
SECTION 11. GUARANTEE AND SERVICE FACILITIES

The unit is guaranteed for a period of two years from its delivery to the purchaser.

We maintain comprehensive after sales facilities and the unit can, if necessary, be returned to us (or our authorised dealer) for servicing. The type and serial number should always be quoted, together with details of any fault, and the service required.

Time Electronics can re-calibrate your instrument and issue a 5 page calibration certificate, traceable to N.P.L. or alternatively obtain a B.C.S. certificate.

If a fault can be traced to board level, Time Electronics offer an exchange service for all Printed Circuit Boards in this instrument. (See Spare Parts).

Equipment returned to us for servicing must be adequately packed, preferably in the special box supplied, and shipped with transportation charges prepaid. **WE CAN ACCEPT NO RESPONSIBILITY FOR INSTRUMENTS ARRIVING DAMAGED.** Should the cause of failure during the guarantee period be due to misuse or abuse of the unit, or if the guarantee period has expired, the repair will be put in hand without delay, and charged unless other instructions are received.

TIME ELECTRONICS LIMITED.
BOTANY INDUSTRIAL ESTATE,
TONBRIDGE,
KENT.
TN9 1RH.

TEL : TONBRIDGE (0732) 355993
FAX : 0732 770312
TELEX : 95481

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IMPORTANT NOTES :

1) THE CONTENTS OF DRAWINGS MUST NOT BE COPIED OR USED WITHOUT PRIOR WRITTEN CONSENT OF TIME ELECTRONICS LTD.

2) TIME ELECTRONICS INSTRUMENTS ARE SUBJECT TO FURTHER DEVELOPMENT AND MAY INCORPORATE CHANGES FROM THE INFORMATION CONTAINED HEREIN.

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9800 SERIES BUS CONNECTIONS - TABLE 1

<u>COLUMN A</u>	<u>FUNCTION</u>	<u>COLUMN C</u>	<u>FUNCTION</u>
PIA 1		POWER SUPPLIES	
1 .....	.PA0	1	0 VOLTS
2 .....	.PA1	2	0 VOLTS
3 .....	.PA2	3	+ 5 VOLTS
4 .....	.PA3	4	+ 5 VOLTS
5 .....	.PA4	5	+ 10 VOLTS
6 .....	.PA5	6	0 V ISOLATED. (#1)
7 .....	.PA6	7	LOCAL
8 .....	.PA7	8	- 18 V (#1)
9 .....	.PB0	9	+ 18 V (#1)
10 .....	.PB1	10 .....	.5/10 VOLTS
11 .....	.PB2	11	NOT USED
12 .....	.PB3	12	NOT USED
13 .....	.PB4	13	VMA
14 .....	.PB5	14	A15
15 .....	.PB6	15	A14
16 .....	.PB7	16	A13
PIA 2		CONTROL LINES	
17 .....	.PA0	17	RST (#4)
18 .....	.PA1	18	ENABLE
19 .....	.PA2	19	R/W
20 .....	.PA3	20	RS0 (A0) 6800 P BUS
21 .....	.PA4	21	RS1 (A1)
22 .....	.PA5	22	RS2 (A2)
23 .....	.PA6	23	IRQ
24 .....	.PA7	24	CS 6000
25 .....	.PB0 (#2)	25	D0
26 .....	.PB1 (#3)	26	D1
27 .....	.PB2	27	D2
28 .....	.PB3	28	D3
29 .....	.PB4	29	D4
30 .....	.PB5	30	D5
31 .....	.PB6	31	D6
32 .....	.PB7	32	D7

ALL AT TTL LEVEL.

NOTES :

#1 - ISOLATED SUPPLY CONNECTIONS : Used when +/- 18 Volt regulator board is fitted to power unit.

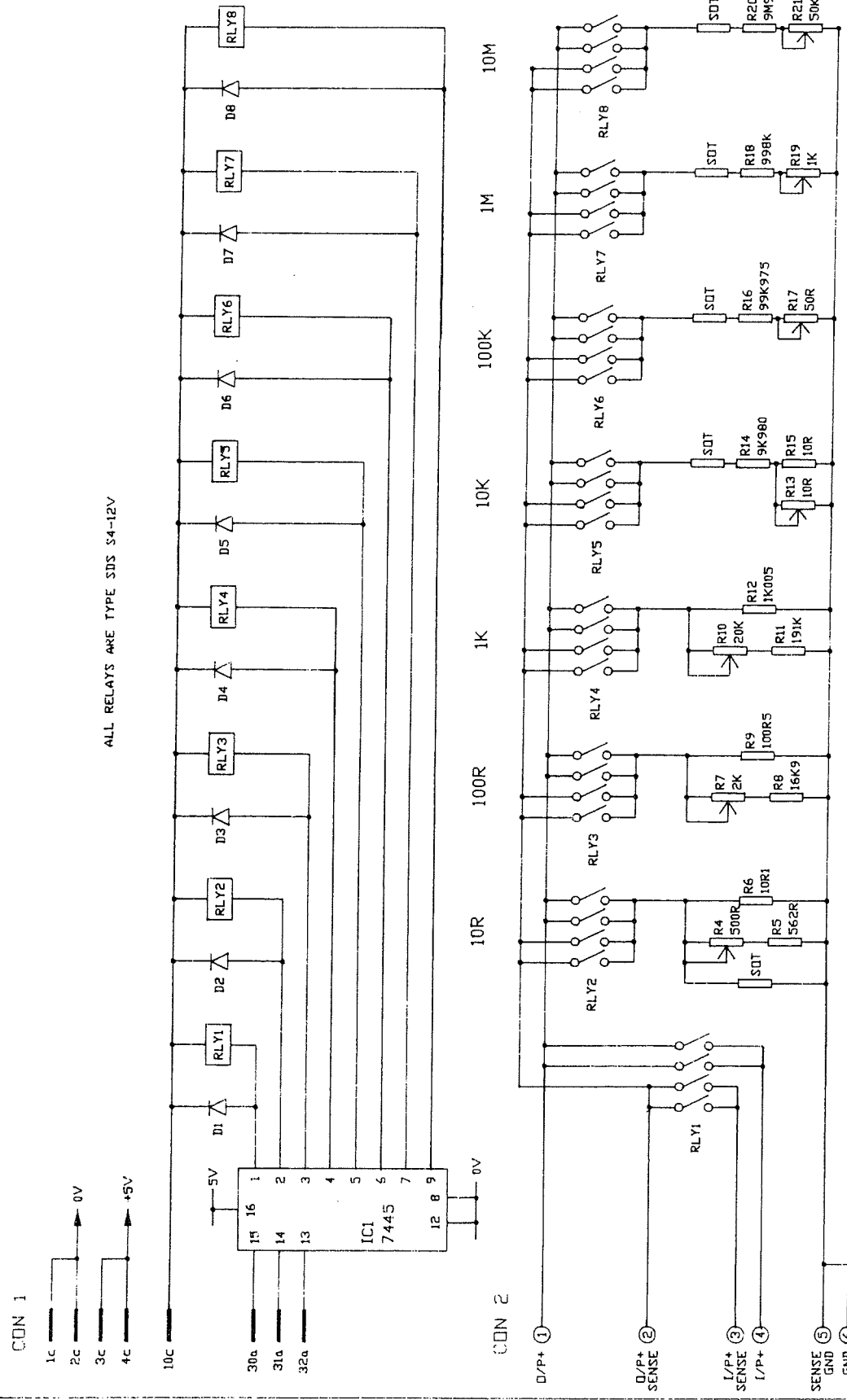
#2 - PB0 - 12 V SELECT : Logic 1 sets 5/12 V supply to 12 V and turns on data light.

#3 - PB1 - SELECT LOCAL : uP sets high to select local operation in uP 'dead' units. uP reads to determine position (local or remote) of key switch in uP active units.

#4 - RESET (RST) : Grounded by key switch in uP dead units driven by uP for POR in uP active units.

POWER SUPPLIES : 5 V @ 1 A Regulated - 0 V to IEEE GND. 10 V @ 1A Unregulated - 0V to IEEE GND. +/- 18 V Regulated - Isolated from IEEE.

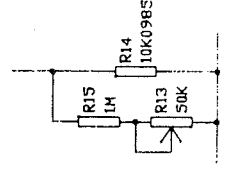
ISSUE	E	CHANGES	DRAWN ON ACAD 11/02/88
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ALL RELAYS ARE TYPE SDS 54-12V

SEE NOTE

NOTE -
IN SOME UNITS THE
10K RANGE MAY BE
WIRED DIFFERENTLY AS
SHOWN THUS -



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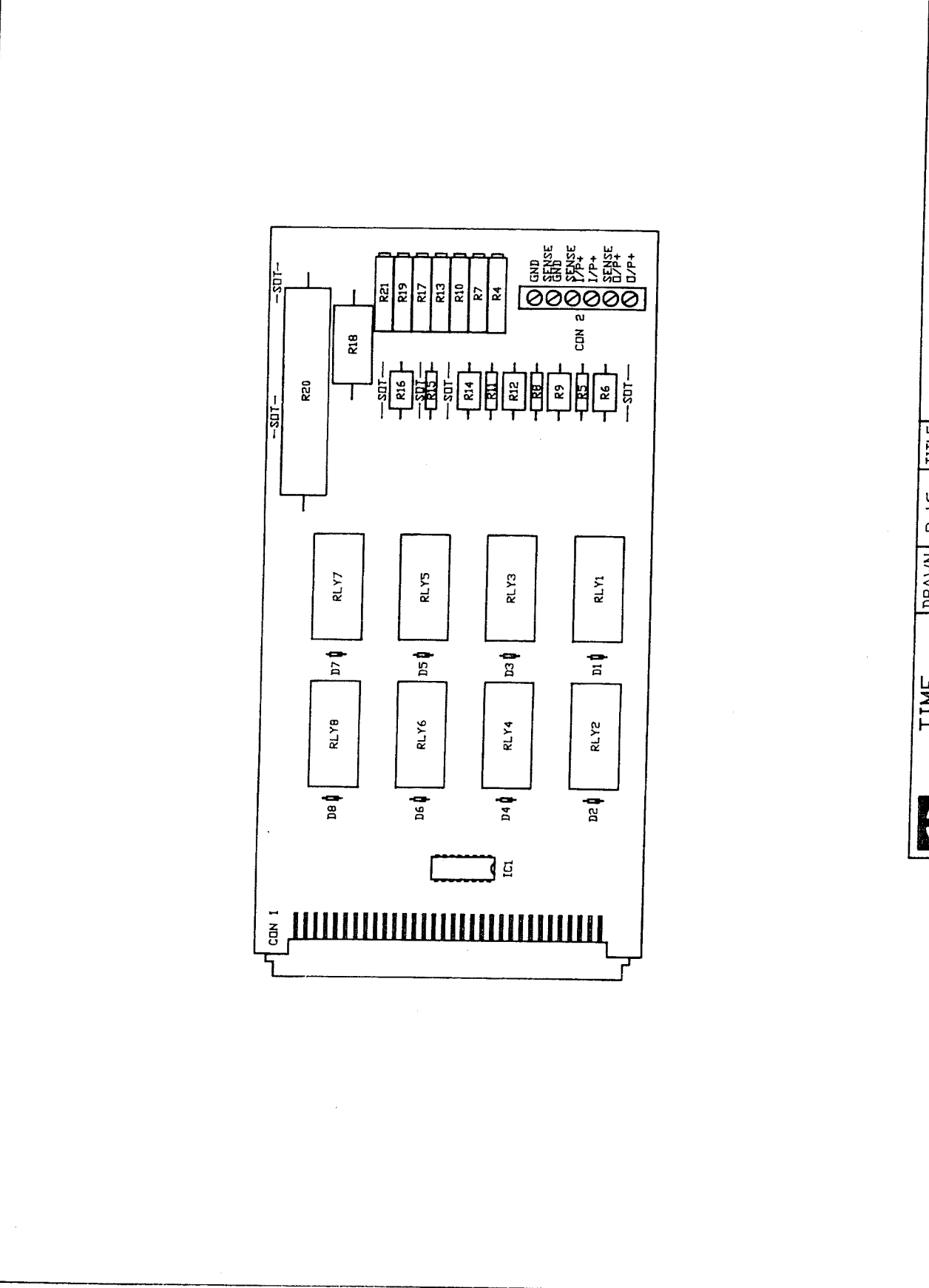
DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	10/2/88	DRG No

9414C01

PROG. RES. BOARD DIAGRAM

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ISSUE



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ELECTRONICS LTD	SCALE		
	APPRD		
	P.J.G.		
	TITLE		

9800 RESISTANCE BOARD

9414L01

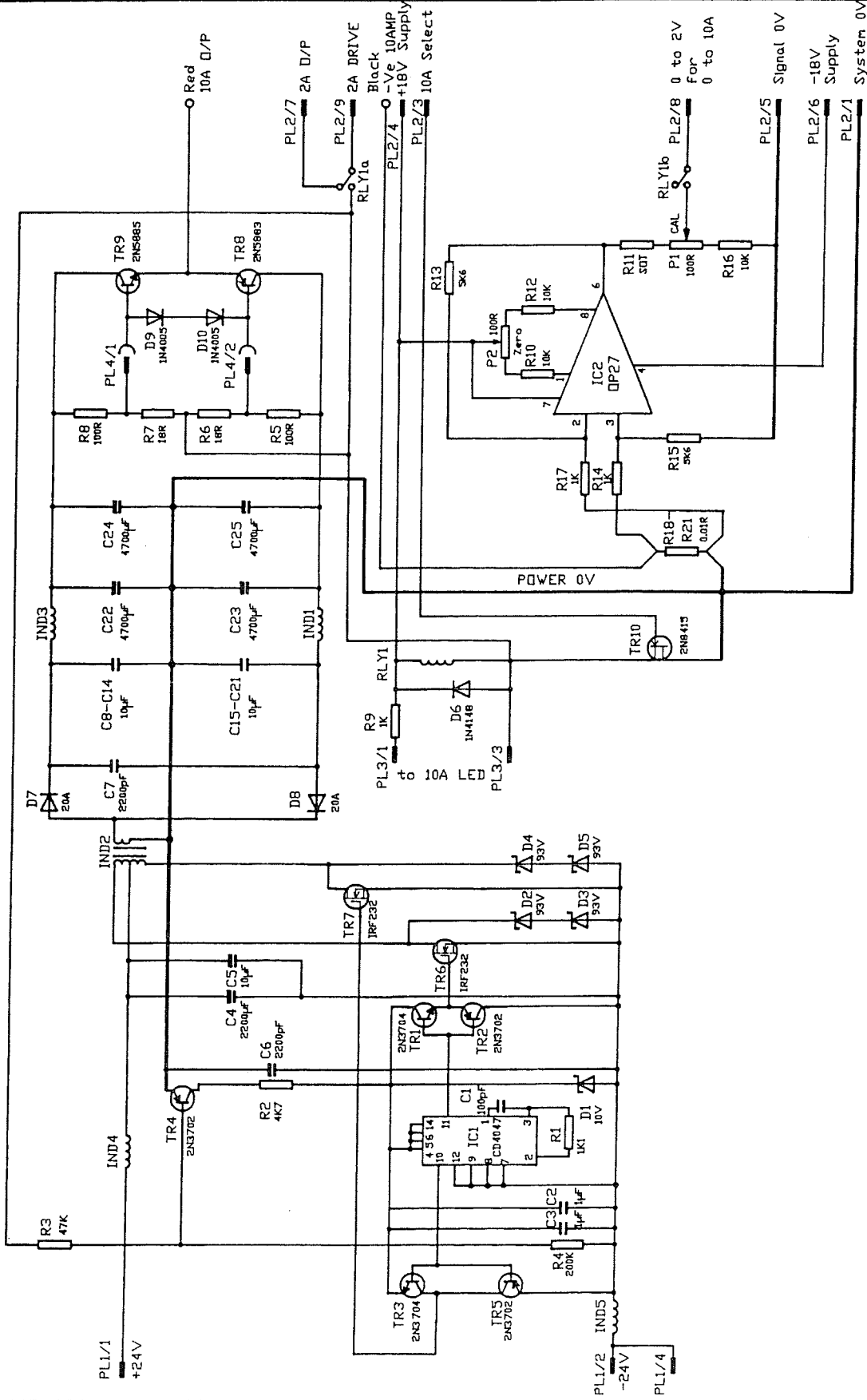
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DRG No

ISSUE
A

CHANGES
ICL CONNECTOR
ERROR PLUS 7A-31E
DATE 11/06/87

CHANGE R13 AND
R15 FROM 10K
TO 5K
DATE 11/02/88



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DRAWN	B.D.	TITLE
APPRD		
SCALE		
DATE	25/9/85	DRG No

