

Amstrad



MEGAPC3H40
WITH GAMES CARD
PC14DSM
14" DUAL SYNCH COLOUR MONITOR
SERVICE MANUAL

Amstrad MegaPC 386SX

Specification

Processor and Clock Speed	PC Mode: 25MHz 80386sx Mega Mode: 8MHz 68000
Main on-board Memory	1Mb RAM on-board
Memory Expansion	Up to 16Mb via 4 SIMM sockets
Hard Drive - fitted as standard	40Mb Fast Access (28ms)
Floppy Disk Drive - fitted as standard	3.5" 1.44Mb
Disk Drive Bays	1 x 3.5" third height FDD bay 1 x 3.5" half height HDD bay
Expansion Slots	2 x 16 bit, $\frac{2}{3}$ length ISA slots - one populated and one free
Graphics	Super VGA** (VGA, EGA, CGA, MDA and Hercules Compatible)
Video Memory	256Kb (user expandable up to 512Kb)
Maximum Resolution	**PC Mode: 1024 x 768 pixels Mega Mode: 320 x 224
On-screen Colours	PC Mode: Up to 256 (max) from a total palette of 262,144 Mega Mode: Up to 64 (max) out of total palette of 512
Sound Capability	PC Mode: Full Ad-Lib sound Mega Mode: Full Megadrive Stereo Sound
External Interfaces	Parallel Port, Twin RS232C Serial Ports, PS/2 type Keyboard Socket, PS/2 type Mouse Socket, External VGA Monitor Port, External VGA Monitor Power Socket, PC analogue Joystick port, 2 Sega compatible Games Paddle ports, Megadrive compatible cartridge slot, MegaCD compatible connector, Stereo Headphones socket
Power Supply	50W 110/220-240V Auto-Switching
System Unit Dimensions	325mm (W) x 78mm (H) x 292mm (D)
Keyboard	102 key high quality PS/2 type
Supplied Accessories	Two button PS/2 type PC Mouse, precision analogue PC Joystick, Sega compatible Games Paddle
Supplied Software	MS-DOS 5.0, Amstrad Desktop User-friendly Graphical Interface with on-screen interactive Tutorial
Colour Monitor	14" Hi-Res Dual Sync Colour with in-built stereo speakers
Monitor Compatibility	Full VGA with Ad-Lib sound, full Megadrive with stereo sound
Monitor Graphics Resolution	PC Mode: 640 x 480 Mega Mode: 320 x 224

