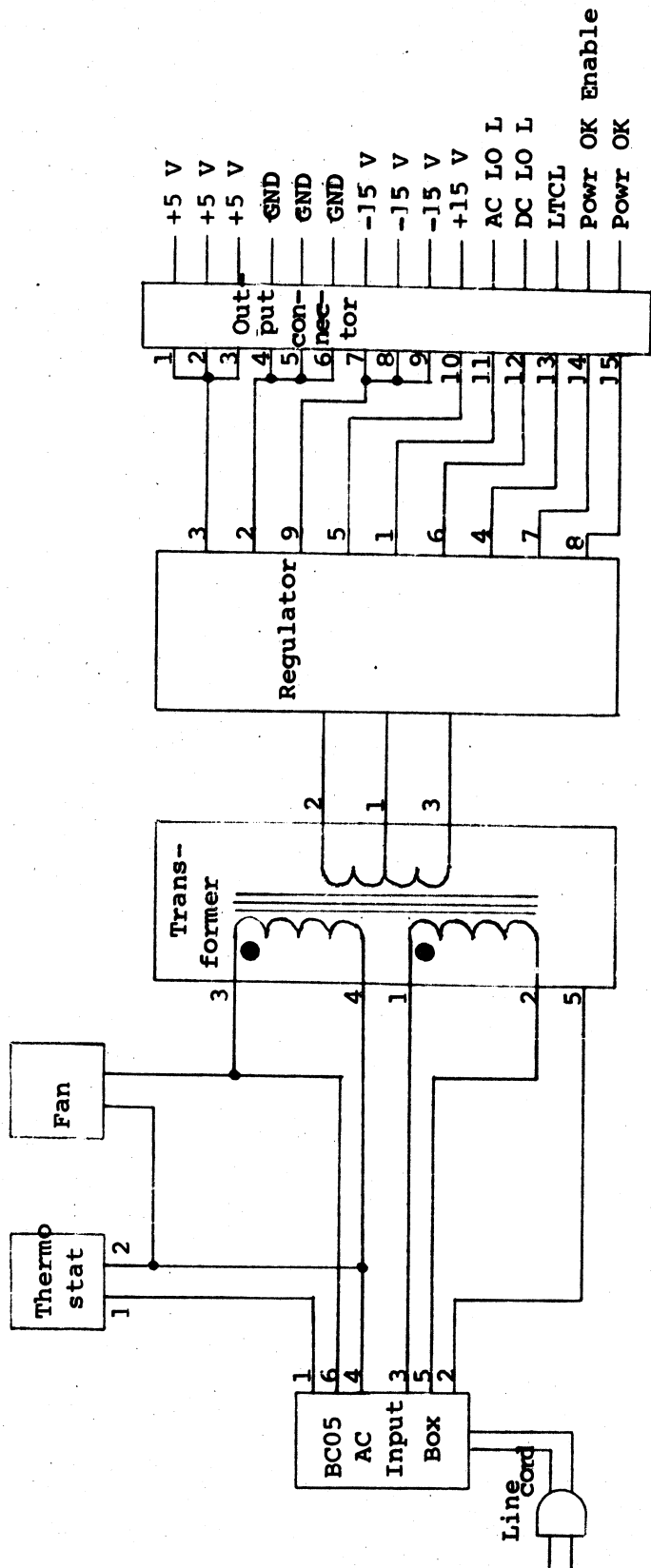


Fig. 1-3: H740D BLOCK SCHEMATIC

2/29/72

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE POWER SUPPLY SPECIFICATION - H740

2.0 ELECTRICAL SPECIFICATIONS

2.1 Input

NOTE: Input voltage selection, 115 V or 230 V, is made by specifying the appropriate AC Input Box, DEC Model BC05. All specifications are with respect to the BC05 input.

Input Voltage (1 phase, 2 wires & ground)	90-135/180-270 V
Input Frequency	47-63 Hz
Input Current	5/2.5 Amp RMS
Input Power	325 watts at full load
Inrush	80/40 Amp peak, 1 cycle
Rise Time of Output Voltages	30 ms max. at full load, low line
Input Overvoltage Transient	180/360 V, 1 second 360/720 V, 1 millisecond
Storage After Line Failure	25 ms min., starting at low line, full load
Input Breaker (Part of AC Input Box)	7A/4A, single pole, Manually Reset, Thermal
Thermostat Mounted on Heat Sink (Opens Transformer and Fan Power)	277 V 7.2 A contacts Opens 98-105°C Automatically Resets 56-69°C
Input Connection	Line Cord on AC Input Box Length & Plug Type Specified with Box

TITLE POWER SUPPLY SPECIFICATION - H740

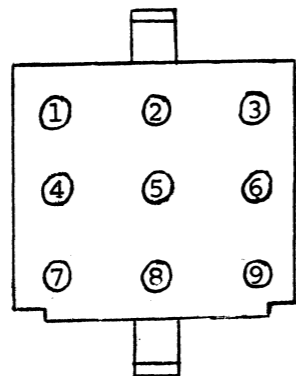
Turn-On/Turn-Off by Application or removal of power.

