

Issue 1
5.11.68

Issue 2
18.2.69

DESIGNS DEPARTMENT SPECIFICATION NO.5.143(68)

Power Supplier PS2/74A, B, C, D

GENERAL

The PS2/74 is a single power supply unit available in four versions :

PS2/74A	6 volts at 4 Amps.
PS2/74B	12 volts at 3 Amps.
PS2/74C	24 volts at 2 Amps.
PS2/74D	50 volts at 1 Amp.

All versions have current limiting of the regenerative type so that the short circuit current is approximately $\frac{1}{3}$ of the full load current.

The A and B versions have over-voltage protection on the outputs which operates at approximately +25% above the nominal output voltage.

MECHANICAL

The unit is constructed using a CH1/26B chassis, with the following pin details.

Mains supply : (240V, 50Hz) Line - PLA1
Neutral - PLA2
Earth - PLA3

Output : PLA9 (negative)
PLA10 (positive)

ELECTRICAL

Tolerable mains variation $\pm 10\%$ (at full load)

	6 volt	12 volt	24 volt	50 volt
(1) Output ripple at full load less than :	12	9	6	3 mVpp
(2) Output impedance (dc) less than :	0.1	0.15	0.25	0.5 Ω
(3) Output impedance (ac) less than (up to 100kHz)	0.3	0.5	0.7	1.5 Ω

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DS/SPA4

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DESIGNS DEPARTMENT SPECIFICATION No. 5.143(68)

Power Supplier PS2/74A, B, C, D

PRODUCTION TEST SCHEDULE

Drawings

Circuit Diagram D 22919 A3
Assembly & Wiring D 22923 A1

Test Apparatus Required

Variac
2 Avometer (Model 8)
Oscilloscope - Telequipment 552 or equivalent
Rheostats : 10Ω/4 Amps (For versions A and B)
 100Ω/2 Amps (For versions C & D)

General

Check the circuit, assembly and wiring against the relevant drawings.

Electrical

Turn R10 fully anti-clockwise and R12 fully clockwise.

Connect a 240V, 50Hz supply to pins PLA 1, 2 and 3 (live, neutral and earth respectively) via variac.

Connect a calibrated Avometer model 8 to the output PLA 10 (+ve) and PLA 9 (-ve) and adjust R10 to give nominal output voltage to $\pm 0.5\%$.

Connect the appropriate Rheostat across the output with an Avo 8 in series (10A D.C. range), then check the following:-

Supply	PS2/74	A	B	C	D
Output Voltage		6	12	24	50 Volts
Output Current		4	3	2	1 Amp
Voltage drop from 0 to full load; less than:		400	450	500	500 mV
Output ripple at full load; less than:		12	9	6	3 mV p-p

Output Transistor Current Sharing.

Check that the voltage across R15 and R19 are within 20% of each other.

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Current Limit Setting

Adjust the current limit circuit by setting the load current to be 110% of full load, then adjust R12 until the output voltage drops by about 10%.

Short Circuit Current

Using Avo 8 on 10A D.C. range check that the short circuit current is within $\pm 30\%$ of

Supply	PS2/74	A	B	C	D
		1.2	1.2	0.6	0.3 Amps.

Over Voltage Check: 6 & 12 Volt Versions

Temporarily connect A croc. clip lead between the -ve end of C1 and PLA 9. CSR1 should fire causing the output voltage to fall to approx. 1 volt.

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D23008.A4

PS2/74B, POWER SUPPLIER STABILISED. PARTS LIST.