**PC Graphics capabilities dependant on monitor type used.

NOTE FOR ENGINEERS

THIS SERVICE MANUAL COVERS MEGAPC3H40 GAMES CARD ONLY

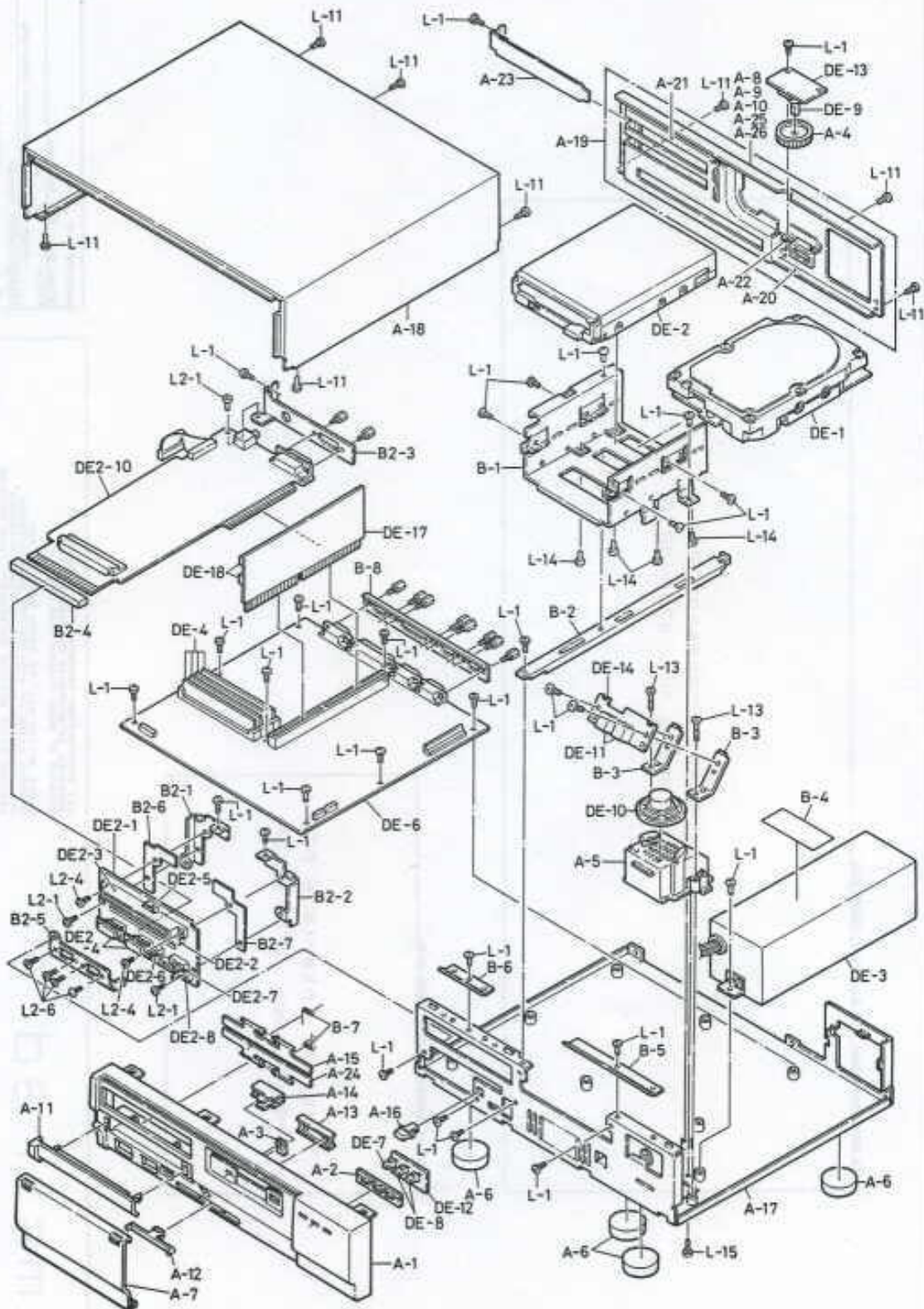
PLEASE NOTE, THE MAIN CPU UNIT IS SAME AS
PC7386SX, ANY REPAIRS TO THIS SECTION, REFER TO
PC7386SX SERVICE MANUAL PT. NO. 273930

MEGAPC3H40 MANUFACTURED UNDER LICENCE FROM SEGA

MEGAPC3H40.

REF. NO.	DESCRIPTION.	PT. NO.
CABINET PARTS 1ST		
A-1X	FRONT PANEL ASSY COMPLETE	274026
A-2	LED LENS A	
A-3	LED LENS B	
A-4	VR KNOB	273892
A-5	KBD MOUSE COVER	
A-6	FOOT	274038
A-7	FRONT SLIDE DOOR	273955
A-8	RATING LABEL	
A-9	HDD SETUP LABEL	
A-10	SERIAL NO. LABEL	
A-11	SLOT COVER	273956
A-12	SL VR KNOB	274027
A-13	SL KNOB GUIDE	274028
A-14	DOOR SWITCH GUIDE	274029
A-15	CARTRIDGE DOOR A	273957
A-16	RESET BUTTON	274030
A-17	BOTTOM	
A-18	COVER	273893
A-19	REAR CHASSIS ASSY	
A-20	REAR CHASSIS	
A-21	REAR CHASSIS BRACKET	
A-22	VR BRACKET	
A-23	EXPANSION SLOT COVER	273914
A-24	CARTRIDGE DOOR B	274037
A-25	LICENSE LABEL	
A-26	JOYSTICK LABEL	
B-1	FDD BRACKET	
B-2	BAR	
B-3	JACK HOLDER	
B-4	BRAND LABEL	
B-5	SHIELD PLATE A	
B-6	SHIELD PLATE B	
B-7	DOOR SPRING	273958
B-8	JACK COVER	
B2-1	PCB HOLDER L	
B2-2	PCB HOLDER R	
B2-3	EXPANSION BRACKET	
B2-4	EDGE CAP	
B2-5	D-SUB HOLDER	
B2-6	INSULATION SHEET L	
