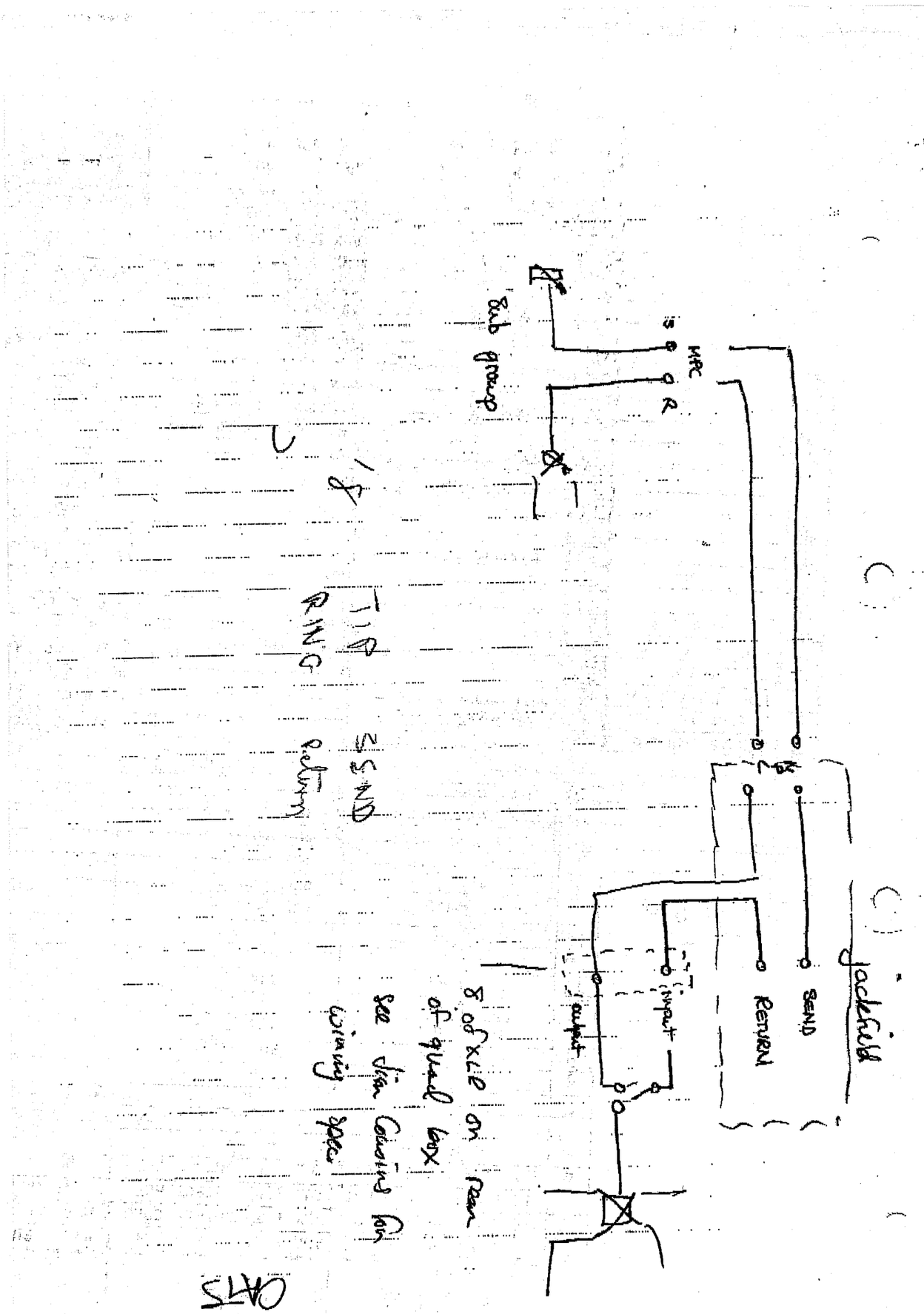
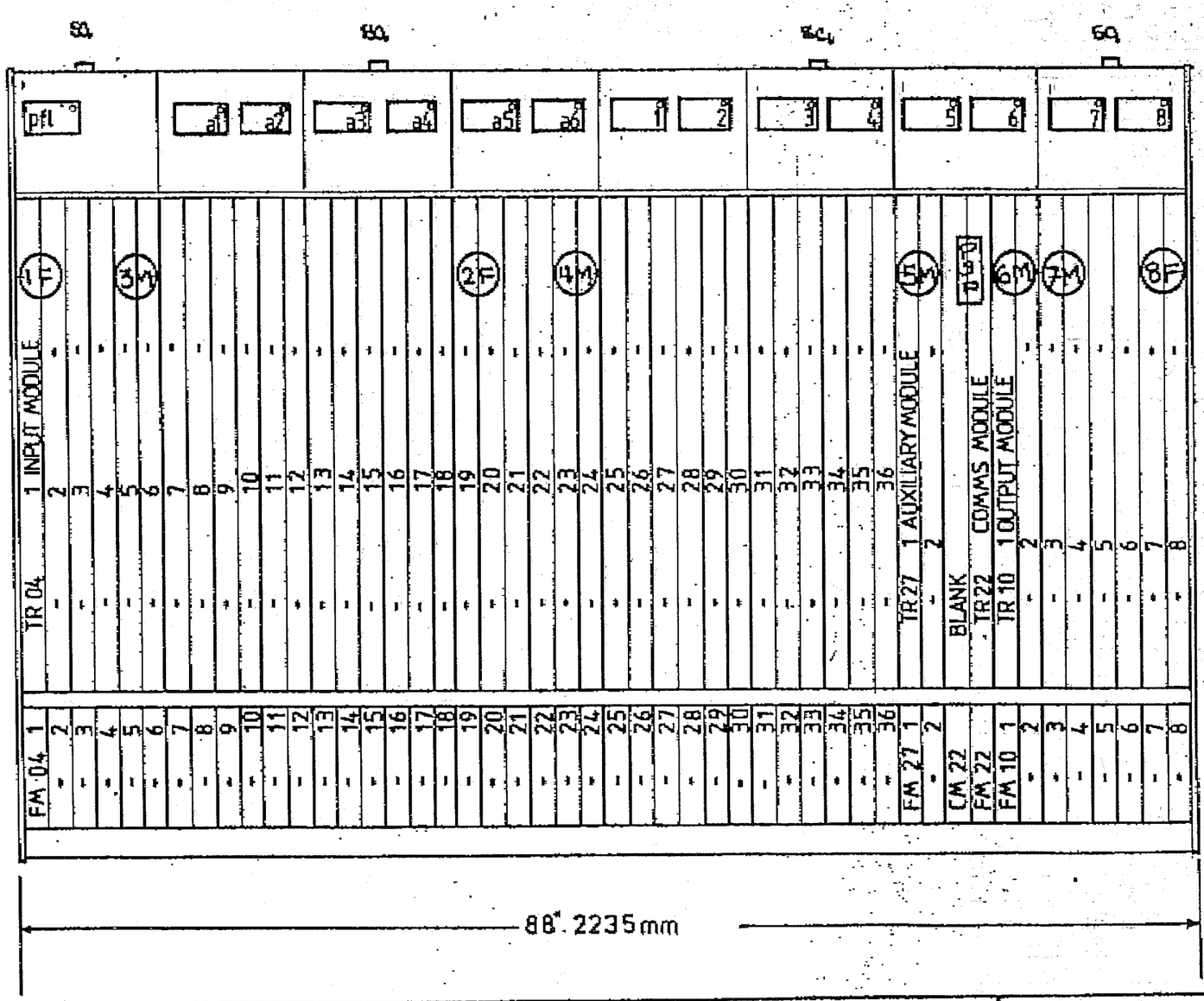
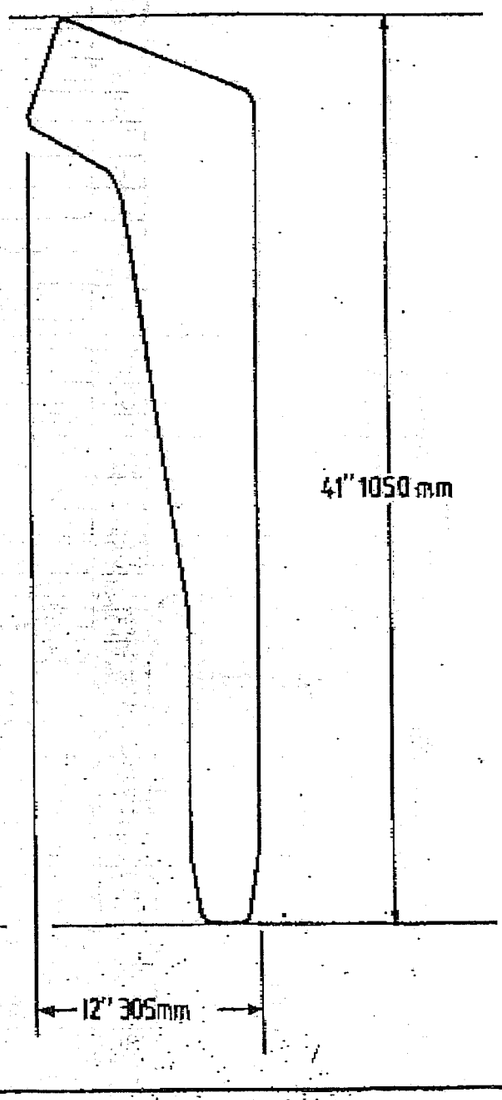

Jackfield
SEND
RETURN
input
output
MIC
R
S
Sub group
CATS
SEND
RING
Return
8 of XLR on rear of quad box
See wiring spec

A15





FLIGHT CASE	XLR CON. 2 Hot	110 VAC
PACKING	CAL. OVU = +4 dBv	STAND

NOTES

1) Note sex of PT 61 connectors

2) SG = Shure goosereck lamp socket, supplied by AUTOGRAPH each lamp 5.6V

3) Meters A1-A6 require drive card

MIDAS 54-56 Stanhope Street, London NW1 3DL Tel: 01-388-7060

TITLE: 36 into 8-8 Theatre Sound Console

TR NUMBER: 114

AUTOGRAPH

287 × 420mm A3

TR SYSTEM MODULE EDGE CONNECTORS

ENGLISH NATIONAL OPERA

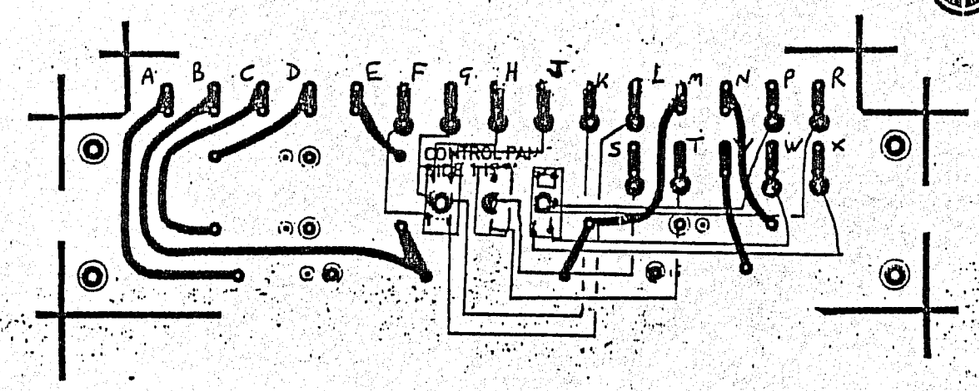
	FM 04R	FM 04	FM 27	CM 22	FM 22	FM 10	
1							1
2							2
3							3
4							4
5	LED INDICATOR INPUT	LED INDICATOR INPUT	LED INDICATOR INPUT				5
6							6
7	STATUS IND.BUS COLD			STATUS IND. COLD			7
8	STATUS IND. BUS HOT			STATUS IND. HOT			8
9	FDR. SWITCH N/O HOT			DUAL LED DRI.+VE SUPP.		SUB GROUP METER INPUT	9
10	FDR.SWITCH WIPER (E)			DUAL LED DRIVER O/P		GROUP METER INPUT	10
11	FDR.SWITCH N/C COLD					METER SELECT OUTPUT	11
12	STATUS BUS			STATUS BUS		PFL GATE BUS	12
13						PFL SIGNAL BUS	13
14	0v	0v	0v	0v	0v	0v	14
15				HEADPHONE RIGHT		GROUP FADER DRIVE (m)	15
16				HEADPHONE LEFT		GRP.FDR.BUFFER i/p(l)	16
17				HEADPHONE COMMON		GROUP FADER 0v (k)	17
18				OSCILLATOR COLD	FADER LEFT BOTTOM 0v	GRP.FDR. BOTTOM (j)	18
19				OSCILLATOR HOT	FDR.LEFT BUFFER o/p	GRP.FDR. WIPER (h)	19
20					FADER LEFT TOP	GROUP FADER TOP (g)	20
21				MIC COLD		SUB.GRP.FDR.DRIVE (f)	21
22	STATUS BUS			MIC HOT		S.GP.FDR.BUFFER i/p(e)	22
23	CONTROL VOLTAGE i/p			MIC SCREEN		SUB GROUP FADER 0v(d)	23
24	VCA INPUT	FADER TOP	FADER TOP		FDR.RIGHT BOTTOM 0v	S.GRP. FDR.BOTTOM (c)	24
25					FDR.RIGHT BUFFER o/p	S.GRP. FDR.WIPER (b)	25
26				STATUS INHIBIT COLD	FADER RIGHT TOP	S.GRP. FADER TOP (a)	26
27	+16v	+16v	+16v	+16v	+16v	+16v	27
28	-16v	-16v	-16v	-16v	-16v	-16v	28
29	VCA OUTPUT	FADER BUFFER OUTPUT	FADER BUFFER OUTPUT	STATUS INHIBIT HOT		GROUP o/p UNBALANCED	29

Issued 15-7-81

Power Supply Terminal Coding.

Num.	Description.	- Lamps	Colour.
		Press Neg	
	-V		Yellow
	+VE Phantom Raw Phantom (+VE)	(Begin)	Yellow/Blue. Red/Blue
	Neg Lamp Switch	(Wipe)	Orange
	" " "	(Dim)	Red
	" " "	(Dim)	Violet
	Pos " "	(Dim)	Violet/Yellow
	" " "	(Wipe)	Pink
	" " "	(Begin)	Grey
		Press Pos	White
		+V	White/Blue
	Mains Transformer Primary	110V.	Red/Yellow
	" " "	0V.	Yellow/Black.
	Thermal Overlide Switch (Junction Rst/Sx)		Brown/Yellow/Blue
	" " "	(TS1)	Blue/Black
		+ Lamps	Red/Black
	Mains Transformer Primary (2)	110V.	Pink/Black
	Mains Transformer Primary (1)	0V.	Orange/Yellow
	-VE Phantom.		Brown/Black.
			Blue/Yellow
			Grey/Blue.

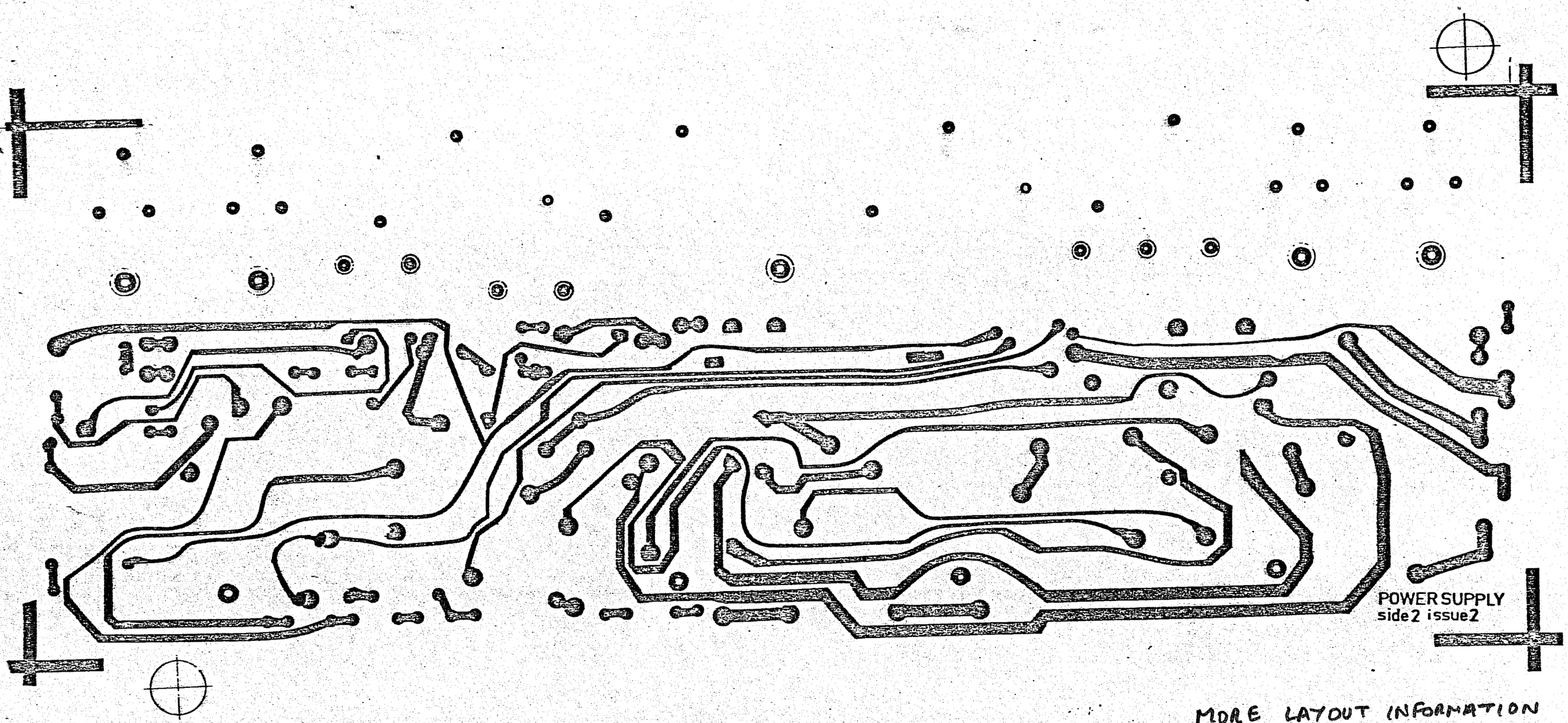
"Hidden" Control Panel Wiring.



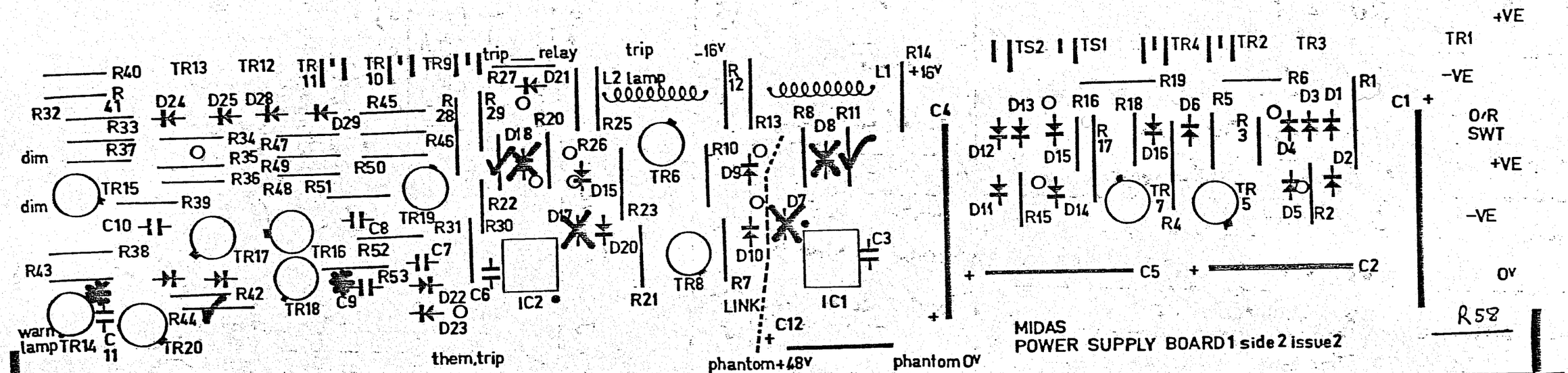
All wiring used 24/0.2mm T

"Control Panel" Loom

Control Panel	Via	To	Then	Colour.
A		[redacted]	O/P Pin 12.	Yellow
B		[redacted]	"11" Main PCB.	Yellow Blue
C		"C" Main PCB		Yellow Blue Yellow
D		"D" Main PCB		Orange
E	+ Phantom Cap	"E" Heatsink		Red.
F		"F" Main PCB		Violet
G		"G" Main PCB		Violet Yellow
H		"H" Main PCB		Pink.
J		"J" Main PCB		Grey
K		"K" Main PCB		White
L		"L" Main PCB		White Blue
M		[redacted]	"12" Main PCB.	Red. Yellow.
N		"N" Main PCB		Red Yellow Blue
P		"P" Transformer		Brown Yellow Blue
R	"R" Indicator	"R" Transformer	"R" Fan	Blue Black.
S		"S" Main PCB		Red Black.
T		"T" Main PCB		Pink Black



MORE LAYOUT INFORMATION
INCLUDED.
(INSIDE)



NOTES

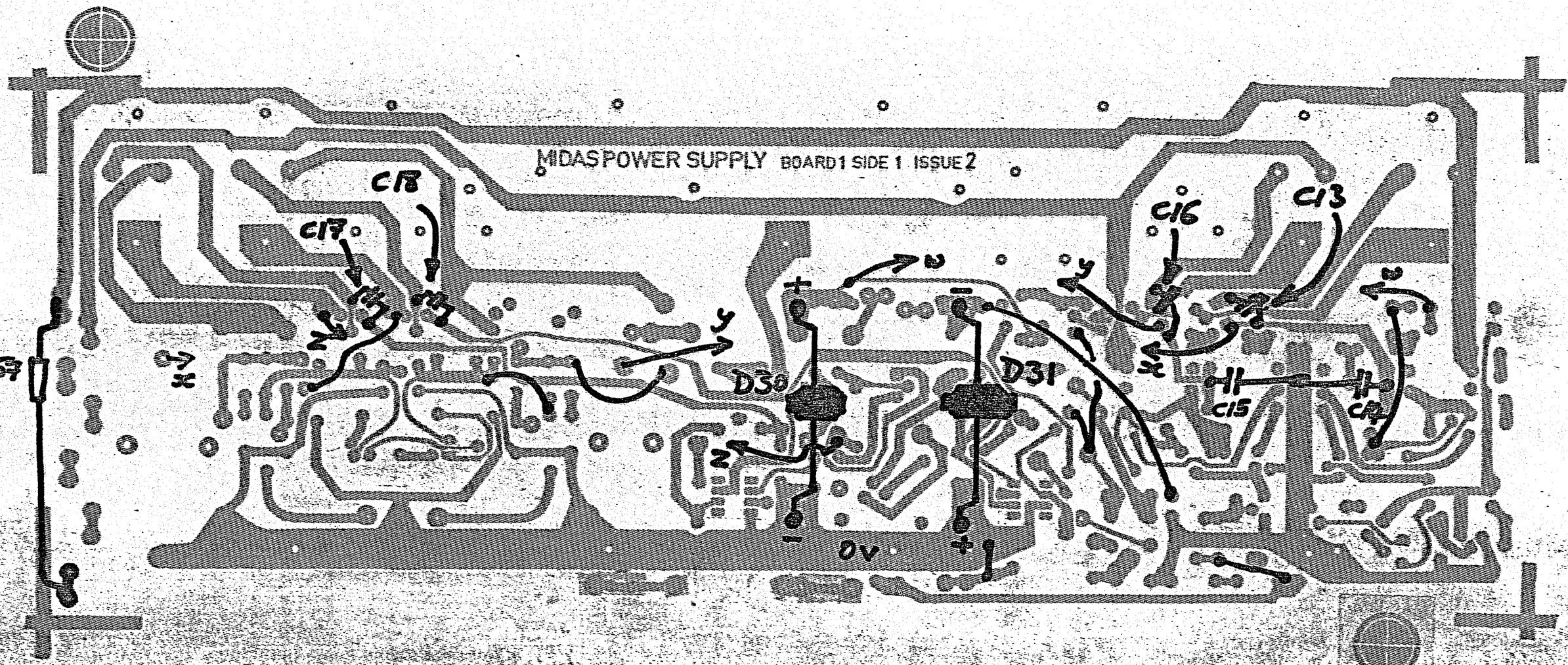
* ACTUALLY NOW RESISTORS (R55, 56) = 1K5

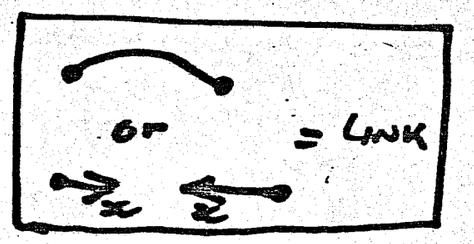
× DELETED (OPEN CIRCUIT)

✓ DELETED (SHORTING LINK)

C13, 14, 15, 16, 17, 18 INTRODUCED (WHEN POWER TRANSISTORS MOVED TO HEATSINK EXTRUSIONS) ON UNDERSIDE OF PCB.