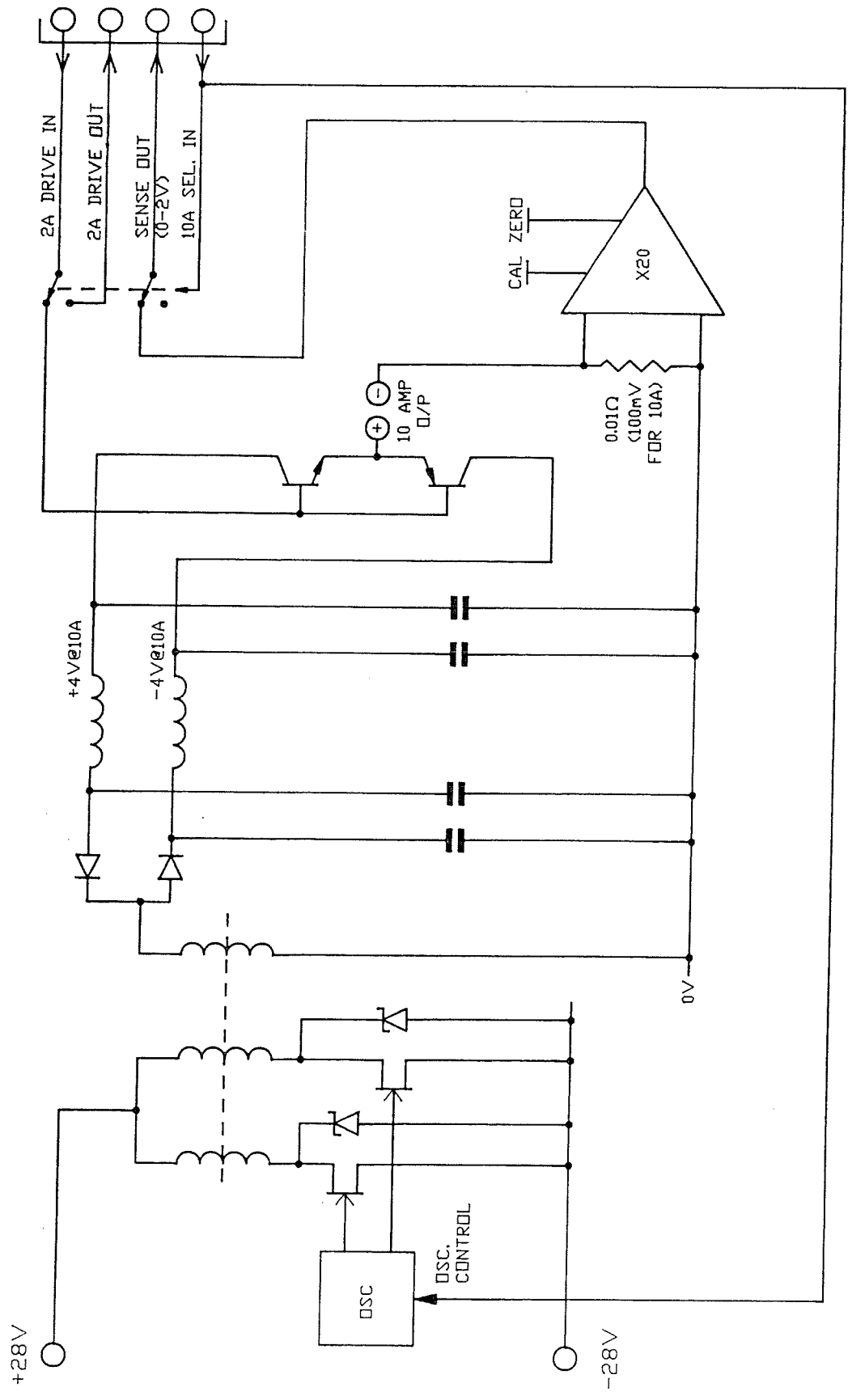
10 AMP BOARD CIRCUIT DIAGRAM


9428C01

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ISSUE
A
B

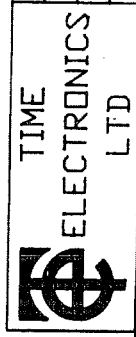
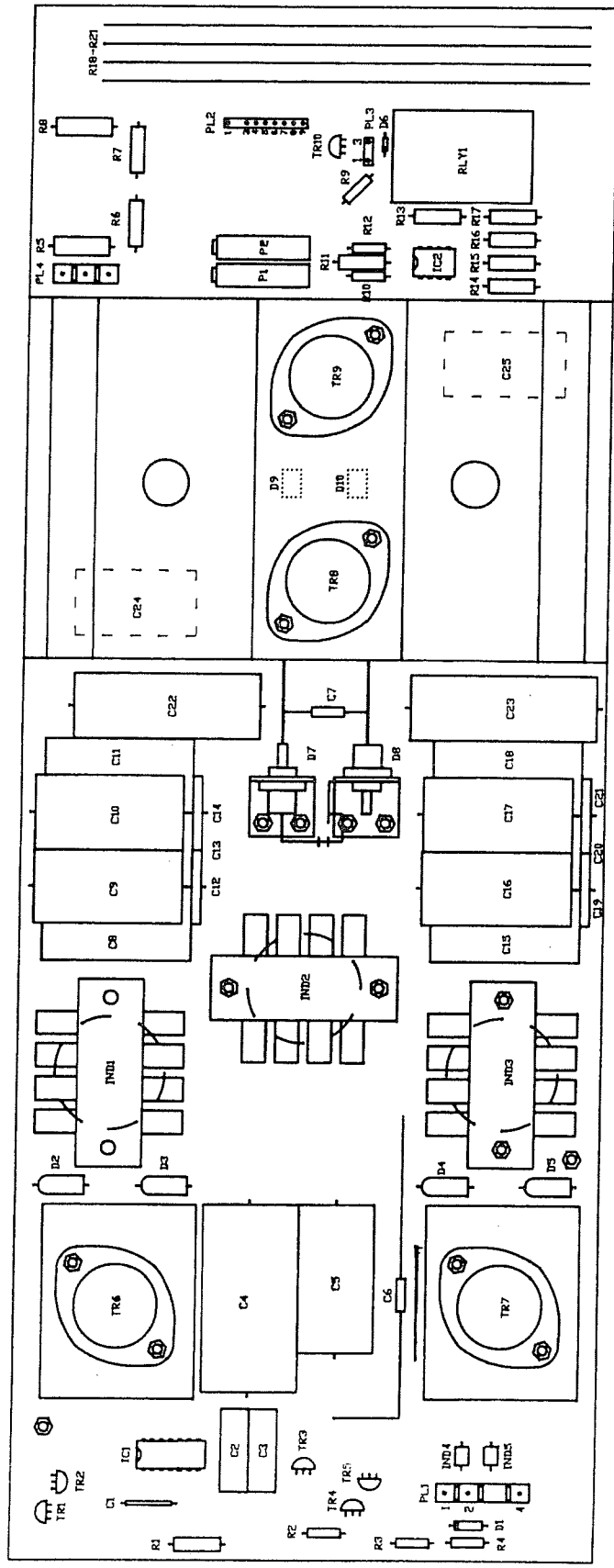
CHANGES
3/7/85
4/2/88



		TIME ELECTRONICS LTD		9800 10 AMP BOARD BLOCK DIAGRAM	
DRAWN	J.B.	TITLE			
APPRD					
SCALE					
DATE	3/7/85				
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ISSUE

CHANGES



TIME ELECTRONICS LTD

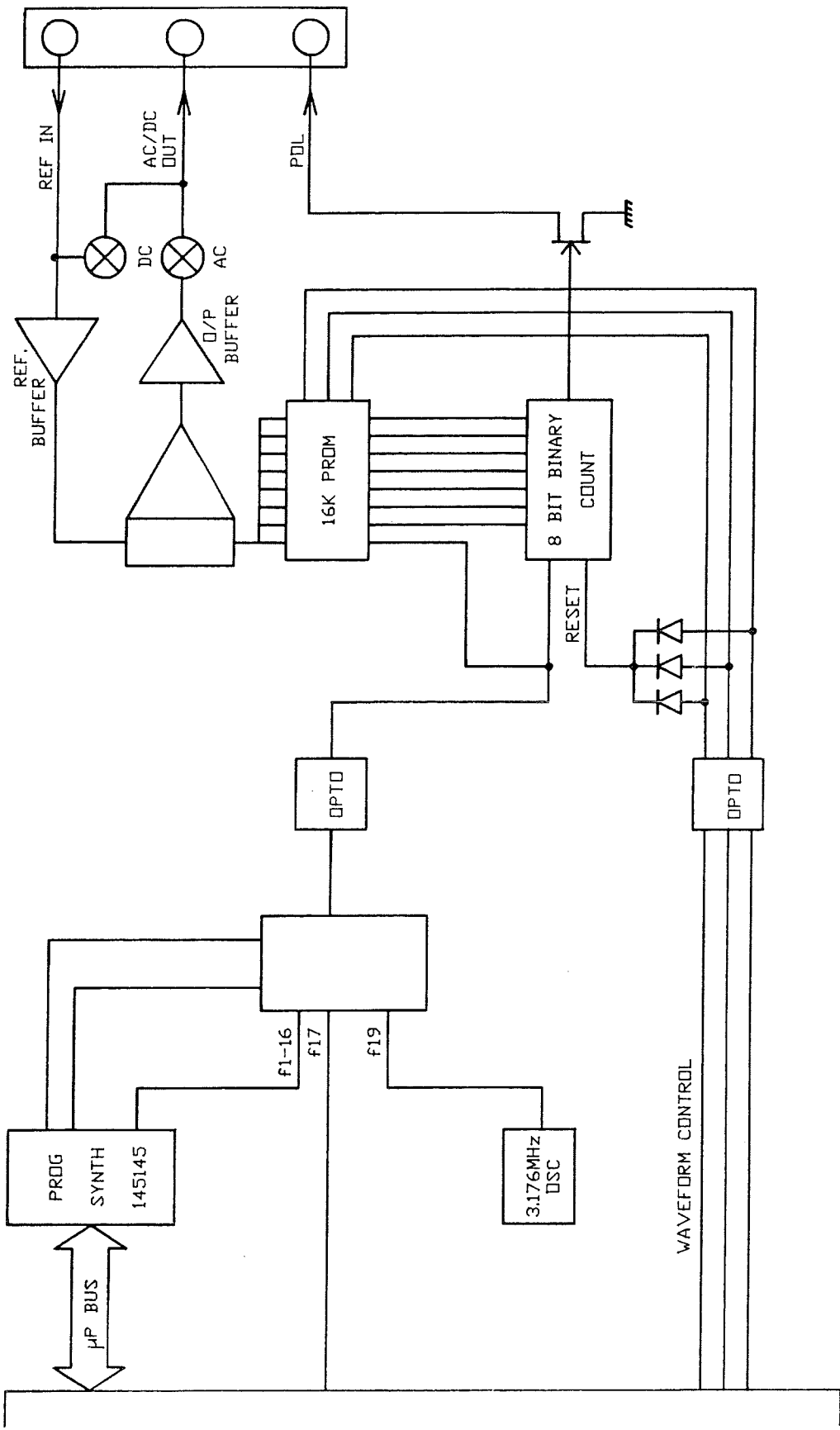
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APPRD		
SCALE		
DATE	16/9/85	DRG No


9800 10 AMP BOARD LAYOUT

9428L01

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ISSUE	CHANGES
A	3/7/85
B	17/2/88



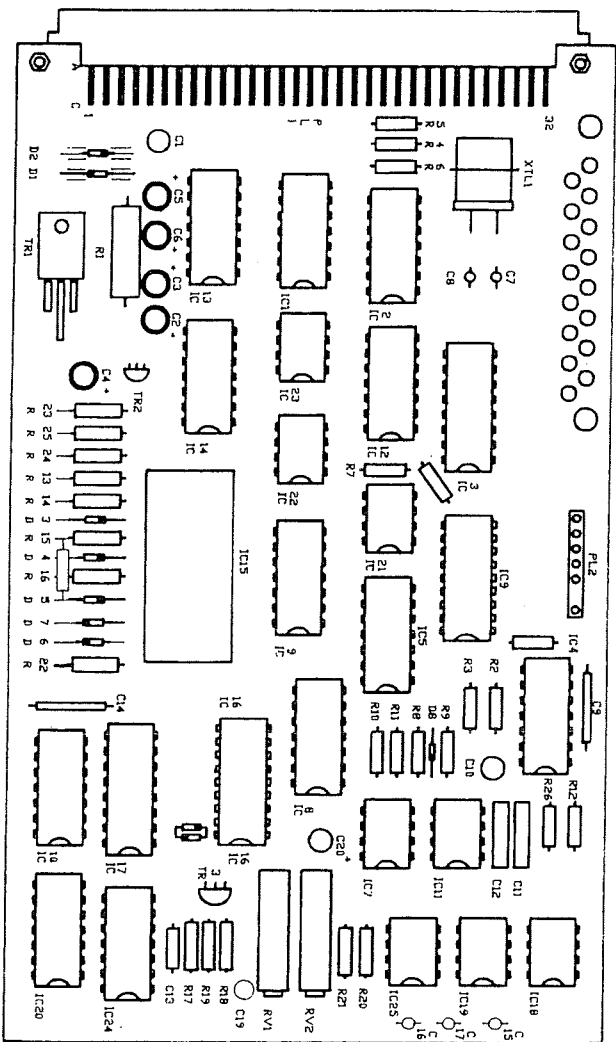
 TIME ELECTRONICS LTD	DRAWN	J.B.	TITLE
	APPRD		
	SCALE		
	DATE	3/7/85	DRG No

9800 AC BOARD BLOCK DIAGRAM

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9418B01

ISSUE CHANGES



TIME ELECTRONICS LTD

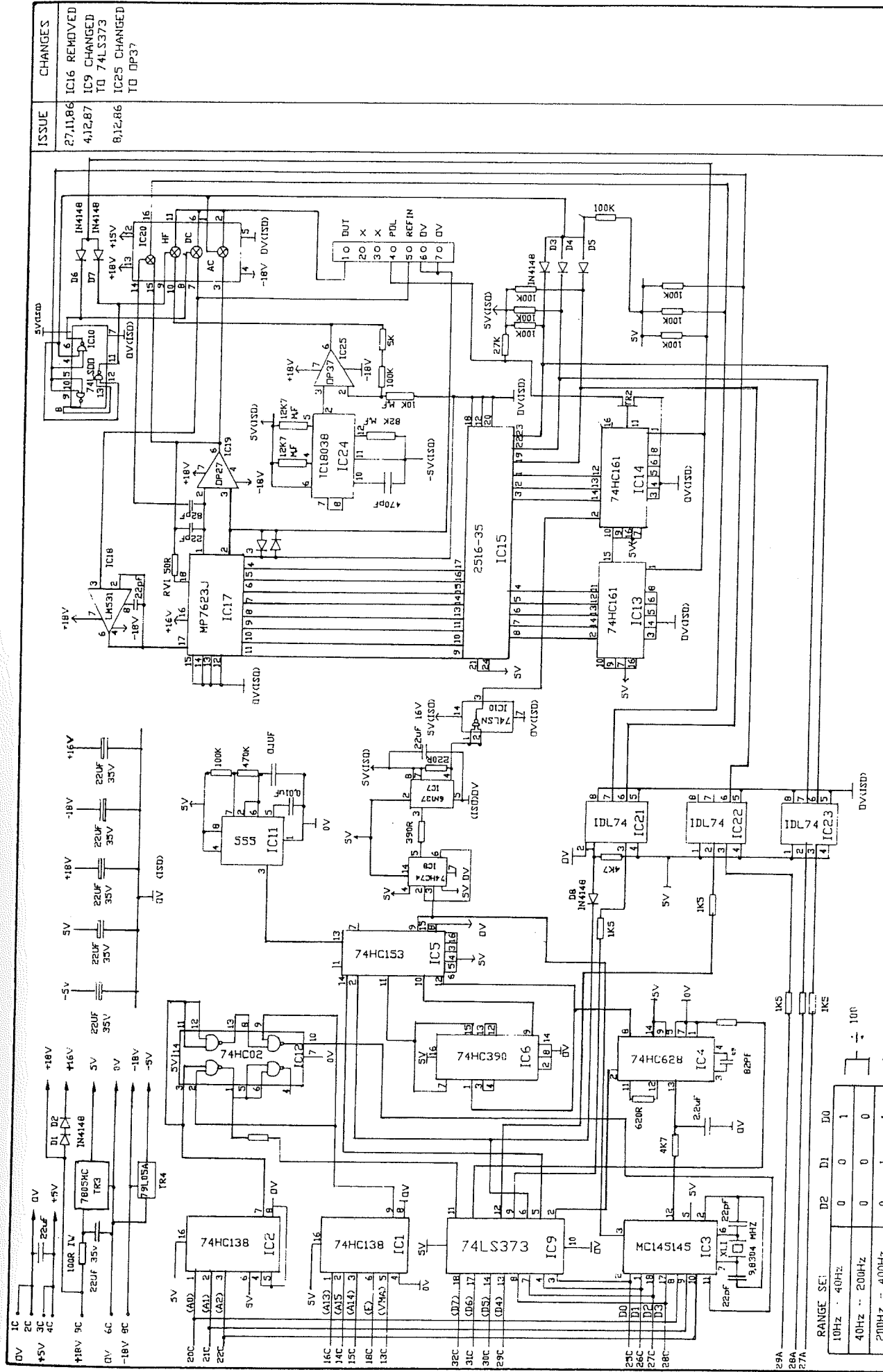
DRAWN	CAL	TITLE
APPRD		
SCALE		
DATE	3.12.86	