B2-7	INSULATION SHEET R	
ICS		
U3	IC FM OPERATOR YM3812-F	273964
U12	IC SEGA 315-5487	273963
U11A	IC NE5558CN TIMER	174042
U31,32	IC NJM2070M AMP	273968
U5,22	IC LM324 SPM	273967
U6	IC DAC YM3014B-F	273965
U18	IC CPU MC68HC000FN8	273966
U13	IC 280 Z0840004PSC DIL	40080
U16,17	IC HM534612P-12 VRAM	274039
U19,20	IC 65256BLFP-10 DRAM CLOCK	274040
MISCELLANEOUS		
	SET POLY PACKING	273972
	PADDLE PAD	274031
	MOUSE MSPS2	272710
	PADDLE SP-7	273991
	JOYSTICK AJ-5	273990
	COMPLETE KEYBOARD ASSY UK	273895
	COMPLETE KEYBOARD ASSY AU	273901
	MAINS LEAD UK	270053
	MAINS LEAD AU	274032
	USER INSTRUCTIONS	274033
DE-1	HDD 40MB SEAGATE	273908
DE-2	FDD 3.5" SONY	273723
DE-3	POWER SUPPLY UNIT	273888
DE-4	256K SIMM MODULE	272201
DE-5	IC 80386SX-25	273932
DE-6	CPU PCB MAIN	273894
DE-7	LED GREEN RT-2553YQ	
DE-8	LED AMBER RT-2553A	
DE-9	VROT 500 GB	273922
DE-10	SPRAKER	273923
DE-11	6P-MINI DIN JACK	
DE-18	98P CARD-EDGE CONNECTOR	274035
DE2-4	D-SUB CONNECTOR 9P	
DE2-5	MICRO SWITCH KB001	273959
DE2-6	PUSH SWITCH AL001	273960
DE2-7	SLIDE SWITCH AL008	273961
DE2-8	SLIDE VR 10KQ	274036
F-1	34P FDD CABLE	273925
F-2	40P HDD CABLE	273926
U15	CRYSTAL 53.2034MHZ	274041
	COMPLETE KEYBOARD UK	273895
	COMPLETE KEYBOARD AUSTRALIA	273901
	TR 25C1815 Y	170447
	TR 25A1015 Y	170453