D30, 31 HIGH CURRENT REVERSE VOLTAGE BLOCKING DIODES INTRODUCED ON UNDERSIDE OF PCB

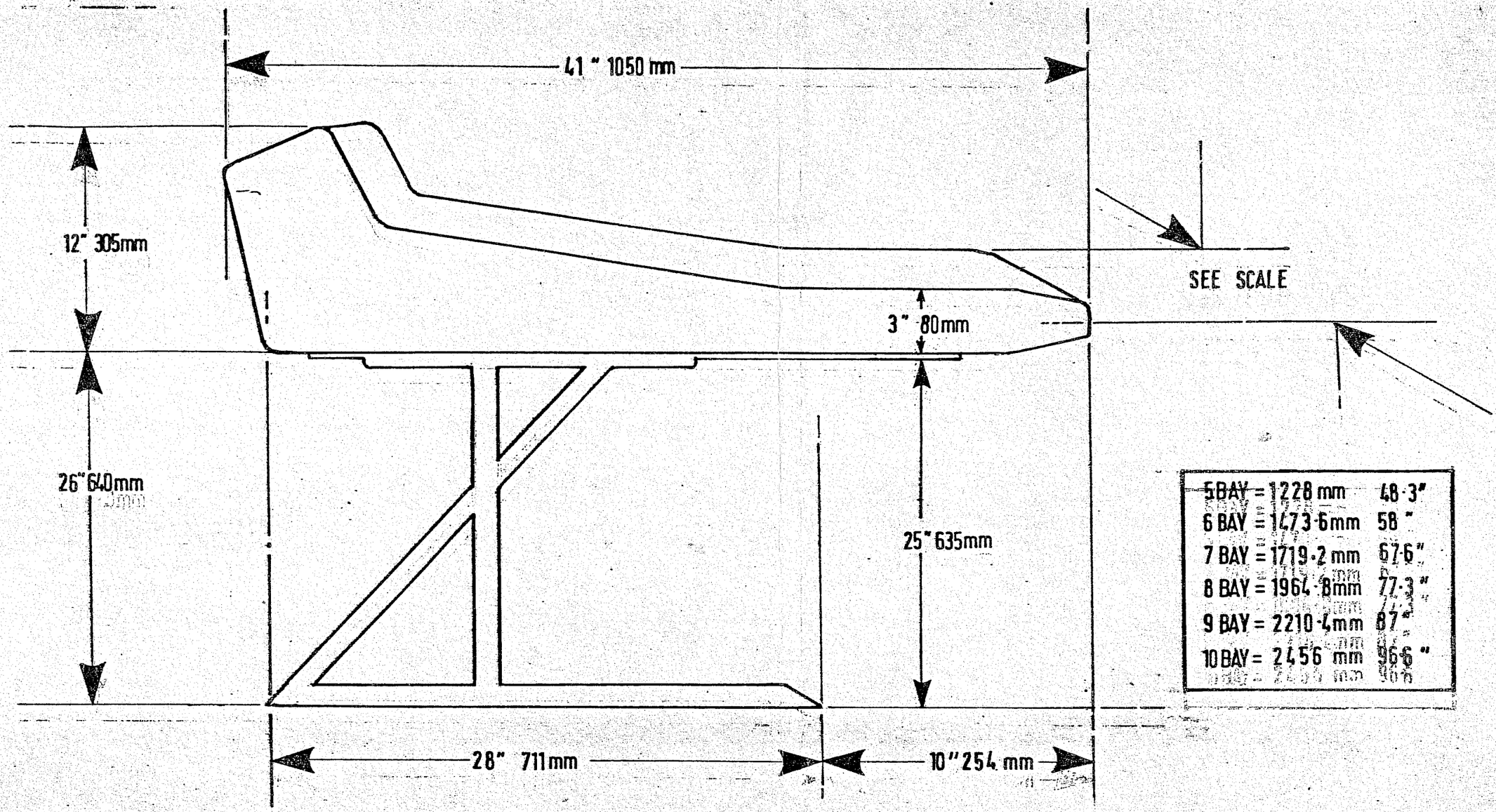




P.C.B. POSITIONS OF C17, 18, 13, 16 = 10nF
D30, 31, R57 = 2K2 & C14, 15 = 100nF (WIMA)

DRAWING NUMBER
MAS530

ANGLE PROJECTION



5 BAY = 1228 mm	48·3"
6 BAY = 1473·6mm	58 "
7 BAY = 1719·2 mm	67·6"
8 BAY = 1964·8mm	77·3"
9 BAY = 2210·4mm	87"
10 BAY = 2456 mm	96·6"

ISSUE	DATE	MOD. No.

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0
·0 ± 0
·00 ± 0
·000 ± 0

DIMENSIONS IN metric & inches

NOTES

SCALE: not to scale

DRAWN BY Gibbs

DATE 4.85

MIDAS

54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE
approx. OVER ALL SIZE
TR. CONSOLE

DRAWING NUMBER
MAS 530

ISS.

	DESCRIPTION	COLOUR.
	+16V OUT.	RED/YELLOW BLUE
	-16V OUT	YELLOW/BLUE BLUE
	0V OUT	WHITE/BLACK.
	GROUND	GREEN
	PHANTOM 0V. OUT.	YELL/BLUE BLACK YELLOW.
	PHANTOM +48V OUT	RED/BLUE BLACK.
	0V OUT	WHITE BLACK.
	+VE LAMPS OUT.	YELLOW/YELLOW BLUE
	-VE LAMPS OUT.	RED/YELLOW BLUE
	SPARE	
	SPARE	

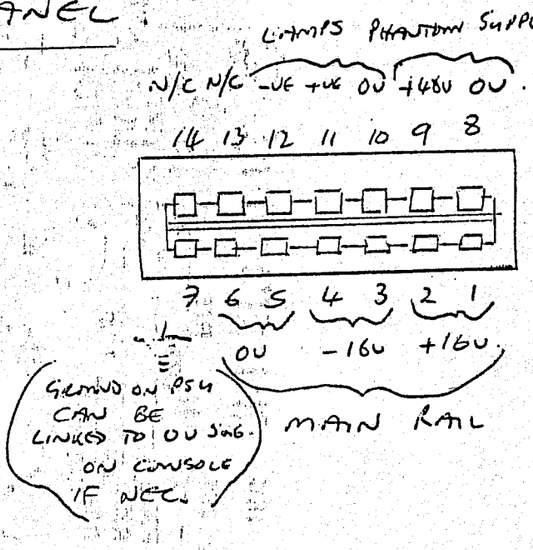
NEW POWER SUPPLY SOCKET CONFIGURATION

NOTE

MALE ON MIXING CONSOLE

FEMALE ON POWER SUPPLY FRONT PANEL.

PIN No.	(FEMALE) P.S.U.	(MALE) CONSOLE	
1	+16V RAIL	+16V RAIL	LINKED
2	+16V RAIL	+16V RAIL	
3	-16V RAIL	-16V RAIL	LINKED
4	-16V RAIL	-16V RAIL	
5	0V RAIL	0V RAIL	CAN BE LINKED IF REQ'D
6	0V RAIL	0V RAIL	
7	GROUND	GROUND	
8	PHANTOM 0V	PHANTOM 0V.	
9	PHANTOM +48V.	PHANTOM +48V.	
10	0V LAMPS.	0V LAMPS	
11	+VE LAMPS	+VE LAMPS	
12	-VE LAMPS	-VE LAMPS	
13	NOT USED	NOT USED	
14	NOT USED	NOT USED	



SHT 4 of 4

	INPUT MODULE TR 04	AUX MODULE TR 27	COMMS MODULE TR 22	OUTPUT MODULE TR 10	
1	MIC/LINE INPUT A HOT	AUX 1(2) OUTPUT HOT	MIC INPUT HOT	SUB GP. INSERT RTN.	1
2	MIC/LINE INPUT A COLD	AUX 1(2) OUTPUT COLD	MIC INPUT COLD	GROUP INSERT RETURN	2
3	MIC/LINE INPUT B HOT	AUX 3(4) OUTPUT HOT	LINE INPUT HOT	SUB GP. METER OUTPUT	3
4	MIC/LINE INPUT B COLD	AUX 3(4) OUTPUT COLD	LINE INPUT COLD	GROUP METER OUTPUT	4
5	+ 16v	+ 16v	+ 16v	+ 16v	5
6	- 16v	- 16v	- 16v	- 16v	6
7	0v	0v	0v	0v	7
8	0v	0v	0v	0v	8
9	AUX 6 BUS	AUX 6 BUS	TALK OUTPUT AUX 6	AUX 6 BUS	9
10	AUX 5 BUS	AUX 5 BUS	TALK OUTPUT AUX 5	AUX 5 BUS	10
11	AUX 4 BUS	AUX 4 BUS	TALK OUTPUT AUX 4	AUX 4 BUS	11
12	AUX 3 BUS	AUX 3 BUS	TALK OUTPUT AUX 3	AUX 3 BUS	12
13	AUX 2 BUS	AUX 2 BUS	TALK OUTPUT AUX 2	AUX 2 BUS	13
14	AUX 1 BUS	AUX 1 BUS	TALK OUTPUT AUX 1	AUX 1 BUS	14
15	PFL SIGNAL BUS	PFL SIGNAL BUS	PFL SIGNAL BUS	PFL SIGNAL BUS	15
16	PFL GATE BUS	PFL GATE BUS	PFL GATE BUS	PFL GATE BUS	16
17	SUB GROUP 8 BUS	SUB GROUP 8 BUS	GROUP TALK OUTPUT 8	GROUP 8 BUS	17
18	SUB GROUP 7 BUS	SUB GROUP 7 BUS	GROUP TALK OUTPUT 7	GROUP 7 BUS	18
19	SUB GROUP 6 BUS	SUB GROUP 6 BUS	GROUP TALK OUTPUT 6	GROUP 6 BUS	19
20	SUB GROUP 5 BUS	SUB GROUP 5 BUS	GROUP TALK OUTPUT 5	GROUP 5 BUS	20
21	SUB GROUP 4 BUS	SUB GROUP 4 BUS	GROUP TALK OUTPUT 4	GROUP 4 BUS	21
22	SUB GROUP 3 BUS	SUB GROUP 3 BUS	GROUP TALK OUTPUT 3	GROUP 3 BUS	22
23	SUB GROUP 2 BUS	SUB GROUP 2 BUS	GROUP TALK OUTPUT 2	GROUP 2 BUS	23
24	SUB GROUP 1 BUS	SUB GROUP 1 BUS	GROUP TALK OUTPUT 1	GROUP 1 BUS	24
25		AUX RETURN INPUT HOT	MON. FADERS BOTTOM	SUB GROUP BUS INPUT	25
26		AUX RETURN INPUT COLD	INTERCOM HOT	SUB-GRP. FADER DRIVE-f	26
27		AUX RTN. INSERT SEND	INTERCOM COLD	S.GP. FDR. BUFFER i/p-e	27
28	0v	0v	0v	TAPE REPLAY i/p COLD	28
29		AUX RTN. INSERT RTN.	HEADPHONE 0v	GP. METER o/p (MUTED)	29
30	PHANTOM +48v		HEADPHONE LEFT o/p	S. GRP. FADER TOP -a	30
31			HEADPHONE RIGHT o/p	S. GRP. FADER WIPER -b	31
32			SUB GROUP TALK o/p	SUB GROUP TALK i/p	32
33	INSERT SEND	AUX. 1(2) TALK INPUT	MON. LEFT o/p HOT	S. GRP. INSERT SEND	33
34	INSERT RETURN	AUX 3(4) TALK INPUT	MON. LEFT o/p COLD	GROUP BUS INPUT	34
35		AUX 5(6) TALK INPUT	MON. LEFT FADER TOP	GROUP FADER DRIVE -m	35
36	FADER TOP	FDR. TOP DRIVE+LED i/p	MON. LEFT FDR. WIPER	GRP. FDR. BUFFER i/p-i	36
37		AUX 1(2) INSERT RTN.	MON. RIGHT o/p HOT	GROUP TALK INPUT	37
38		AUX 3(4) INSERT RTN.	MON. RIGHT o/p COLD	GROUP INSERT SEND	38
39		AUX 5(6) INSERT RTN.	T/BACK o/p EXT. HOT	TAPE REPLAY i/p HOT	39
40	FADER BUFFER o/p	FDR. WIPER BUFFER o/p	T/BACK o/p EXT. COLD	SUB GRP. OUTPUT HOT	40
41		AUX 1(2) INSERT SEND	MON. RIGHT FADER TOP	SUB GRP. OUTPUT COLD	41
42	LED INDICATOR i/p	AUX 3(4) INSERT SEND	MON. RIGHT FDR. WIPER	GROUP OUTPUT HOT	42
43		AUX 5(6) INSERT SEND	OSC. OUTPUT HOT	GROUP OUTPUT COLD	43
44		AUX 5(6) UNBAL. o/p	OSC. OUTPUT COLD	METER SELECT INPUT	44
45	METER OUTPUT	AUX RTN. METER o/p	PFL METER OUTPUT	METER OUTPUT	45
46	GROUP 1 BUS	GROUP 1 BUS	MON. BUS INPUT RIGHT	MONITOR RIGHT BUS	46
47	GROUP 2 BUS	GROUP 2 BUS	MON. BUS INPUT LEFT	MONITOR LEFT BUS	47

ISSUED 7-7-81.

TR04 INPUT | TR27 AUX 1 | TR27 AUX 2 | BLANK | TR22 CONTROL | TRIO OUTPUT 1 | TRIO OUTPUT 2 | TRIO OUTPUT 3 | TRIO OUTPUT 4 | TRIO OUTPUT 5 | TRIO OUTPUT 6 | TRIO OUTPUT 7 | TRIO OUTPUT 8 | TR04 INPUT | TR04 INPUT | INPUTS

HiCB o/p · HiCA o/p · Aux 1 o/p · Aux 5 o/p · Aux 2 o/p · Aux 6 o/p · INS RTN GP · INS RTN SUB GP · T/B LINE i/p · TR22 Talk i/p · Aux i/p 1 INS SND · Aux i/p 1 INS RTN · Aux i/p 1 · Aux i/p 2 INS SND · Aux i/p 2 INS RTN · Aux i/p 2 · INTERCOM · TAPE i/p · INS SND SUB GP · INS SND GP · SUB GP o/p · GP o/p · PFL METER · METER · Aux 5 UNBAL o/p · Aux 6 UNBAL o/p · CM22 WIRING NOT SHOWN · M29 · M30 · M31 · M27 · M26 · M36 · M35 · M34 · M4 · M3 · +15 · -15 · 0v · S R INS

STANDARD TR SYSTEM. 11/4/81.

ISSUE 4 11/4/81.

INPUT MODULE TR04

Circuit Description

Microphone Amplifier

A balanced, floating input is transformer coupled to a non-inverting, low noise, variable gain amplifier (IC1) for optimum noise performance.

R141, 2, 3 form a passive line-to-microphone pad with L1, 2, C93, 4, 5 providing attenuation of radio frequency interference etc.

The nominal 600R Microphone input impedance may be increased (up to 5Kohms max.) by changing R147.

IC2 forms a +20dB nominal gain, high pass third order filter with switchable turnover frequencies.

Equaliser System

The Baxandall network around IC3 provides unity gain Treble and Bass controls with switchable shelf frequencies.

A half octave switched Wien network around IC5 forms a fine tuneable mid-range control with IC4 controlling feedback phase and gain.

Insert Send Driver

IC6 forms a non-inverting Equaliser-to-Insert Send buffer.

Insert Return Buffer

IC7 forms a (10Kohms) non-inverting Insert Return Buffer/Fader Driver.

"Pre" to "Post" Auxiliary Routing level ratio may be adjusted using R127, 8 pad.

Fader Buffer

A non-inverting level normalising driver is formed around IC8 with TR1, 2 providing a bootstrapped medium current Direct Output/Low impedance Routing Section Drive.

Pan Control

A dual potentiometer is padded by R97, 139 to provide a constant level (-3dB centre) pan law. This system is buffered by IC9, 10 stages.

Routing Section

Pan-to-Odd/Even sub-group routing comprises level normalising resistors R108, 9 and virtual earth summing resistors R110 to R119, with an overall signal breakpoint for Muting and individual breakpoints for sub-group selection.

Auxiliary Routing is selectable ("Pre", "Post", "Off") with the level control law formed by virtual earth summing resistors R121, 2, 3, 4, 5, 6.

R81 is the Pre-Fader-Listen virtual earth summing resistor. R83 injects current into the P.F.L. gating bus for Monitor Solo functions.

CONTROL SETTING

MODULE TYPE TR04A

MODULE CONTROL SETTING LIST B FOR A.C. LEVEL CHECKS

Control	Position	Control	Position
PHASE INVERT	PHASE		
GAIN	FULL		
INPUT A/B	A		
MIC / LINE	MIC		
PHANTOM / ON	PHANTOM		
SHELF 10K/15K/6K	15K		
TREBLE	0dB		
FREQUENCY	5KHz		
MID	0dB		
0·5 OCTAVE	O		
SHELF 80Hz/160Hz/40Hz	40Hz		
BASS	0dB		
H P FILTER	FLAT		
EQ / OUT	EQ		
AUX 6	OFF C.C.W		
" 5	" "		
" 4	" "		
" 3	" "		
" 2	" "		
" 1	" "		
GROUP SELECT 1	OUT		
" " 2	"		
SUB GROUP SELECT 1	"		
" " " 2	"		
" " " 3	"		
" " " 4	"		
" " " 5	"		
" " " 6	"		
" " " 7	"		
" " " 8	"		
PAN	FULLY RIGHT OR FULLY LEFT		
CANCEL	OUT		
PFL	OUT		
MUTE	OUT		
FADER	O		

A.C. LEVEL CHECKS

MODULE TYPE TR04A

MODULE SETTINGS LIST B FOR AC. LEVEL CHECKS

Test Point	Nominal Level
INPUT CANNON A PIN 2&3	FEEDIN - 52·5dBv @ 1KHz
CCT POINT A	−32·5 dBv ± 1dB
CCT POINT B	− 12·5 dBv ± 1dB
CCT POINT D	+ 8·5 dBv ± 2dB
CCT POINT E	+ 8·5 dBv ± 2dB
INSERT RTN EDGE PIN 29	+ 9·1 dBv ± 2dB
FADER TOP EDGE PIN 36	+ 8·8 dBv ± 2dB
FADER BUFFER O/P EDGE PIN 40	+ 9·0 dBv ± 2dB + FADER
CCT POINT F	+ 9·7 dBv ± 2dB + FADER (PAN. R)
CCT POINT G	+ 9·7 dBv ± 2dB + FADER (PAN. L)
CCT POINT H	+ 9·5 dBv ± 2dB
CCT POINT J	+ 9·0 dBv ± 2dB + FADER
CCT POINT K	+ 0·1 dBv ± 2dB + FADER (PAN. L)
CCT POINT L	+ 0·1 dBv ± 2dB + FADER (PAN. R)

INPUT MODULE TR04

Circuit Description

Microphone Amplifier

A balanced, floating input is transformer coupled to a non-inverting, low noise, variable gain amplifier (IC1) for optimum noise performance.

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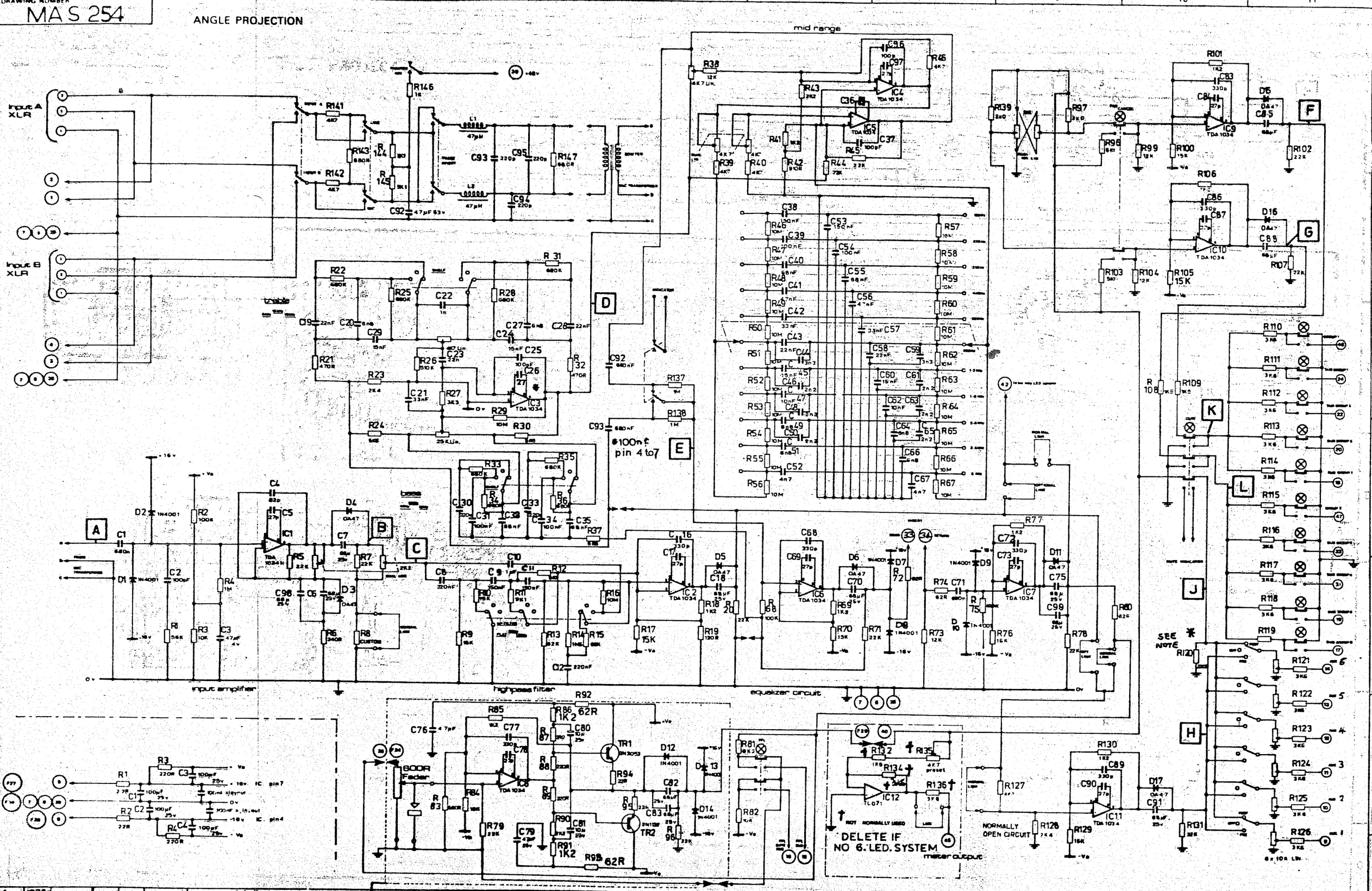
Auxiliary Routing is selectable ("Pre", "Post", "Off") with the level control law formed by virtual earth summing resistors R121, 2, 3, 4, 5, 6.

R81 is the Pre-Fader-Listen virtual earth summing resistor. R83 injects current into the P.F.L. gating bus for Monitor Solo functions.

DRAWING NUMBER

MAS 254

ANGLE PROJECTION



ISSUE	DATE	MOD No	ISSUE	DATE	MOD No
1	19.2.82				
2	6.4.82				
3	7.6.82				
4	28.6.82				
5	16.8.82				

NOTES

FINISH

TOLERANCES - UNLESS STATED

UNIT ± 0·

·0 ± 0·

·00 ± 0·

·000 ± 0·

DIMENSIONS IN

NOTES

main board edge connector

XLR pin

inter board link

normal link

SCALE

DRAWN BY

DATE

© COPYRIGHT

MCS 34-36 Stanhope Street, London NW1 3DL Tel 01-388-7060

TITLE

TR04(E.N.O.) CC.T.