2.2 Output Hipot (Input to chassis & output) 2.1K V DC, 60 seconds

Output parameters are specified at the pins of the 9-pin Mate "N Lock connector (Figure 2-1) which plugs into the output connector on the 5409728 module. IR drops in the distribution wiring should be minimized to achieve the desired regulation at the load. Recommended distribution loss is 3% maximum.

Regulation specified is with respect to the common ground terminal on the output connector.

- Pin 1 AC LO L
- Pin 2 Common
- Pin 3 +5 V output
- Pin 4 LTCL (Clock Signal)
- Pin 5 +15 V output
- Pin 6 DC LO L
- Pin 7 Jump to Pin 1 if output on Pin 8 is used.
- Pin 8 POWER OK L
- Pin 9 -15 V output



OUTPUT CONNECTOR
5409728 Regulator Module
Showing pin numbers and voltages
(H740D pin-out shown on outline drawing)
FIGURE 2-1

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

TITLE POWER SUPPLY SPECIFICATION - H740

2.2.1 +15 V

Load Range	Static	0-1 Amp
	Dynamic	0-1 Amp
Max. Bypass Capacitance	500 mfd in load for 30 ms turnon	
Overvoltage Protection	None	
Current Limit @ 25°C	1.3 to 1.7 A (-6.2 ma/°C)	
Backup Fuse	15 Amp (also used for +5 V)	
Adjustment	± 5% min.	
Regulation (All causes including line, load ripple, noise, drift, ambient temperature)	± 5%	

2.2.2 +5 V

Load Range	Static (50°C)	0-20 Amp (All except Rev. B1)
	Static (60°C)	0-17 Amp
	Static	0-15 Amp with -15 V above 5 Amps.
	Dynamic #1	± 5 Amp within above range.
	Dynamic #2	NL ↔ FL
Max. Bypass Capacitance	2000 mfd in load for 30 ms turnon	
Overvoltage Crowbar (Blows fuse)	5.7 - 6.8 V	
Current Limit @ 25°C	24-29.4 A (-0.1 A/°C) all other Rev. B1	
Backup fuse (Series with Raw DC)	15 Amp	
Adjustment Range	± 5% min.	

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

TITLE POWER SUPPLY SPECIFICATION - H740

Regulation

Line	± 0.5%
Static Load	3%
Dynamic Load #1	± 2%
Dynamic Load #2	± 10%
Ripple and Noise	4% p-p
1000 Hour Drift	± 0.25%
Temperature (0-60°C)	± 1%

2.2.3 -15 V

Load Range	Static	0-5 Amp 5409728 Rev. C
	Static	0-8 Amp* 5409728 Rev. D
	Static	0-7 Amp 5409728 YA
	Dynamic #1	0.5↔5 Amp (0.5A/μsec.)
	Dynamic #2	NL↔FL (0.5 A/μsec.)

*Use MMC 4290 transformer

Max. Bypass Capacitance 1000 mfd.
in load for 30 ms turnonOvervoltage Crowbar 17.5 - 20.5 V
(Blows fuse) (22 V abs. max. output)Current Limit @ 25°C 6-8 Amp (-.020 A/°C) Rev.
B1 and C
7.5-10 Amp YA
10-13.3 Amp All other.Backup Fuse (Series with Raw DC) 5 Amp Rev. B1 and Rev. C
10 Amp All other

Adjustment Range ± 5% min.

Regulation

Line and Static Load	± 1%
Dynamic Load #1	± 2.5%
Dynamic Load #2	± 3%
Ripple and Noise	3% p-p
1000 Hour Drift	± 0.25%
Temperature (0-60°C)	± 1%

2.2.4 Real Time Clock Signal LTC L

Rated Load Two TTL Loads

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

TITLE POWER SUPPLY SPECIFICATION - H740

Frequency	AC Line
Wave Shape	Approximately Square Wave
Pulse Height	3.5 to 5.0 V positive
Baseline	0 to 1.0 V negative
Short Circuit Current	15 ma peak max.