MEGA PC EXPLODED VIEW



Main Game Processor PCB Circuits 17308-1097

Games Processor PCB
Drawing No. 4700-001P

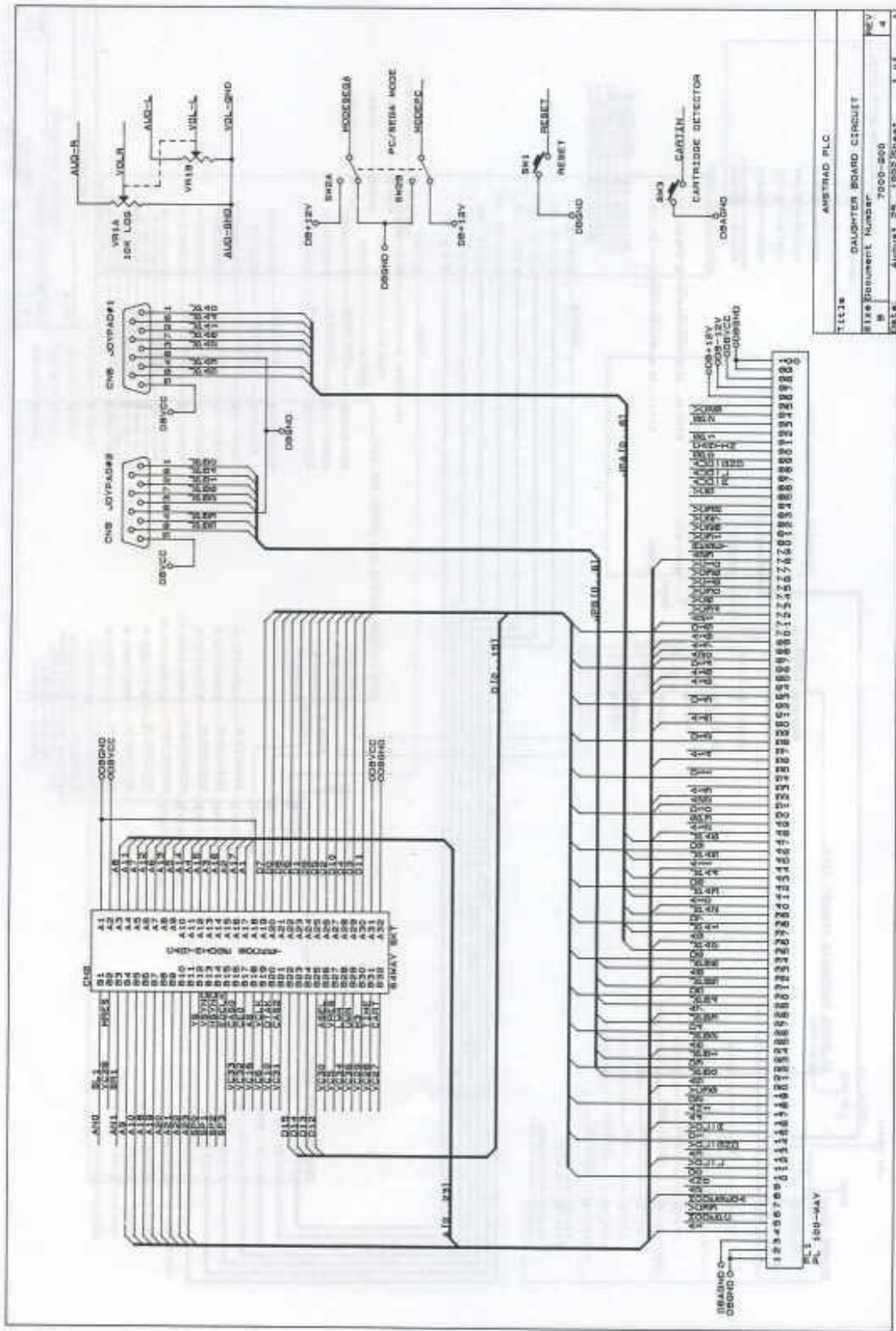
Vertical Interface PCB (7300-800)