A.C. SYNTHESIZER BOARD

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DRG No

9418L01

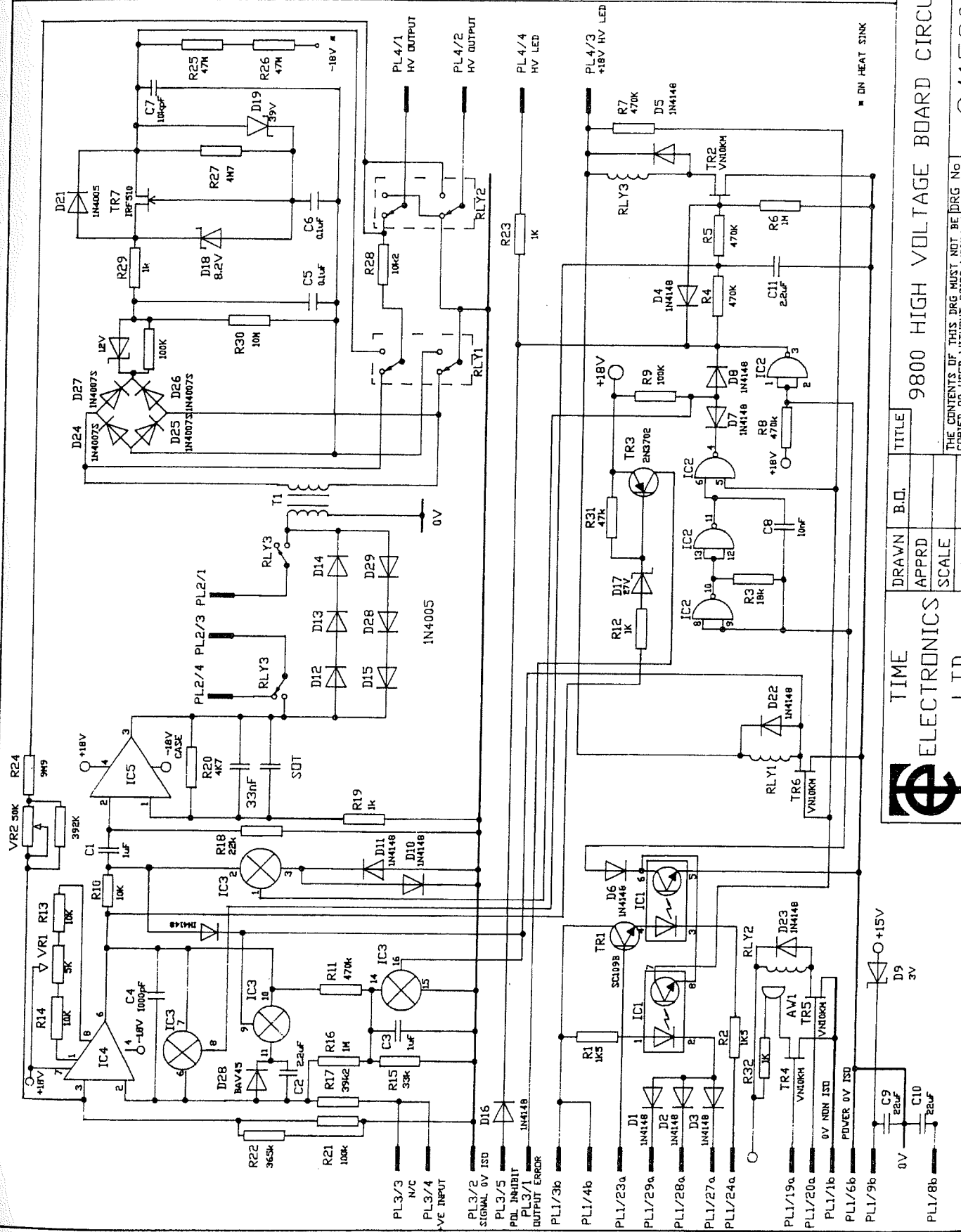


ISSUE	CHANGES
27.11.86	IC16 REMOVED
4.12.87	IC9 CHANGED TO 74LS373
8.12.86	IC25 CHANGED TO DP37

DRAWN	C.A.L	TITLE
		A.C. SYNTHESIZER BOARD

TIME ELECTRONICS LTD
 APPRD SCALE (1:4=1)
 DATE 10-3-86
 THE CONTENTS OF THIS DRG MUST NOT BE DRG NO. CHANGED OR USED WITHOUT PRIOR WRITTEN CONSENT OF TIME ELECTRONICS LIMITED

ISSUE	A	CHANGES
		REMOVE D28 CHANGE D18 TO 8.2V



TIME ELECTRONICS LTD

DATE: 11/10/85

SCALE: []

APPRD: []

DRAWN: []

9800 HIGH VOLTAGE BOARD CIRCUIT DIAGRAM

TITLE: []

B.I.D.: []

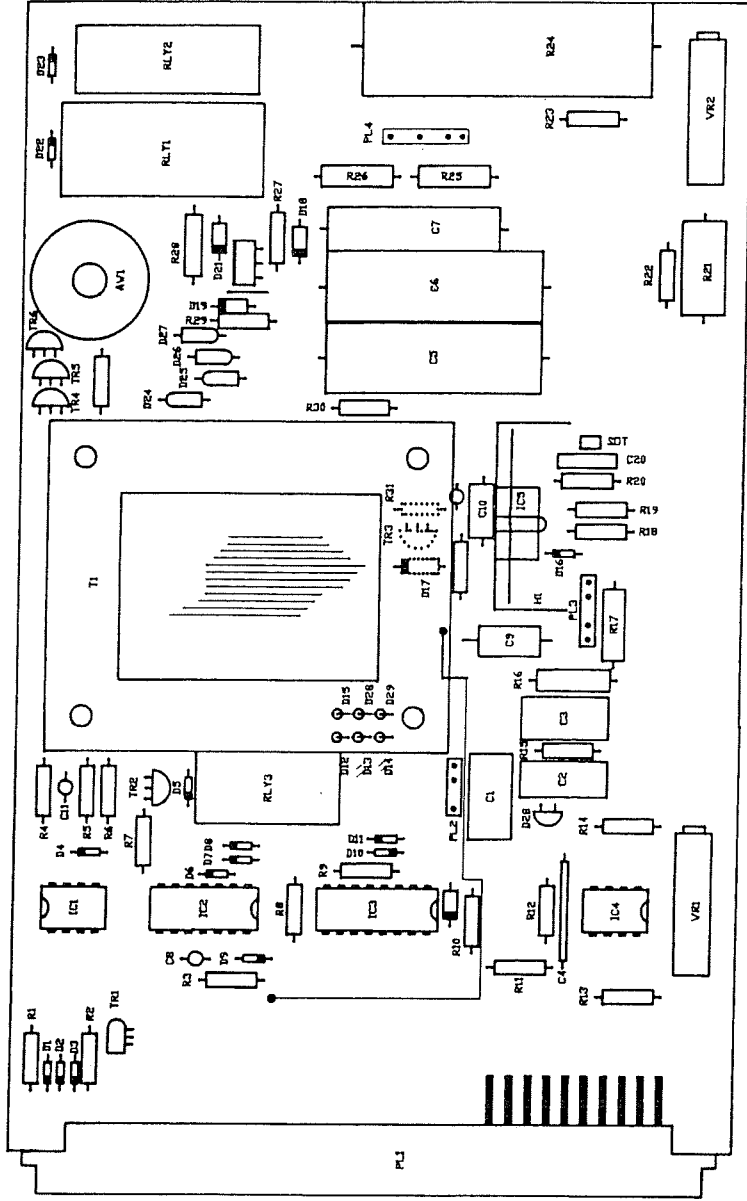
DRG NO: []


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9415C01

ISSUE

CHANGES




TIME ELECTRONICS LTD

DRAWN	B.D.	TITLE
APPRD		
SCALE		
DATE	2/10/85	

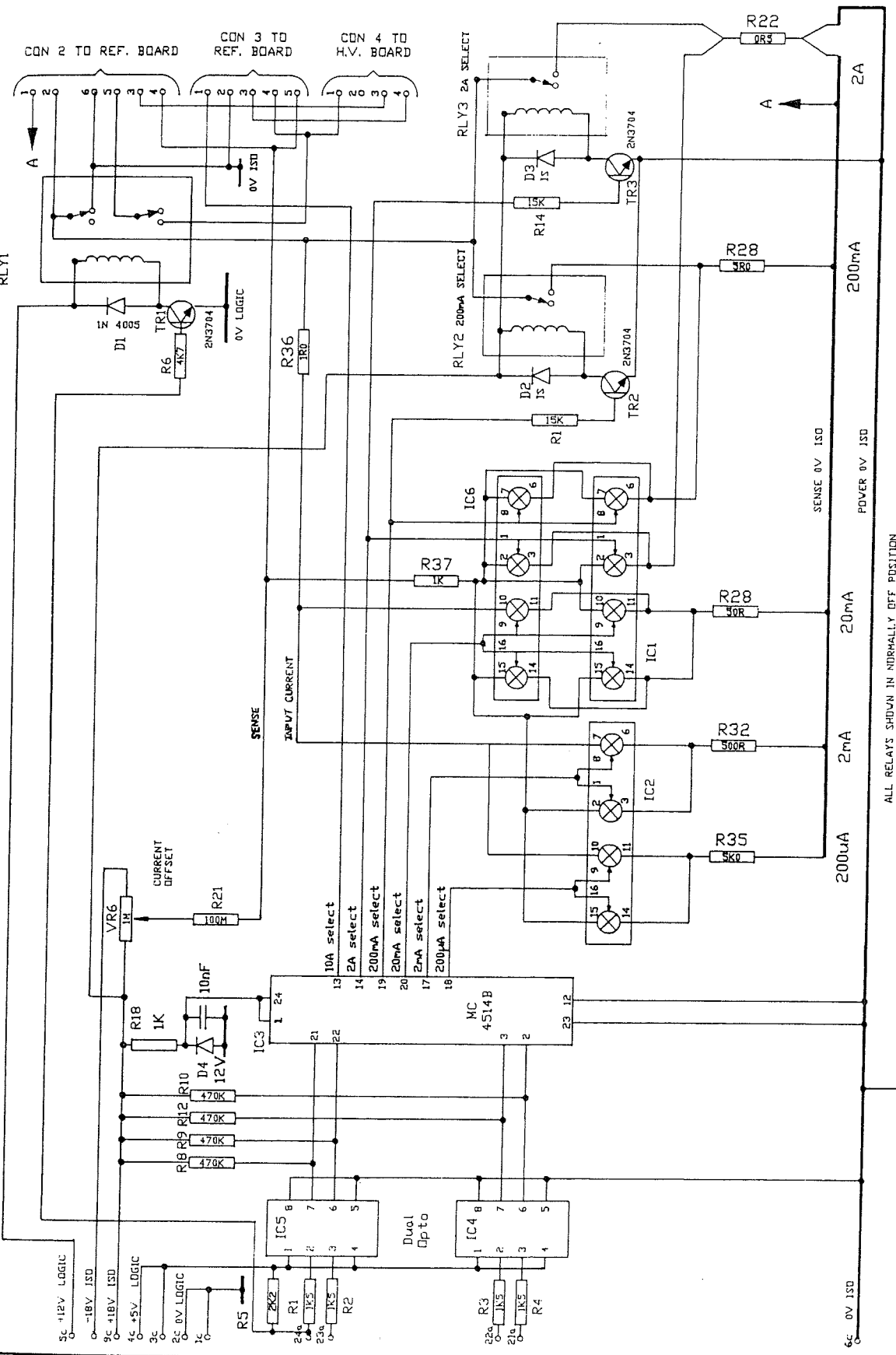
9800 HIGH VOLTAGE BOARD PHYSICAL LAYOUT

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 CONSENT OF TIME ELECTRONICS LIMITED

DRG No

9415L01

ISSUE C
Redrawn with CAD 5/7/85 B.D.
D CHANGED VALUES OF R18 & D4
E MODS FOR 20V WORKING 9/2/88 P.J.G.