2.2.5 Transformer Secondary Voltage (For Power Fail Option 7008714.)Output at 115/230 V 27.4-0-27.4 V RMS ± 5%
input, 0-200 ma
load, full load on
power supply2.2.6 DC LO L and AC LO L

This circuit monitors two points in the charge and discharge of a capacitor which is fed from the 28-0-28 V AC input via a full wave rectifier. The capacitor charges slower than the rate of rise of the three output voltages on power turn on, but discharges faster than the output voltages on power removal. Two sequential output signals are delivered to the bus which are low for long enough for the output voltages to be within ratings on turn on and also are low soon enough to warn the bus on power removal. When the input voltage is high enough both signals are high. Hysteresis is provided to eliminate uncertain operation.

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

TITLE POWER SUPPLY SPECIFICATION - H740

2.2.6.1 Static Performance at Full Load

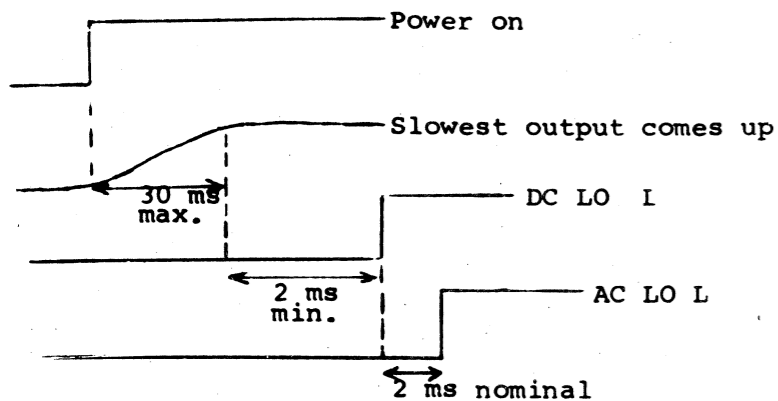
High State	DC LO L	74-80 V AC
	Goes to high	
" "	AC LO L	8-11 V higher
	Goes to high	
" "	AC LO L	80-86 V AC
	Drops to low	
" "	DC LO L	7-10 V lower
	Drops to low	

Hysteresis (contained in above specs) 3-4 V AC

Output voltages still good 70 V AC

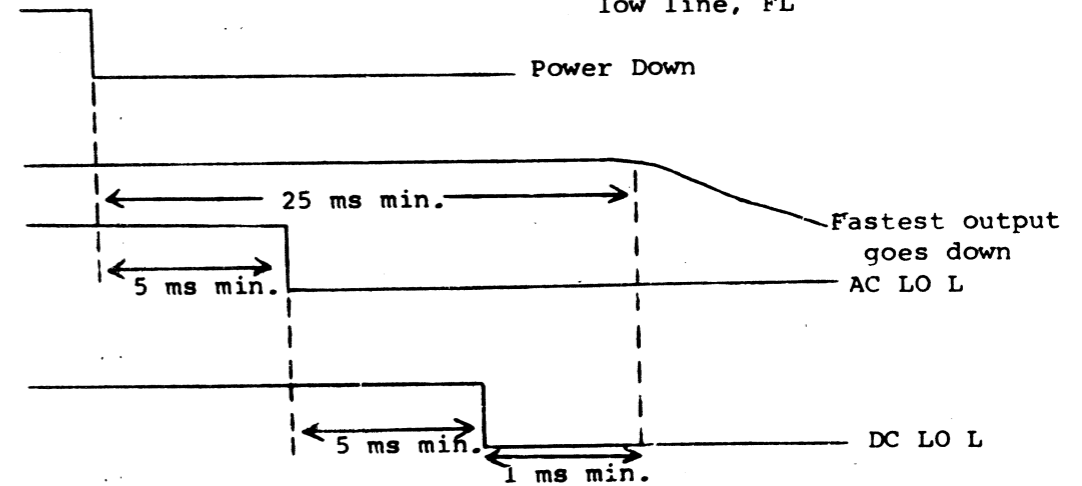
2.2.6.2 Dynamic Performance

a) Worst case on power up is high line, FL.



TITLE POWER SUPPLY SPECIFICATION - H740

b) Worst case on power down is low line, FL



2.2.6.3 Output Characteristics (Each Output)

Open Collector 50 ma sinking capability
+0.4 V max. offset

Pull-up voltage on Unibus 5 V nominal

Rise and Fall Times 1 μsec. max.

Outputs shall remain in zero state subsequent to power failure until power is restored despite the fact that Unibus pull-up voltages may remain.