Vertical Interface PCB
Drawing No. 4700-002P

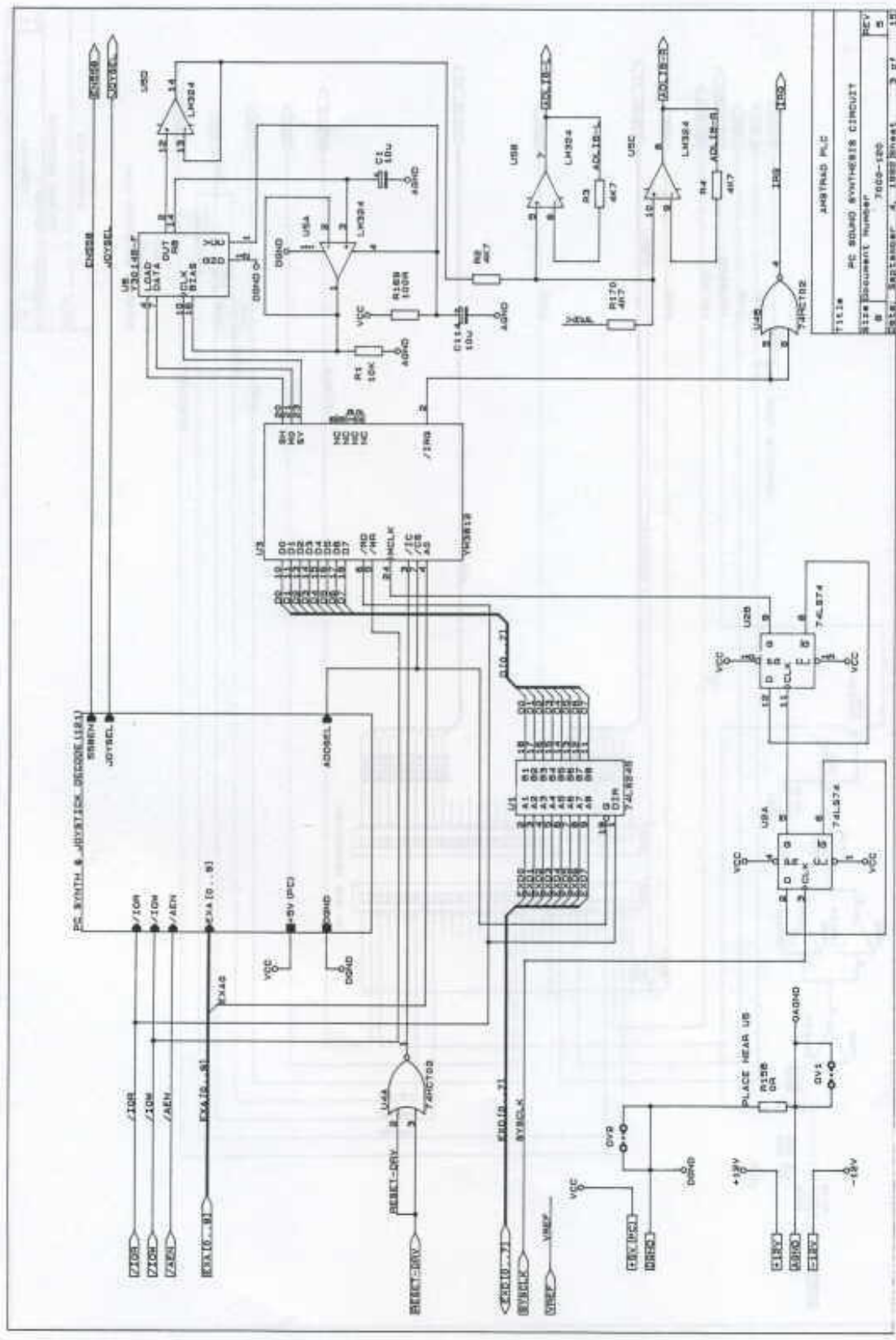
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Amstrad PLC
Drawn By: Rob Hopkins
Title: Mega-PC System Circuit Diagram
Size: Document Number
REV
0
7000-000
Date: September 1, 1988 Sheet 1 of 1