4514 DECODE

RANGE	22	21	3	2	O/P PIN
100µA	H	L	L	L	18
1mA	L	L	H	L	17
10mA	H	L	L	H	20
100mA	H	L	H	L	19
1A	H	H	L	L	14
10A	H	H	H	L	13

DC308 SUPPLIES

PIN	VOLTS
4	-18 ISD
5	0 ISD
13	-18 ISD

TIME ELECTRONICS LTD

DRAWN	JONES	TITLE
APPRD	SCALE	DATE

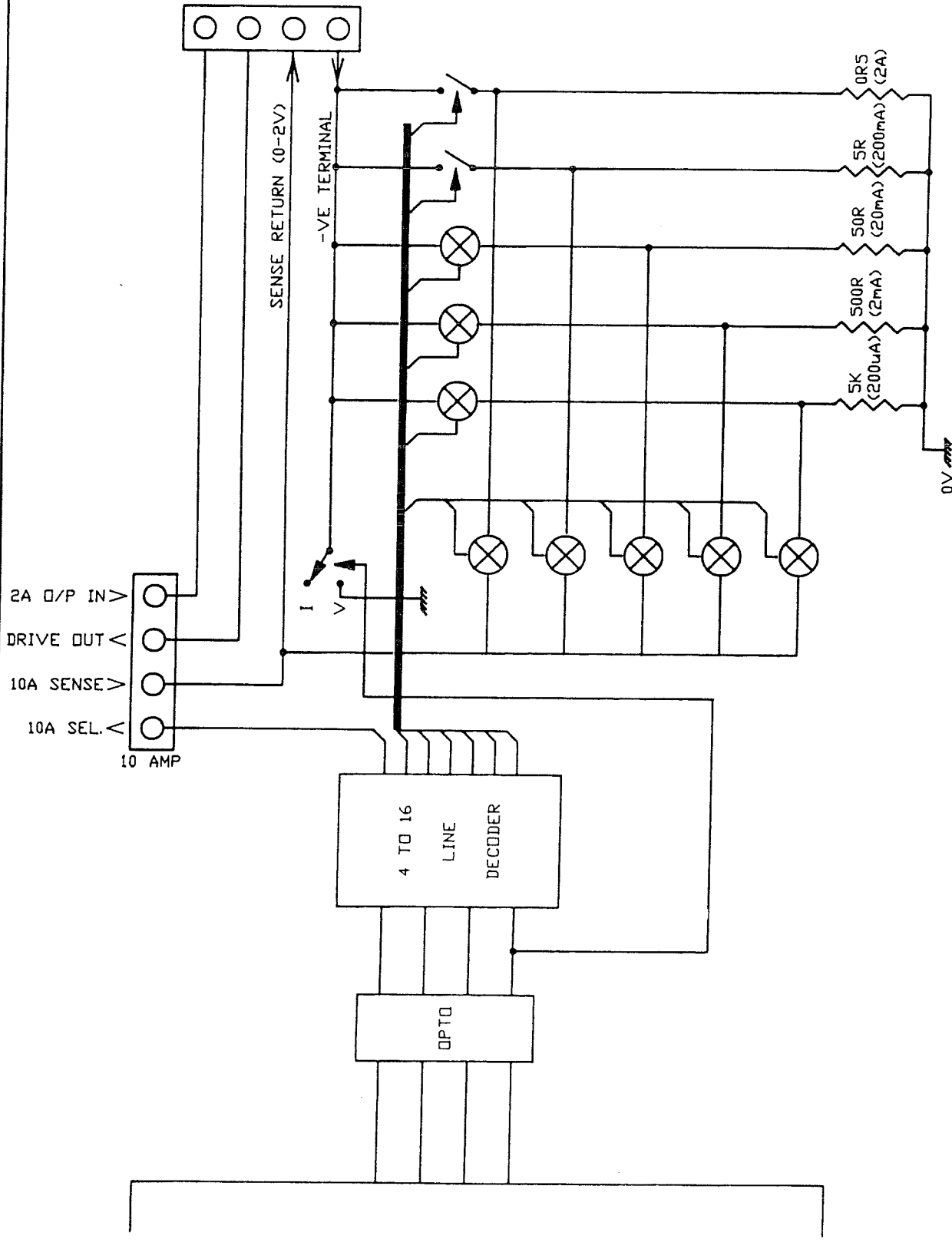
9800 CURRENT BOARD CIRCUIT DIAGRAM

DRG No 9421C01
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ALL RELAYS SHOWN IN NORMALLY OFF POSITION

FROM REFERENCE BOARD

ISSUE A
CHANGES 3/7/85



		TIME ELECTRONICS LTD	
DRAWN	J.B.	TITLE	
APPRD		SCALE	
DATE	3/7/85	DATE	3/7/85

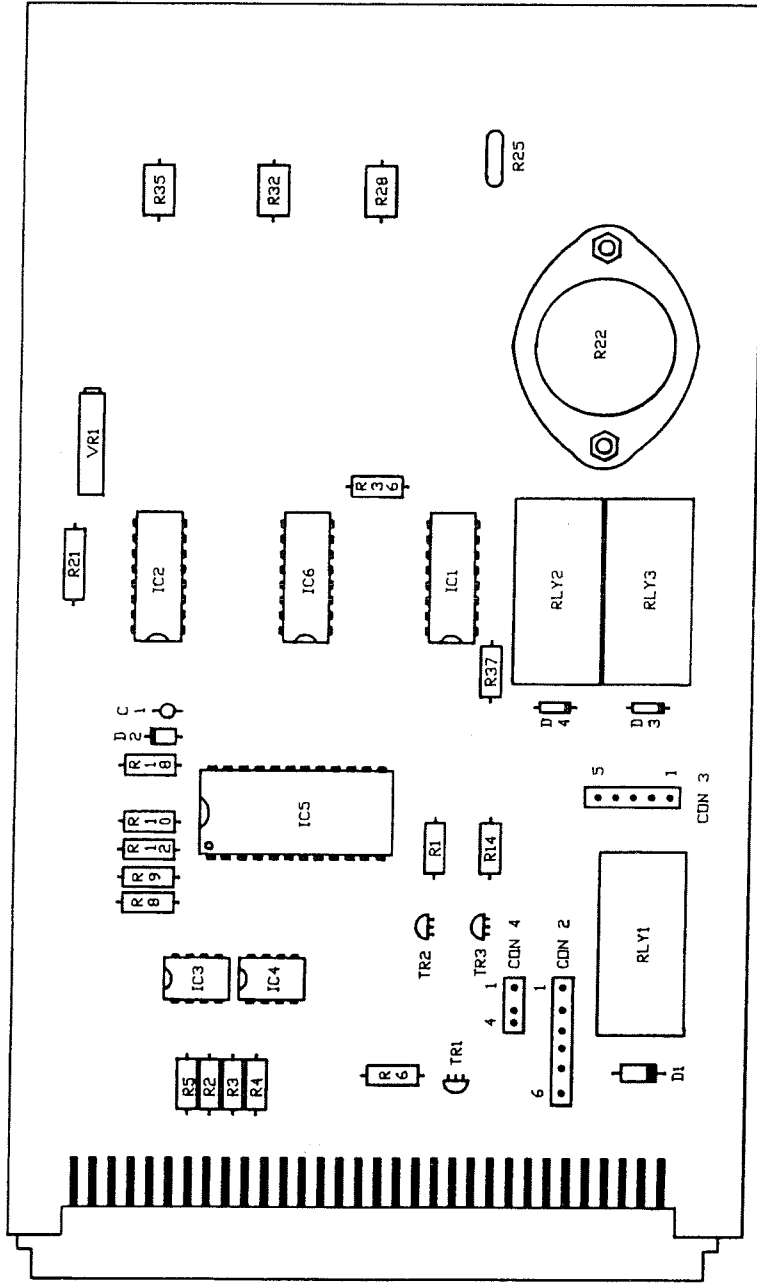
9800 CURRENT BOARD BLOCK DIAGRAM

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9421B01

ISSUE

CHANGES



**TIME
ELECTRONICS
LTD**

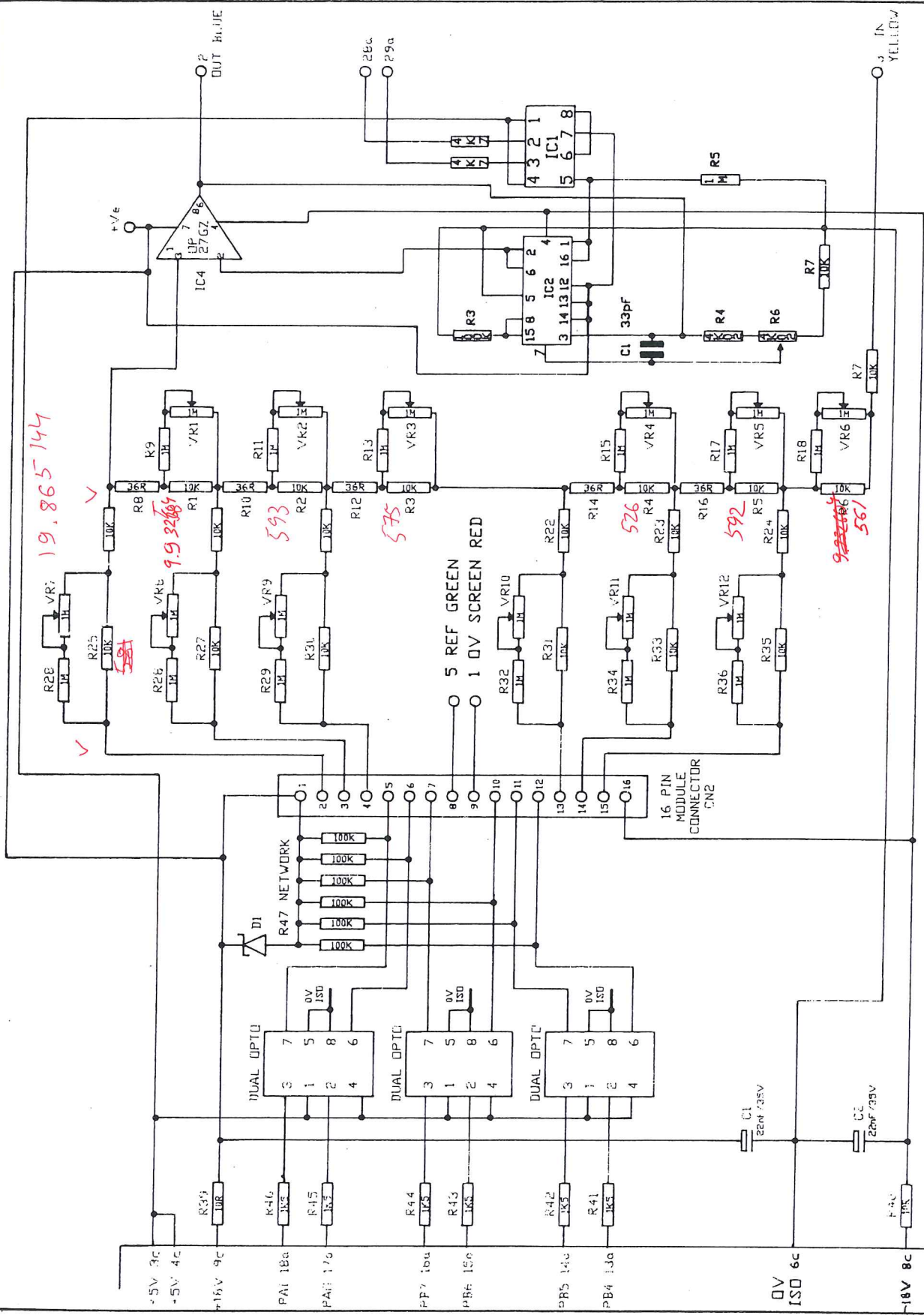
DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	9/2/88	DRG No


9800 CURRENT BOARD LAYOUT

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9421L01

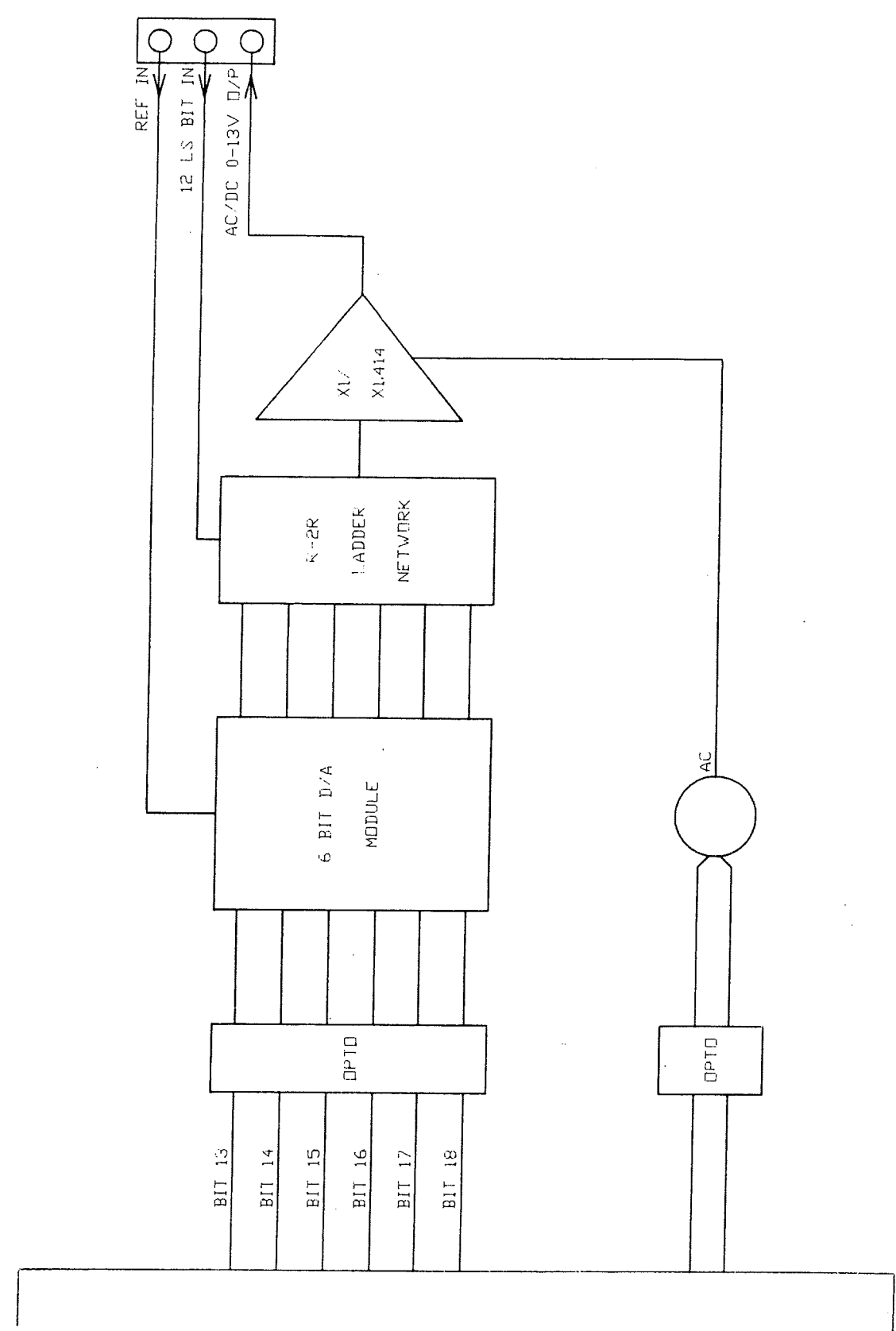
ISSUE: 11
 CHANGE'S: Redrawn with CAD 26/7/85 BJC



		TIME ELECTRONICS LTD	DRAWN: [] APP'D: [] SCALE: [] DATE: []	TITLE: 9800 D/A BOARD CIRCUIT DIAGRAM	DRG No: 9403C01
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ISSUE	CHANGES
A	3/7/85



TIME ELECTRONICS LTD

DRAWN	J.B.	TITLE
APPRD		
SCALE		
DATE	3/7/85	ERG No

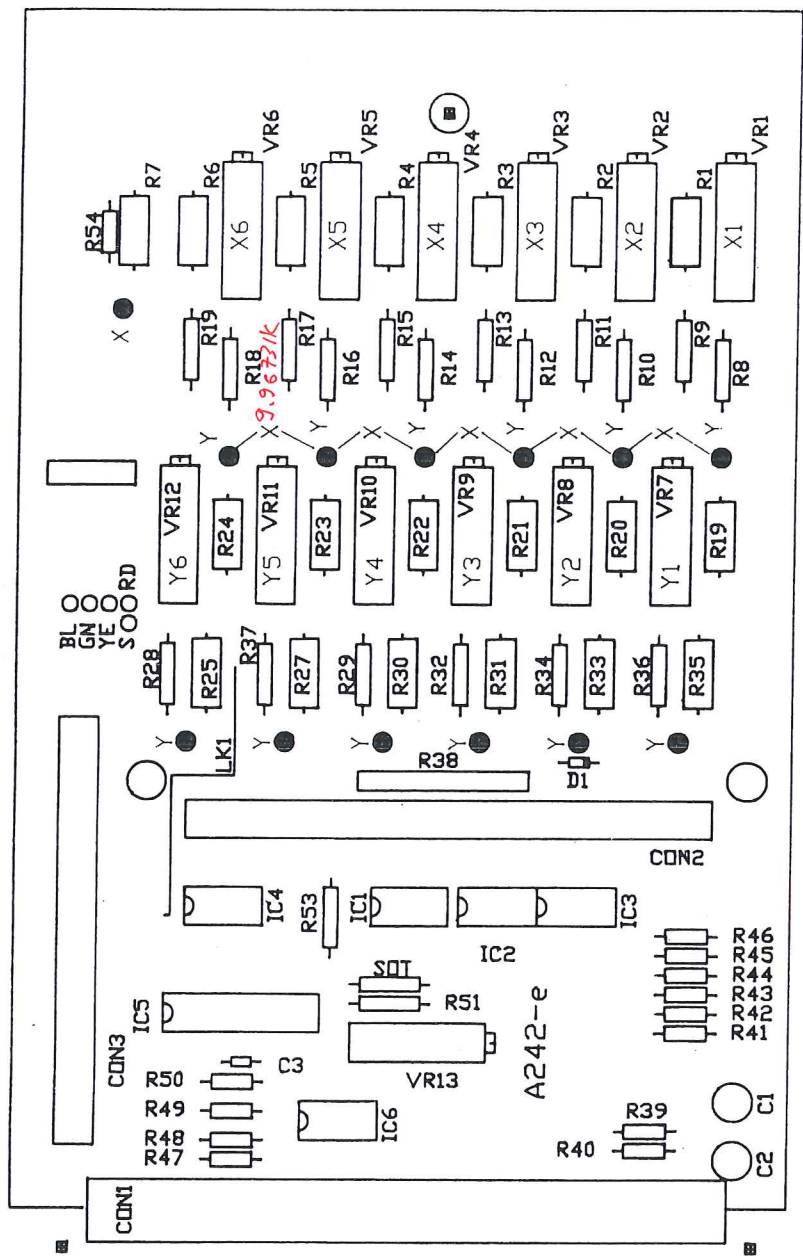
9800 D/A BOARD BLOCK DIAGRAM

9403B01


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ISSUE

CHANGES

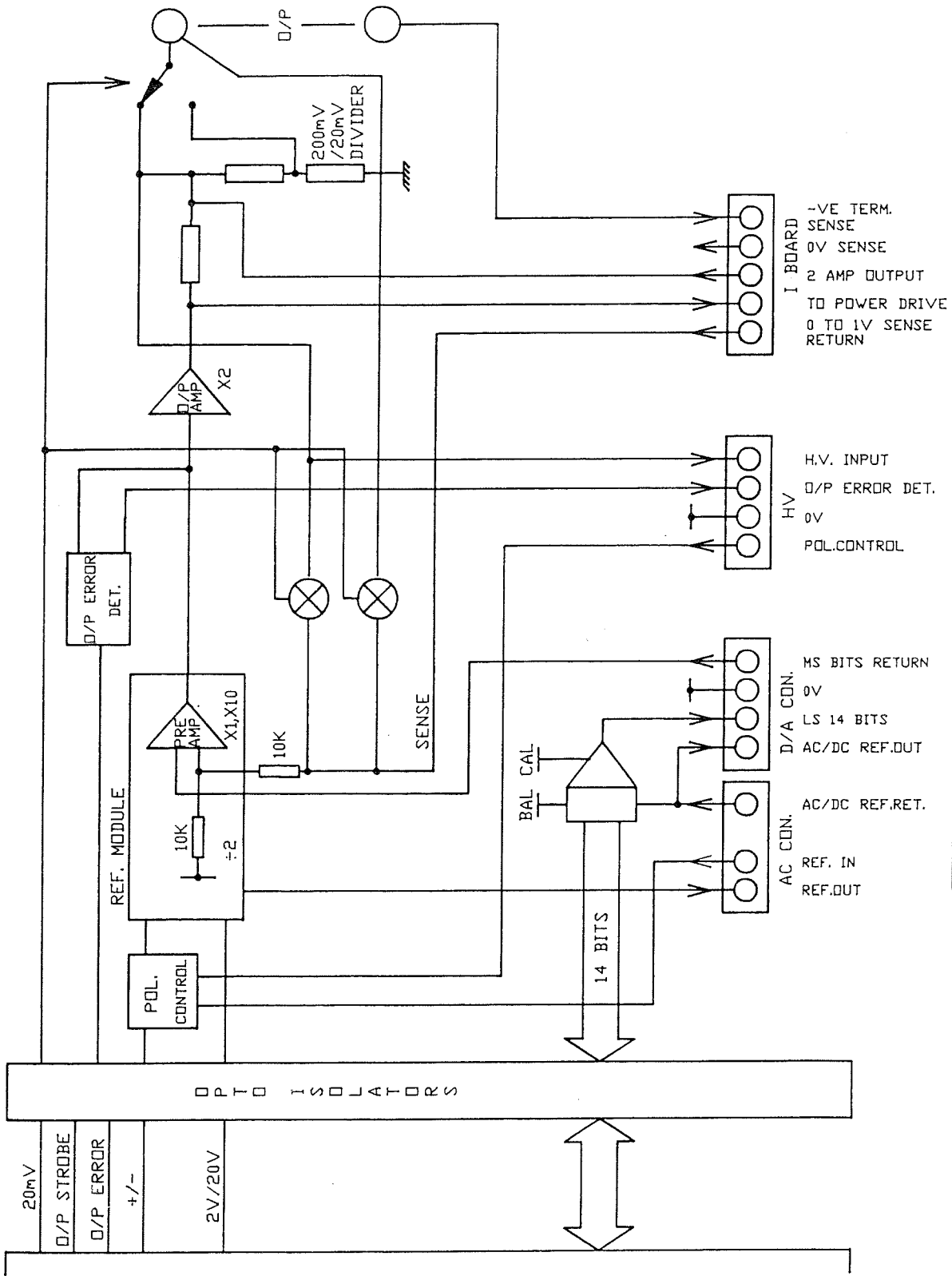


R7 : 9.969726K
~~9.967440K~~
~~9.967440K~~
~~9.967447K~~
~~9.967426K~~
~~9.967420K~~

 TIME ELECTRONICS LTD	DRAWN APPRD SCALE DATE	C/A/L 27,8,87	TITLE D/A BOARD CALIBRATION POINTS
	THE CONTENTS OF THIS DRG MUST NOT BE COPIED OR USED WITHOUT PRIOR WRITTEN CONSENT OF TIME ELECTRONICS LIMITED		
	DRG No LAYOUT/9403L01		
	27,8,87		