SIZE A	CODE SP	NUMBER 5409728-0-8	REV
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SIZE A	CODE SP	NUMBER 5409728-0-8	REV
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TITLE POWER SUPPLY SPECIFICATION - H740

2.2.6.4 POWER OK L

If output connector J2 pins 1 to 7 are jumpered an alternate AC LO L signal is available on pin 8. The specifications of paragraphs 2.2.6.1 and 2.2.6.2 apply. The output characteristics are as follows:

Load Impedance	See Figure 2-3
Output Impedance	105 Ω min.
Open Circuit Voltage	+3.5 to +5.5 V True -1 to +0.5 V False
Rise and Fall Times	1 usec. max.
Load may be Active	0 to +5.25 V max.
Short Circuit Current (to ground)	165 ma max.

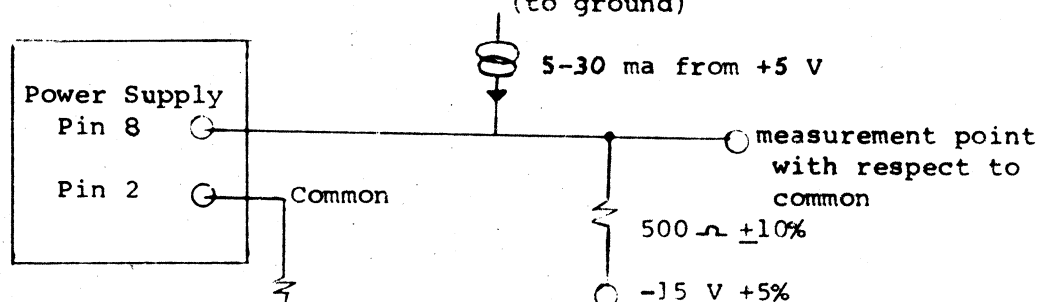


FIGURE 2-3 (a) Low State Load Impedance

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

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TITLE POWER SUPPLY SPECIFICATION - H740

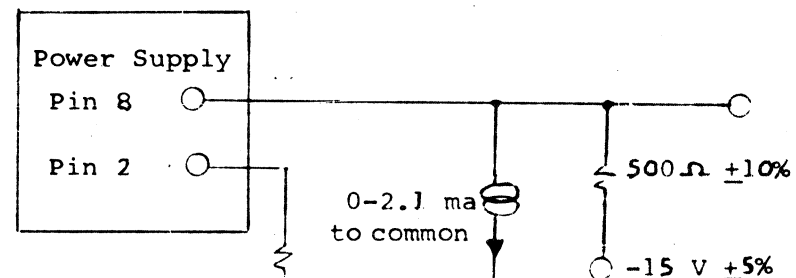


FIGURE 2-3 (b) High State Load Impedance

3.0 MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS

- | | |
|--|--|
| 3.1 Size | See outline drawing in Appendix. |
| 3.2 Weight | See outline drawing in Appendix. |
| 3.3 Cooling Means | 7008731-1 - Integral 5" fan.
7008731-2 & H740D - Integral 3" fan.
(cover required over heat sink to plenum air.)
7008714 - Forced air from external fan |
| 3.4 Minimum Cooling Requirements at worst case line, load, temperature | 375 LFM through heat sink
250 LFM over caps, chokes and transformer. |
| 3.5 Rated heat sink temperature | 95°C max. |
| 3.6 Mounting | See outline drawing in Appendix. |
| 3.7 Connections | See outline drawing in Appendix. |
| 3.8 Shock, Non operating | 40G (duration 30 msec.) 1/2 Sine each of six orientations. |
| 3.9 Vibration, Non operating | 1.89G RMS average, 8G peak; varying from 10 to 50 Hz, 8db/octave rolloff 50-200 Hz; each of six |

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

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TITLE POWER SUPPLY SPECIFICATION - H740

directions.

- 3.10 Ambient Temperature 0 to +60°C operating.
-40 to +71°C storage.
- 3.11 Relative Humidity 95% max. (without condensation)
- 3.12 Altitude 10K feet

4.0 APPLICABLE SPECIFICATIONS4.1 Underwriter's Laboratories

The provisions of UL 478 shall be met by the complete power system.

Particular attention should be paid to the following items:

- a) Creepage Distances.
- b) Hipot tests.
- c) Capacitor Discharge Tests.
- d) Flame retardant materials.
- e) Shock hazard requirements.
- f) Use of only UL approved components.
- g) Transformer requirements, e.g. shorted diode tests.

4.2 DEC Specifications

H740 Qualification Test DEC drawing # H740-0-3.