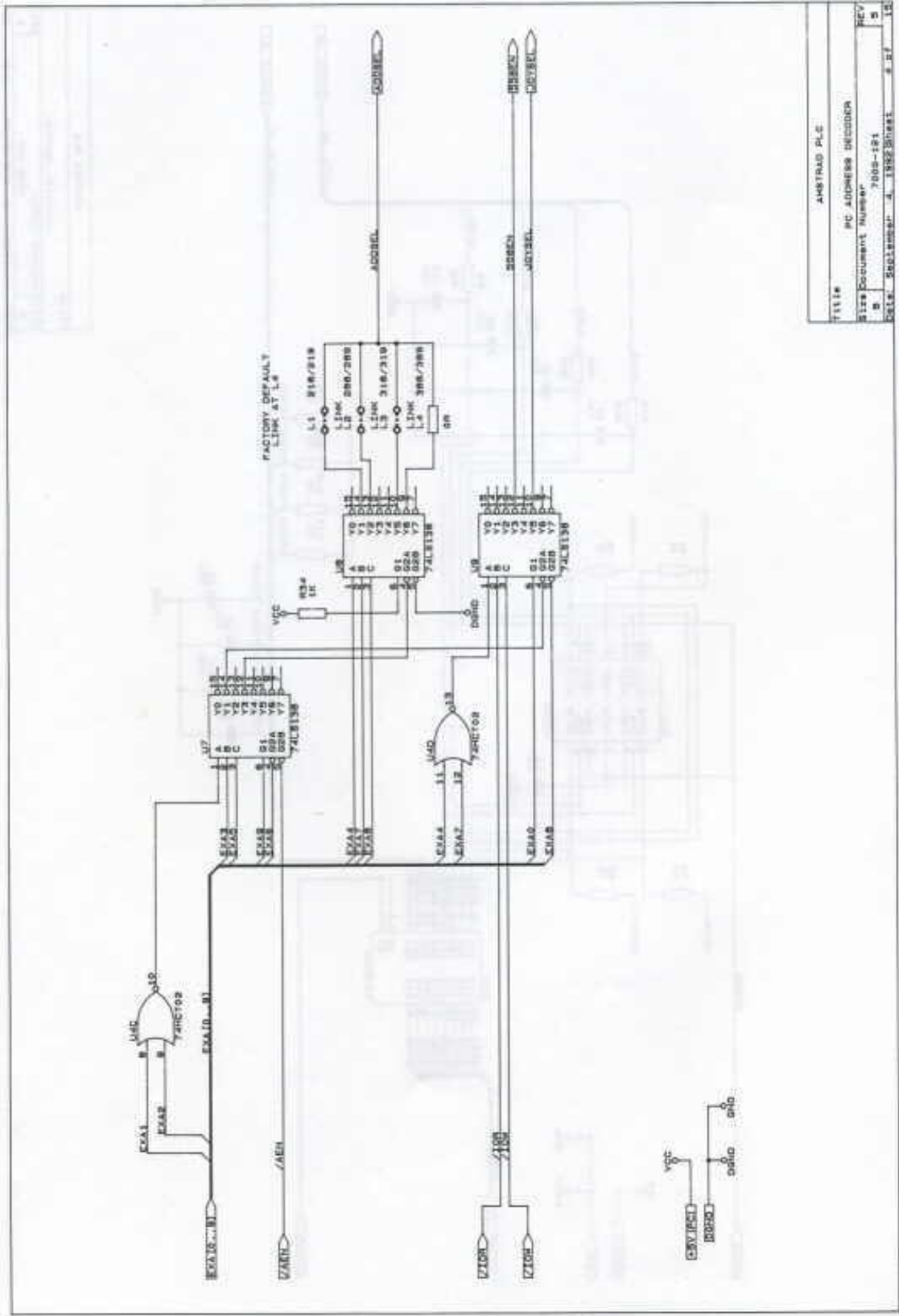


Title	AMSTRAD PLC
Revision	1
Drawn	DAUGHTER BOARD CIRCUIT
Checked	
Released	
File	7000-200
Sheet	1 of 1