ISSUE
A
B

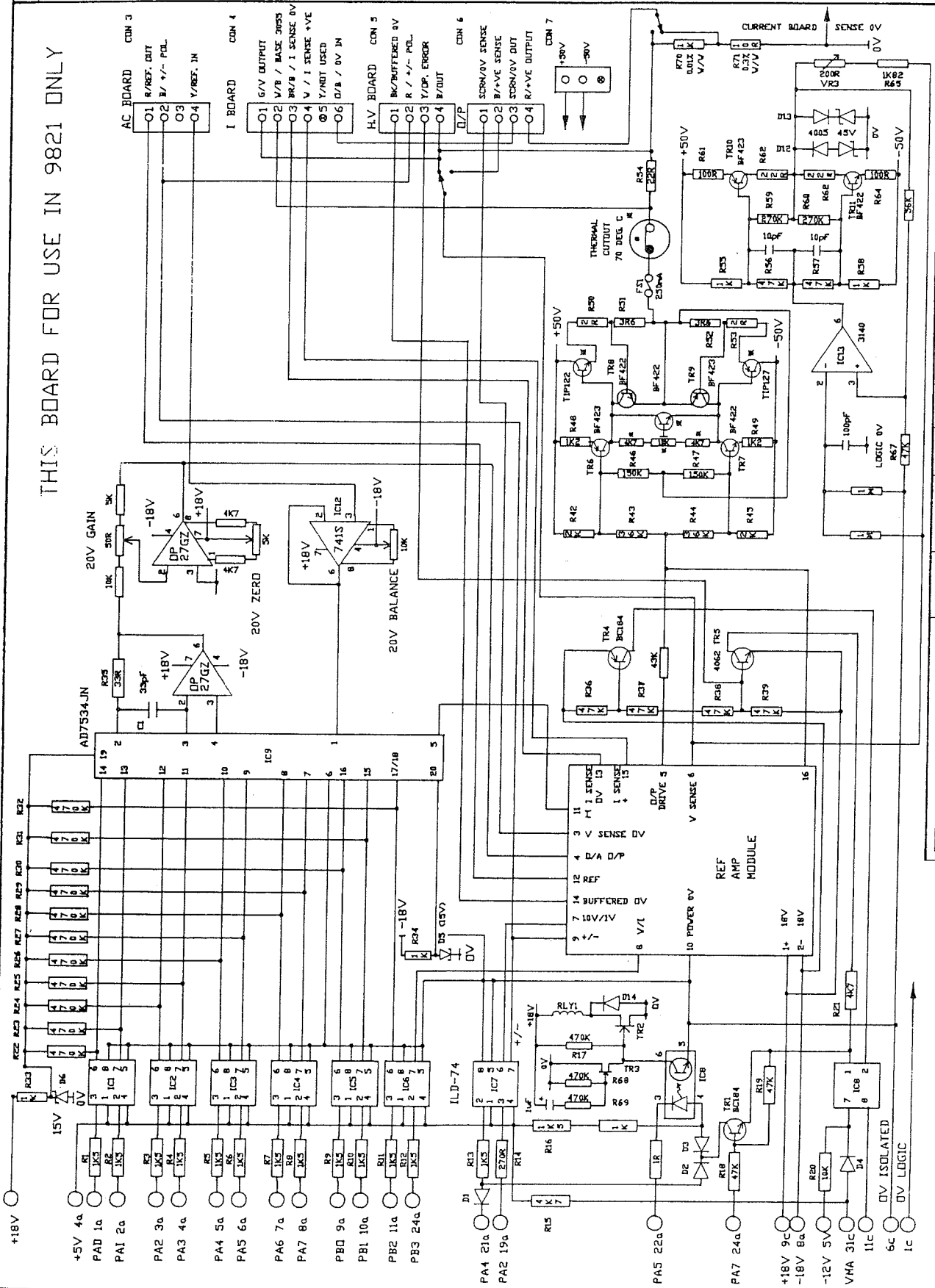
CHANGES
3/7/85
MODS. FOR
20V WORKING
22/02/88
P.J.G.



DRAWN		J.B.		TITLE	
APPRD				9800 REFERENCE BOARD BLOCK DIAGRAM	
SCALE				THE CONTENTS OF THIS DRG MUST NOT BE DRG NO	
DATE		3/7/85		COPIED OR USED WITHOUT PRIOR WRITTEN CONSENT OF TIME ELECTRONICS LIMITED	
TIME ELECTRONICS LTD				9404B01	

THIS BOARD FOR USE IN 9821 ONLY

ISSUE A
 CHANGES
 MODS FOR 20V WORKING
 03/02/88-PJG



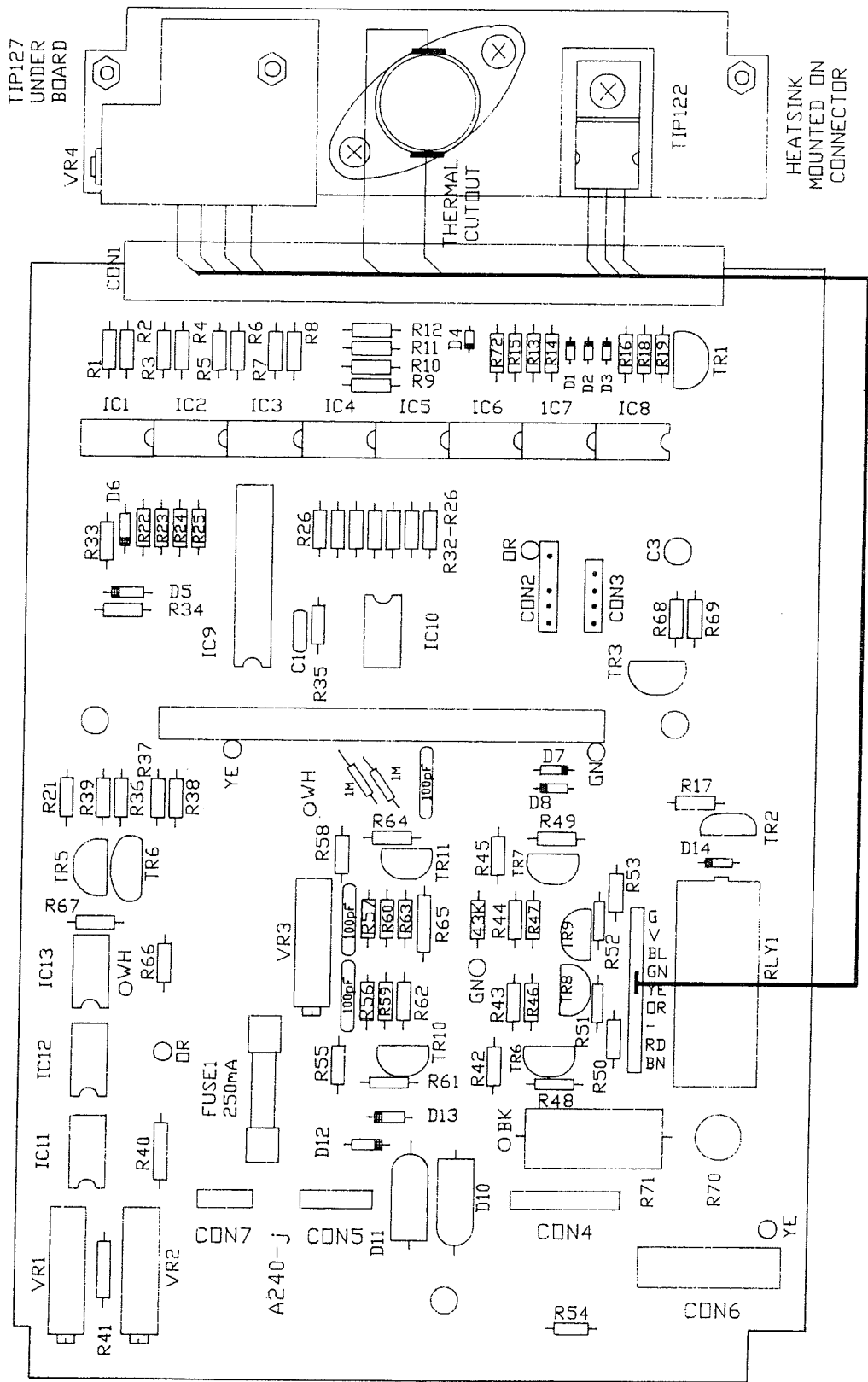
TIME	DRAWN	C.A.L	TITLE
ELECTRONICS	APPRD	SCALE	REFERENCE BOARD CIRCUIT DIAGRAM
LTD	DATE	24.2.87	9404C04

*'K' REFERS TO COMPONENTS MOUNTED ON HEATSINK

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ISSUE

CHANGES



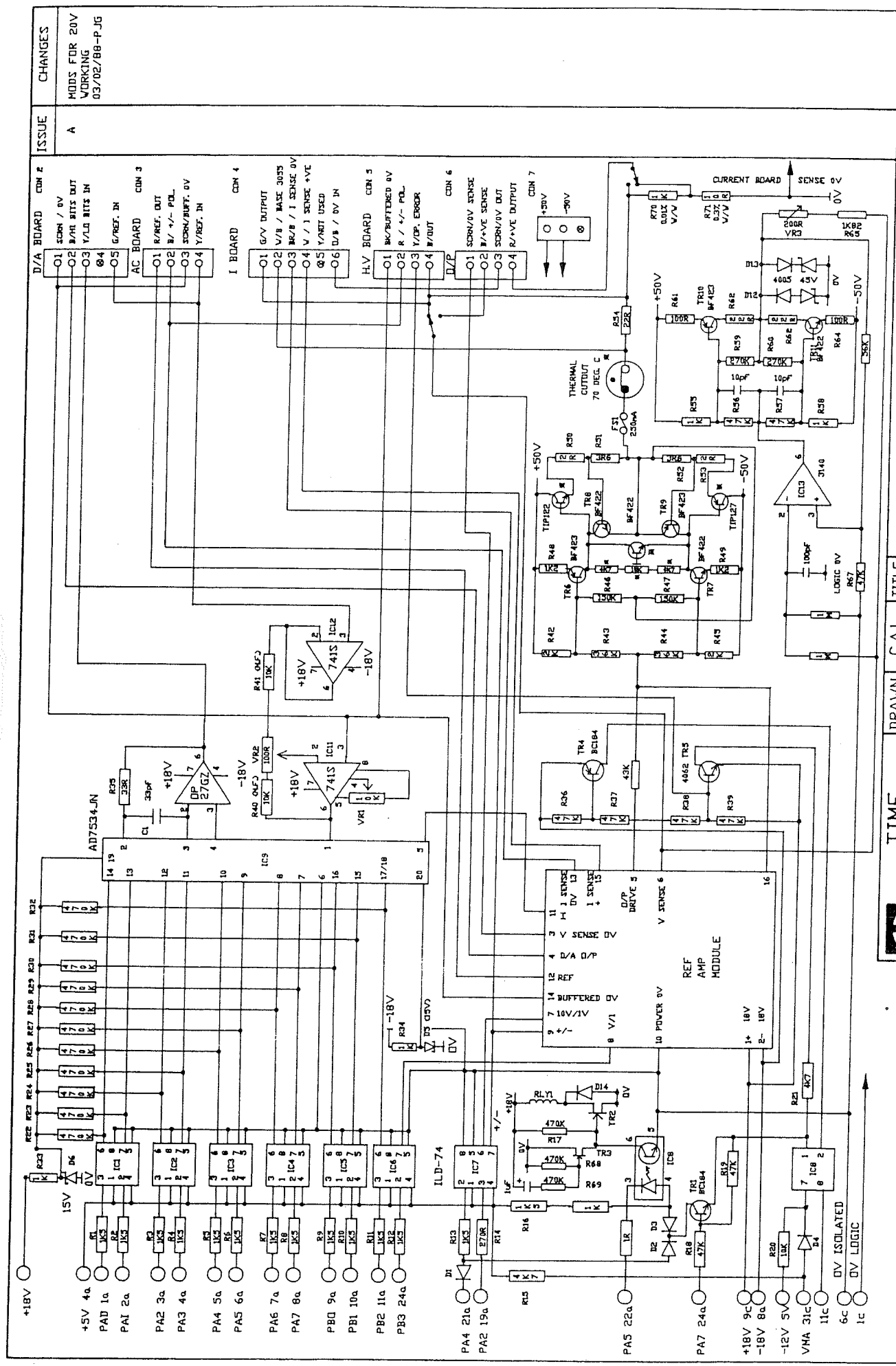
TIME
ELECTRONICS
LTD

DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	19/2/88	

REF. BOARD LAYOUT

9404L01

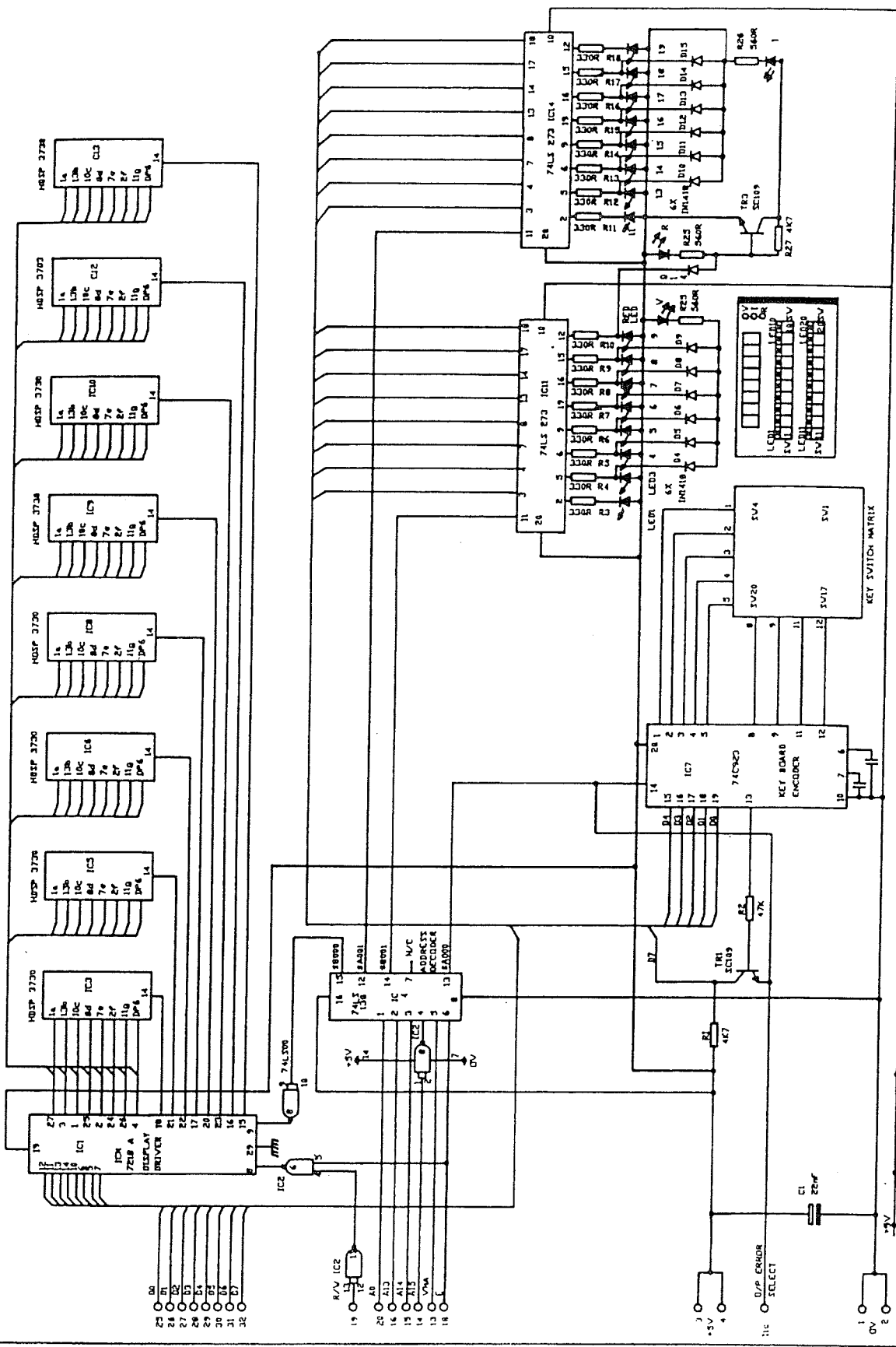
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CONSENT OF TIME ELECTRONICS LIMITED



ISSUE		A	
CHANGES		MODS FOR 20V WORKING 03/02/88-PJ6	
DRAWN		C,AL	
APPRD		SCALE	
DATE		24.2.87	
TIME ELECTRONICS LTD		REFERENCE BOARD CIRCUIT DIAGRAM	
* REFERS TO COMPONENTS MOUNTED ON HEATSINK		THE CONTENTS OF THIS DRG MUST NOT BE COPIED OR USED WITHOUT PRIOR WRITTEN CONSENT OF TIME ELECTRONICS LIMITED	
CIRCUIT/9404C03		DRG No	