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ISS.	CHANGE	ITEM No.	QTY	DESCRIPTION	C'T REF.	BBC REF. OR DRG. No.
1	15. 7. 68					
2	ITEM 17 & 25 REVISED. SPEC'S ADDED. UNIT WIRING INFORMATION ADDED. R.B.A. 1-6-68					
3	ITEM 16 TYPE NO REVISED. JRS					
4	R.B.A. 8-6-71. 11/12 ITEM 9 WAS SET NO 15249 ALCAN INDUSTRIES. ITEM 26 WAS HELLECAMAS V.M.W. R.B.A. 4-2-72. 11/12					
5	ITEMS 10 & 28 ADDED. JRS JOS 24-10-72. CF 1679 (3)					
6	ITEM 20 QTY. WAS 4 CF 7887-PS2/74 (5) PH. 23.7.73 STOCK REFS. ADDED					
DRAWING NUMBERS						
				Circuit	D 22919 A3	
				Parts List	D 23008 A4	
				Assembly & Wiring	D 22923 A1	
				Details	D 22924 A2	
				P. B. Wiring	D 22925 A2	
				P. B. Comp. Loc.	D 22926 A4	
				P. B. Drilling	D 22927 A4	
				SPEC ED/PS2/74		
FURTHER INFORMATION REQUIRED FOR MANUFACTURE						
				Unit Assembly Information	EA 10484	
				Unit Wiring Information	EA 10139	
				Unit Wiring Information	EA 10140	
1	1			Chassis CH1/26B CONSTRUCTED & MODIFIED BY CONTRACTOR AS FOLLOWS :		SPEC ED/CH1/26
				ESCUTCHEON MODIFIED TO :-		D22924 A2 DET.2.
				FRONT BRACKET MODIFIED TO:-		D22924 A2 DET.5
				REAR BRACKET MODIFIED TO:-		D22924 A2 DET.7
		*		& INCLUDING EMBODIMENT LOAN ITEMS ON P.L. DA 15025		
5						
6	1			Transformer Mounting Plate To:-		D 22924 A2 DET.10.
7	1	*		Heat Sink Marex Type X/5D/460/A/1 Marston Excelsior Ltd., Modified BY CONTRACTOR TO:-		D 22924 A2 DET.11.
8						
9	2			Heat Sink		D 22924 A2 DET. 12.
10	2	*		HEAT SINK REDPOINT TYPE 5F		
11	1			Capacitor Fixing Plate		D 22924 A2 DET.13.
12	2	*		Capacitor Fixing Clip. Horizontal 1 1/4" Dia Radiospares		
13						
14	1	*		Plug 15-Way in Line Painton Type 73/10/1501/10		1-25086-315
15	2	*		Fuseholder. Cartridge Belling & Lee Type L1348		1-22222-102
16	2	*		Fuseholder Cover Bulgin Type 9452		
17						
18	4	*		Insulating Bush, Mullard Type 56201a		
19	2	*		Washer Mica Mullard Type 56201b		
20	8	*		Insulator Steatite & Porcelaine Type R50568		1-58261-020
21						
22	2	*		Clamp Cable Helleman Type X2 Polypropylene Black		1-58160-302
23	3			Tag Solder 6BA S.E.		
24	4			Tag Solder 2BA S.E.		
25	2	*		Spacer. Variable Resistor		EPA 6902
26	4	*		Transistor Mounting Pad PERMARK Type H501		1-58203-518
27	2	*		Transistor Mounting Pad Jernyn Type T018-006		1-59193-018
28	2	*		SPACER, ROUND 1/8" LG. 4BA HARWIN TYPE R4080		1-58280-404
29						
30	1	*		Printed Board		D 22925 A2, D 22926 A4 D 22927 A4.
31						
32						