Production Bench Test DEC drawing # H740-0-4.

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

TITLE POWER SUPPLY SPECIFICATION - H740

5.0 QUALITY ASSURANCE PROVISIONS5.1 Component Selection

Components shall be good grade industrial types. Computer grade, Type 36D or better, electrolytics shall be used. Wound components shall be rated for class B operation.

5.2 Component Deratings

Max. temperature rise of wound components shall be 55°C above 60°C ambient, with cooling air of Para. 3.4.

Max. junction temperature of transistors, rectifiers and diodes shall be 150°C at 60°C ambient.

5.3 Reliability

The power supply shall have a calculated mean time between failure of greater than 30000 hours using an accepted rating method such as described in MIL STD 756 and MIL HBK 217.

6.0 MARKING, LABELS6.1 Warning Label

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	

TITLE POWER SUPPLY SPECIFICATION - H740

A warning label should be provided on the outside of the major assembly in which the power supply is mounted which restricts servicing to qualified service personnel.

6.2 Power Control Labelling

H400A	or	H400B
95-135 Volts		190-270 Volts
5 Amperes		2.5 Amperes
47-63 Hz		47-63 Hz

H400A Breaker Button stamped 7A by Manufacturer.

H400B Breaker Button stamped 5A by Manufacturer.

6.3 Labelling on Device Being Powered

- a) NFPA Type 2 Standard Decal.
- b) U.L. Label.
- c) Model Number.
- d) Serial Number.

6.4 Subassembly Marking

Shall be sufficient to identify the subassembly.

Minimum marking shall be the DEC part #.

SIZE A	CODE SP	NUMBER 5409728-0-8	REV
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TITLE POWER SUPPLY SPECIFICATION - H740