[SEE NOTE]

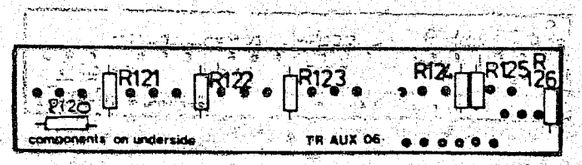
DRAWING NUMBER

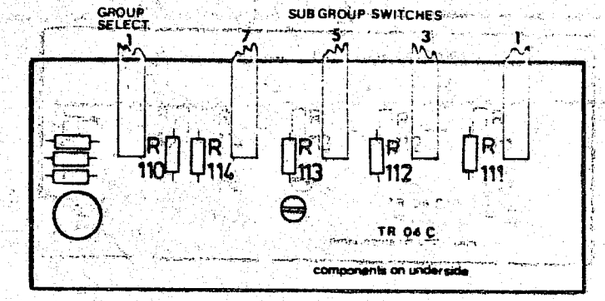
MAS254

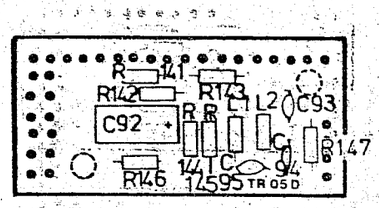
ISS 5

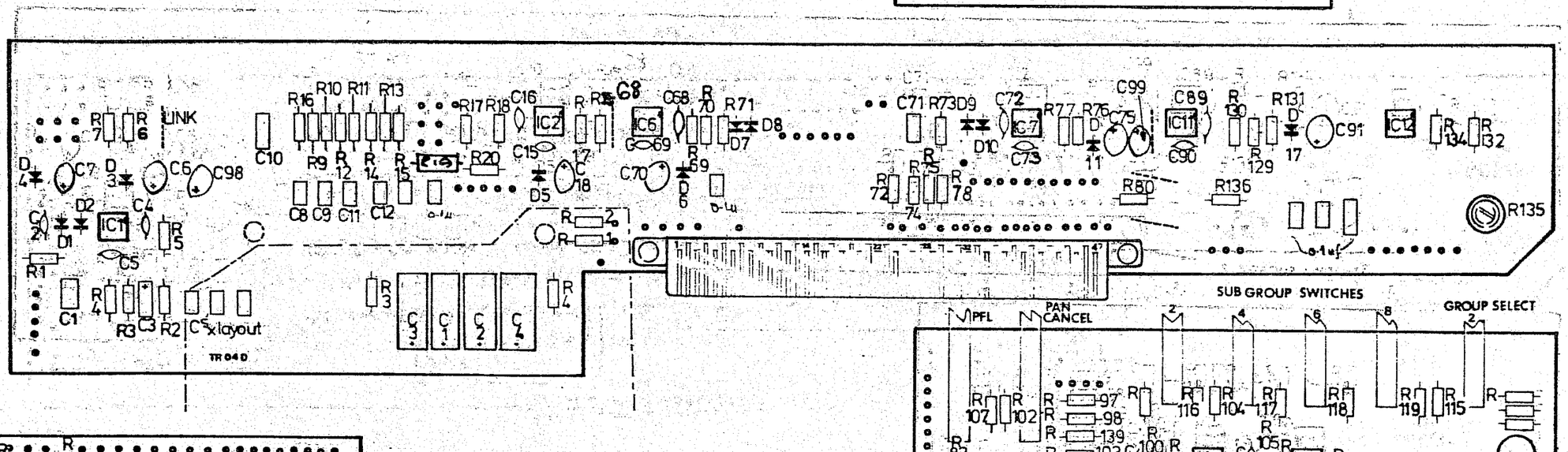
DRAWING NUMBER
MAS 279

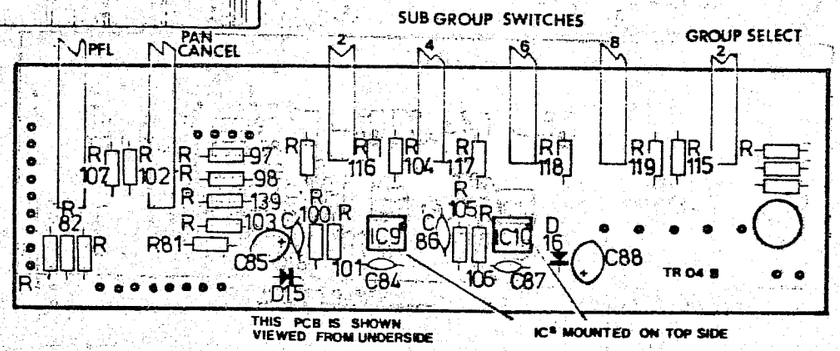
ANGLE PROJECTION

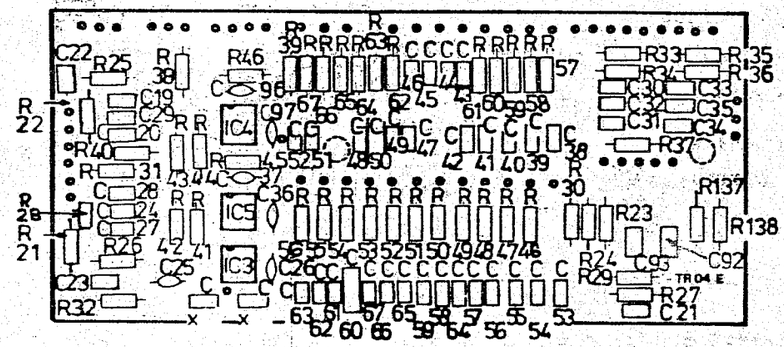


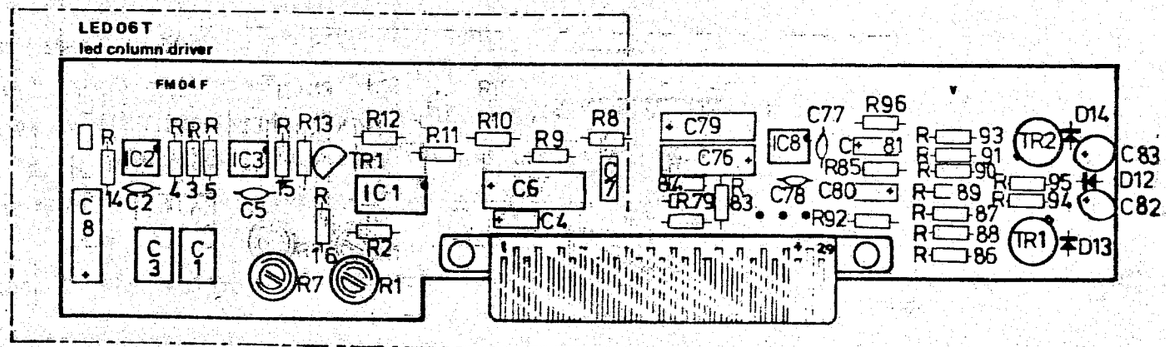












ISSUE	DATE	MOD. No.	ISSUE	DATE	MOD. No.
ONE	17 July	R6616			

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0
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.00 ± 0
.000 ± 0

DIMENSIONS IN

NOTES

SCALE:

DRAWN BY Rabbie

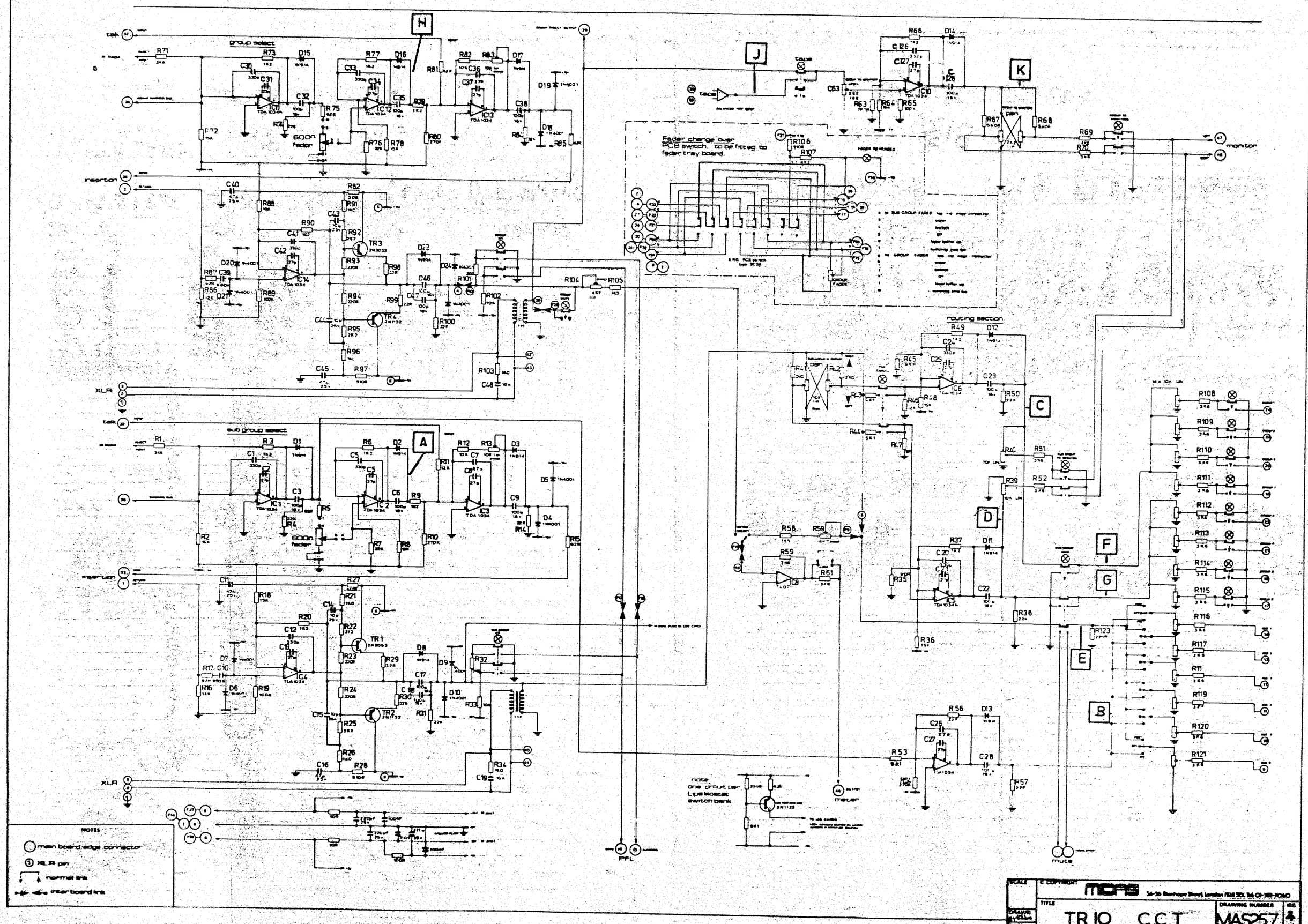
DATE 17 July 86

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE
TR04 & FM04 OVERLAY.

DRAWING NUMBER
MAS 279

ISS.
1


group select
sub group select
routing section
Fader change over PCB switch, to be fitted to fader tray board.
XLR
talk
insertion
monitor
PFL
mute
meter
NOTES
main board edge connector
XLR pin
normal link
fader board link
TR10 C.C.T
MAS257

TR SYSTEM MODULE EDGE CONNECTORS

ENGLISH NATIONAL OPERA

	FM 04R	FM 04	FM 27	CM 22	FM 22	FM 10	
1							1
2							2
3							3
4							4
5	LED INDICATOR INPUT	LED INDICATOR INPUT	LED INDICATOR INPUT				5
6							6
7	STATUS IND.BUS COLD			STATUS IND. COLD			7
8	STATUS IND. BUS HOT			STATUS IND. HOT			8
9	FDR. SWITCH N/O HOT			DUAL LED DRI.+VE SUPP.		SUB GROUP METER INPUT	9
10	FDR.SWITCH WIPER (E)			DUAL LED DRIVER O/P		GROUP METER INPUT	10
11	FDR.SWITCH N/C COLD					METER SELECT OUTPUT	11
12	STATUS BUS			STATUS BUS		PFL GATE BUS	12
13						PFL SIGNAL BUS	13
14	0v	0v	0v	0v	0v	0v	14
15				HEADPHONE RIGHT		GROUP FADER DRIVE (m)	15
16				HEADPHONE LEFT		GRP.FDR.BUFFER i/p(l)	16
17				HEADPHONE COMMON		GROUP FADER 0v (k)	17
18				OSCILLATOR COLD	FADER LEFT BOTTOM 0v	GRP.FDR. BOTTOM (j)	18
19				OSCILLATOR HOT	FDR.LEFT BUFFER o/p	GRP.FDR. WIPER (h)	19
20					FADER LEFT TOP	GROUP FADER TOP (g)	20
21				MIC COLD		SUB.GRP.FDR.DRIVE (f)	21
22	STATUS BUS			MIC HOT		S.GP.FDR.BUFFER i/p(e)	22
23	CONTROL VOLTAGE i/p			MIC SCREEN		SUB GROUP FADER 0v(d)	23
24	VCA INPUT	FADER TOP	FADER TOP		FDR.RIGHT BOTTOM 0v	S.GRP. FDR.BOTTOM (c)	24
25					FDR.RIGHT BUFFER o/p	S.GRP. FDR.WIPER (b)	25
26				STATUS INHIBIT COLD	FADER RIGHT TOP	S.GRP. FADER TOP (a)	26
27	+16v	+16v	+16v	+16v	+16v	+16v	27
28	-16v	-16v	-16v	-16v	-16v	-16v	28
29	VCA OUTPUT	FADER BUFFER OUTPUT	FADER BUFFER OUTPUT	STATUS INHIBIT HOT		GROUP o/p UNBALANCED	29

Issued 15-7-81

CONTROL SETTING

MODULE TYPE TR10

MODULE CONTROL SETTING LIST B for Ac LEVEL CHECKS

Control	Position	Control	Position
Aux 6	OFF CCW		
Aux 5	OFF CCW		
Aux 4	OFF CCW		
Aux 3	OFF CCW		
Aux 2	OFF CCW		
Aux 1	OFF CCW		
MONITOR	CCW OUT		
GROUP SELECT 8	OUT		
" " 7	OUT		
" " 6	OUT		
" " 5	OUT		
" " 4	OUT		
" " 3	OUT		
" " 2	OUT		
" " 1	OUT		
PAN	FULLY RIGHT or FULLY LEFT		
CANCEL	OUT		
MUTE	OUT		
AFL	OUT		
SUB GROUP FADER	0		
ROUTING LEVEL 8	CCW		
" " 7	CCW		
" " 6	CCW		
" " 5	CCW		
" " 4	CCW		
" " 3	CCW		
" " 2	CCW		
" " 1	CCW		
GROUP MONITOR TAPE	OUT		
" " GROUP	IN		
" " LEVEL	FULL		
METER SELECT	OUT		
AFL	OUT		
MUTE	OUT		
FADER CHANGEOVER	OFF		
FADER	0		

AC. LEVEL CHECKS

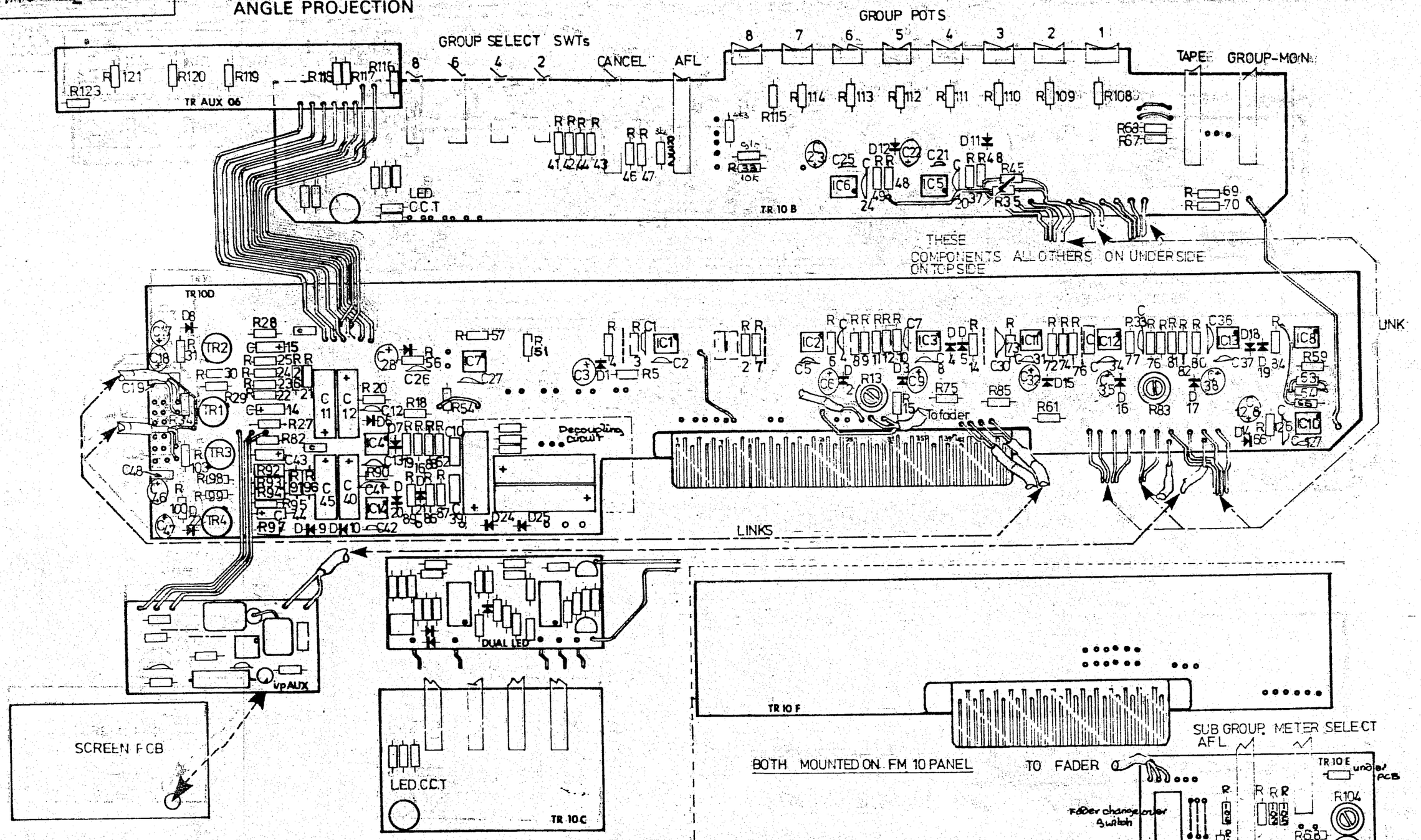
MODULE TYPE TR10

MODULE SETTINGS LIST B for AC. LEVEL CHECKS

Test Point	Nominal Level
EDGE PIN 25 (3KΩ IN SERIES)	FEED IN 0dB @ 1kHz
" " 26	-10.4 dB ± 1dB
CCT POINT A	-19.7dB ± 1dB + SUB FADER
EDGE PIN 33	+ 1.7 dBV (± 3dB PRESET R13)
" " 3	+ 2.4 dBV " " " "
EDGE PINS 40 to 41	BALANCED + 4dBv (PRESET R13)
CCT POINT B	+ 3.2 dBv ± 1dB
" " C	+ 10 dBv ± 2dB + SUB FADER (PAN L)
" " D	" " " " " (PAN R)
" " E	+ 2.4 dBv ± 2dB + SUB FADER
" " F	+ 10 dBv " " " "
" " G	" " " "
EDGE PIN 34 (3KΩ IN SERIES)	FEED IN 0dB @ 1KHz
" " 35	-10.4 dBv ± 1dB
CCT POINT H	-19.7 dBV ± 1dB + GROUP FADER
EDGE PIN 38	+ 1.7 dBV (± 3dB PRESET R83)
" " 4	+ 2.4 dBV " " " "
EDGE PINS 42 to 43	BALANCED + 4dBv (PRESET R83)
CCT POINT K	+ 10 dB ± 2dB + GROUP FADER

DRAWING NUMBER MAS 280

ANGLE PROJECTION



ISSUE	DATE	MOD. No.	ISSUE	DATE	MOD. No.
ORIG		MAS 280			

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0
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·00 ± 0
·000 ± 0

DIMENSIONS IN

NOTES

SCALE:

DRAWN BY Bibbs

DATE

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE: TR 10 & FM 10 OVER LAY

DRAWING NUMBER: MAS 280

ISS.

420 × 594mm A2

AUXILIARY MODULE TR27

Send Sections

Summing Amplifiers

A virtual earth, inverting summing amplifier is formed around IC1, providing -10dB gain for input to auxiliary send headroom.

Level Control Buffer/Insert Send Driver

IC2 forms a low impedance phase normalising/gain stage. R9 allows adjustment of Insert Send/Output level at nominal control settings.

Insert Return Buffer/Output Driver

A non-inverting hybrid driver stage is formed around IC3, TR1, 2. This provides medium current output drive via a balancing transformer. R29 is the After-Fader-Listen virtual earth summing resistor. R30 injects current into the P.F.L. gating bus for Monitor Solo function.

Return Section

IC4 forms a balanced line input, unity gain stage. C217, 218, 219 provide attenuation of radio frequency interference etc.

A non-inverting variable gain amplifier is formed around IC5.

Equaliser Section/Insert Send Driver

This is a fixed frequency Baxandall Treble and Bass Control System (IC6) with IC7 providing a unity gain, phase normalising insert send driver.

Insert Return Buffer

IC8 forms a (10Kohms) non-inverting Insert Return Buffer.

"Pre" to "Post" Auxiliary Routing level ratio may be adjusted using R304/5 pad.

Fader Buffer

A non-inverting level normalising driver is formed around IC9 with TR203/4 providing a bootstrapped medium current Direct Output/Low impedance Routing Section Drive.

Pan Control

A dual potentiometer is padded by R289, 290 to provide a constant level (-3dB centre) pan law. This system is buffered by IC10, 11 stages.

Routing Section

Pan-to-Odd/Even sub-group routing comprises level normalising resistors R302, 325 and virtual earth summing resistors R309 to R318, with an overall signal breakpoint for Muting and individual breakpoints for sub-group selection.

Auxiliary Routing is selectable ("Pre", "Post", "Off") with the level control law formed by virtual earth summing resistors R319, 320, 321, 322, 323, 324.

R286 is the Pre-Fader-Listen virtual earth summing resistor. R287 injects current into the P.F.L. gating bus for Monitor Solo functions.