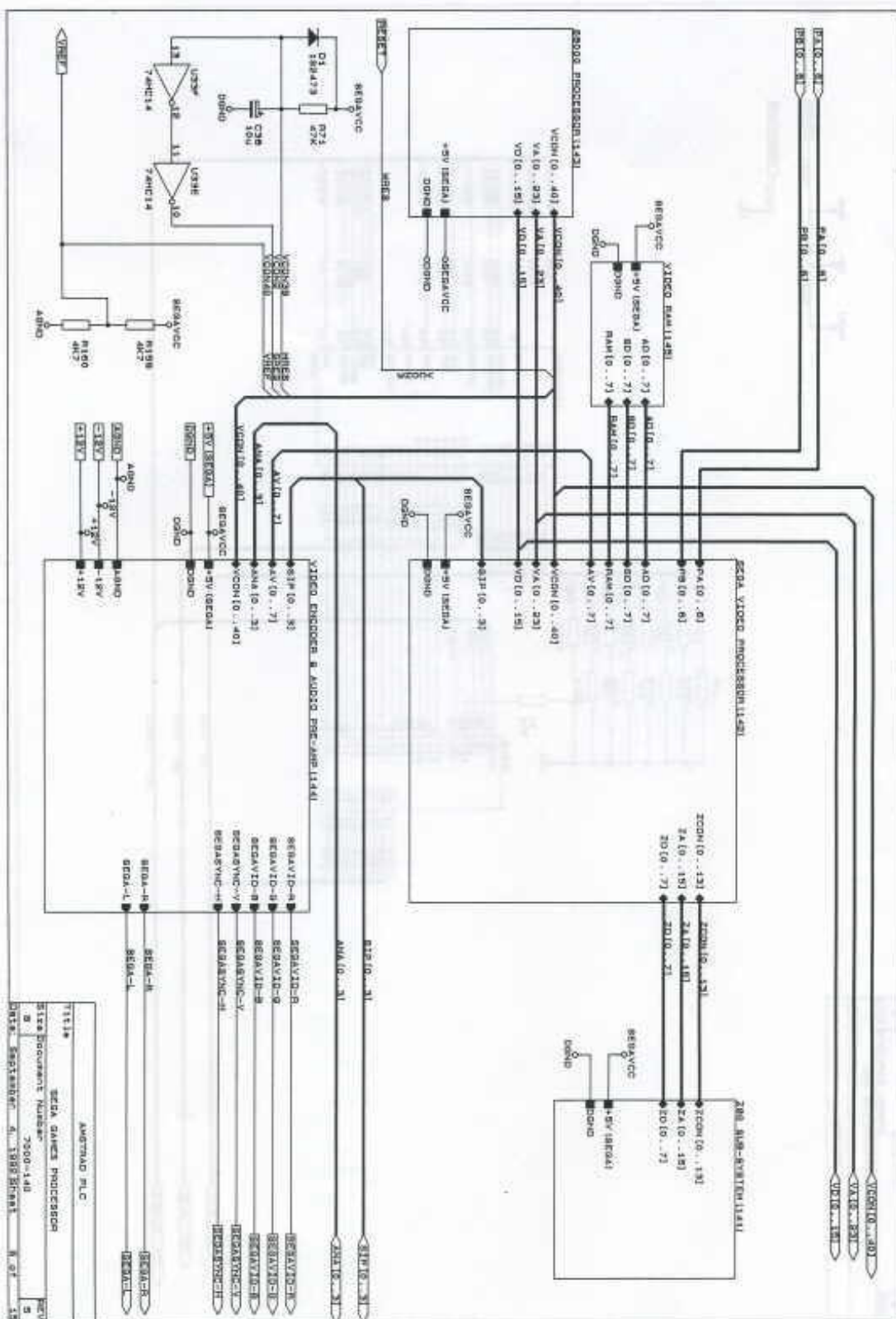


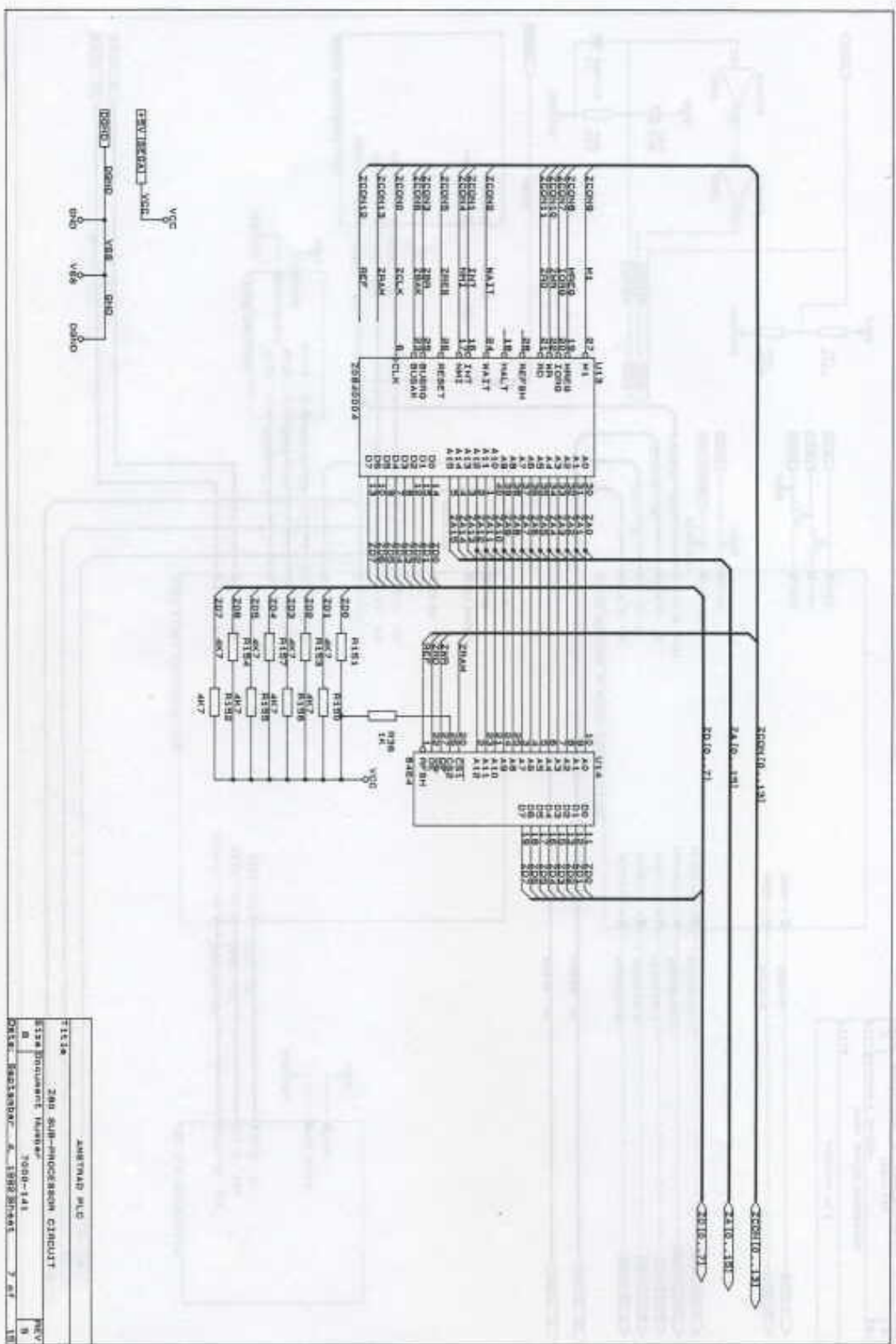
PC WITH 8-BIT SYSTEM (8085)				
U1	8085	IC	1	1
U2	7805	IC	2	2
U3	7918	IC	3	3
U4	2716	IC	4	4
U5	2716	IC	5	5
U6	74LS14	IC	6	6
U7	74LS14	IC	7	7
U8	74LS14	IC	8	8
U9	74LS14	IC	9	9
U10	74LS14	IC	10	10