ISSUE

CHANGES

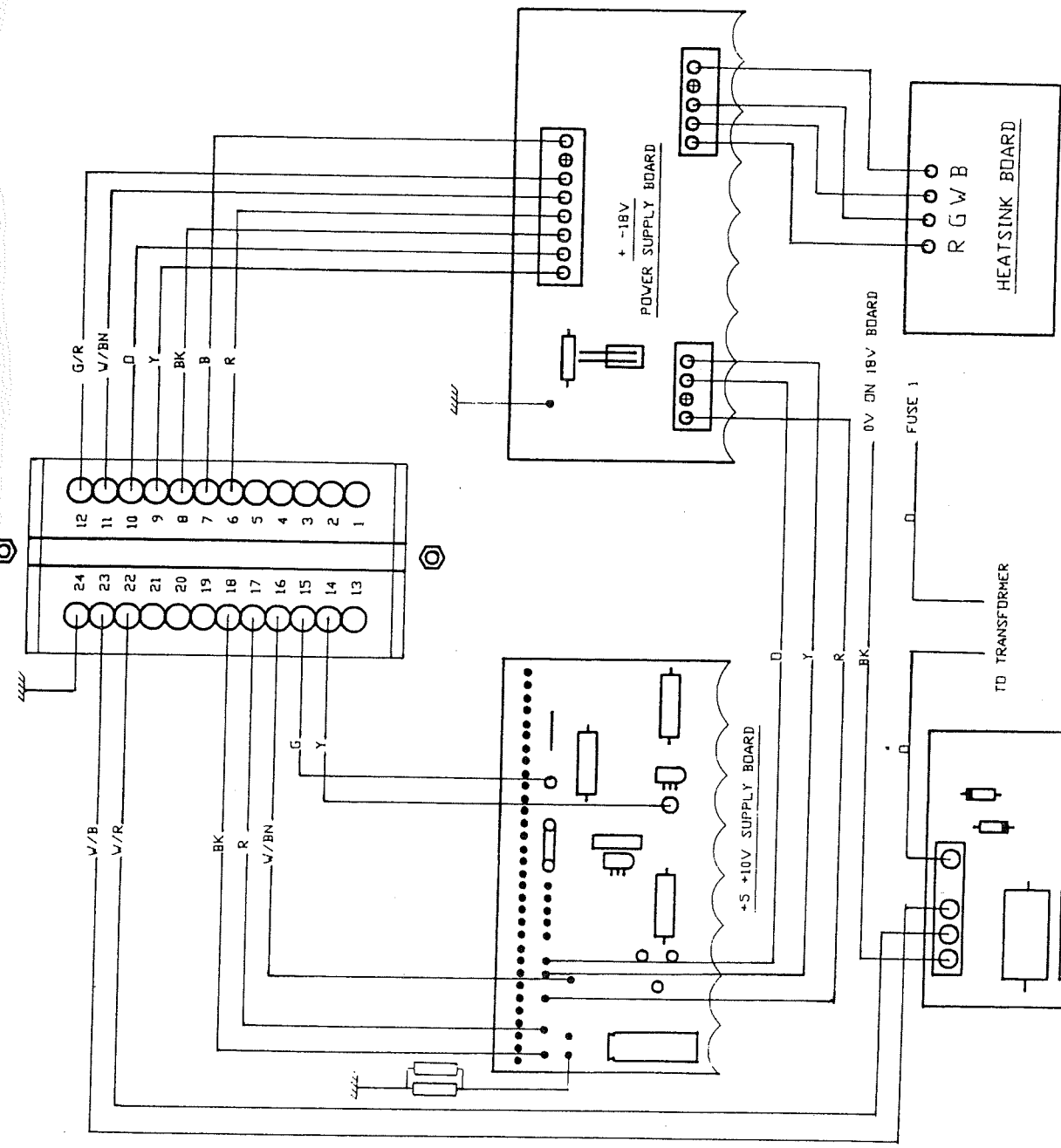


TIME		DRAWN		C.A.L		TITLE	
ELECTRONICS		APPRD		SCALE		8 DIGIT DISPLAY FRONT PANEL CIRCUIT DWG	
LTD		DATE		4.3.87		THE CONTENTS OF THIS DRG MUST NOT BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT OF TIME ELECTRONICS LIMITED	
CIRCUIT/9495C01		DRG No					

9822 POWER UNIT CONNECTOR

1	V/BN	0MAINS SWITCH
2	F	
3	G	
4	BN	FAN
5	Y	
6	L	
7	B	
8	BK	
9	Y	
10	D	
11	V/BN	
12	G/R	
13	V/BN	0MAINS SWITCH
14	F	
15	G	
16	V/BK	
17	R	
18	BK	
19		
20		
21		
22	V/R	
23	V/R	
24	G/Y	

1	FAN
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	



THREE CONNECTORS AT
TOP RIGHT HAND OF
BOARD

CHANGES

ISSUE

50V BOARD
ADDED FOR
2A OPERATION

B

DRAWN	C.A.L	TITLE
APPRD		
SCALE		
DATE	3-3-86	

TIME ELECTRONICS LTD

WIRING OF A 9822 POWER SUPPLY UNIT

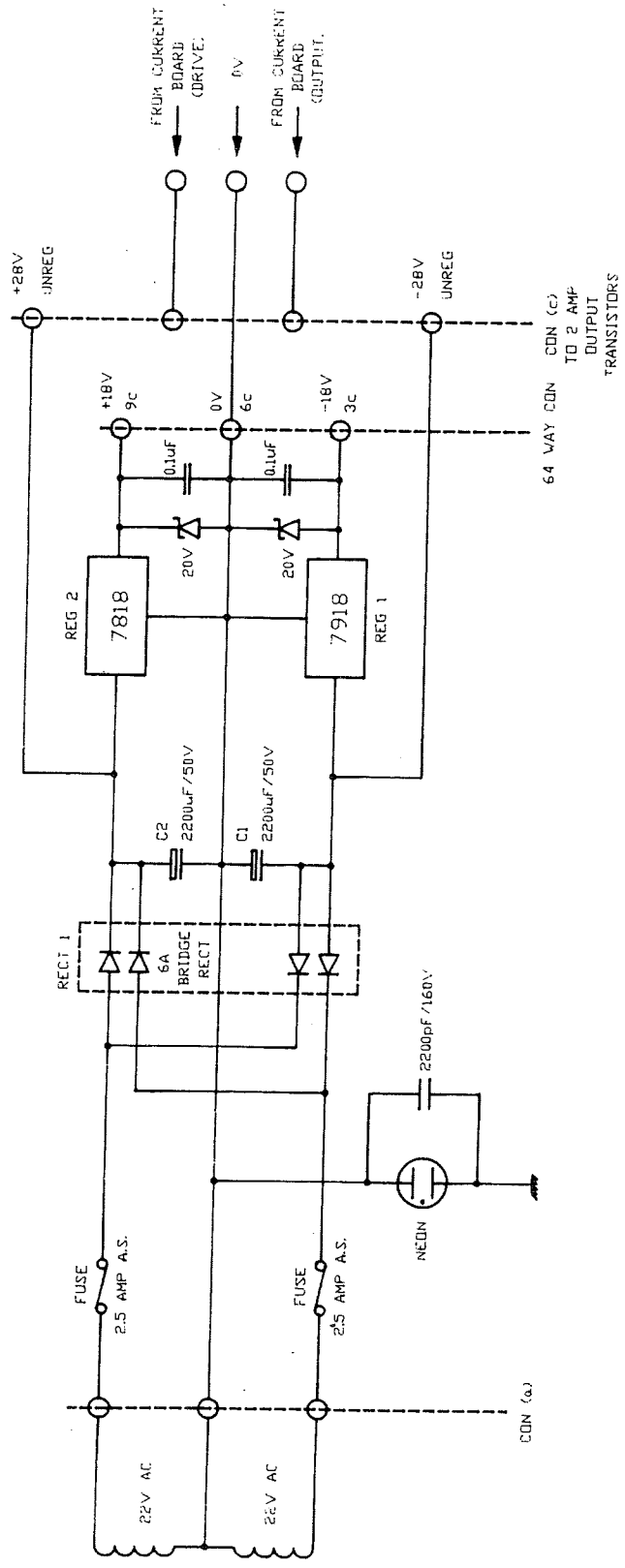
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50V SUPPLY BOARD

DRG No 9572W01

ISSUE

CHANGE'S



TIME ELECTRONICS LTD

DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	28/1/88	DRG No

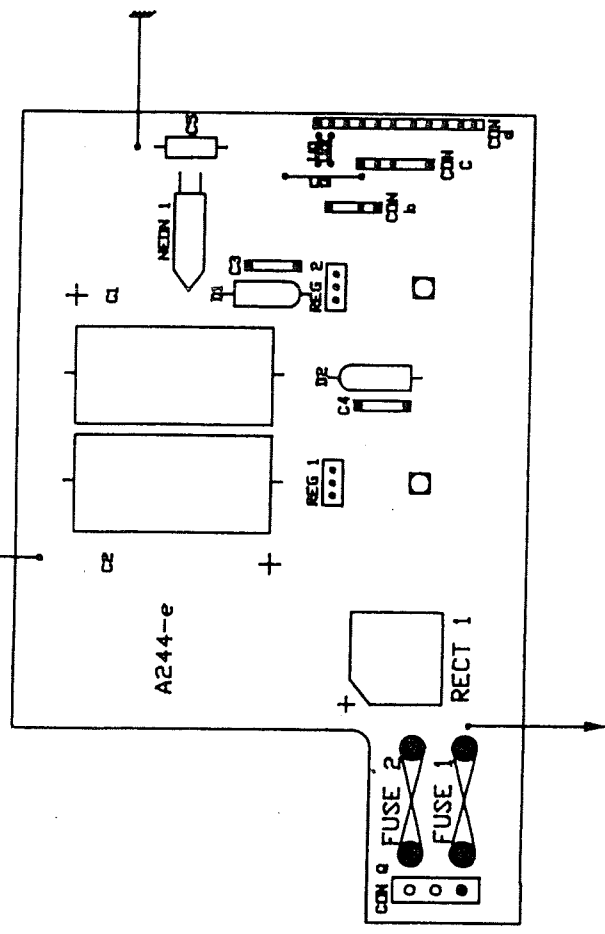
9800 SERIES +18V POWER SUPPLY

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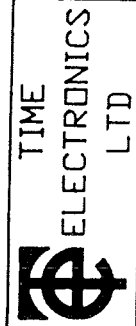
9573005

THIS BOARD ONLY FOR USE
 IN 9821, 9822, 9823
 CALIBRATORS

TO 50V RECTIFIER BOARD



TO MAINS TRANSFORMER



DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	27/1/88	

+/- 18 VOLT REGULATOR BOARD LAYOUT

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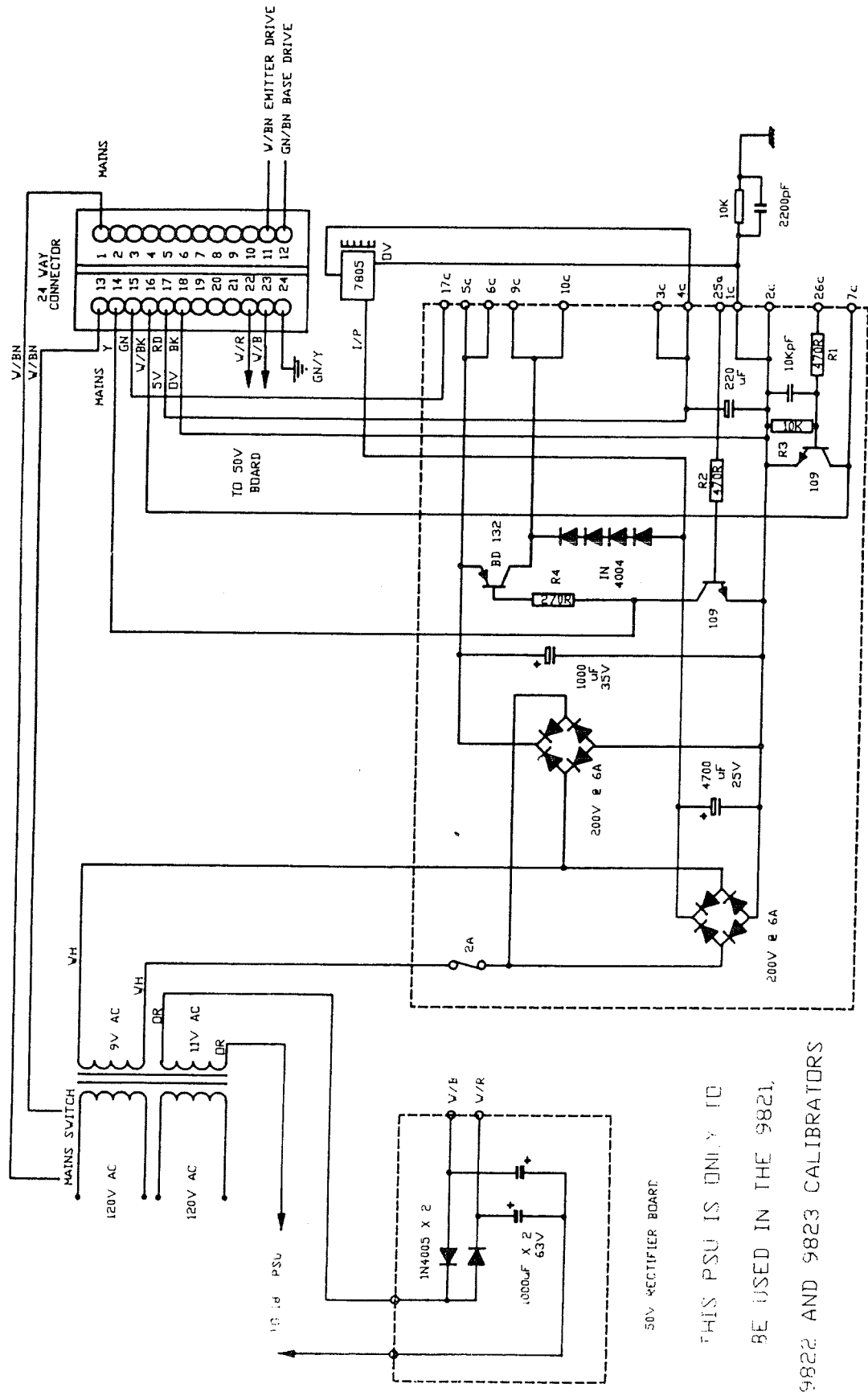
DRG No 9572L04

ISSUE

CHANGES

ISSUE

CHANGES



50V RECTIFIER BOARD

THIS PSU IS ONLY TO
BE USED IN THE 9821,
9822 AND 9823 CALIBRATORS



TIME
ELECTRONICS
LTD

DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	28/1/88	

POWER SUPPLY MODULE CIRCUIT DIAGRAM

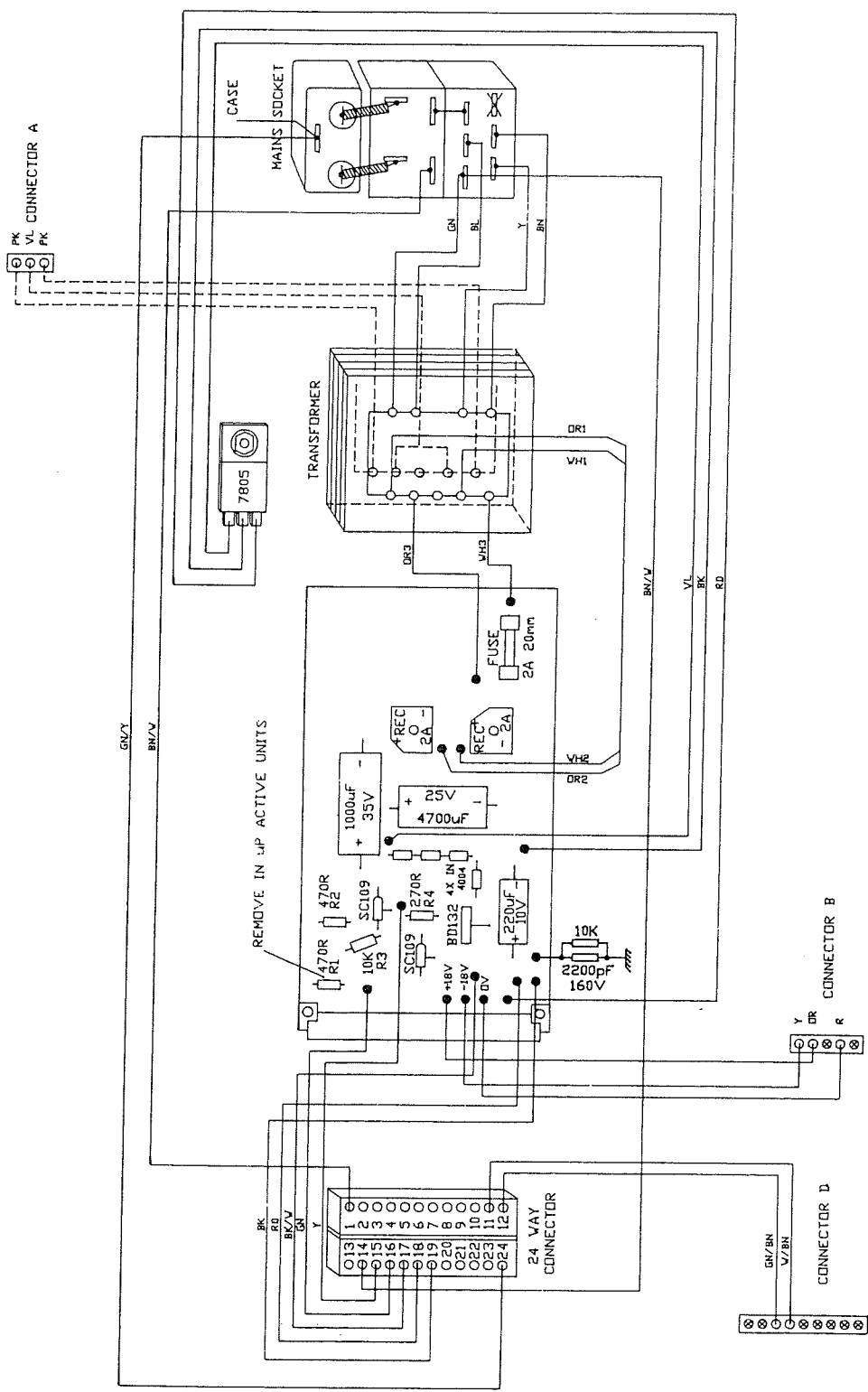
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DRG No