CONTROL SETTING

MODULE TYPE TR 27

MODULE CONTROL SETTING LIST B for AC LEVEL CHECKS

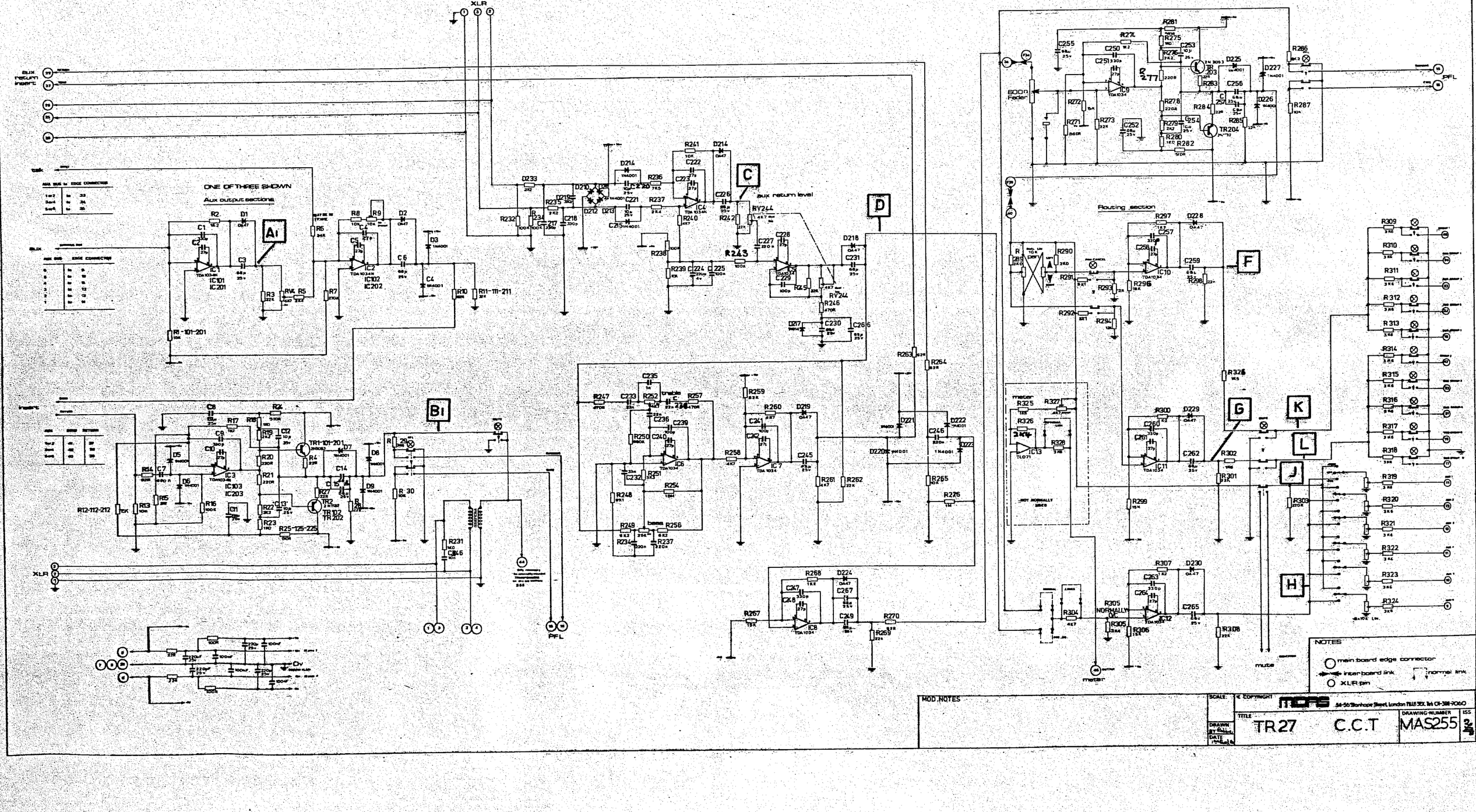
Control	Position	Control	Position
Aux 5-6 LEVEL	0dB		
" MUTE	OUT		
" AFL	OUT		
Aux 3-4 LEVEL	0dB		
" MUTE	OUT		
" AFL	OUT		
AUX 1-2 LEVEL	0dB		
" MUTE	OUT		
" AFL	OUT		
TREBLE	0dB		
BASS	0dB		
GAIN	FULL		
AUX 6	OFF CCW		
AUX 5	OFF CCW		
AUX 4	OFF CCW		
AUX 3	OFF CCW		
AUX 2	OFF CCW		
AUX 1	OFF CCW		
GROUP SELECT 1	OUT		
" " 2	OUT		
SUB GROUP SELECT 8	OUT		
" " " 7	OUT		
" " " 6	OUT		
" " " 5	OUT		
" " " 4	OUT		
" " " 3	OUT		
" " " 2	OUT		
" " " 1	OUT		
PAN	FULLY RIGHT OR FULLY LEFT		
CANCEL	OUT		
PFL	OUT		
MUTE	OUT		
FADER	0		

AC LEVEL CHECKS

MODULE TYPE TR27

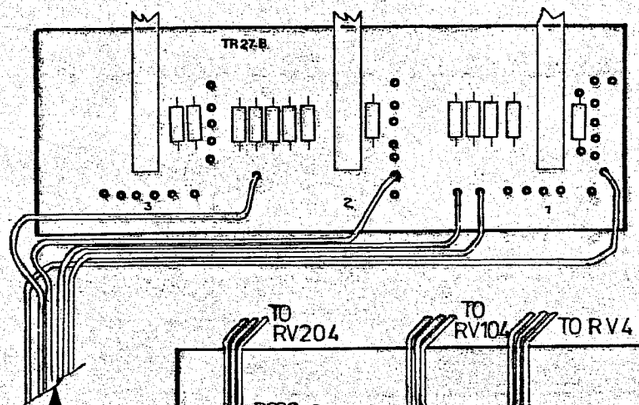
MODULE SETTINGS LIST B for AC LEVEL CHECK

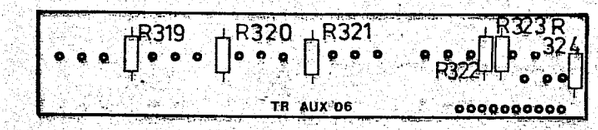
Test Point	Nominal Level
EDGE PIN 14-13 (3K6 INSERIES)	FEED IN 0dB @ 1K Hz
CCT POINT A1	- 9·5 dBv ± 1dB
EDGE PIN 41	- 3 dBv (± PRESET R9)
CCT POINT B1	+ 2·4 dBv ± 2dB + SEND LEVEL 1-2
EDGE PIN 1 to 2	BALANCED + 4dBv (PRESET R9)
EDGE PIN 12-11 (3K6 INSERIES)	FEED IN 0dB @ 1K Hz
CCT POINT A2	- 9·5 dBv ± 1dB
EDGE PIN 42	- 3 dBv (± PRESET R109)
CCT POINT B2	+ 2·4 dBv ± 2dB + SEND LEVEL 3-4
EDGE PIN 3 to 4	BALANCED + 4dBv (PRESET R109)
EDGE PIN 10-9 (3K6 INSERIES)	FEED IN 0dB @ 1k Hz
CCT POINT A3	- 9·5 dBv ± 1dB
EDGE PIN 43	- 3 dBv (± PRESET R209)
EDGE PIN 44	+ 2·4 dBv ± 2dB + SEND LEVEL 5-6
EDGE PIN 25-26	FEED IN BALANCED -11·5dBv @ 1kHz
CCT POINT C	- 11·5 dBv ± 1dB
CCT POINT D	+ 8 dBv ± 1dB
EDGE PIN 27	+ 8 dBv ± 2dB
EDGE PIN 36	+ 8·6 dBv ± 2dB
EDGE PIN 40	+ 9 dBv ± 2dB + FADER
CCT POINT F	+ 9·7 dBv ± 2dB + FADER (PAN L)
CCT POINT G	+ 9·7 dBv ± 2dB + FADER (PAN R)
CCT POINT H	+ 9·3 dBv ± 2dB
CCT POINT J	+ 9·0 dBv ± 2dB + FADER
CCT POINT K	0 dBv ± 2dB + FADER
CCT POINT L	0 dBv ± 2dB + FADER

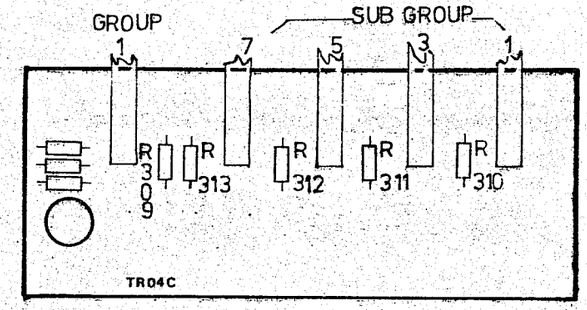

XLR
ONE OF THREE SHOWN
Aux output sections
A1
B1
C
D
F
G
H
J
K
L
Aux return level
Routing section
R1-101-201
R12-112-212
R25-125-225
R11-111-211
IC101
IC201
IC102
IC202
IC103
IC203
TR1-101-201
TR2
TR102
TR202
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
TR203
TR204
PFL
mute
meter
Cv
NOTES
main board edge connector
inter-board link
normal link
XLR pin
MOD.NOTES
© COPYRIGHT
MOS 84-86 Blenheim Street, London W1R 9DL Tel 01-388 9060
TITLE
TR27 C.C.T
DRAWING NUMBER
MAS255
ISS
3

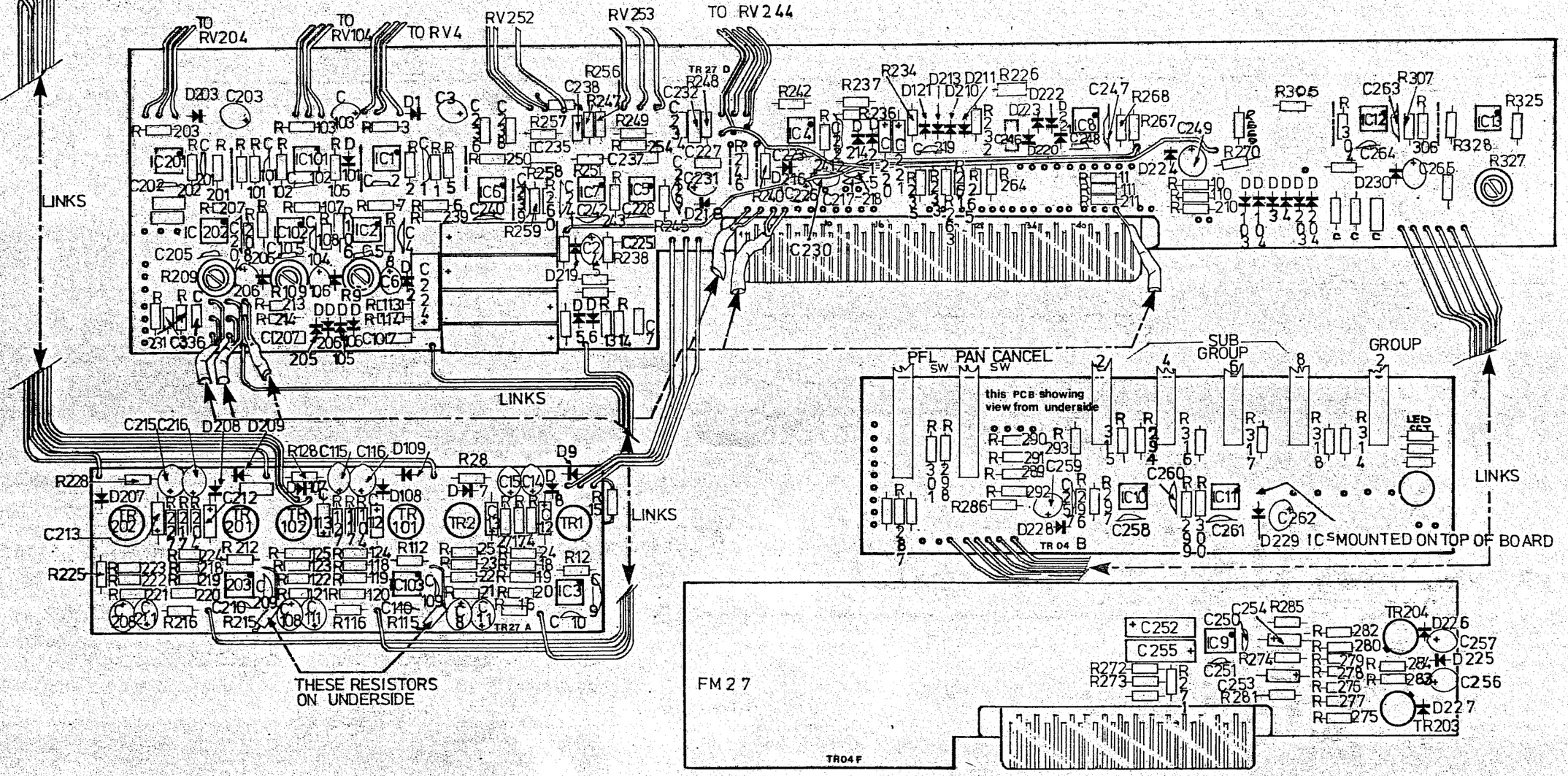
DRAWING NUMBER
MAS 281

ANGLE PROJECTION









ISSUE	DATE	MOD. No.	ISSUE	DATE	MOD. No.
1	25/4/80				

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
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DIMENSIONS IN

NOTES

SCALE:

DRAWN BY Robbie

DATE

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE
TR 27 & FM27 OVERLAY

DRAWING NUMBER
MAS 281

ISS.
1/2

COMMUNICATIONS MODULE TR22

P.F.L. Section

IC1 forms a -10dB virtual earth summing amplifier. This feeds an adjustable gain meter drive stage (IC3). P.F.L. signal from this summing stage, via the P.F.L. level control, is routed via the "Intercom" switch to headphones and via Solo/Mix switches and Relays 1 and 2 to the Monitor system.

The P.F.L. Gating System (IC2, TR1 etc)., enables the P.F.L. signal to displace normal Monitor signals when Solo is selected. IC2 inverts any P.F.L. gating signal and drives TR1 V-MOS gate position. This turns on TR1 causing Relays 1 and 2 to switch the Monitor signal sources from Left and Right monitor summed signals to the P.F.L. summed signal, if the Solo switch is selected.

In the MIX mode the P.F.L. signal is mixed onto the Left and Right Monitor Busses via IC6 gain/phase normalising buffer and summing resistors R14, 18.

Monitor Section

Summing Amplifiers

IC4, 5 form -10dB virtual earth summing amplifiers. Signals from these two amplifiers route, via Relays 1 and 2, to the monitor DIM section.

Dim Section

Resistors R104, 105 are Mono mixing resistors. TR2, 3 V-MOS Transistors perform a simple, low level voltage controlled attenuator function. These transistors are biased on when the DIM button is pushed or when a LINE or MIC talkback function is selected. R26, 27 and R38, 39 then become 40dB pads. Different DIM levels may be obtained by changing R27, 39. DIM timing is governed by C24.

Dim Buffers/Fader Drivers

IC7, 8 form level normalising non-inverting buffers to drive the stereo monitor fader system.

Output Section

Non-inverting amplifiers IC9, 10 provide post fader level normalising to drive left and right monitor outputs via balancing transformers and the monitor mute switch.

Talkback Section

IC21 forms a balanced microphone amplifier. Peak compression is provided by V-MOS devices TR4, 5 gated from level detector stage TR6.

A unity gain, balanced line section is provided by IC24. C55, 56 and 57 attenuate radio frequency interference etc.

Talkback signals are routed to the sub-group, Auxiliary, Group and External level controls via MIC and LINE selection switches.

R49, 51 are Oscillator and Mic/Line mixing resistors.

Talkback level control gain normalising buffers (IC11, 12, 13, 14) are all identical to the previously described Monitor output section.

Talkback routing is via AUX and GROUP switches at line level, summing resistors being present at the post-fader stage of Auxiliary and Group Modules.

INTERCOM SECTION

TYPE 'X' 600Ω OUTPUT DRIVER STAGE

COMPONENTS MARKING
IC9 suffix=a
IC10 - b
IC11 - c
IC12 - d
IC13 - e
IC14 - f

SCALE:	© COPYRIGHT MCP 54-56 Stamford Street, London SE1 9JX. Tel: 01-928-7060
DRAWN BY:	TITLE: TR 22 CCT.
DATE:	DRAWING NUMBER: MA3 256 ISS. 1

TR22 INTERCOM SECTION

This is a 200 Ohms Common Send/Receive/Flash sytem, compatible with "Clearcom" and other similar systems.

IC22 provides drive to the bus line and the self cancellation ("Sidetone") preset R74 which is adjusted for howlround rejection.

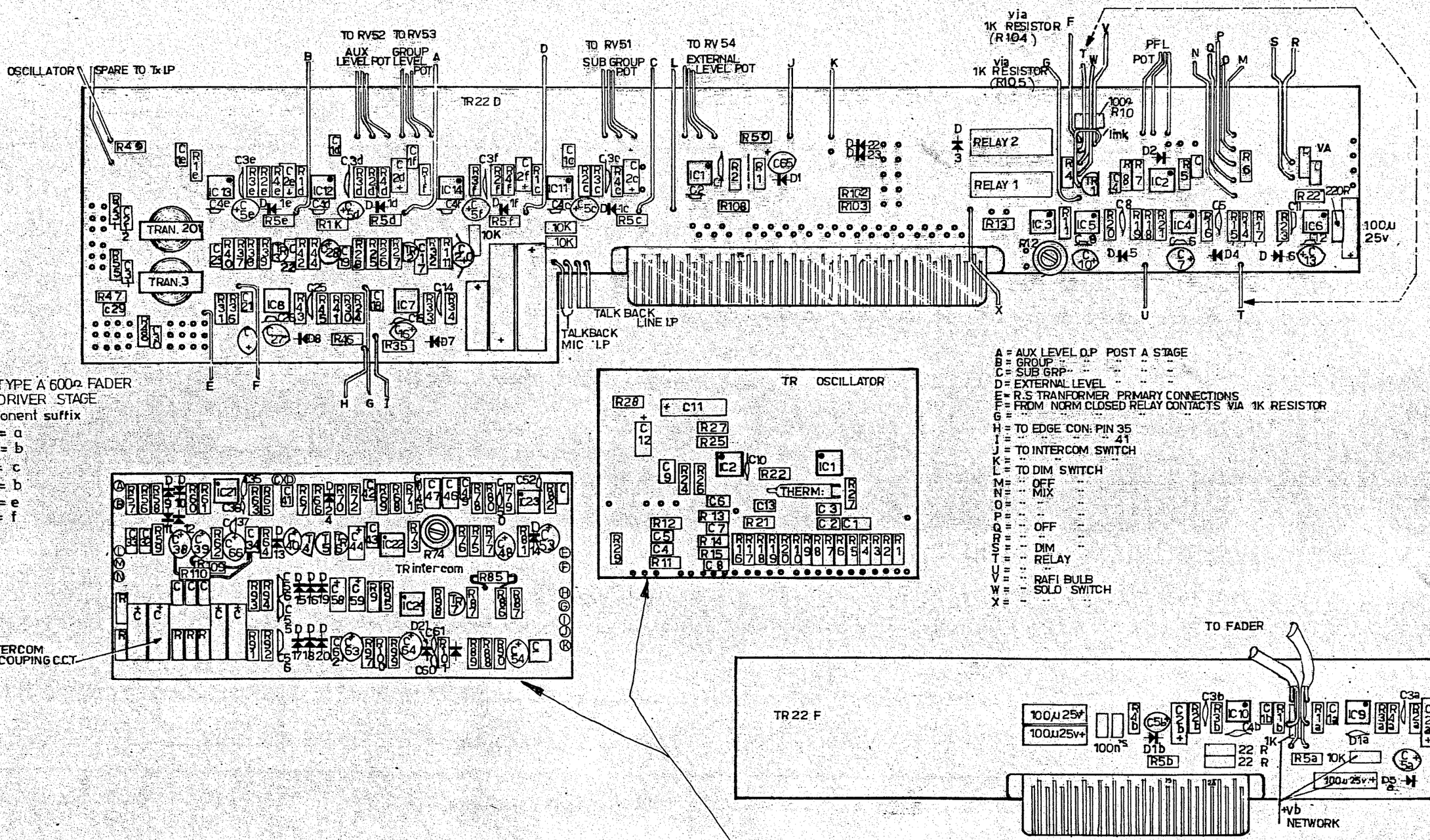
IC23 is the self cancelling receive stage amplifying the bus signal to line level for headphone amplifier drive via the intercom switch when pressed.

The "Call" system simply applies a direct voltage to the bus line, turning on other TR7's in other stations and illuminating the "call" lamp/button.

R89, 90, C54 are fitted to make that particular module the "master" unit. C54, R90 should be removed and R89 changed to 15K when the console is being used as a "beltpack" with another "master" system.

DRAWING NUMBER
MAS 282

ANGLE PROJECTION



ISSUE	DATE	MOD. No.	ISSUE	DATE	MOD. No.
2	8/1/81	12B & TR22F			
—	7/7/81	NOTE			

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
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DIMENSIONS IN

NOTES
TR INTERCOM AND TR OSCILLATOR NOW COMBINED ON TR22A P.C.B.

SCALE:

DRAWN BY Debbie
DATE 21st July 81

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

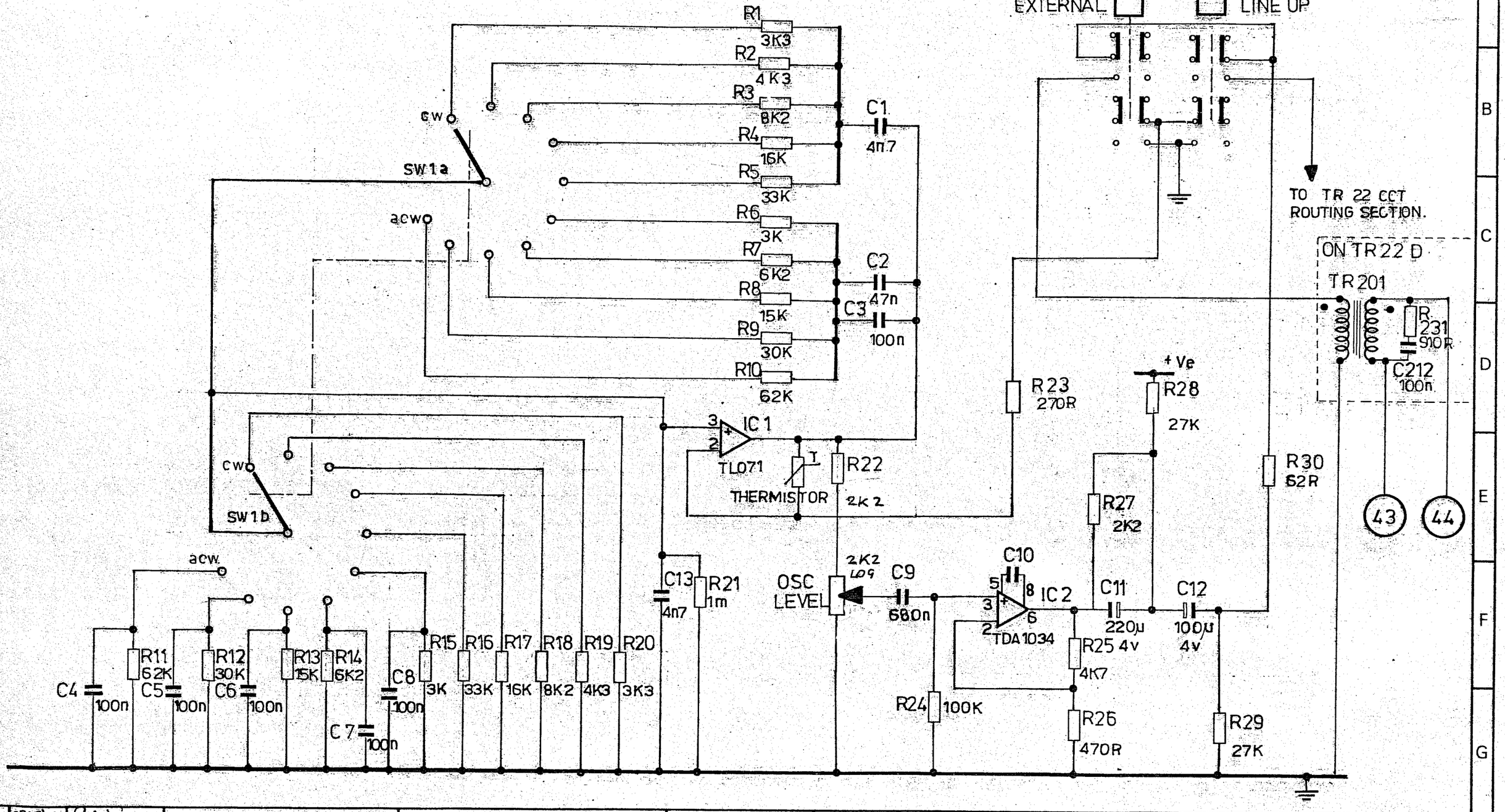
TITLE TR 22 OVERLAY

DRAWING NUMBER MAS 282

ISS. 2

DRAWING NUMBER MAS 285

ANGLE PROJECTION



ISSUE	DATE	MOD. No.
4	27 July 88	Robbie

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
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DIMENSIONS IN

NOTES
PART OF
TR22A PCB.

SCALE:

DRAWN BY Robbie

DATE 27th July 88

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE
TR OSCILLATOR C C T
USED ON TR22 MODULE.

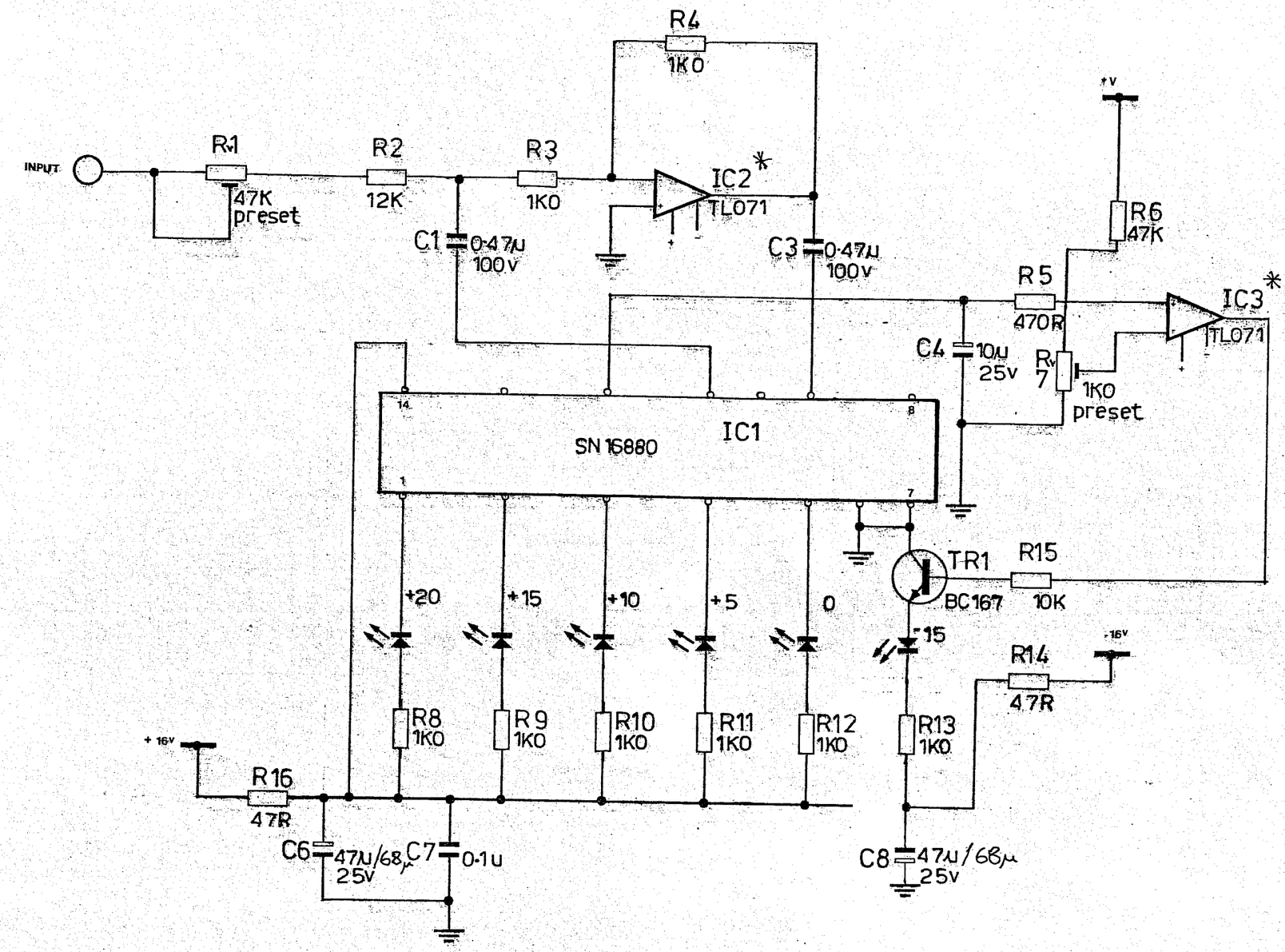
DRAWING NUMBER MAS285

ISS. 1

297 × 420mm A3

DRAWING NUMBER MAS 288

ANGLE PROJECTION



* IC2 AND IC3 MAY BE COMBINED IN A NE5532 PACKAGE.