7.0 REVISIONS

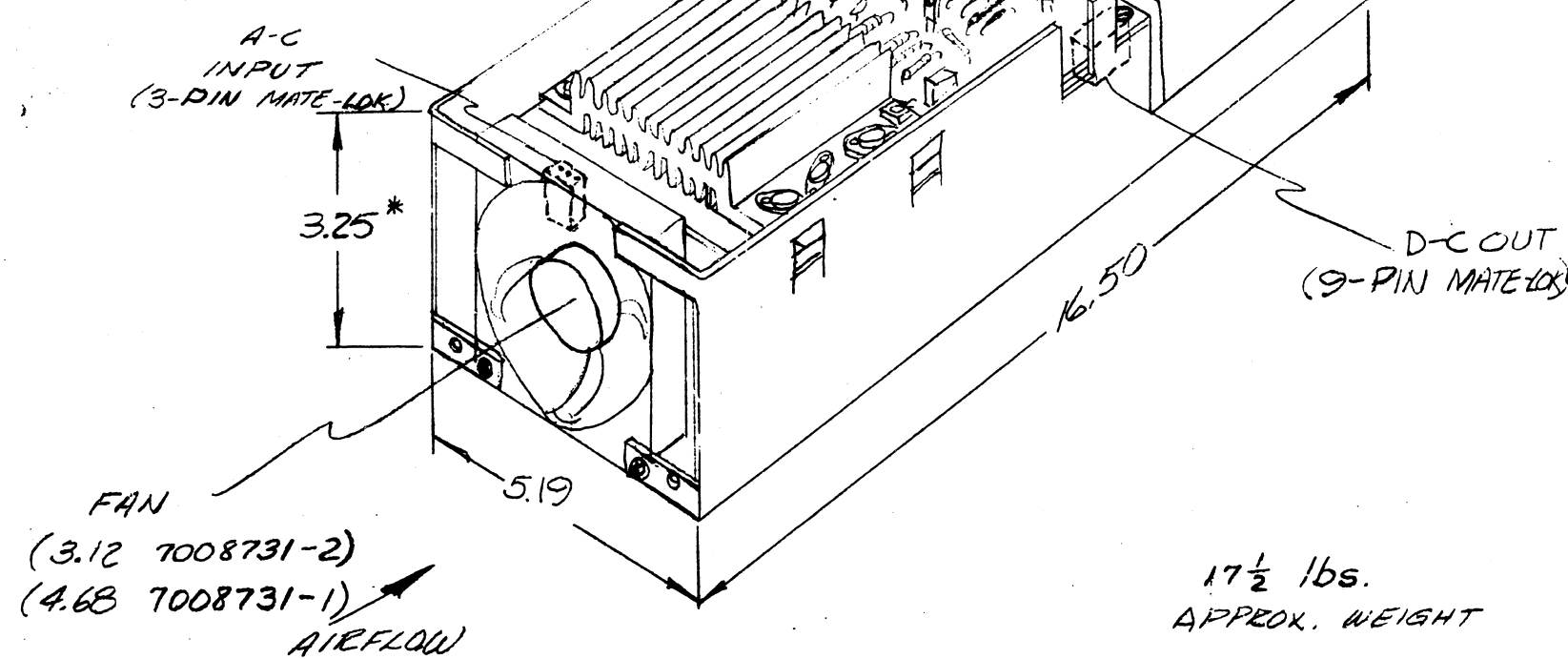
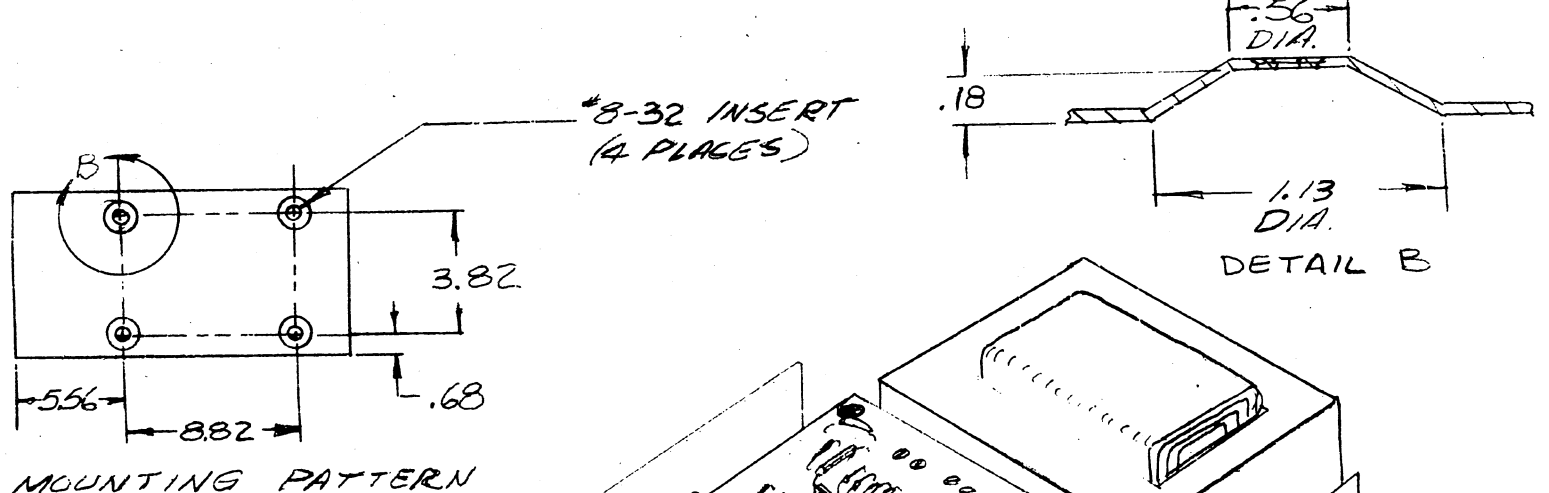
7.1 This is Revision A, prior to ECO control.