9572C02

ISSUE

CHANGES



TIME ELECTRONICS LTD

9800 P.S.U. LAYOUT AND WIRING

DATE 31/3/87

SCALE

APPRD

C/A/L

DRAWN

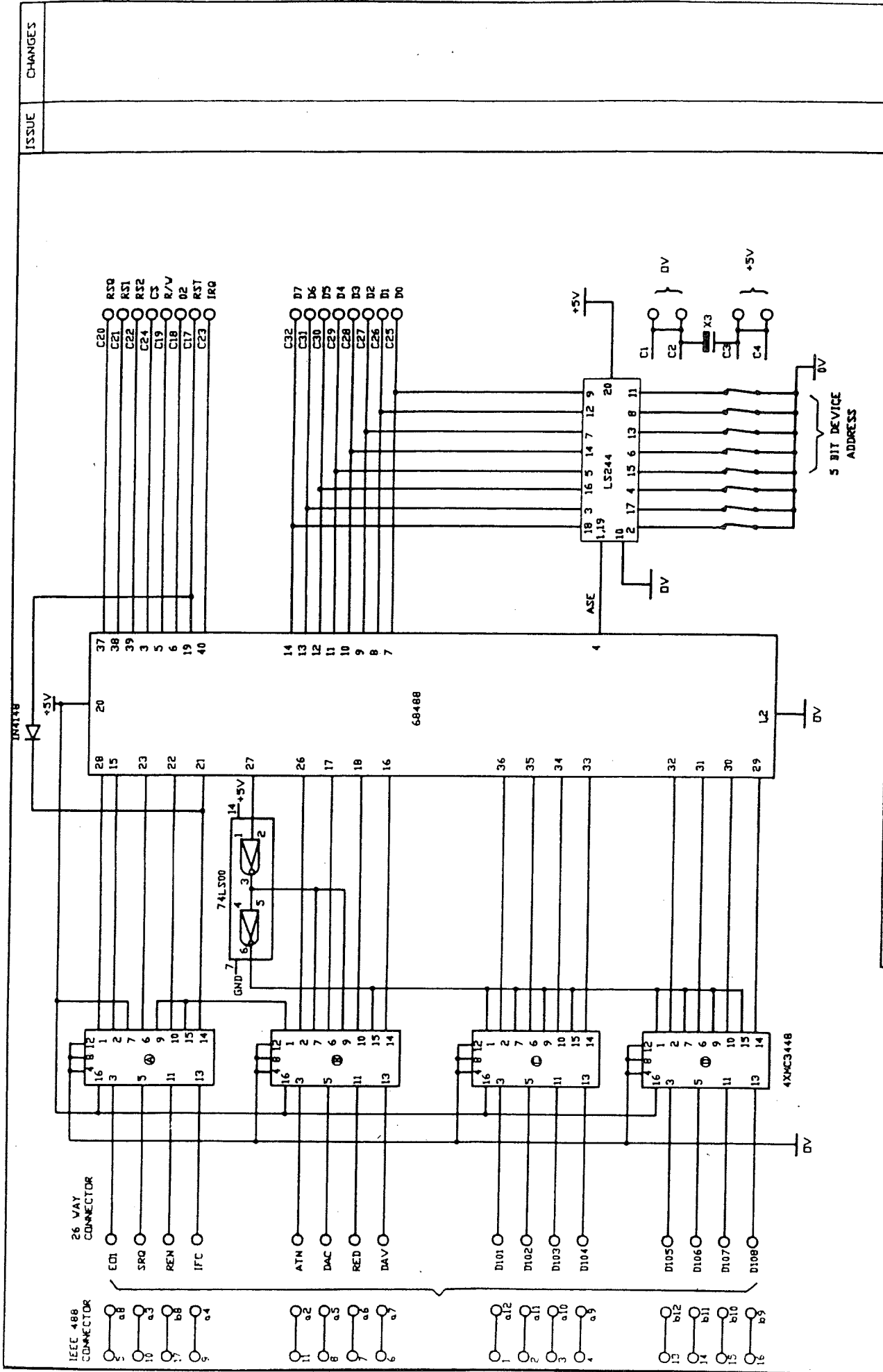
TITLE

31/3/87

DRG No


9572L02

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ISSUE

CHANGES



TIME ELECTRONICS LTD

DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	18/2/88	

IEEE INTERFACE BOARD

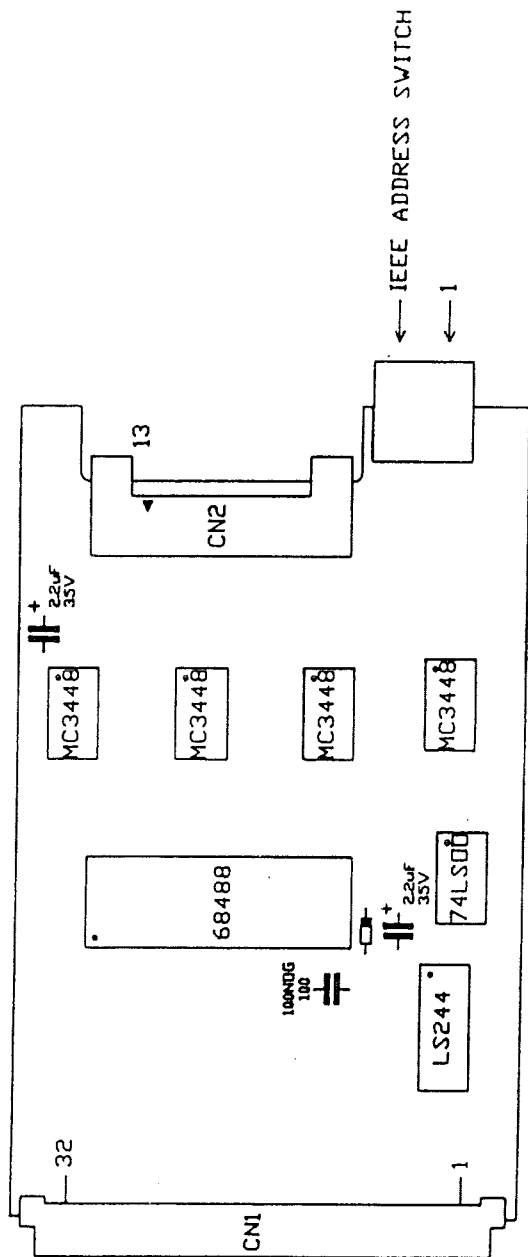
DRG No

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CIRCUIT/9573C01


CN1 - BUS CONNECTOR

CN2 - IEEE BUS CONNECTOR



ISSUE

CHANGES

	TIME	DATE	24/8/87				
	ELECTRONICS	APPD					
	LTD	SCALE					
		TITLE					

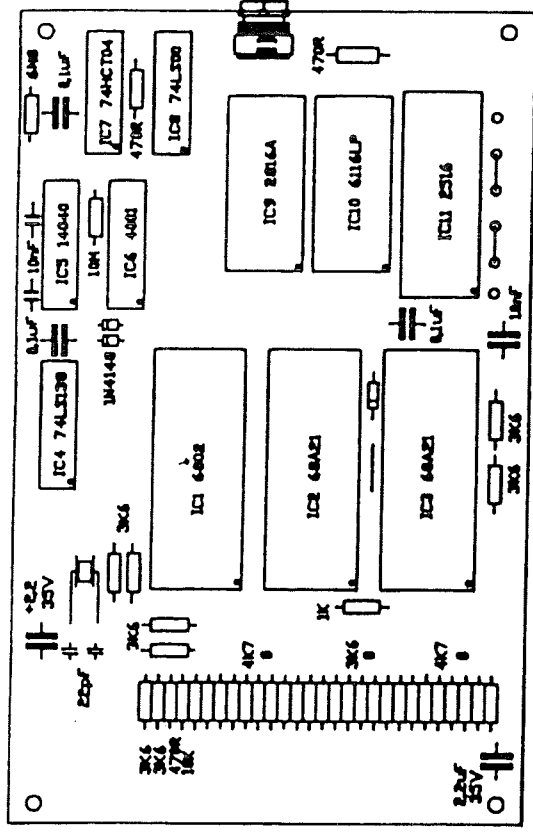
IEEE BOARD LAYOUT

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LAYOUT/9573L01

ISSUE

REVISED



TIME ELECTRONICS LTD

DRAWN	C/A/L	TITLE
APPRD		
SCALE		
DATE	20/8/87	

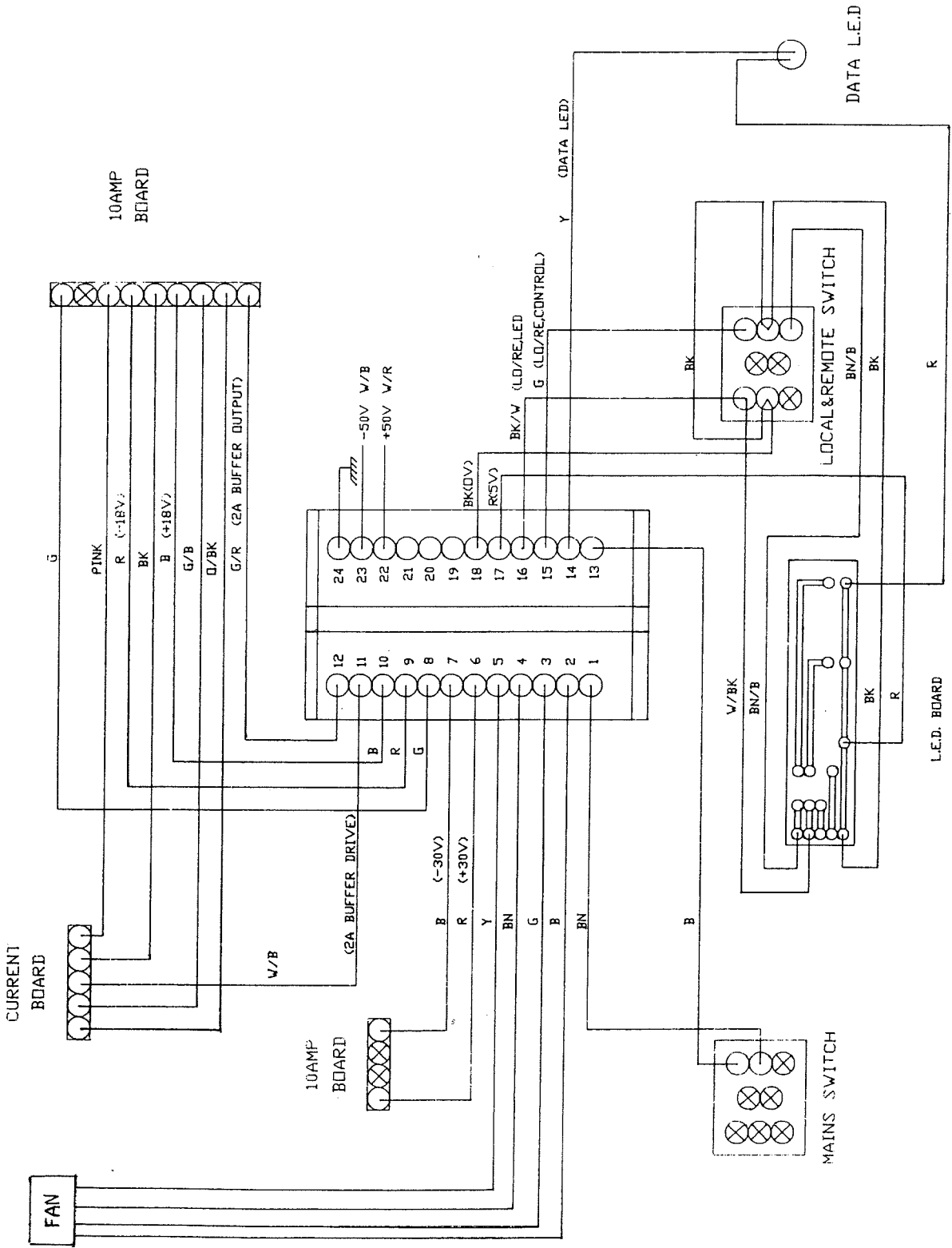
PROCESSOR BOARD LAYOUT

9574L02

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ISSUE

CHANGES



TIME	DRAWN	C.A.L	TITLE
ELECTRONICS	APPRD		
LTD	SCALE		
	DATE	13-3-86	

9821, 22, 23 WIRING FROM PSU CON.