ISSUE	DATE	MOD. No.
2	8.04.80	Robbie

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
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DIMENSIONS IN

NOTES
USED ON:—
FM04
FM04R
FM27
FADER MODULES

SCALE:

DRAWN BY Robbie

DATE 8th April 80

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE LED 06 T CCT

DRAWING NUMBER MAS 288

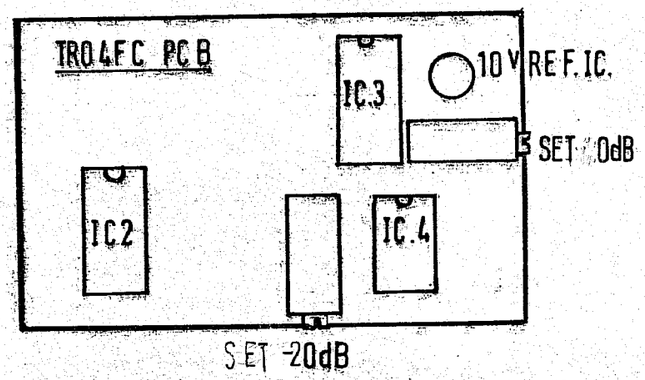
ISS. 2

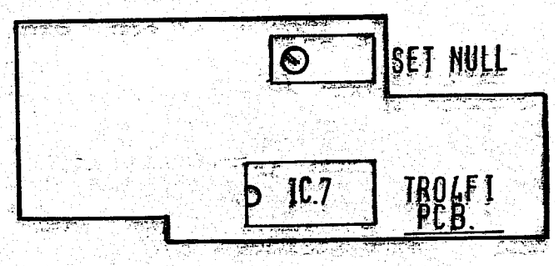
Printaplan–Woking 21260/77

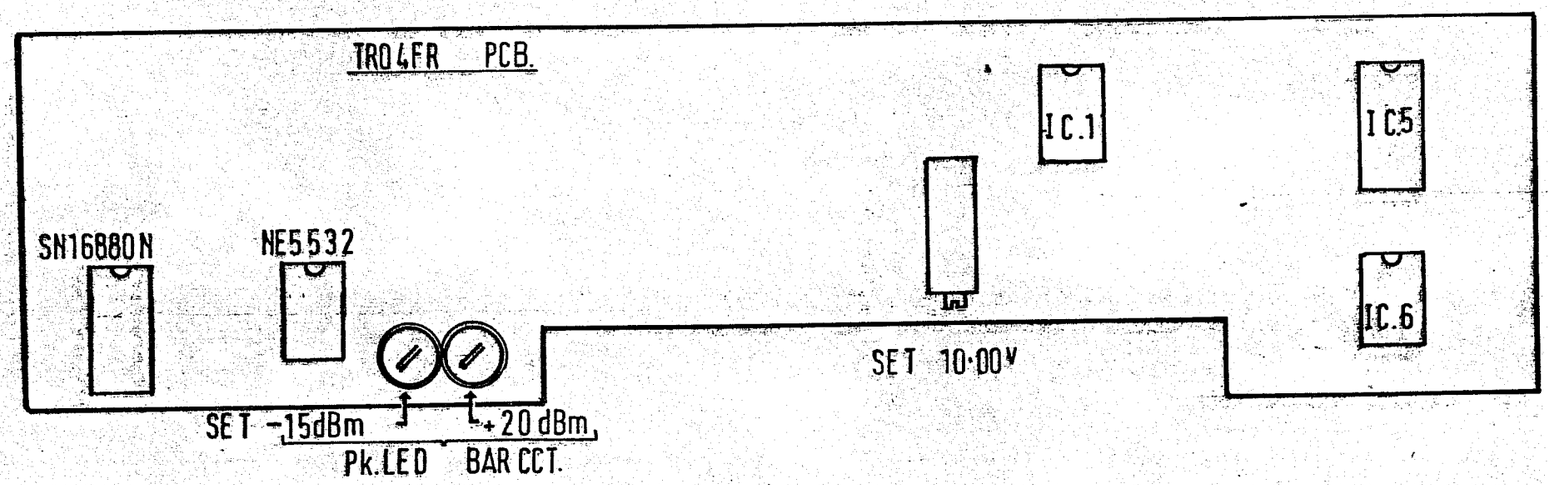
DRAWING NUMBER

MAS 556

ANGLE PROJECTION







ISSUE	DATE	MOD. No.
1	13/7/81	

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
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DIMENSIONS IN

NOTES

SCALE:

DRAWN BY Debbie

13th July 81

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-2060

TITLE

FM04R LAYOUT

DRAWING NUMBER

MAS556

ISS. 1

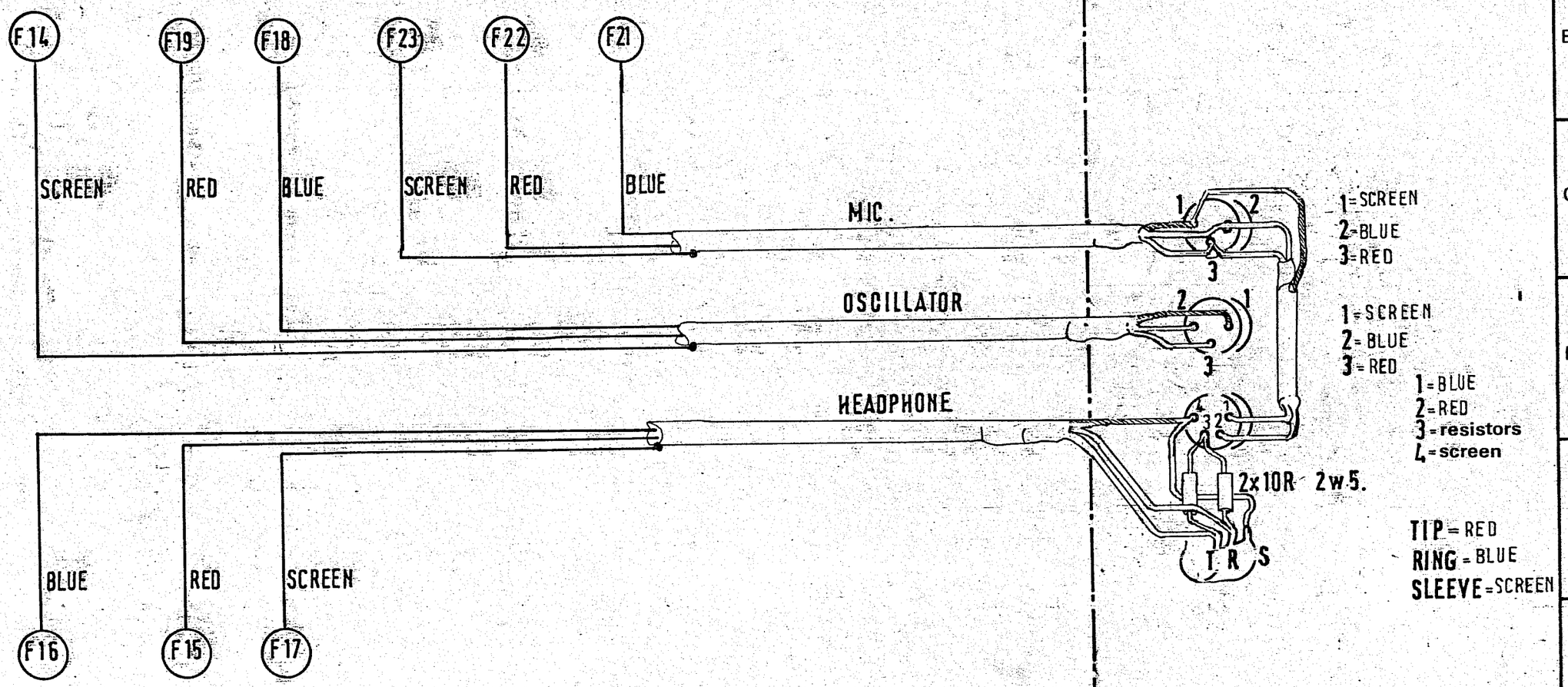
297 x 420mm A3

Woking Dyeline P1528/9

DRAWING NUMBER MAS554

ANGLE PROJECTION

EDGE CONNECTOR



REAR VIEW
CM 22

USES TR10F PCB

ISSUE	DATE	MOD. No.
1	7/7/81	

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

DIMENSIONS IN

NOTES

SCALE:

DRAWN BY Ebbe

DATE 7/7/81

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE CM 22 MODULE

DRAWING NUMBER MAS554

ISS. 1

297 x 420mm A3

Woking Dyeline P1528/9

STAR POINTS FEEDING

LOGIC +Ve — to IC.2 pin 14

CLEAN +Ve — to IC1 pin 8. IC4 pin 8. IC5 pin 11. IC6 pin 8. LM340

RAW +Ve — IC 7

0V — to IC2 pin 7 and all separately

RAW -Ve — to IC7

CLEAN -Ve — to IC1 pin 4, IC4 pin 4, IC6 pin 4

REF 0V

CLEAN -Ve

1mH

1N4001 1N4001

22R

68u 25v

1N4001

100µ 25v

100nF

100µ 25v

100n

22R

F27 edge connector

F14

F28

IN REF OUT — LM340 LAZ-10 RS283-299

100n

39K

3K6

1K5 56K 16K

IC3 LM3046

6K8 10K

330p

10K

IC4 NE5532

3K0

set to -20 dB (and check -∞)

4K7 20 turn preset (RS 162-221)

7K5

10K

LAW SHAPER

56K

20K 20 turn preset (RS162-243) SET 0dB

100n

2K4

IC4 NE5532

560R

22R

PCB FM04FR

F24

10K 10K

3K6 10K 10K

100p

3K6

10K

10K

IC6 NE5532

1537A IC5

15p

33K

10K

IC6 NE5532

68u 25v

62R

edge connector F29

3K6 36K 22n

68u 25v

680K 33K

22K

1K0

V.C.A

PCB FM04FR

LOGIC+Ve

LOCAL-REMOTE LOGIC

PCB TR04FC

edge connector F23 F22

62R 62R

1N4001 1N4001 1N4001 100n 100n

IC2 4016

100K

LOCAL

DUAL LED

1K 1K

RAW 0v

REMOTE △v.

330p

470K 1%

NE5532 IC1

62R

470K 1%

330R

330p

3K9

NE5532

REF. + 10v

50R 4K7

IC1

1N827

47u 25v 10v

4K7 20 turn preset RS 162-221

REF.0v

2K2

10K lin FADER

IC2 4016

LOCAL △v1

LOCAL △v2

330R

F7 F8

22K 22K

REF +10v

-Ve RAW

10v REFERENCE

RAW+Ve

NULL INDICATOR FOR REMOTE FADER SYSTEM TR04FJ

1K 1K

RAW 0v

REF +10v

10K

REF 0V

330p

10K

LM348 IC7

18K

OA 47

16K

4K7 20 turn preset SET NULL

1N914

VN10KM

1K0 1K0 1K0 10K

RED

GREEN

YELLOW

1N914

10K

VN10KM

VN10KM

470K 1%

LM348 IC7

470K 1%

470K 1%

330p

10K 10K

10K

10v

VN10KM D G S

ENG	DATE								

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

NOTES

SCALE:

DRAWN

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE: REMOTE FADER SYSTEM FM04R

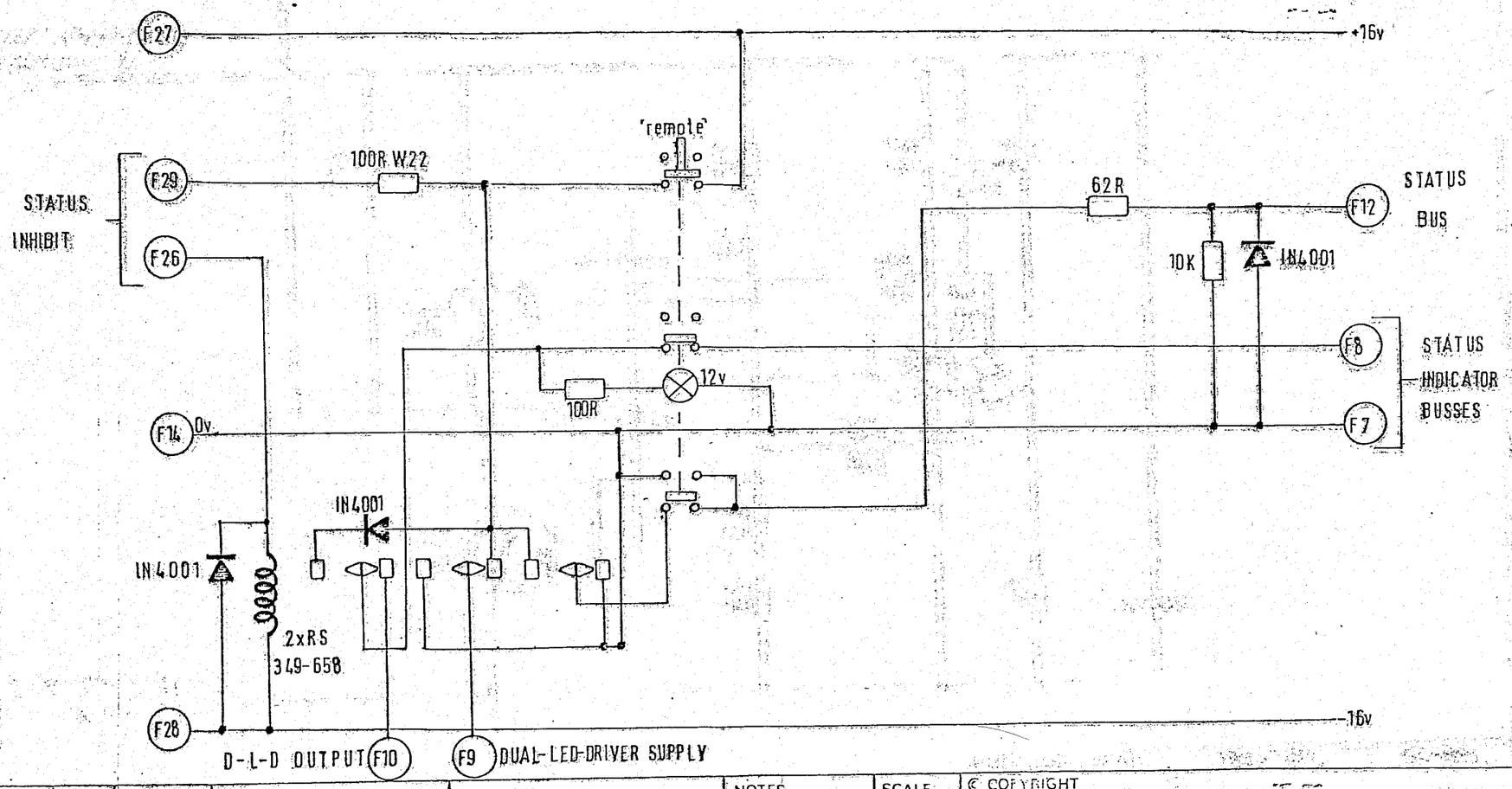
DRAWING NUMBER: MAS541

ISS.

(FULL SIZED DRAWING ENCLOSED)

DRAWING NUMBER
MAS 551

ANGLE PROJECTION



ISSUE	DATE	MOD. No.
1	6.7.81	

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0
·0 ± 0
·00 ± 0
·000 ± 0

DIMENSIONS IN

NOTES

SCALE

DRAWN BY DSL
DATE 6.7.81

MBAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

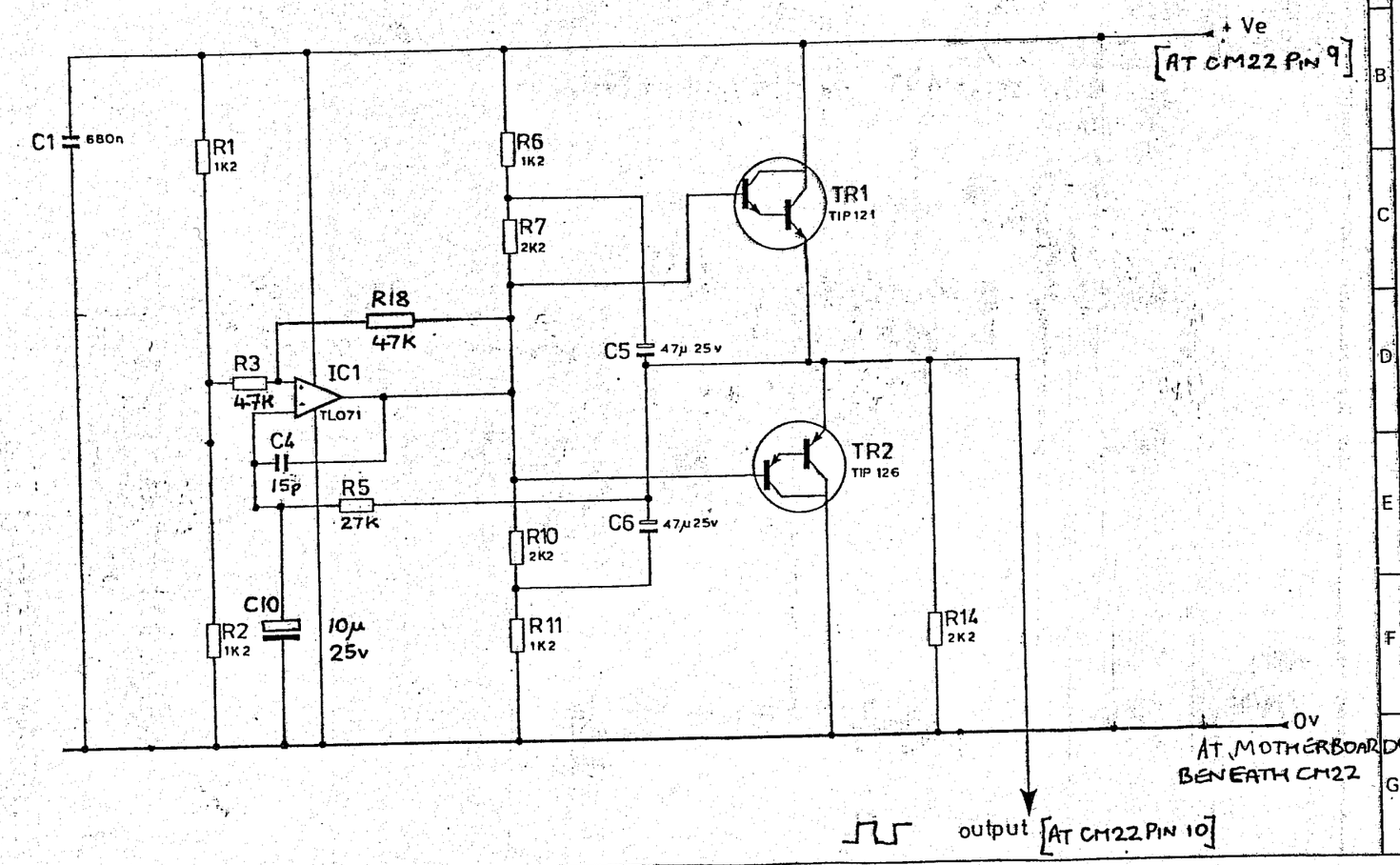
TITLE
E.N.O. CM22 MODULE
'REMOTE'

DRAWING NUMBER
MAS 551

297 × 420mm

DRAWING NUMBER
MODIFIED MAS 286

ANGLE PROJECTION



ISSUE	DATE	MOD. No.
1	1/7/81	

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

DIMENSIONS IN

NOTES
LOCATED BENEATH FM22.

SCALE:

DRAWN BY JOHN
DATE 1/7/81

MBAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

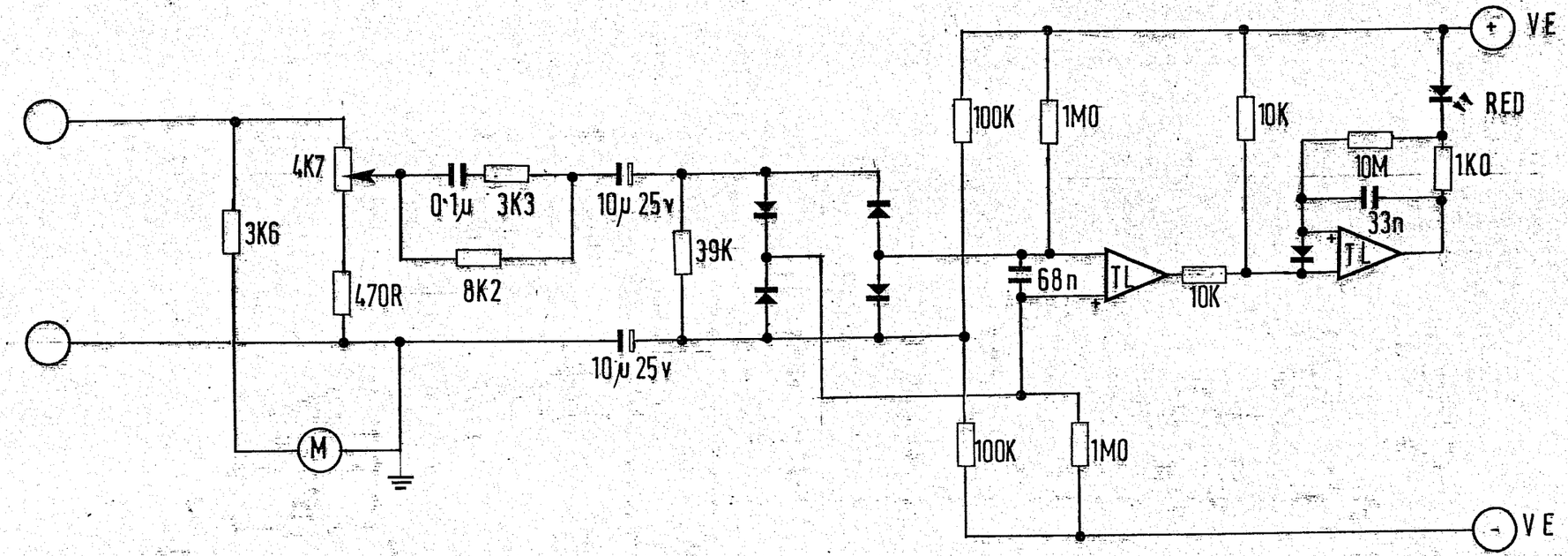
TITLE
E.N.O. LOCAL/REMOTE
DUAL LED. DRIVER.

DRAWING NUMBER
MAS 286
MODIFIED

ISS. 1

DRAWING NUMBER

MAS 553



CAL: PA mixers + 10dBv
STUDIO " + 8dBv
THEATRE " + 8dBv

ATTACK + 1dB overdrive @ 2 m.s.
+ 3dB " @ 1 m s
HOLD 330 ms

ISSUE	DATE	MOD. No.
1	7/7/81	

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

DIMENSIONS IN

NOTES
MOUNTED BEHIND METERS,

SCALE:

DRAWN BY Robbie

DATE 7 July 81

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-2060

TITLE
PEAK METER LED
LM02.