7.2 This is Revision B, prior to ECO control.

SIZE A	CODE SP	NUMBER 5409728-0-8	REV
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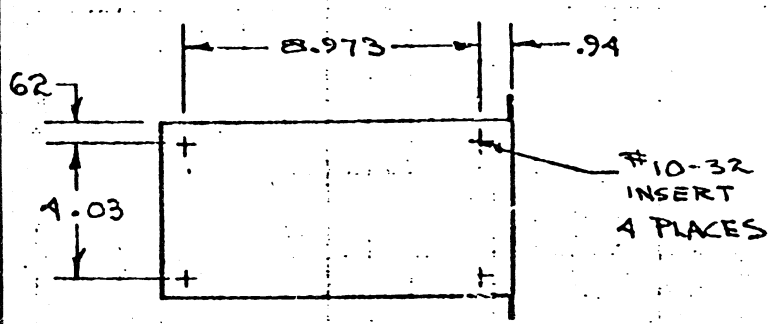
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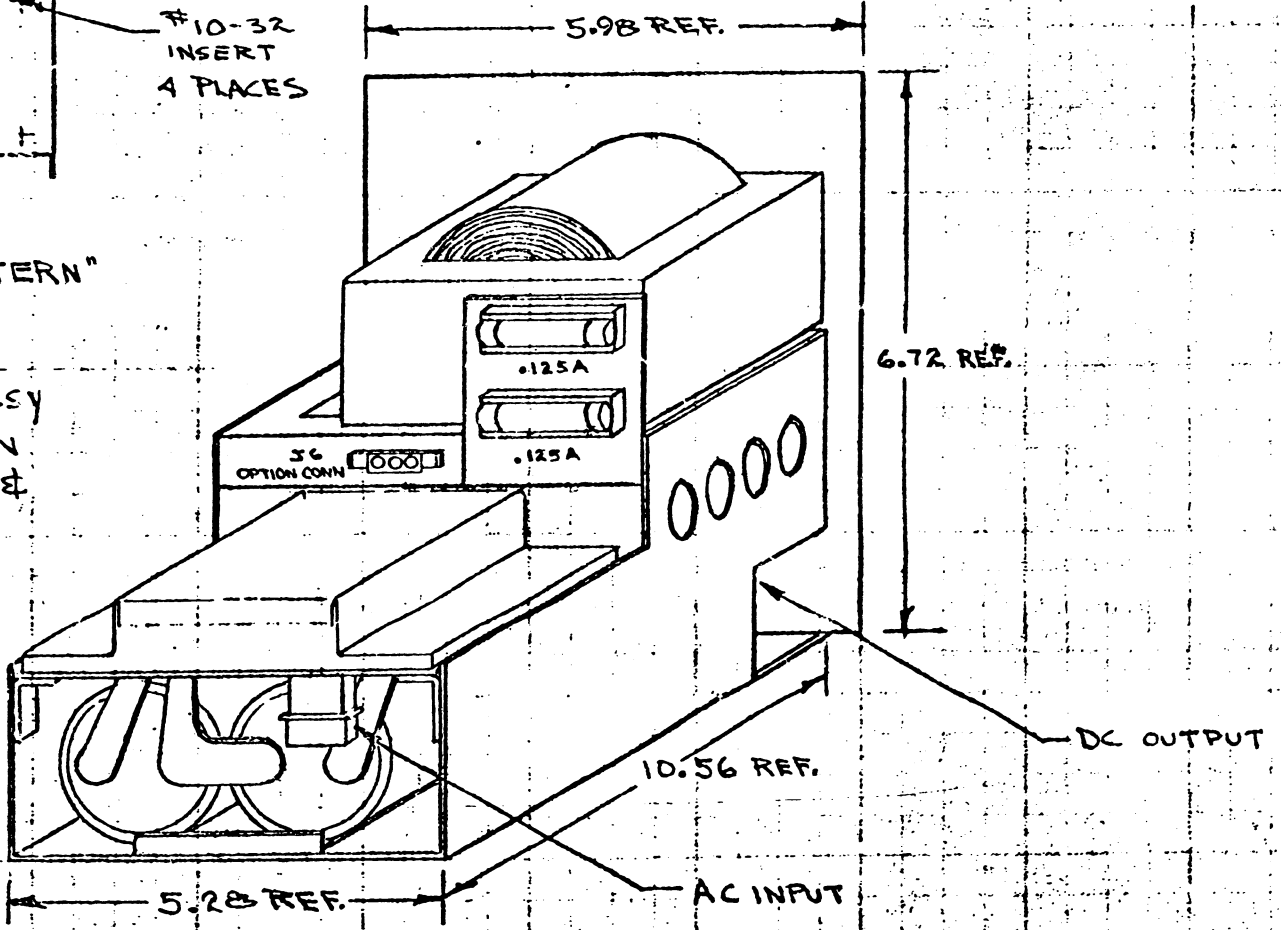
OUTLINE DRAWING
 7008731-1 and 7008731-2

* DEPENDENT ON
 FAN SIZE



BOTTOM VIEW
 "MOUNTING PATTERN"

POWER SUPPLY ASSY
 # 7008714. USED ON
 PDP 8/F, PDP 8/M, &
 PDP 16/M



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TITLE POWER SUPPLY SPECIFICATION - H740

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1.0 General Description

1.1 Mechanical Configuration

- 1.1.1 7008731-1 & 7008731-2 Mechanical Design
- 1.1.2 7008714 Mechanical Design
- 1.1.3 H740D Mechanical Design

1.2 Electrical Configuration

FIGURE 1-1: Block Diagram of Typical System Using H740 Power Supply.