DRG NO 9822W01

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ISSUE

CHANGES

TO DRIVER TRANSISTORS

POWER MODULE CONNECTOR

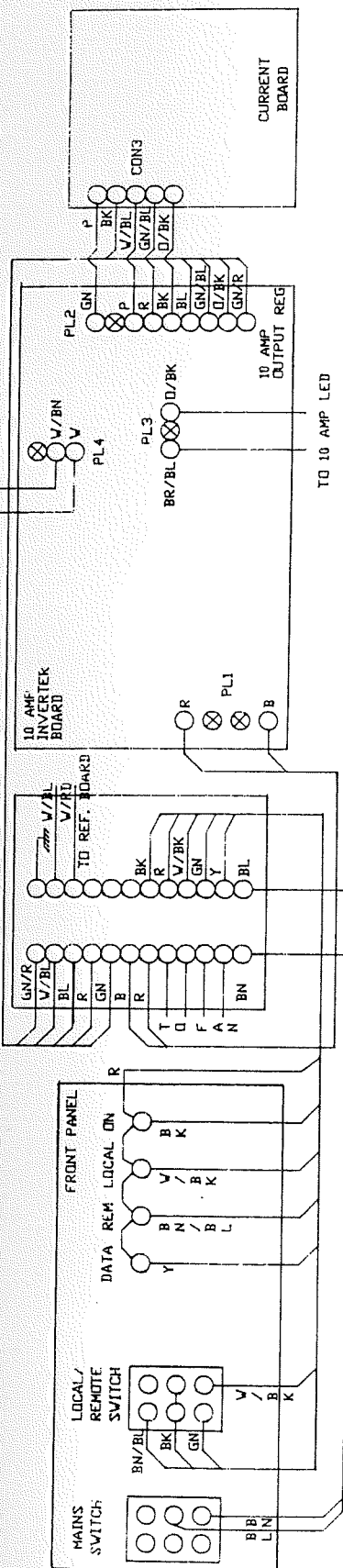
TO REF. BOARD

TO 10 AMP INVERTER BOARD

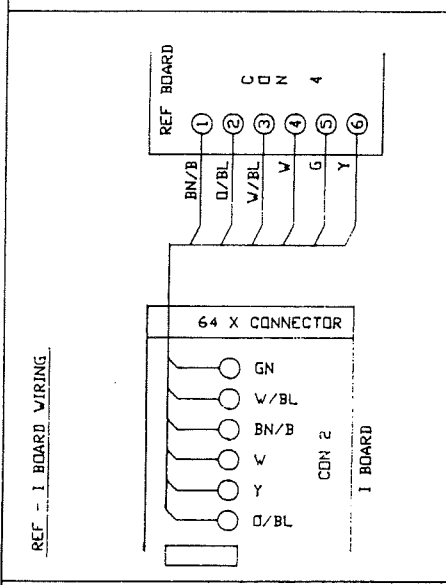
TO 10 AMP OUTPUT REG

TO 10 AMP LED

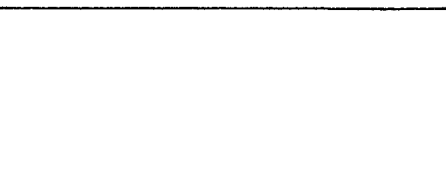
CURRENT BOARD



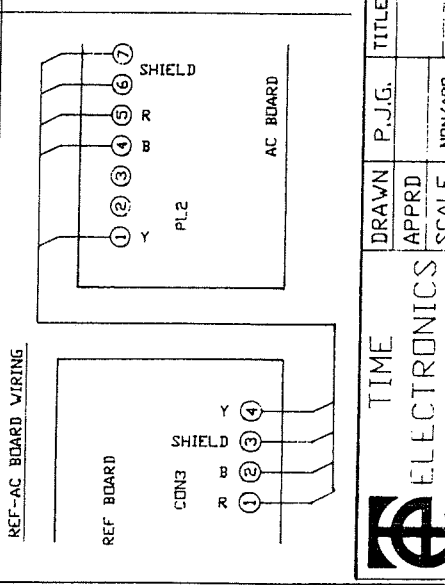
REF - I BOARD WIRING



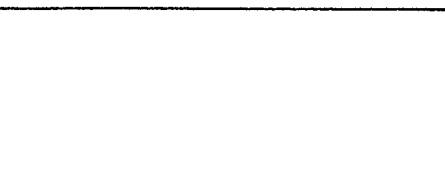
REF - HV WIRING



REF - RES. BOARD WIRING



REF - AC BOARD WIRING



CURRENT - HV, HV. - FRONT PANEL



TIME	DRAWN	P.J.G.	TITLE
	APPRD		
ELECTRONICS	SCALE	NON/APP	DRG No
	DATE	15/2/88	
I.T.D			

9822 INTER-BOARD WIRING

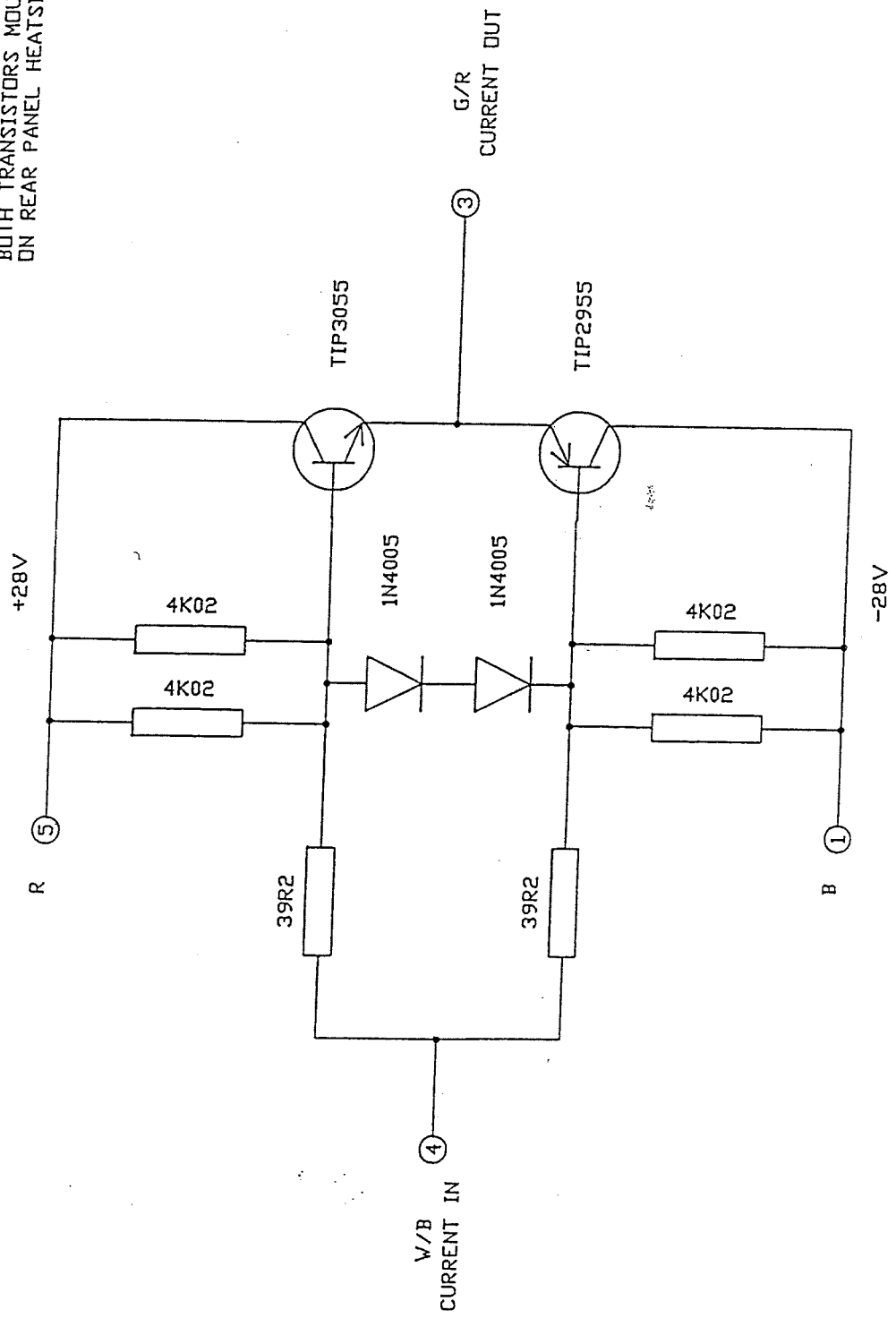
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WIRING/9822W03

ISSUE

CHANGES

BOTH TRANSISTORS MOUNTED ON REAR PANEL HEATSINK.



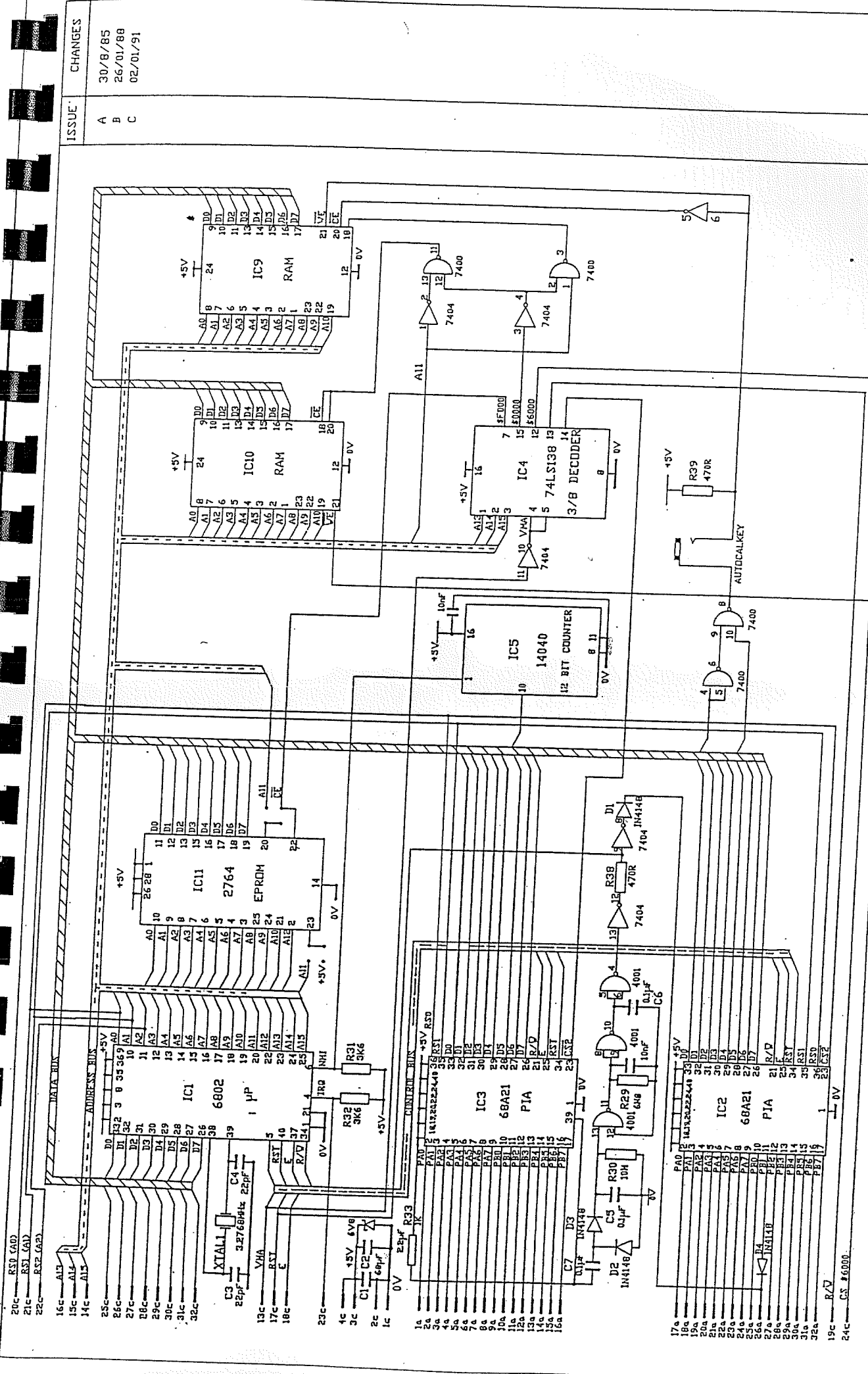
TIME ELECTRONICS LTD

DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	16/2/88	

9822 TRANSISTOR NETWORK

9572C10

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ISSUE


A
B
C

CHANGES

30/8/85
26/01/88
02/01/91

0574004

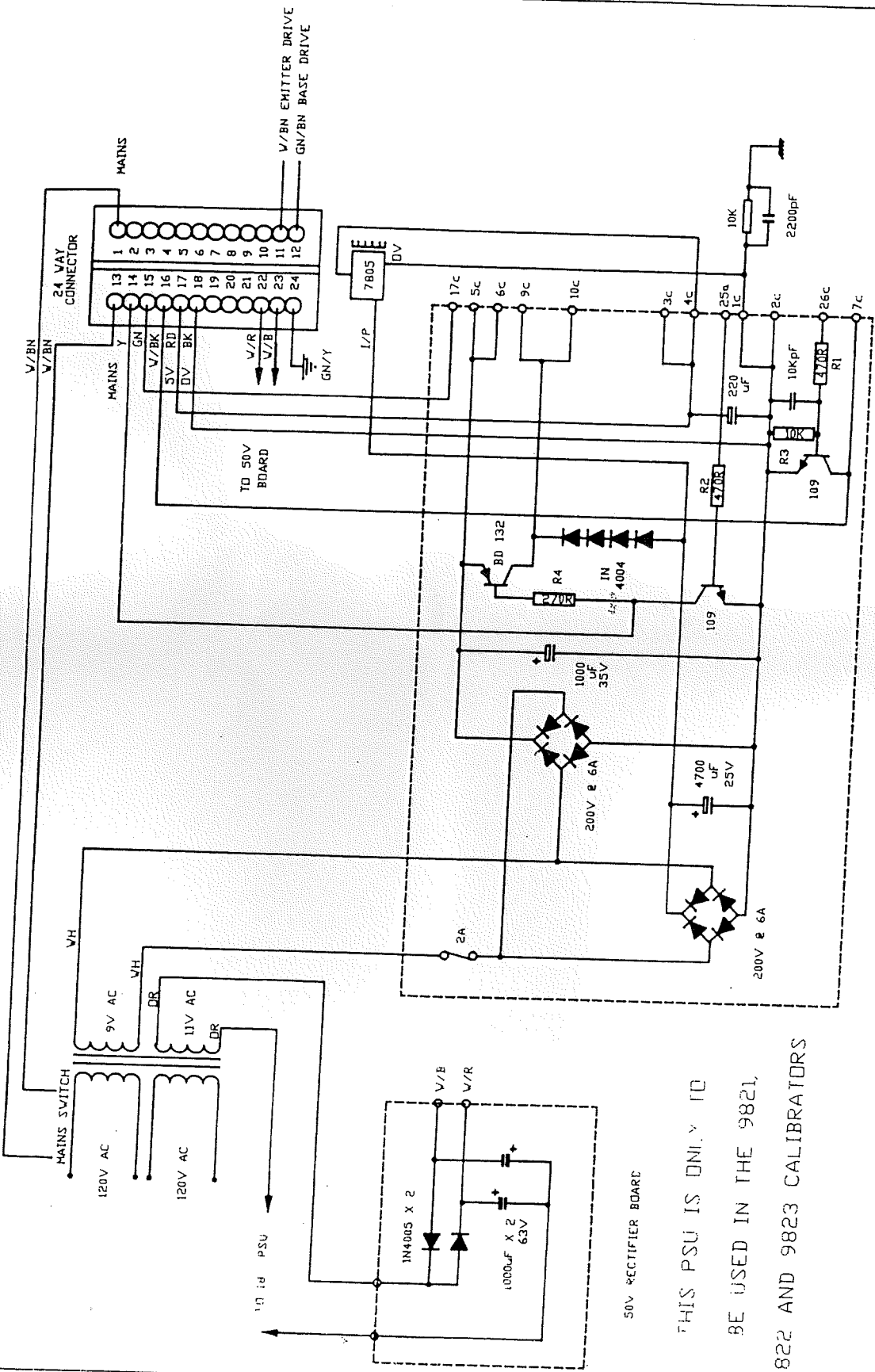
MP BOARD A270 V1.2 CIRCUIT BOARD

	 <p>TIME ELECTRONICS LTD</p>	<p>DATE 30/8/85</p> <p>SCALE</p> <p>APPRD</p> <p>B.I.</p>	<p>TITLE</p> <p>30/8/85</p> <p>DATE</p> <p>APPRD</p> <p>SCALE</p> <p>B.I.</p> <p>TITLE</p>
--	---	---	--

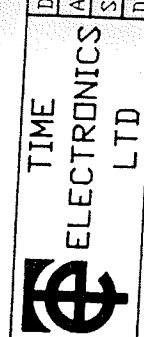
PULL UP RESISTORS

IC2	IC3
A0-A7	A0-A7
R1-R5	R28-R21
A8	R4
A9	R3
A10	R2
A11	R1
A12-A15	R34-R37
	R35
	R36
	R37

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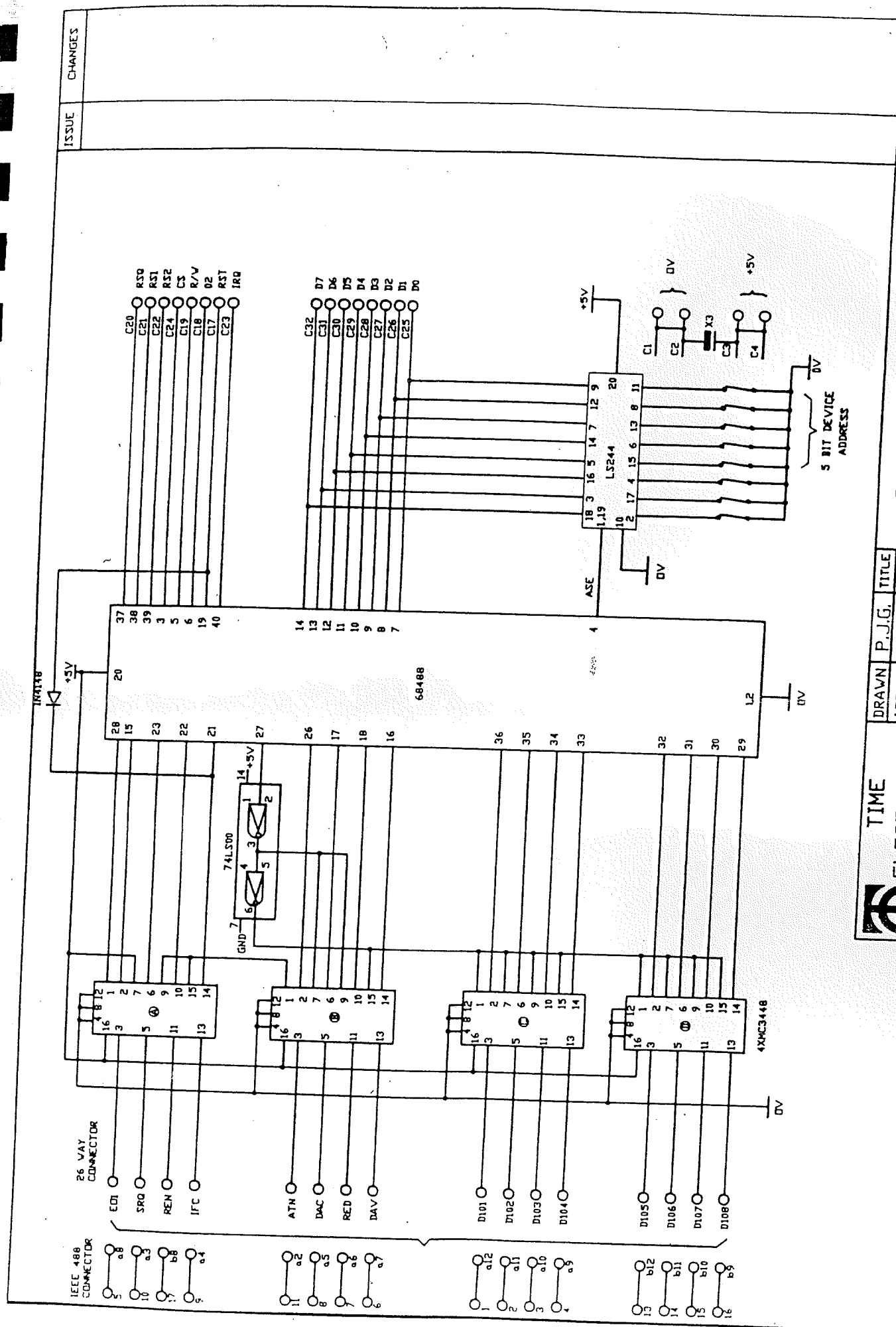


DRAWN	P.J.G.	TITLE
APPRD		
SCALE		
DATE	28/1/88	DRG NO

POWER SUPPLY MODULE CIRCUIT DIAGRAM

9572C02

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ISSUE

CHANGES

TIME ELECTRONICS LTD		DRAWN	P.J.G.	TITLE
IEEE INTERFACE BOARD		APPRD		
DATE 18/2/88		SCALE		
DRG No		THE CONTENTS OF THIS DRG MUST NOT BE COPIED OR USED WITHOUT WRITTEN CONSENT OF TIME ELECTRONICS LIMITED		

CIRCUIT/9573C01