DRAWING NUMBER
MAS 553

ISS.
1

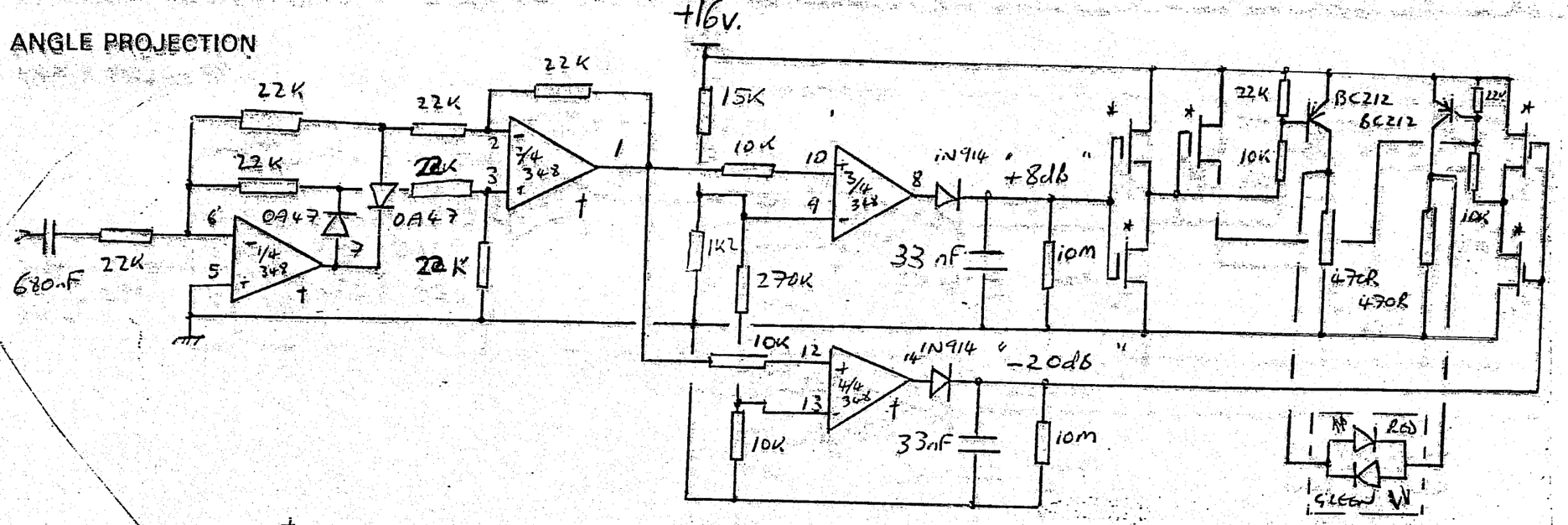
Woking Dyeline P1528/9

297 x 420mm A3

DRAWING NUMBER

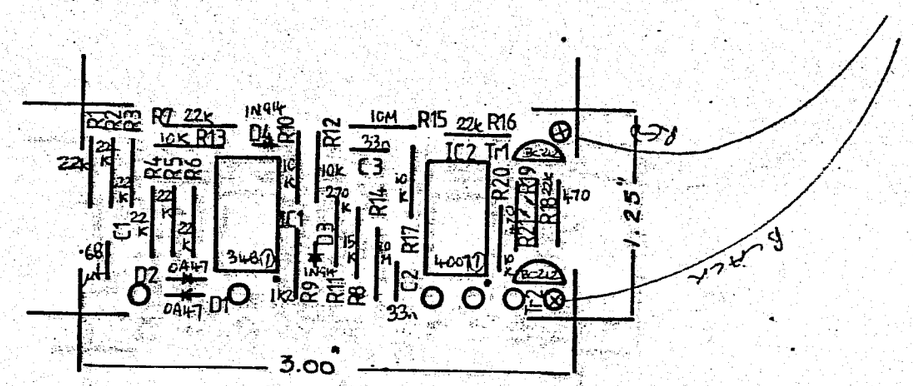
MAS449

ANGLE PROJECTION



† ALL IN 348
POWERED ±16V.

* ALL IN 4007.
POWERED +16V AND 0V.



Midas
Dual L.E.D
indicator p.c.
Compont Notation

GREEN ON AT -20dB
RED ON AT +8dB

ISSUE	DATE	MOD. No.

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

DIMENSIONS IN

NOTES
ON TRIO MODULE ONLY.

SCALE:

DRAWN BY

DATE

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE
DUAL LED INDICATOR
ON TRIO MODULE ONLY

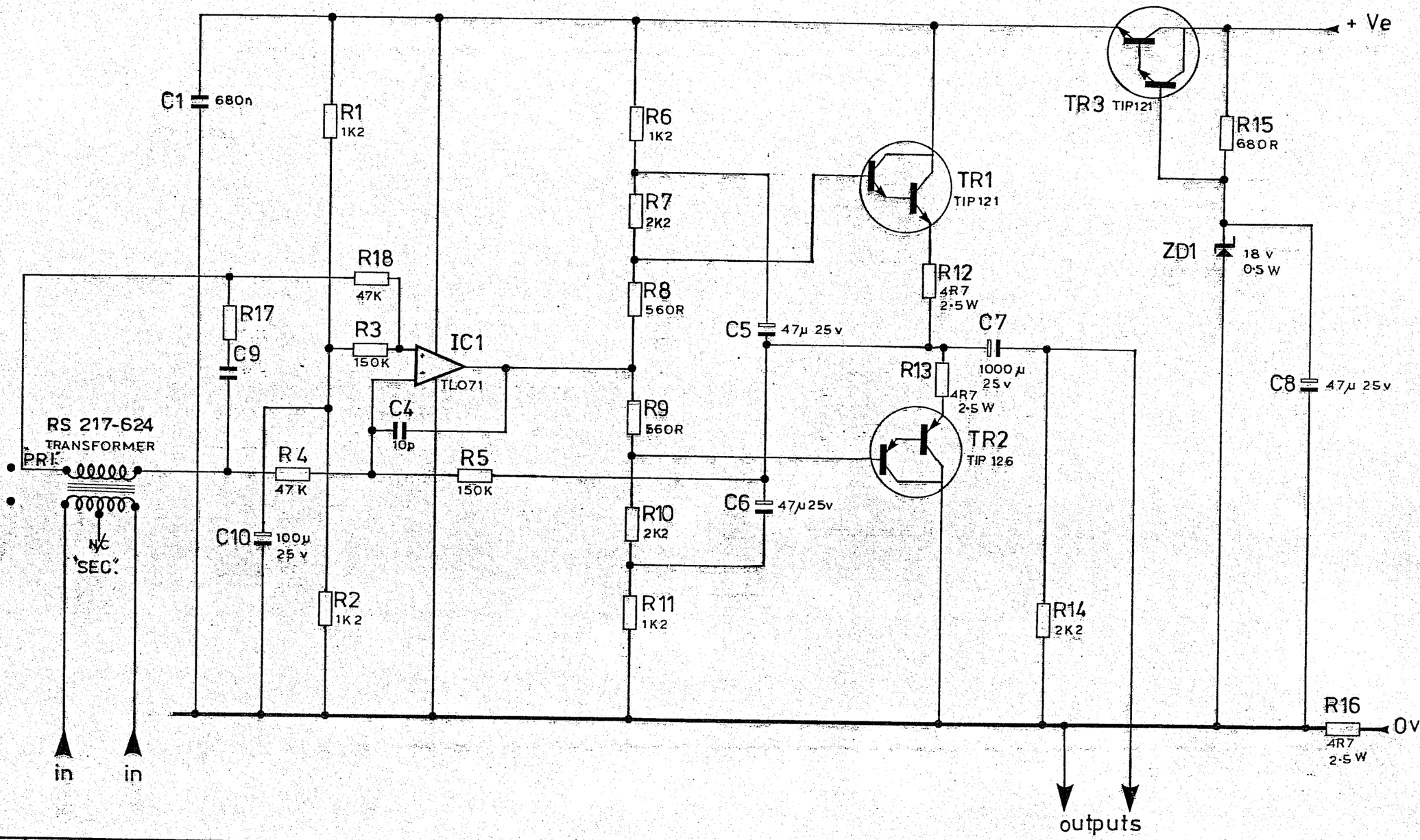
DRAWING NUMBER
MAS449

ISS.
1

Printed in Woking 21260/77

DRAWING NUMBER MAS 286

ANGLE PROJECTION



1	3078	
ISSUE	DATE	MOD. No.

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

DIMENSIONS IN

NOTES
ONE PER CHANNEL.
LOCATED ON REAR METER PANELS.

SCALE:

DRAWN BY Robbie

DATE 5 July 80

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE: REMOTE HEADPHONE AMPLIFIER

DRAWING NUMBER: MAS 286

ISS.: 1

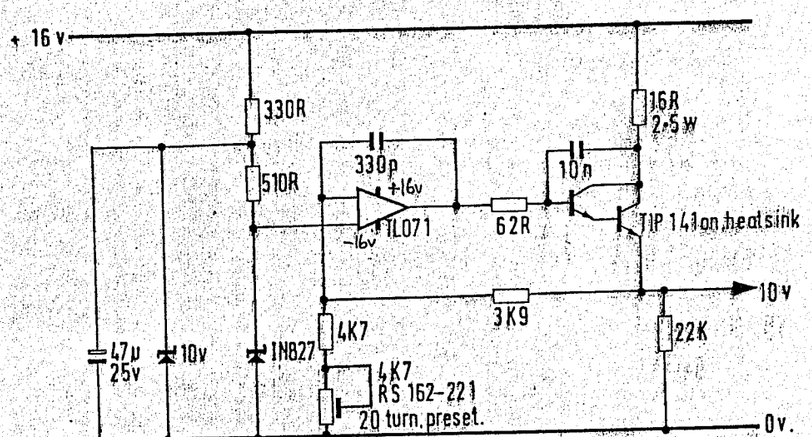
Printaplan–Woking 21260/77

A3

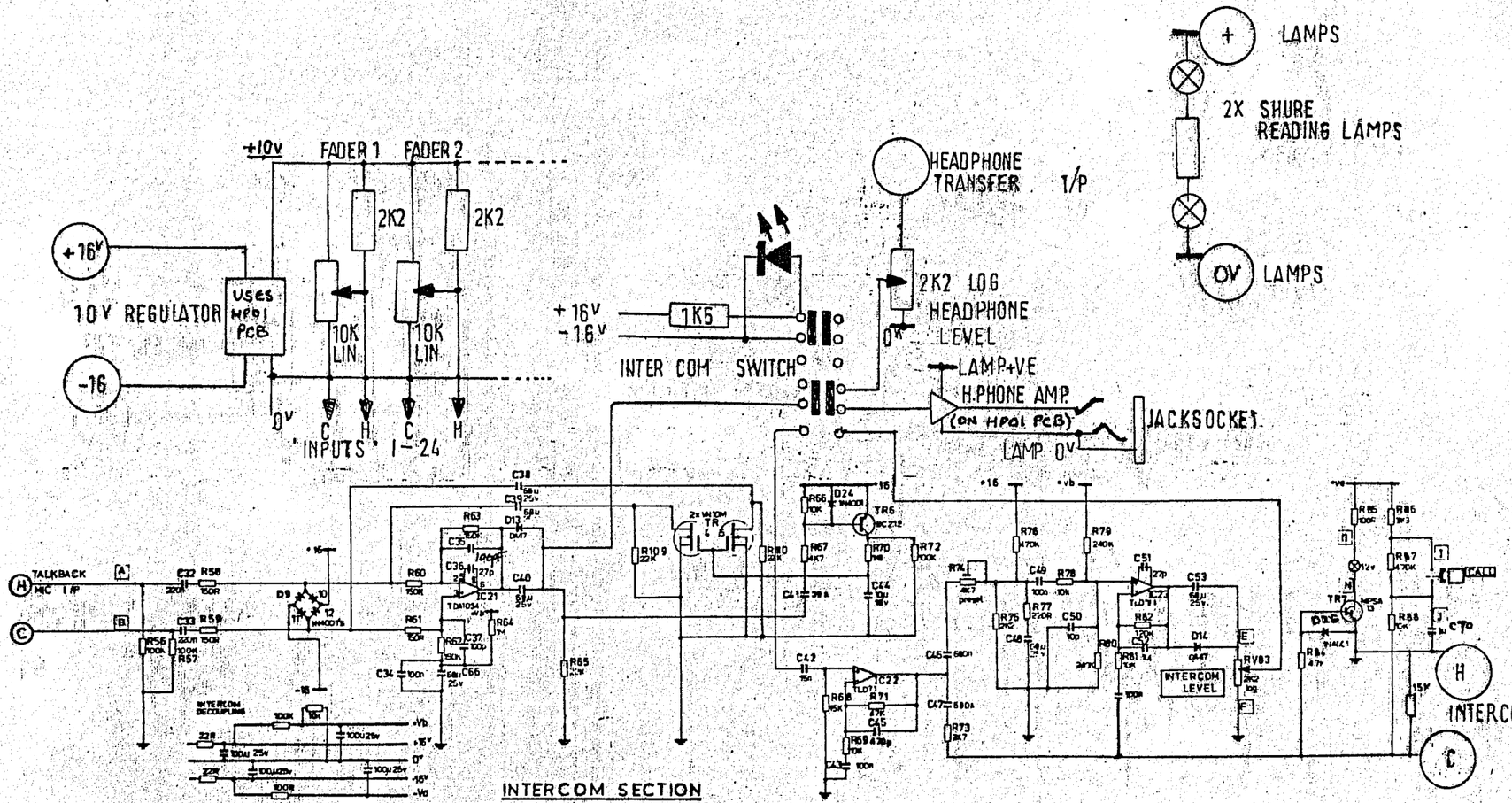
1	2	3	4	5	6	7	8	9	10

DRAWING NUMBER MAS557

ANGLE PROJECTION



1	13/7/81		MATERIAL	TOLERANCES - UNLESS STATED UNIT ± 0· 0 ± 0· 00 ± 0· 000 ± 0	NOTES MOUNTED INSIDE REMOTE FADER BOX.	SCALE:	© COPYRIGHT MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060		
							TITLE PRECISION 10v REGULATOR	DRAWING NUMBER MAS 557	ISS 1
			FINISH			DRAWN BY Ollie			
ISSUE	DATE	MOD. No.		DIMENSIONS IN		DATE 13th July 81			



E.N.O. REMOTE FADER BOX CCT.

Issued 13/7/81.

RECOMMENDED P.F.L. LEVELS

To obtain optimum console dynamic range, fader range and crosstalk performance the following P.F.L. starting levels are recommended.

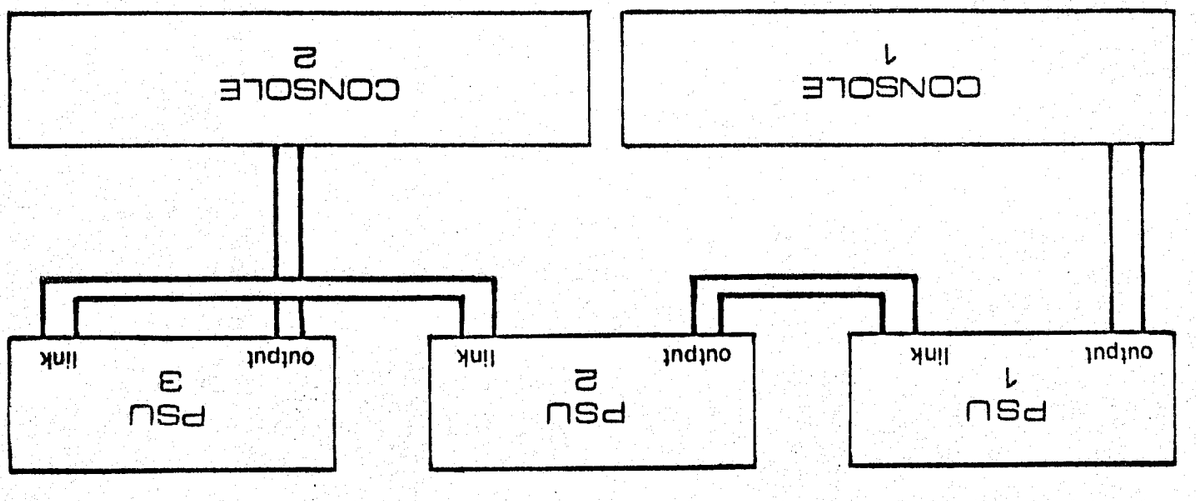
P.F.L. is Post-Equaliser, on Midas consoles, and should be re-checked after any equaliser adjustments.

FULLY PANNED

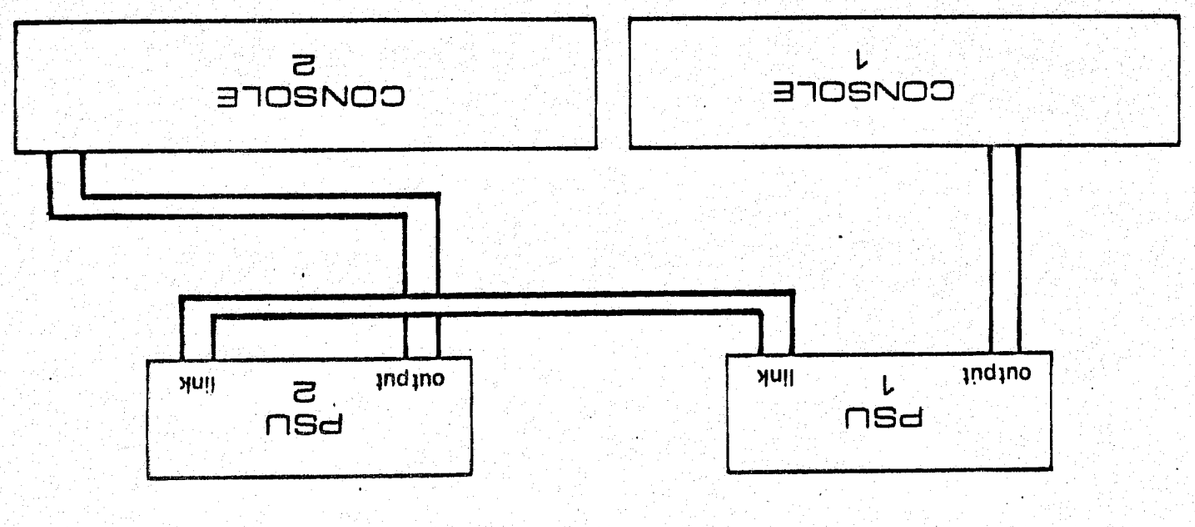
Number of Inputs routed to one subgroup or group	RECOMMENDED P.F.L. METER LEVEL
1	-6 to 0
2	-6 to 0
4	-6 to 0
8	-12 to -6
16	-18 to -12
32	OFF-SCALE to -18

Although some allowance has been made for V.U. Meter dynamic inadequacies, percussion and synthesizer sources should be treated with caution. If in doubt, allow an extra 6dB of headroom.

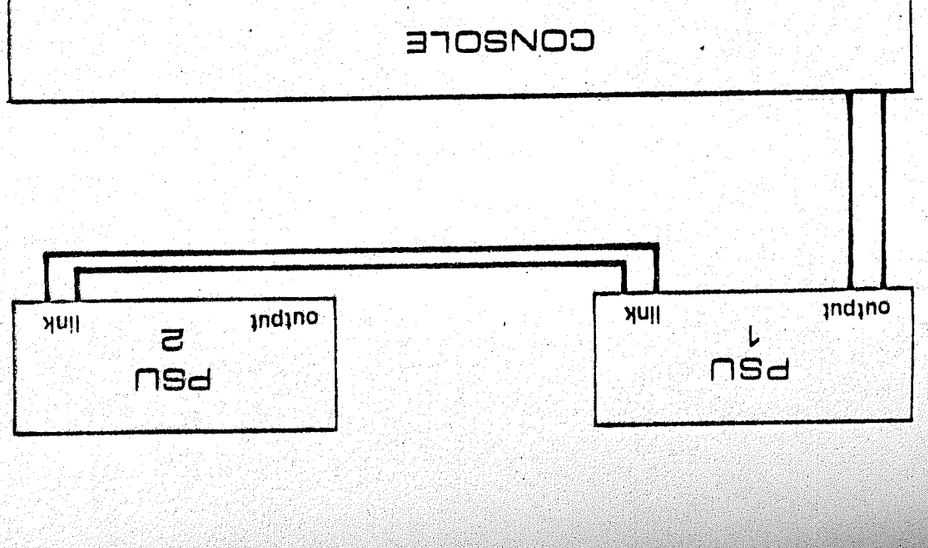
THREE SUPPLIES TWO CONSOLES



TWO SUPPLIES TWO CONSOLES



TWO SUPPLIES ONE CONSOLE



ANGLE PROJECTION

DRAWING NUMBER

						ISSUE	DATE	MOD. No.

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

DIMENSIONS IN

NOTES

SCALE:

DRAWN BY

DATE

© COPYRIGHT

54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE

POWER SUPPLY LINKING

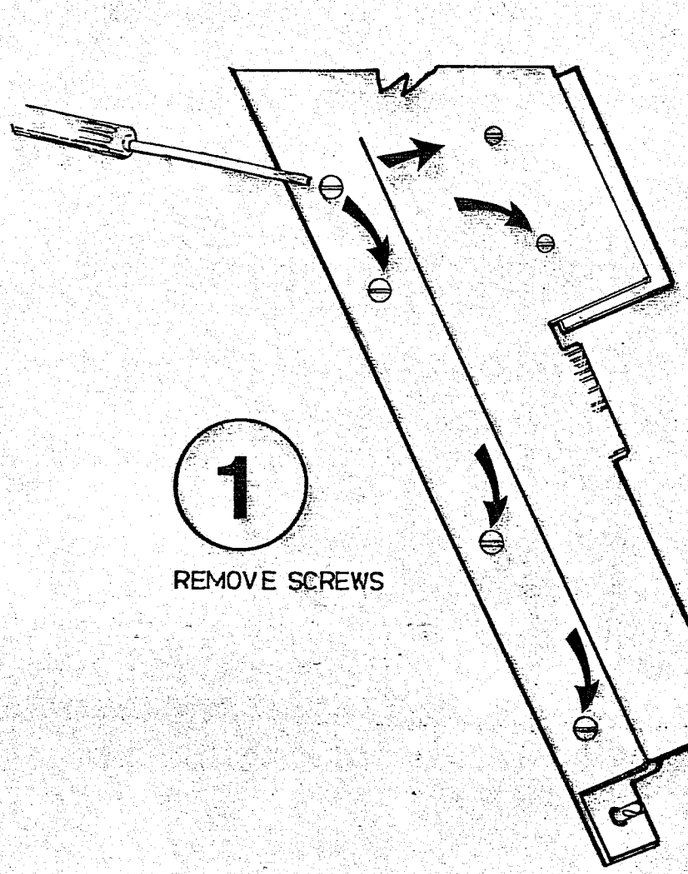
DRAWING NUMBER

ISS

297 × 420mm

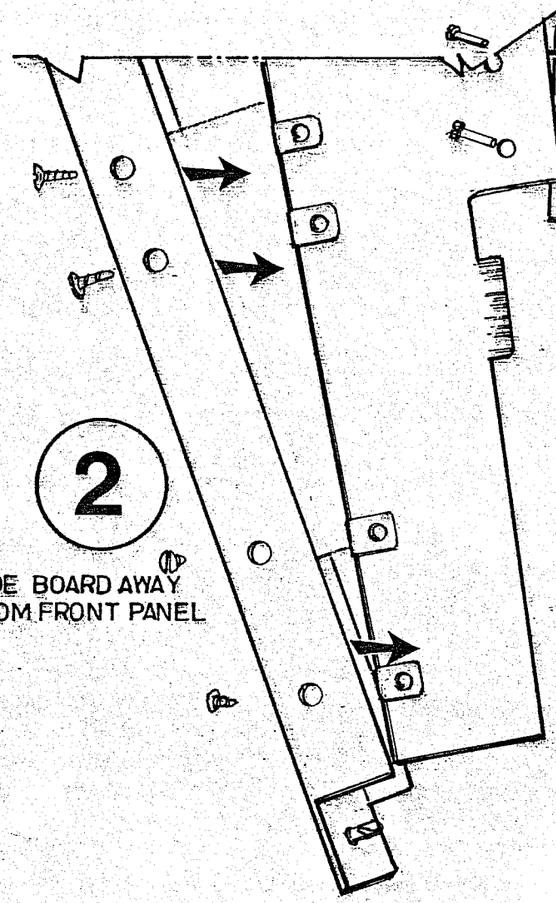
DRAWING NUMBER
MAS 287

ANGLE PROJECTION



1

REMOVE SCREWS

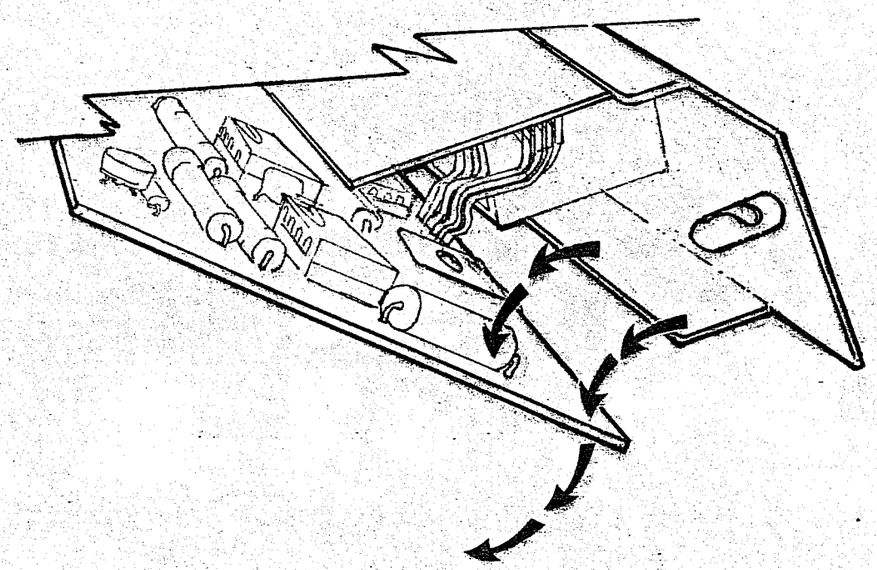


2

SLIDE BOARD AWAY FROM FRONT PANEL

3

PULL OUT & DOWN FOR COMPONENT ACCESS



ISSUE	DATE	MOD. No.
1	3 Aug 80	Robbie

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0·
·0 ± 0·
·00 ± 0·
·000 ± 0·

DIMENSIONS IN

NOTES

SCALE:

DRAWN BY Robbie

DATE 3 August 80.