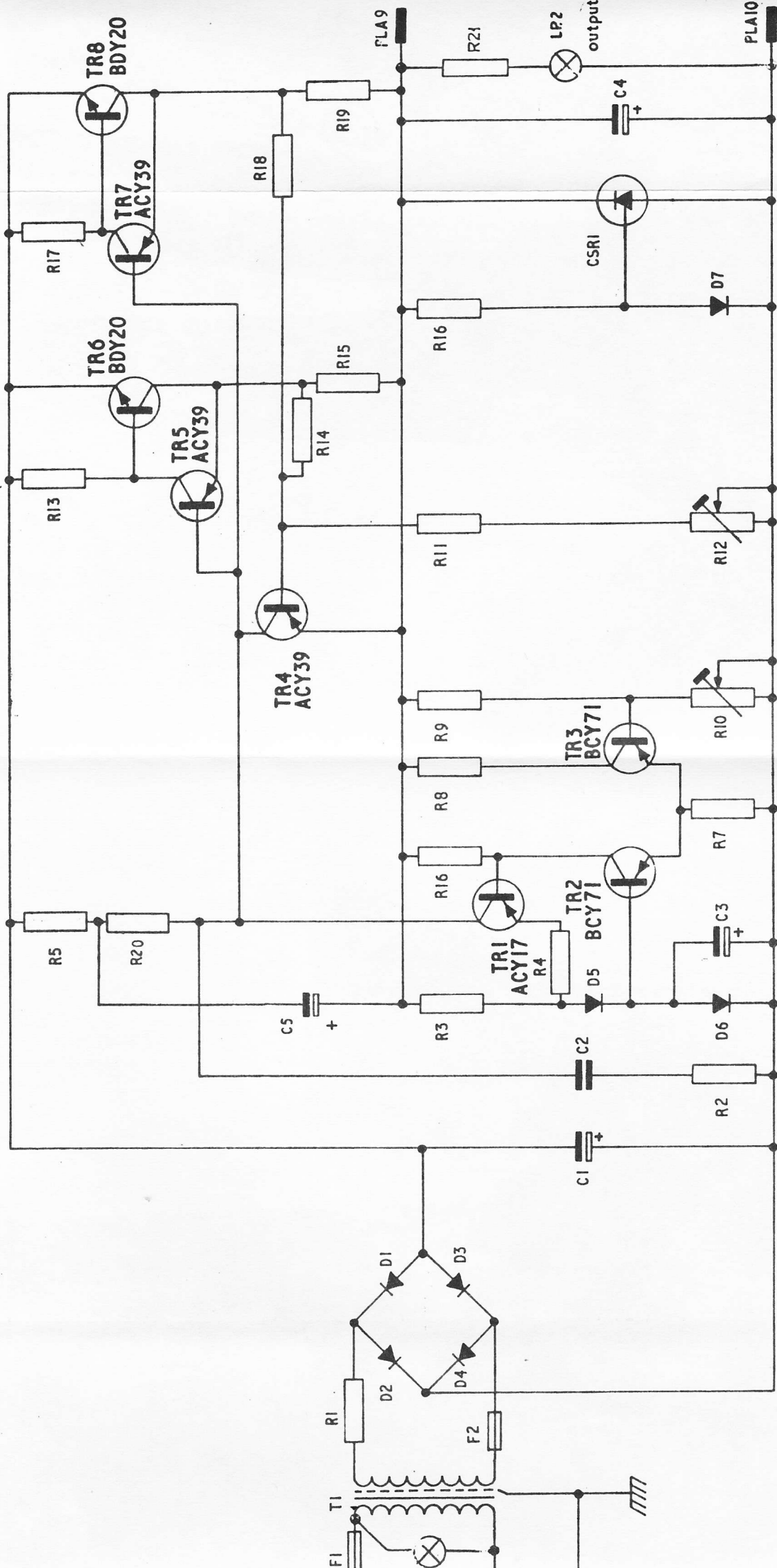
BBC

DS/PLA4

PS2/74B
POWER SUPPLIER STABILISED.
Parts List

DRN.	GMB
TPD.	CPS
CKD.	
APPD.	ARKH

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UNIT	VOLTAGE	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	C5
PS2/74A	6V	1/4	2.2	100	47	510	220	330	10	100	470	220	2.2k	1k	200	1/2	1k	1k	200	1/2	510	68
PS2/74B	12V	1/4	4.7	390	200	750	1k	560	10	820	1k	470	5.6k	1k	200	1/2	2.2k	1k	200	1/2	750	47
PS2/74C	24V	1/2	10	820	270	1.1k	3.9k	1.8k	10	1.6k	2.2k	1k	10k	1k	270	1	1k	1k	270	1	1.1k	22
PS2/74D	50V	1/2	20	7.5k	3.9k	10k	27k	4.7k	10	13k	5.6k	4.7k	100k	1k	1.6k	2.2	1k	1.6k	2.2	10k	15	

Transistor termination
view on leads

case