FIGURE 1-2: Typical Interconnection

FIGURE 1-3: H740D Block Schematic

2.0 Electrical Specifications

2.1 Input

2.2 Output

FIGURE 2-1: Output Connector 5409728 Regulator Module (H740D pin-out shown on outline drawing)

2.2.1 +15 V

2.2.2 +5 V

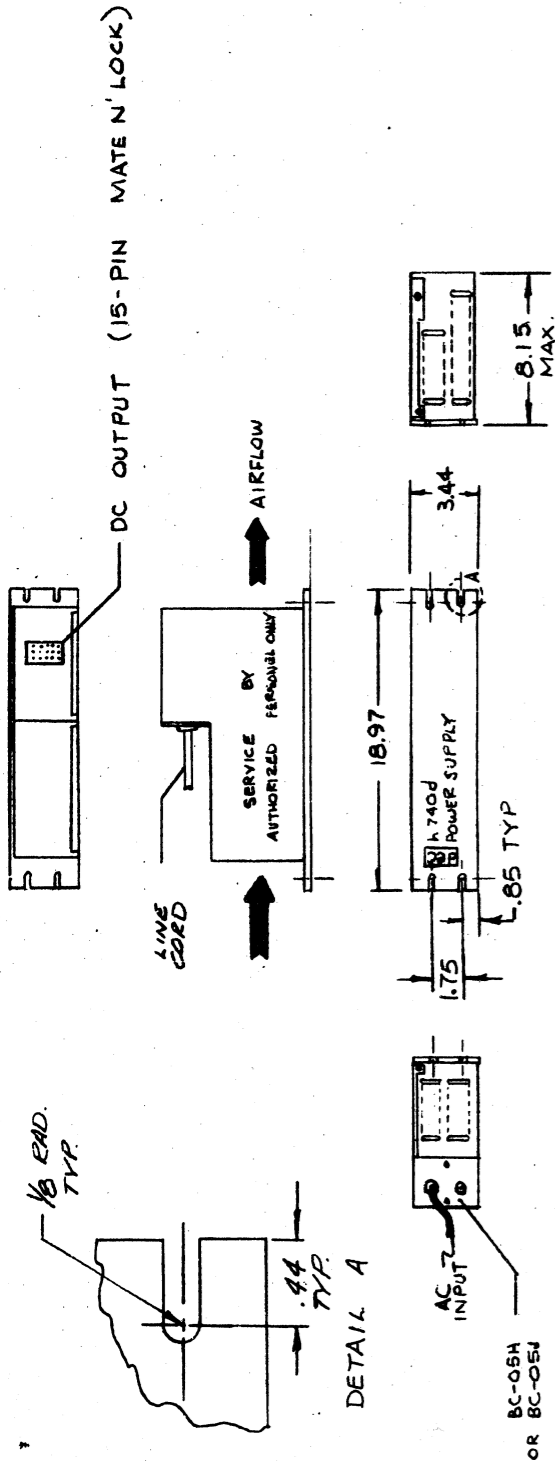
2.2.3 -15 V

2.2.4 Real Time Clock Signal LTC L

2.2.5 Transformer Secondary Voltage For Power Fail Option

2.2.6 DC LO L and AC LO L

2.2.6.1 Static Performance



24 lbs.
APPROX. WEIGHT

OUTLINE DRAWING
H740D

- DC OUTPUT DESIGNATIONS
- ① +15V
 - ② +5V
 - ③ +5V
 - ④ GND
 - ⑤ GND
 - ⑥ GND
 - ⑦ -15V
 - ⑧ -15V
 - ⑨ +15V
 - ⑩ AC LO (H)
 - ⑪ DC LO (L)
 - ⑫ LTC L
 - ⑬ POWER ENABLE
 - ⑭ POWER OK

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DAVID DE MORANVILLE
8 FEB. 1972

SIZE A	CODE SP	NUMBER 5409728-0-8	REV
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TITLE POWER SUPPLY SPECIFICATION - H740

TABLE OF CONTENTS (Contin.)

2.2.6.2 Dynamic Performance

2.2.6.3 Output Characteristics

FIGURE 2-2: Unibus Load

2.2.6.4 POWER OK L

FIGURE 2-3: a) Low State Load Impedance
 b) High State Load Impedance

3.0 Mechanical and Environmental Specifications

4.0 Applicable Specifications

4.1 Underwriter's Laboratories

4.2 DEC Specifications

5.0 Quality Assurance Provisions

5.1 Component Selection

5.2 Component Deratings

5.3 Reliability

6.0 Marking, Labels

6.1 Warning Label

6.2 Input Power Rating Label

6.3 Subassembly Marking

7.0 Revisions

APPENDIX: Outline Drawings of Various Versions of H740.

SIZE	CODE	NUMBER	REV
A	SP	5409728-0-8	