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE
DISMANTLING OF TR MODULES FOR SERVICING

DRAWING NUMBER
MAS 287

ISS.
1

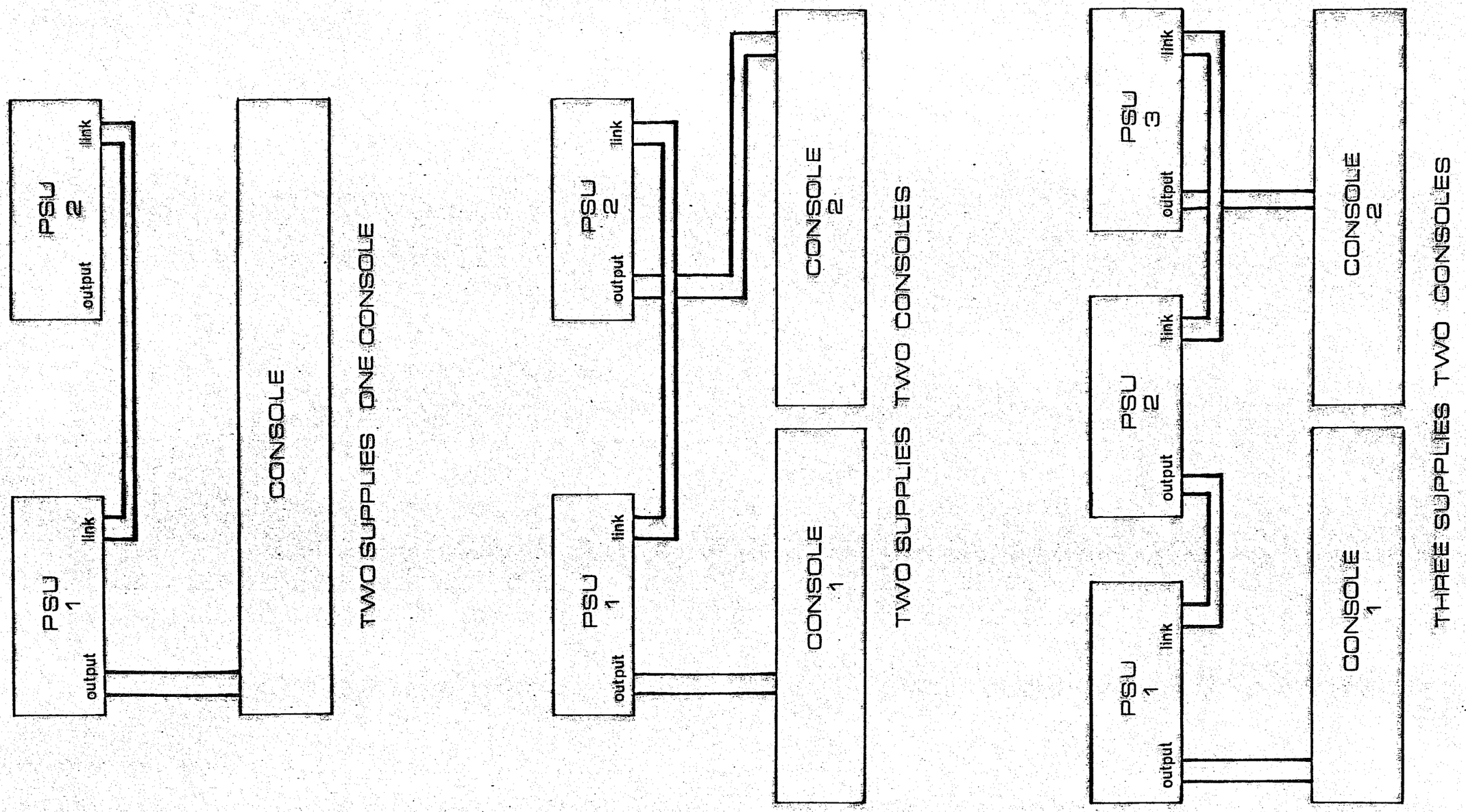
Printaplan–Woking 21260/77

A3

1	2	3	4	5	6	7	8	9	10	11

DRAWING NUMBER

ANGLE PROJECTION



ISSUE	DATE	MOD. No.

MATERIAL

FINISH

TOLERANCES – UNLESS STATED

UNIT	± 0·
·0	± 0·
·00	± 0·
·000	± 0·

DIMENSIONS IN

NOTES

SCALE:

DRAWN BY

DATE

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE

POWER SUPPLY LINKING

DRAWING NUMBER

ISS

REMOTE POWER SUPPLY UNIT STATUS INDICATOR FOR ENGLISH NATIONAL OPERA TR115

8th July, 1981

CABLE - 8 way Lemo connector.

1	RED	+16v through 150R)	Both taken from lamp feeds on relay board.
2	BLUE	-16v through 150R)	
3	GREEN	0v. From C1 -ve	
4	YELLOW	WARN hot. To +16v through 68R	
5	WHITE	WARN cold. To TR20c through 68R. R.H. end of R43	
6	BLACK	TRIP hot. To raw DC (+34v) through 130R. Relay board red/blue	
7	BROWN	TRIP cold. To TR9c (pin on relay PCB) through 130R	
8	VIOLET	Unused.	

At remote panel, wire

+16v across 1 and 3
-16v across 2 and 3
WARN across 4 and 5
TRIP across 6 and 7

---

8 way Lemo connector. Cable screen earthed to body at one end only.
Earthed end marked with green sleeve.

MIDAS AUDIO SYSTEMS LIMITED

19th July, 1980.

PR90 POWER SUPPLY LINKING

The PR90 Power Supply is provided with a "link" socket for current sharing/failsafe operation with a second unit.

This mode of operation is recommended when powering large multitrack Recording Consoles or Theatre Live Sound Consoles (which draw typically twice the current required by a similar sized P.R. Live Sound Console), particularly where ventilation is restricted.

"Spare" Power Supplies should be used, linked with the "main" supply, to prevent shelf-life deterioration of the large electrolytic capacitors, and to provide a useful failsafe feature.

To ensure meter lamp operation, the Console should always be connected to the "output" socket of a PR90 supply. Failure of this supply (and takeover by a second supply) will be indicated by a loss of meter illumination.

PR90 Power Supplies should never be connected "output" to "output". "Output" to "link" may be used for multiple operation.

Each Power Supply Unit features auto-resetting short circuit protection, thermal warning indication, overrideable thermal trip protection and overvoltage trip protection.

A safety low impedance 0v to ground link is provided inside each Power Supply Unit and should never be removed. A separate clean ground (fed to the Console via cable pin 7) is normally short circuit linked to 0v inside the Console.

Please note. Lamp Dimmer System discontinued after March 1980.

19th July, 1980.

PR90 POWER SUPPLY LINKING

The PR90 Power Supply is provided with a "link" socket for current sharing/failsafe operation with a second unit.

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Please note. Lamp Dimmer System discontinued after March 1980.

DRAWING NUMBER

MAS 258

Main power rail regulator

Thermal/overvoltage trip

Pre-driver/dimmer & thermal warning

to thermal device

to thermal trip device

to half of lamps

to half of lamps

phantom

phantom fuse 250m/amp

phantom 48V

phantom 0V

override

trip 12v 40ma

warning 12v 40ma

+16V ①②

-16V ③④

0V ⑤⑥

+18v 7.5amp/10amp.

-18v 7.5amp/10amp.

3x3K3 IN PARALLEL (VALUES - SEE BLOCK DIA.)

D30 & D31 RS 261/823

NOTE

components shown thus are mounted off board

D30 & D31 6amp 200v

Components not used R4:R17:R7:R18:C11:R22:D8:D7:D18:D17:
Highest resistor R59.
Highest capacitor C18
Highest transistor TR20.
Highest diode D31.

MOD. NOTES

620R/560R = 560R used for Higher Current Version.

TOLERANCES - UNLESS STATED
UNIT ± 0
.0 ± 0
.00 ± 0
.000 ± 0

DIMENSIONS IN

NOTES

SCALE:

DRAWN BY CH.
DATE 4.8.80

© COPYRIGHT MAS 54-56 Stanhope Street, London NW1 3DL Tel: 01-388-7060

TITLE
PR 90
POWER SUPPLY CCT

DRAWING NUMBER MAS258

ISS. 5/7

DRAWING NUMBER

MAS 267

TRANSFORMER.PRIM.

brown-blk-yellow
blue – yellow
brown - black
blue – black

TRANSFORMER.SEC.

black yellow
pink yellow
black
orange blue
white-black/white
white black

MAINS IN

brown - blue
blue
brown-blue-black
brown-blue
blue black
green

FAN

LINK CONNECTOR

1. RED-YELLOW-BLACK
2.
3. YELLOW-BLUE-BLACK
4.
5. WHITE-BLACK
6.
7.
8. YELLOW, YEL-BLACK-BLUE
9. RED-BLACK-BLUE
10. NOT USED
11.
12.
13.
14.

CAUTION!

CHECK MAINS PLUG IS REMOVED BEFORE INSPECTION

brown-blue · 10 amp · TIP · on fan bracket · brown.w · thin. red · black · FAN · ROTRON Sprite SU2C1 · brown blue black · on front panel · brown-yellow black · 110V · 220V · on hidden control panel · blue black · thin black · thin red · Pink Yell. · back-yellow · orange-blue · blue-yellow · thin black · SCREEN · NOTE Always grounded · white · black · blue · N · L · E · on fan bracket · GREEN · NOTE Always grounded · PSU Chassis · 9R1 w.w · SAFETY GROUND · green

mounted heat sink bracket · Red · orange 250m.a · on hidden control panel · blue & gray-blue · C3 10.000μF 40V · 40V · 24V · 0V

on heatsink bracket · to RELAY COIL · M · C2 15.000μF 63V 30amp · white · C1 15.000μF 63V 30amp · B · yellow-black · orange-yellow · yellow · on hidden control panel · -V · 7·5amp · +V · 7·5amp · 150R · on front panel · 12V · -16V · +16V · WARN · TRIP · on front panel · to 16v orange-black · pink-blue · toM thin.red · gray-black

PHANTOM · on front panel · 1K2 · 12V · red-yell · on heatsink bracket · gray-blue · D · PHANT 48V · R58 1008 25w · PHANT. 0V · +16V lamps + · -16V · 0V · lamps 0V · lamps – · SEE CCT drg: No MAS258 · N · 6.10 · C · +VV · -VA · red-yellow · TRIP RELAY · M·V · white-black · whit-black-blue · yellow-blue · on hidden panel NOT USED AFTER FEB. 1980 · NORMAL DIM · OR47 · on heatsink · pink-black on hidden panel · red-black on heatsink bracket · THERMAL OVERRIDE · THERMAL SENSORS

M · 5amp · N · B · 5amp · C

mounted on heatsink bracket

red-blue-yellow · yellow-blue-yellow

1 2 3 4 5 6 7 8 9 10 11 12 13 14 — LINK

1 2 3 4 5 6 7 8 9 10 11 12 13 14 — +16V · -16V · 0V · GROUND · 0V · 48V · 0V · +L · -L — ELECTRONICS · PHANTOM · LAMPS

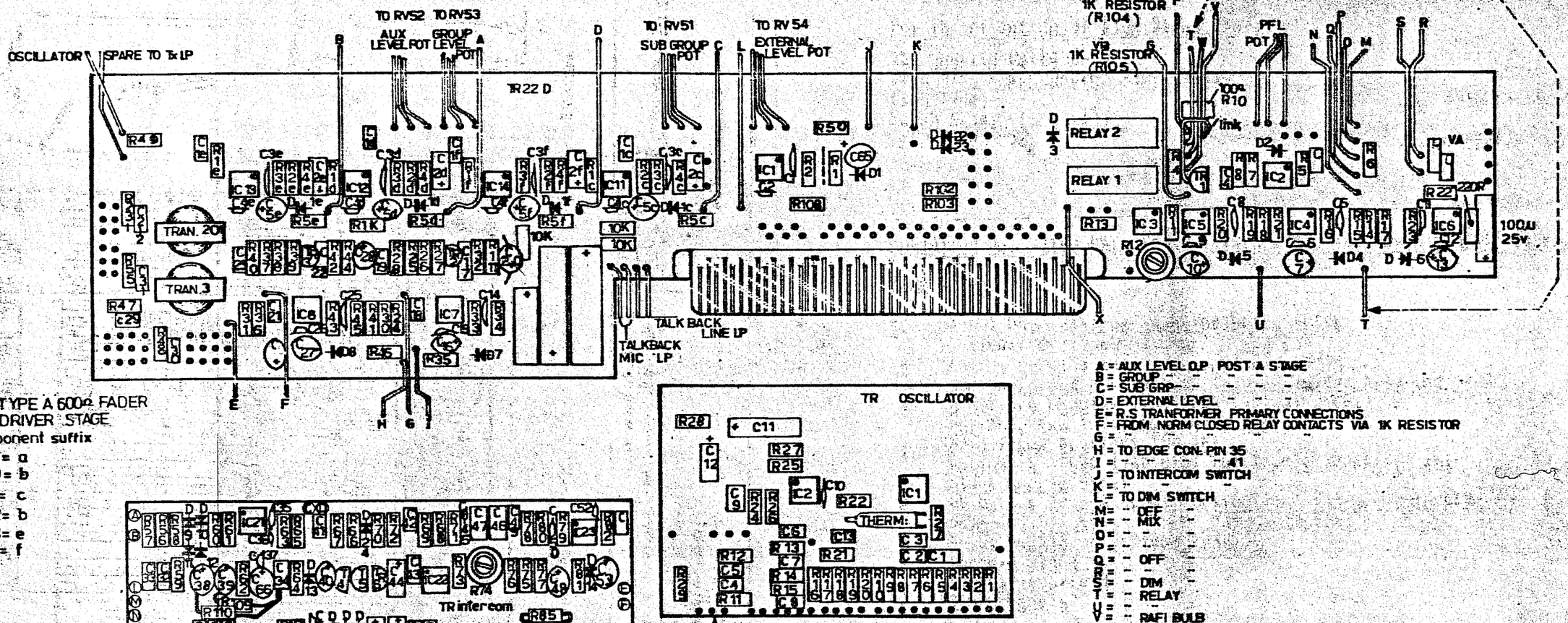
1	2 June 80 Robbie	MATERIAL	TOLERANCES – UNLESS STATED UNIT : 0 0 : 0 00 : 0 000 : 0	NOTES: PHANTOM LAMP, FUSE RATINGS, TRANSFORMER AND WIRE COLOURS VARY SLIGHTLY FROM UNIT TO UNIT.	SCALE:
2	16/1/81 SZ.	FINISH	DIMENSIONS IN		DRAWN BY Robbie DATE 2 June 80
ISSUE	DATE MOD No	ISSUE DATE MOD No			

TITLE: PR 90 BLOCK LAYOUT

DRAWING NUMBER: MAS 26

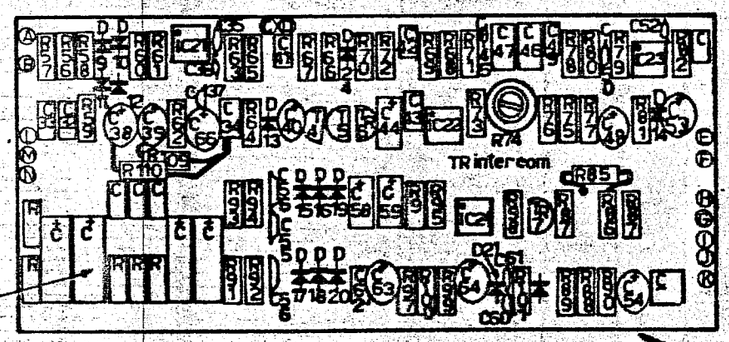
DRAWING NUMBER
MAS 282

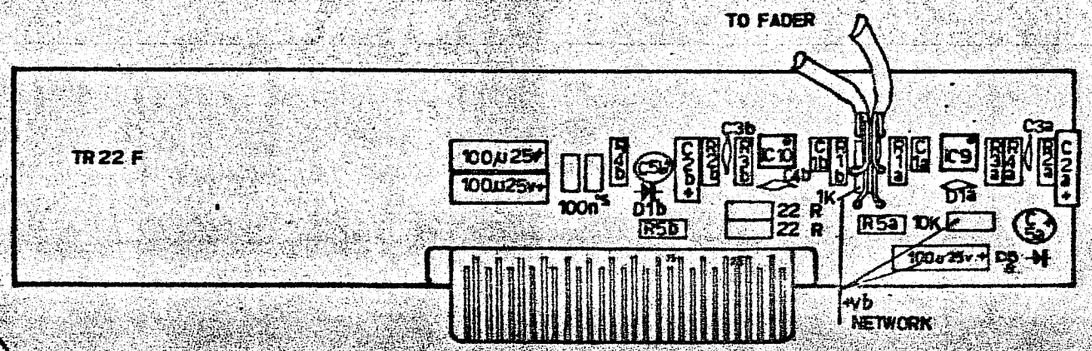
ANGLE PROJECTION



TYPE A 600Ω FADER DRIVER STAGE

component suffix
IC9 = a
IC10 = b
IC11 = c
IC12 = b
IC13 = e
IC14 = f





ISSUE	DATE	MOD. No.	ISSUE	DATE	MOD. No.
2	8/1/91	12V 22F			
—	7/5/21	NOTE6			

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0
·0 ± 0
·00 ± 0
·000 ± 0

DIMENSIONS IN

NOTES
TR INTERCOM AND TR OSCILLATOR NOW COMBINED ON TR22A PCB.

SCALE

DRAWN BY

DATE

MOS 54-56 Stanhope Street, London NW1 3DX. Tel: 01-388-7060

TITLE TR 22 OVERLAY

DRAWING NUMBER MAS 282

ISS. 2

420 × 594mm A2

RECOMMENDED P.F.L. LEVELS

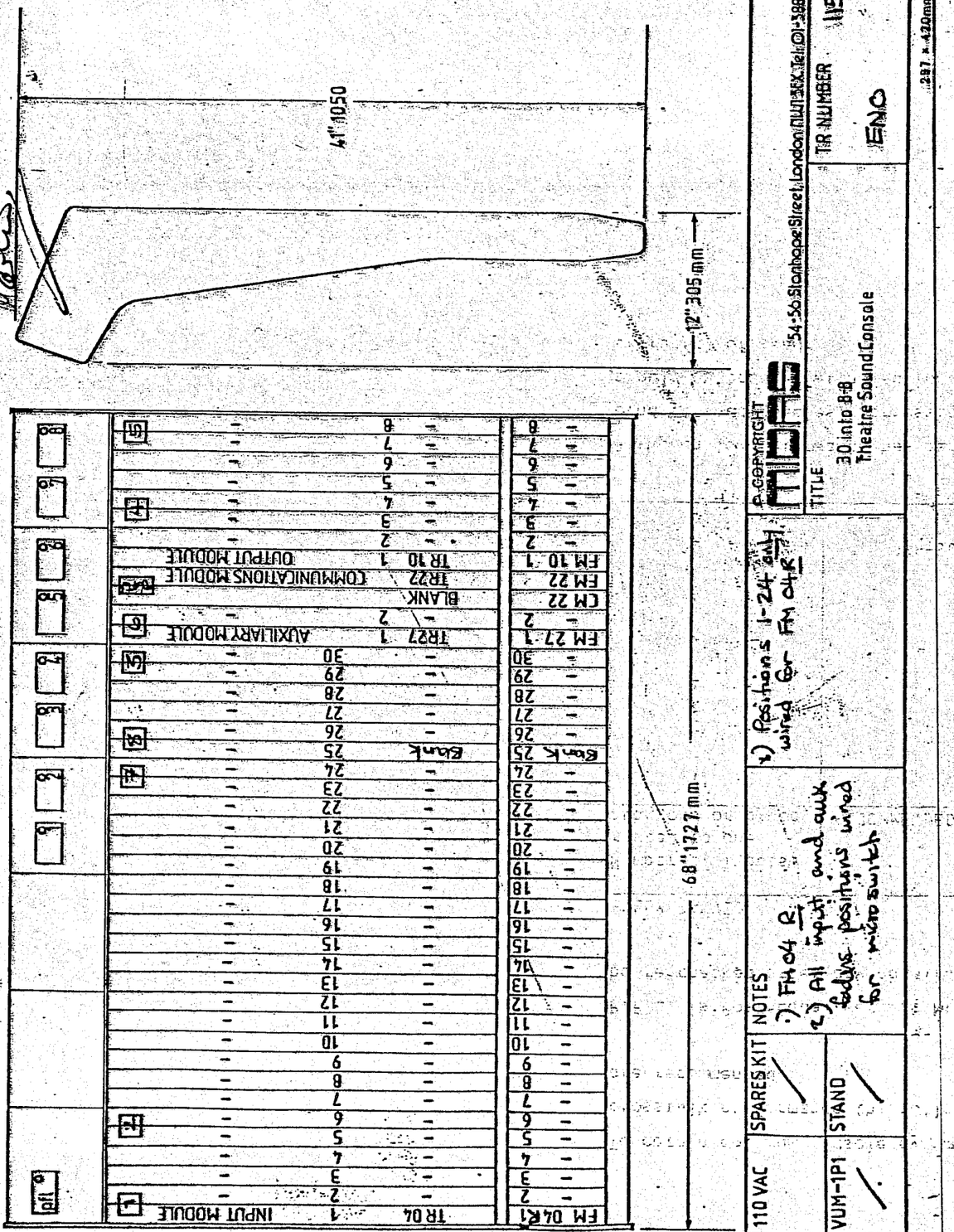
To obtain optimum console dynamic range, fader range and crosstalk performance the following P.F.L. starting levels are recommended.

P.F.L. is Post-Equaliser, on Midas consoles, and should be re-checked after any equaliser adjustments.

FULLY PANNED

Number of Inputs routed to one subgroup or group	RECOMMENDED P.F.L. METER LEVEL
1	-6 to 0
2	-6 to 0
4	-6 to 0
8	-12 to -6
16	-18 to -12
32	OFF-SCALE to -18

Although some allowance has been made for V.U. Meter dynamic inadequacies, percussion and synthesizer sources should be treated with caution. If in doubt, allow an extra 6dB of headroom.



Many - love and the final 'L' Case sold
Done in ink.

Midas Audio Systems Ltd., 54-56 Stanhope Street, London NW1.3EX Tel: 01-388-7060/01-387-7679

Telex. 8952498 MAS UKG

For the Attention of Alan Stagg Esq.,

RE: ENGLISH NATIONAL OPERA,
Recording & Production Facilities,
Cranbrook,
Marsh Lane, Mill Hill,
LONDON NW7 4NT.

Date 29th April, 1981

Our Ref: DS/CJG Your Ref: TR115

QUOTATION No. 1315A RE: ONE 24 INTO 8-8 THEATRE SOUND CONSOLE (EXP. TO 30 INPUTS)

Comprising:

24	Input Modules type TR04 including FM04R Options: See Input Options 1 and 2
8	Output Modules type TR10 including FM10
1	Communication Module type TR22 including FM22 and CM22
2	Auxiliary Modules type TR27 including FM27 Options: See Input Options 1 and 2
7	Main Frame Sections (MK 2F) Option: 8 ELCO (120 pin) multi-pole connector pair
1	Blank Module Panel
9	VU Meters to ASA Specification (including single LED peak indicator)
3	Power Supply Units type PR90
1	Console Stand
1	Remote Jackfield
2	Blank Panels

BASIC LIST TOTAL (Excluding VAT @ 15%)

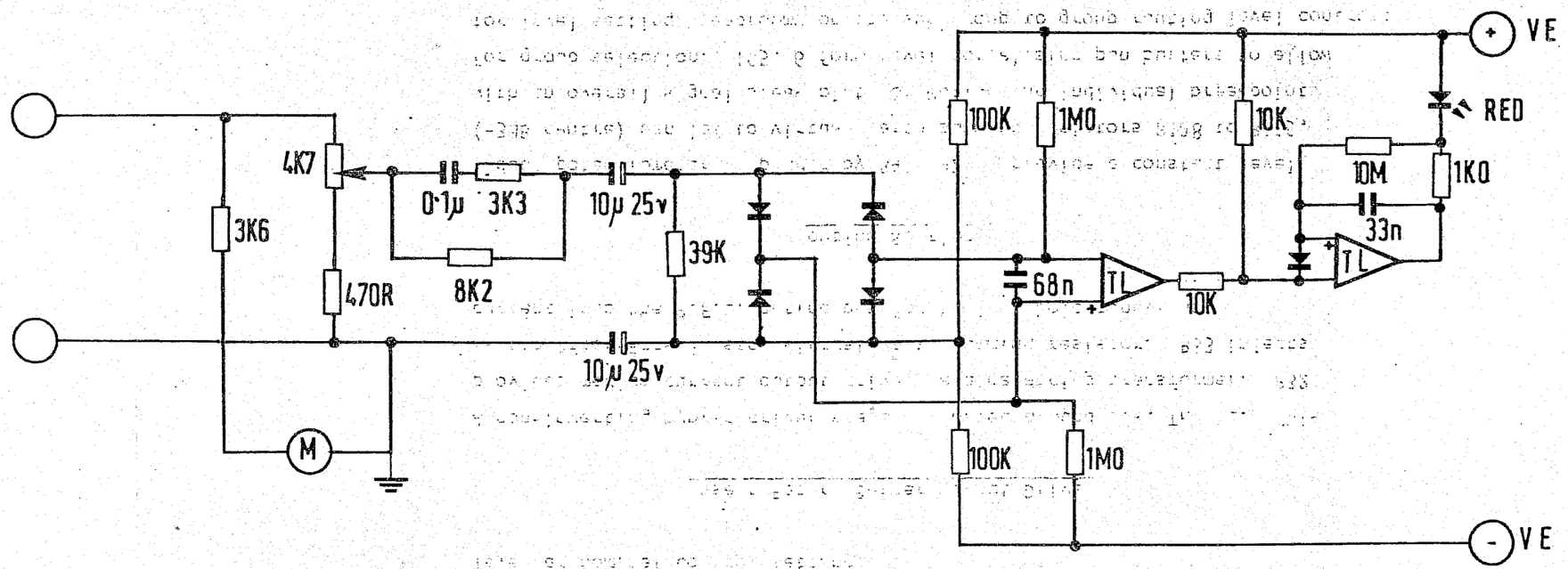
Remote Jackfield Specification

30	B Mic/Line inputs
30	Input pre-fader insert sends
30	Input pre-fader insert returns
30	Input post-fader outputs
6	Auxiliary outputs
6	Auxiliary output post-fader insert sends
6	Auxiliary output post-fader insert returns
2	Auxiliary inputs
2	Auxiliary input pre-fader insert sends
2	Auxiliary input pre-fader insert returns
8	Sub-group outputs
8	Sub-group output post-fader insert sends
8	Sub-group output post-fader insert returns
8	Group outputs
8	Group output post-fader insert sends
8	Group output post-fader insert returns

cont./.....

DRAWING NUMBER

MAS 553



CAL: PA mixers + 10dBv
STUDIO " + 8dBv
THEATRE " + 8dBv

ATTACK + 1dB overdrive @ 2 m.s.
+ 3dB " @ 1 m s

HOLD 330 ms

ISSUE	DATE	MOD. No
1	7/7/81	

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0
0 ± 0
00 ± 0
000 ± 0

DIMENSIONS IN

NOTES
MOUNTED BEHIND METERS,

SCALE:

DRAWN BY Robbie

DATE 7July81

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01-388-7060

TITLE
PEAK METER LED
LM02.

DRAWING NUMBER MAS 553

ISS. 1

Waking Dyeline P1528/9

297 x 420mm A3

TR10 OUTPUT MODULE

This Module contains both sub-group and output group systems. The output group system is similar to the sub-group system minus its routing section.

Summing Amplifier

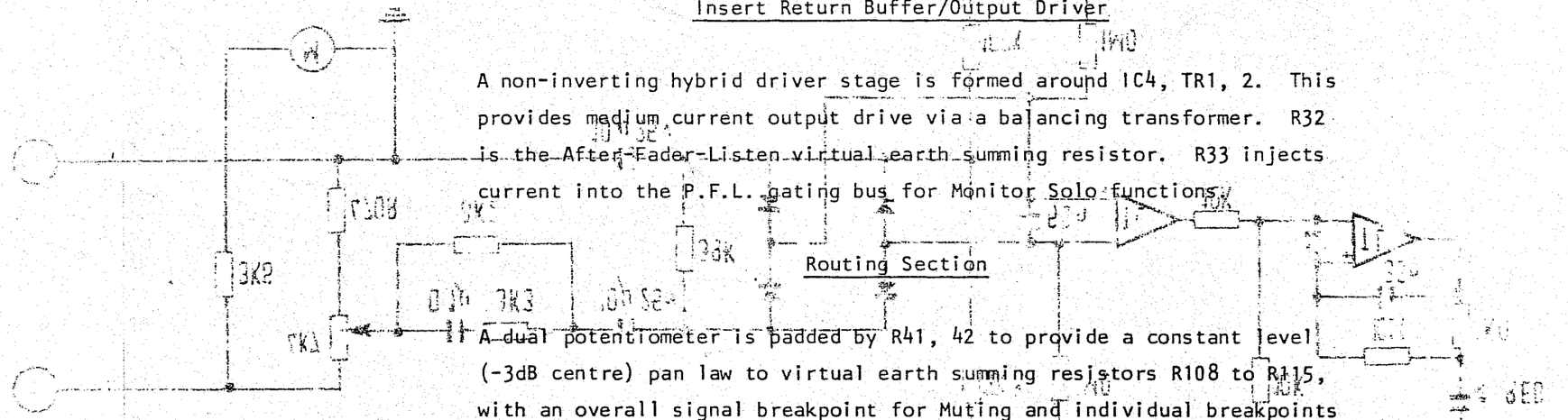
A virtual earth, inverting summing amplifier is formed around IC1, providing -10dB gain for input to sub-group headroom.

Fader Buffer/Insert Send Driver

IC2 forms a non-inverting fader buffer amplifier to allow phase normalising/gain stage (IC3) to operate at low input impedance for optimum noise performance. R13 allows adjustment of Insert send/output level at nominal control settings.

Insert Return Buffer/Output Driver

A non-inverting hybrid driver stage is formed around IC4, TR1, 2. This provides medium current output drive via a balancing transformer. R32 is the After-Fader-Listen virtual earth summing resistor. R33 injects current into the P.F.L. gating bus for Monitor Solo functions.



Routing Section

A dual potentiometer is padded by R41, 42 to provide a constant level (-3dB centre) pan law to virtual earth summing resistors R108 to R115, with an overall signal breakpoint for Muting and individual breakpoints for group selection. IC5, 6 form level normalising pan buffers to allow for level setting "headroom" on the sub-group to group routing level controls.

Post-pan control Monitor signals route via virtual earth summing resistors R51, 52.

"Pre" to "Post" Auxiliary Routing level ratio may be adjusted by changing R53. Auxiliary Routing is selectable ("Pre", "Post", "Off") with the level control law formed by virtual earth summing resistors R116, 117, 118, 119, 120, 121.

DRAWING NUMBER MAS 267

TRANSFORMER PRIM.

brown-blk-yellow
blue - yellow
brown - black
blue - black

TRANSFORMER SEC.

black yellow
pink yellow
black
orange blue
white-black/white
white black

MAINS IN

brown - blue
blue
brown-blue-black
brown-blue
blue black
green

FAN

LINK CONNECTOR
1. RED-YELLOW-BLACK
2.
3. YELLOW-BLUE-BLACK
4.
5. WHITE-BLACK
6.
7.
8. YELLOW, YEL-BLACK-BLUE
9. RED-BLACK-BLUE
10. NOT USED
11.
12.
13.
14.

CAUTION!
CHECK MAINS PLUG IS REMOVED BEFORE INSPECTION

brown-blue
black
FAN ROTRON Sprite SU2C1
TIP 10 amp on fan bracket
brown blue black on front panel
brown.w
thin red
black
Pink Yell
mounted heat ink bracket
Red
orange 250m.a on hidden control panel
C3 10,000µF 40v
blue & gray-blue
PHANTOM on front panel
1K2
12v
red-yell
on heatsink bracket
grey-blue
PHANT 48v
R58 100R 35w
PHANT 0v
+16v lamps +
red-yellow
TRIP RELAY
M-V
SEE CCT drg: NoMAS258
-16v
0v
lamps 0v
white-black
whit-black-blue
lamps -
yellow-blue
on hidden panel NOT USED AFTER FEB. 1980
NORMAL DIM
pink-black on hidden panel
red-black on heatsink bracket
THERMAL OVERRIDE
THERMAL SENSORS
brown-yellow black
110v
blue black
thin black
thin red
220v
on hidden control panel
40v
24v
0v back-yellow
orange-blue
0v
24v
0v
black
yellow-black
on heatsink bracket
to RELAY COIL
C2 15,000µF 63v 30amp
white
C1 15,000µF 63v 30amp
N
6.10
C
+VV
-VA-
orange-yellow
yellow
on hidden control panel
-V
7.5amp
+V
7.5amp
150R
150R
on front panel
12v
-16v
+16v
WARN
TRIP
on front panel
to 16v orange-black
pink-blue
toM thin red
grey-black
OR47
OR47
on heatsink
OR47
OR47
L
on fan bracket
N blue
E
GREEN
blue-yellow x
thin black
SCREEN
NOTE Always grounded
white
NOTE Always grounded
PSU Chassis
SAFETY GROUND
9R1 w.w
green
B
M
5amp
5amp
C
N
mounted on heatsink bracket
red-blue-yellow
yellow-blue-yellow
1 2 3 4 5 6 7 8 9 10 11 12 13 14
LINK
1 2 3 4 5 6 7 8 9 10 11 12 13 14
+16v -16v 0v GROUND 0v 48v 0v +L -L
ELECTRONICS
PHANTOM
LAMPS

ISSUE	DATE	MOD. No.	ISSUE	DATE	MOD. No.
1	2 June 80	Robbie			
2	16/1/81	SZ.			

MATERIAL

FINISH

TOLERANCES – UNLESS STATED
UNIT ± 0
·0 ± 0
·00 ± 0
·000 ± 0

DIMENSIONS IN

NOTES: PHANTOM LAMP, FUSE RATINGS, TRANSFORMER AND WIRE COLOURS VARY SLIGHTLY FROM UNIT TO UNIT.

SCALE:

DRAWN BY Robbie

DATE 2 June 80

MIDAS 54-56 Stanhope Street, London NW1 3EX. Tel: 01

TITLE PR 90 BLOCK LAYOUT

DRAWING NUM MAS 26

MULTIPIN CONNECTOR WIRING

TYPE PT61 WAY. Female.

CUSTOMER. AUTOGRAPH

POSITION. (1)

DATE. 2 MAR

CATS 36/8/8.

A 1 : E					
B 2 : C	A Mic/line	1 Y GR	(16)		
C 3 : H					
D 4 : E					
E 5 : C	" "	2 WH GR	(14)		
F 6 : H					
G 7 : E					
H 8 : C	" "	3 O R	(13)		
J 9 : H					
K 10 : E					
L 11 : C	" "	4 Y R	(11)		
M 12 : H					
N 13 : E					
P 14 : C	" "	5 BLU R	(10)		
R 15 : H					
S 16 : E					
T 17 : C	" "	6 GR R	(9)		
U 18 : H					
V 19 : E					
W 20 : C	" "	7 BLU WH	(19)		
X 21 : H					
Y 22 : E					
Z 23 : C	" "	8 BR GR	(17)		
a 24 : H					
b 25 : E					
c 26 : C	" "	9 BLU BL	(5)		
d 27 : H					
e 28 : E					
f 29 : C	" "	10 BLU GR	(15)		
g 30 : H					
h 31 : E					
i 32 : C	A Mic/line	11 BR R	(12)		
j 33 : H					
k 34 : E					
m 35 : C	" "	12 R BL	(2)		
n 36 : H					
p 37 : E					
q 38 : C	" "	13 WH R	(8)		
r 39 : H					
s 40 : E					
t 41 : C	" "	14 O GR	(18)		
u 42 : H					
v 43 : E					
w 44 : C	" "	15 GR BL	(4)		
x 45 : H					
y 46 : E					
z 47 : C	" "	16 WH BL	(3)		
AA 48 : H					
BB 49 : E					
CC 50 : C	" "	17 BR BL	(7)		
DD 51 : H					
EE 52 : E					
FF 53 : C	" "	18 Y BL	(6)		
GG 54 : H					
HH 55 : E					
JJ 56 : C	" "	19 O BL	(1)		
KK 57 : H					
LL 58 : E					
MM 59 : C					
NN 60 : H					
PP 61 : E					

0172 - 8284247

MULTIPIN CONNECTOR WIRING

TYPE: ELCO 120 WAY. CUSTOMER: ENO POSITION: 1 DATE: 29/5/81

A:E	AL:E	BU:E	DB:E
B:C B Mic/line input 1	AM:C B Mic/line input 10	BV:C B Mic/line input 19	DC:C B M/I input 28
C:H	AN:H	BW:H	DD:H
D:E	AP:E	BX:E	DE:E
E:C " " 2	AR:C " " 11	BY:C " " 20	DP:C " " 29
F:H	AS:H	BZ:H	DH:H
K:E	AT:E	CA:E	DJ:E
L:C " " 3	AU:C " " 12	CB:C " " 21	DK:C " " 30
M:H	AV:H	CC:H	DL:H
N:E	AY:E	CD:E	DM:E
P:C " " 4	AZ:C " " 13	CE:C " " 22	DN:C
R:H	BA:H	CF:H	DP:H
S:E	BB:E	CH:E	DT:E
T:C " " 5	BC:C " " 14	CJ:C " " 23	DU:C
U:H	BD:H	CK:H	DV:H
V:E	BE:E	CL:E	DW:E
W:C " " 6	BF:C " " 15	CM:C " " 24	DX:C
X:H	BH:H	CN:H	DY:H
Y:R	BJ:E	CP:E	DZ:E
Z:C " " 7	BK:C " " 16	CR:C " " 25	EA:C
A:H	BL:H	CS:H	EB:H
D:E	BM:E	CT:E	EC:E
E:C " " 8	BN:C " " 17	CU:C " " 26	ED:C
F:H	BP:H	CV:H	EE:E
H:E	BR:E	CY:E	EF:E
J:C " " 9	BS:C " " 18	CZ:C " " 27	EH:C
E:H	BT:H	DA:H	EJ:H

MULTIPIN CONNECTOR WIRING

TYPE: ELCO 120 WAY. CUSTOMER: ENO POSITION: 2 DATE: 29/5

A:E	AL:E	BU:E	DB:E
B:C Input pre-fader ins 1	AM:C Input pre-fader ins 10	BV:C Input pre-fader ins 19	DC:C Input p/f ins
C:H	AN:H	BW:H	DD:H
D:E	AP:E	BX:E	DE:E
E:C " " 2	AR:C " " 11	BY:C " " 20	DP:C " "
F:H	AS:H	BZ:H	DH:H
K:E	AT:E	CA:E	DJ:E
L:C " " 3	AU:C " " 12	CB:C " " 21	DK:C " "
M:H	AV:H	CC:H	DL:H
N:E	AY:E	CD:E	DM:E
P:C " " 4	AZ:C " " 13	CE:C " " 22	DN:C
R:H	BA:H	CF:H	DP:H
S:E	BB:E	CH:E	DT:E
T:C " " 5	BC:C " " 14	CJ:C " " 23	DU:C
U:H	BD:H	CK:H	DV:H
V:E	BE:E	CL:E	DW:E
W:C " " 6	BF:C " " 15	CM:C " " 24	DX:C
X:H	BH:H	CN:H	DY:H
Y:R	BJ:E	CP:E	DZ:E
Z:C " " 7	BK:C " " 16	CR:C " " 25	EA:C
AA:H	BL:H	CS:H	EB:H
AD:E	BM:E	CT:E	EC:E
AE:C " " 8	BN:C " " 17	CU:C " " 26	ED:C
AF:H	BP:H	CV:H	EE:E
AH:E	BR:E	CY:E	EF:E
AJ:C " " 9	BS:C " " 18	CZ:C " " 27	EH:C
AK:H	BT:H	DA:H	EJ:H

MULTIPIN CONNECTOR WIRING

TYPE: ELCO 120 WAY. CUSTOMER: ENO POSITION: 3 DATE: 29/5/78

A:E	AL:E	BU:E	DB:E
B:C Input post fader out 1	AM:C Input post fader out 10	BV:C Input post fader out 19	DC:C Input p/f out 28
C:H	AN:H	BW:H	DD:H
D:E	AP:E	BX:E	DE:E
E:C " " " 2	AR:C " " " 11	BY:C " " " 20	DF:C " " " 29
F:H	AS:H	BZ:H	DH:H
K:E	AT:E	CA:E	DJ:E
L:C " " " 3	AU:C " " " 12	CB:C " " " 21	DK:C " " 30
M:H	AV:H	CC:H	DL:H
K:E	AY:E	CD:E	DM:E
P:C " " " 4	AZ:C " " " 13	CE:C " " " 22	DN:C
R:H	BA:H	CF:H	DP:H
S:E	BB:E	CH:E	DT:E
T:C " " " 5	BC:C " " " 14	CJ:C " " " 23	DU:C
U:H	BD:H	CK:H	DV:H
V:E	BE:E	CL:E	DW:E
W:C " " " 6	BF:C " " " 15	CM:C " " " 24	DX:C
X:H	BH:H	CN:H	DY:H
Y:R	BJ:E	CP:E	DZ:E
Z:C " " " 7	BK:C " " " 16	CR:C " " " 25	EA:C
AA:H	BL:H	CS:H	EB:H
AD:E	BM:E	CT:E	EC:E
AE:C " " " 8	BN:C " " " 17	CU:C " " " 26	ED:C
AP:H	BP:H	CV:H	EE:F
AH:E	BR:E	CY:E	EF:E
AJ:C " " " 9	BS:C " " " 18	CZ:C " " " 27	EH:C
AK:H	BT:H	DA:H	EJ:H

MULTIPIN CONNECTOR WIRING

TYPE: ELCO 120 WAY. CUSTOMER: ENO POSITION: 4 DATE: 29

A:E	AL:E	BU:E	DB:E
B:C Aux out post fader ins 1	AM:C Sub post fader ins 2	BV:C Group post fader ins 3	DC:C PFL go trans
C:H	AN:H	BW:H	DD:H
D:E	AP:E	BX:E	DE:E
E:C " " 2	AR:C " " 3	BY:C " " 4	DF:C Ext T/B
F:H	AS:H	BZ:H	DH:H
K:E	AT:E	CA:E	DJ:E
L:C " " 3	AU:C " " 4	CB:C " " 5	DK:C Osc c
M:H	AV:H	CC:H	DL:H
K:E	AY:E	CD:E	DM:E } Chassis
P:C " " 4	AZ:C " " 5	CE:C " " 6	DN:C } gro
R:H	BA:H	CF:H	DP:H }
S:E	BB:E	CH:E	DT:E
T:C " " 5	BC:C " " 6	CJ:C " " 7	DU:C
U:H	BD:H	CK:H	DV:H
V:E	BE:E	CL:E	DW:E
W:C " " 6	BF:C " " 7	CM:C " " 8	DX:C
X:H	BH:H	CN:H	DY:H
Y:R	BJ:E	CP:E	DZ:E
Z:C Aux in pre-fader ins 1	BK:C " " 8	CR:C PFL bus transfer	EA:C
AA:H	BL:H	CS:H	EB:H
AD:E	BM:E	CT:E	EC:E
AE:C " " 2	BN:C Group post-fader ins 1	CU:C Aux input 1	ED:C
AP:H	BP:H	CV:H	EE:F
AH:E	BR:E	CY:E	EF:E
AJ:C Sub post fader ins 1	BS:C " " 2	CZ:C " " 2	EH:C
AK:H	BT:H	DA:H	EJ:H

MULTIPIN CONNECTOR WIRING

TYPE: ELCO 120 WAY. CUSTOMER: END POSITION: 5 DATE: 29/5/81

A:E			AL:E			BU:E			DB:E		
B:C	Aux out	1	AM:C	Sub out	4	BV:C	Group out	5	DC:C	Group inject	6
C:H			AN:H			BW:H			DD:H		
D:E			AP:E			BX:E			DE:E		
E:C	"	2	AR:C	"	5	BY:C	"	6	DF:C	"	7
F:H			AS:H			BZ:H			DH:H		
K:E			AT:E			CA:E			DJ:E		
L:C	"	3	AU:C	"	6	CB:C	"	7	DK:C	"	8
M:H			AV:H			CC:H			DL:H		
N:E			AY:E			CD:E			DM:E		
P:C	"	4	AZ:C	"	7	CE:C	"	8	DN:C		
R:H			BA:H			CF:H			DP:H		
S:E			BB:E			CH:E			DT:E		
T:C	"	5	BC:C	"	8	CJ:C	Group injects	1	DU:C		
U:H			BD:H			CK:H			DV:H		
V:E			BE:E			CL:E			DW:E		
W:C	"	6	BF:C	Group out	1	CM:C	"	2	DX:C		
X:H			BH:H			CN:H			DY:H		
Y:E			BJ:E			CP:E			DZ:E		
Z:C	Sub out	1	BK:C	"	2	CR:C	"	3	EA:C		
AA:H			BL:H			CSH			EB:H		
AD:E			BM:E			CT:E			EC:E		
AE:C	"	2	BN:C	"	3	CU:C	"	4	ED:C		
AF:H			BP:H			CV:H			EEF		
AH:E			BE:E			CY:E			EF:E		
AJ:C	"	3	BS:C	"	4	CZ:C	"	5	EH:C		
AK:H			BT:H			DA:H			EJ:H		

MULTIPIN CONNECTOR WIRING

TYPE: ELCO 120 WAY. CUSTOMER: END POSITION: 6 DATE: 29

A:E			AL:E			BU:E			DB:E		
B:C	Microswitch	1	AM:C	Microswitch	10	BV:C	Microswitch	19	DC:C	M/S	28
C:H			AN:H			BW:H			DD:H		
D:E			AP:E			BX:E			DE:E		
E:C	"	2	AR:C	"	11	BY:C	"	20	DF:C	"	29
F:H			AS:H			BZ:H			DH:H		
K:E			AT:E			CA:E			DJ:E		
L:C	"	3	AU:C	"	12	CB:C	"	21	DK:C	"	30
M:H			AV:H			CC:H			DL:H		
N:E			AY:E			CD:E			DM:E		
P:C	"	4	AZ:C	"	13	CE:C	"	22	DN:C	"	aux
R:H			BA:H			CF:H			DP:H		
S:E			BB:E			CH:E			DT:E		
T:C	"	5	BC:C	"	14	CJ:C	"	23	DU:C	"	aux
U:H			BD:H			CK:H			DV:H		
V:E			BE:E			CL:E			DW:E		
W:C	"	6	BF:C	"	15	CM:C	"	24	DX:C		
X:H			BH:H			CN:H			DY:H		
Y:E			BJ:E			CP:E			DZ:E		
Z:C	"	7	BK:C	"	16	CR:C	"	25	EA:C		
AA:H			BL:H			CSH			EB:H		
AD:E			BM:E			CT:E			EC:E		
AE:C	"	8	BN:C	"	17	CU:C	"	26	ED:C		
AF:H			BP:H			CV:H			EEF		
AH:E			BR:E			CY:E			EF:E		
AJ:C	"	9	BS:C	"	18	CZ:C	"	27	EH:C		
AK:H			BT:H			DA:H			EJ:H		

∴ E = switch wiper, C = normally closed, H = normally open

Note: this multi-way should be wired with seperate cables

MULTIPIN CONNECTOR WIRING

TYPE: ELCO 120 WAY. CUSTOMER: ENO POSITION: 7/8 DATE:

A:E			AL:E			BU:E			DB:E	Screen	
B:C	Input	1	AM:C	Input	10	BV:C	Input	19	DC:C	} 0V	
C:H			AN:H			BW:H			DD:H		
D:E			AP:E			BX:E			DE:E	Screen	
E:C	"	2	AR:C	"	11	BY:C	"	20	DF:C	Intercom 0V	
F:H			AS:H			BZ:H			DH:H	Intercom bus	
K:E			AT:E			CA:E			DJ:E	Screen	
L:C	"	3	AU:C	"	12	CB:C	"	21	DK:C	0V lamps	
M:H			AV:H			CC:H			DL:H	+25V lamps	
N:E			AY:E			CD:E			DM:E		
P:C	"	4	AZ:C	"	13	CE:C	"	22	DN:C	GN	
R:H			BA:H			CF:H			DP:H		
S:E			BB:E			CH:E			DT:E		
T:C	"	5	BC:C	"	14	CJ:C	"	23	DU:C		
U:H			BD:H			CK:H			DV:H		
V:E			BE:E			CL:E			DW:E		
W:C	"	6	BF:C	"	15	CM:C	"	24	DX:C		
X:H			BH:H			CN:H			DY:H		
Y:E			BJ:E			CP:E			DZ:E		
Z:C	"	7	BK:C	"	16	CR:C	Status inhibit		EA:C		
AA:H			BL:H			CSH			EB:H		
AD:E			BM:E			CT:E			EC:E		
AE:C	"	8	BN:C	"	17	CU:C	Headphone transfer		ED:C		
AF:H			BP:H			CV:H			EE:E		
AH:E			BR:E			CY:E	Screen		EF:E		
AJ:C	"	9	BS:C	"	18	CZ:C	+16V		EH:C		
AK:H			BT:H			DA:H	-16V		EJ:H		

REMOTE UNIT AND MULTI WAY CABLE ONLY

Q LITES { WARN, GO, 24V

R/I { COM, 2, 1

∴ For inputs 1-24; E = Screen, C = Fader bottom, H = Fader wiper