PC WITH 8-BIT SYSTEM (8085)				
U1	8085	IC	1	1
U2	7805	IC	2	2
U3	7918	IC	3	3
U4	2716	IC	4	4
U5	2716	IC	5	5
U6	74LS14	IC	6	6
U7	74LS14	IC	7	7
U8	74LS14	IC	8	8
U9	74LS14	IC	9	9
U10	74LS14	IC	10	10

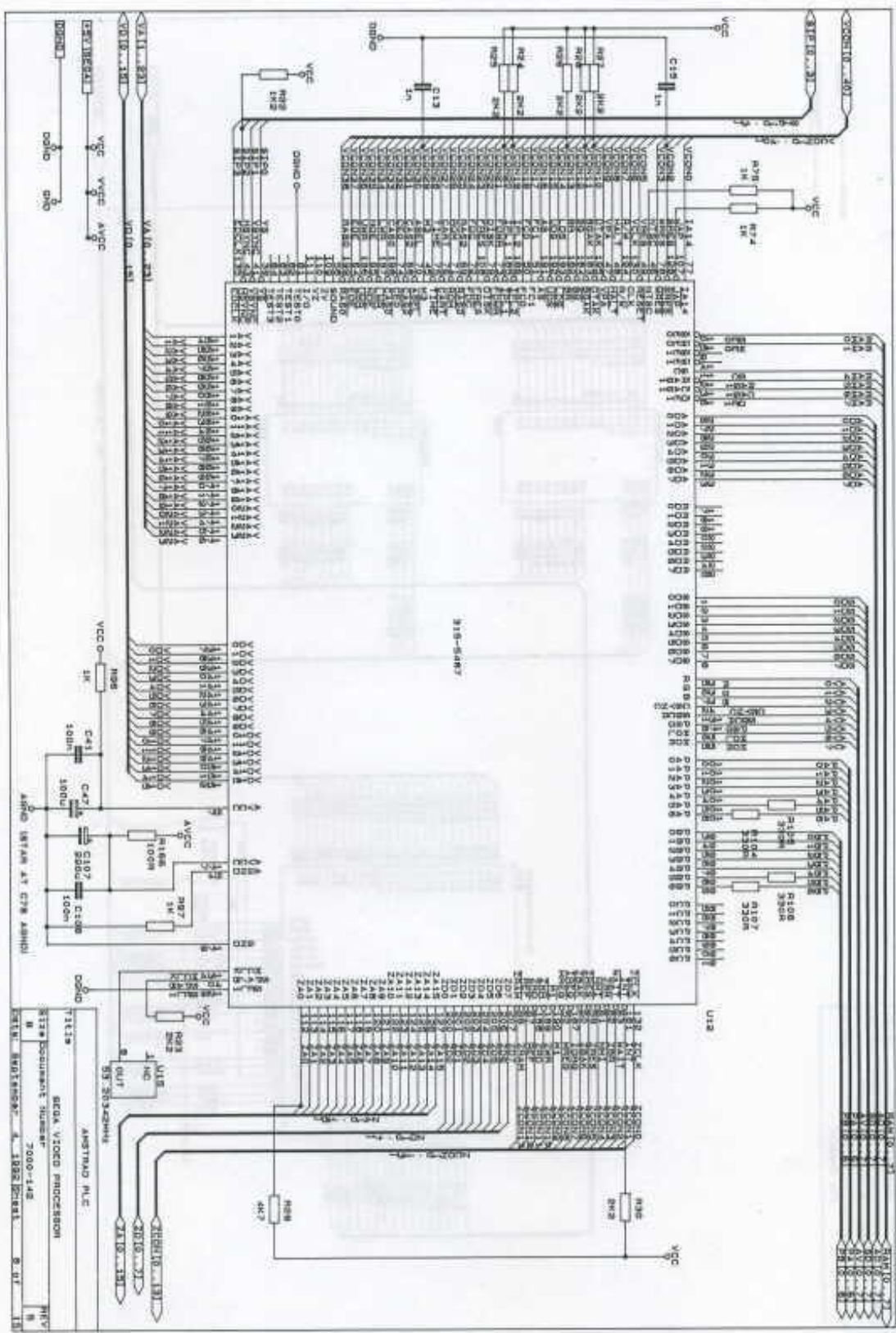


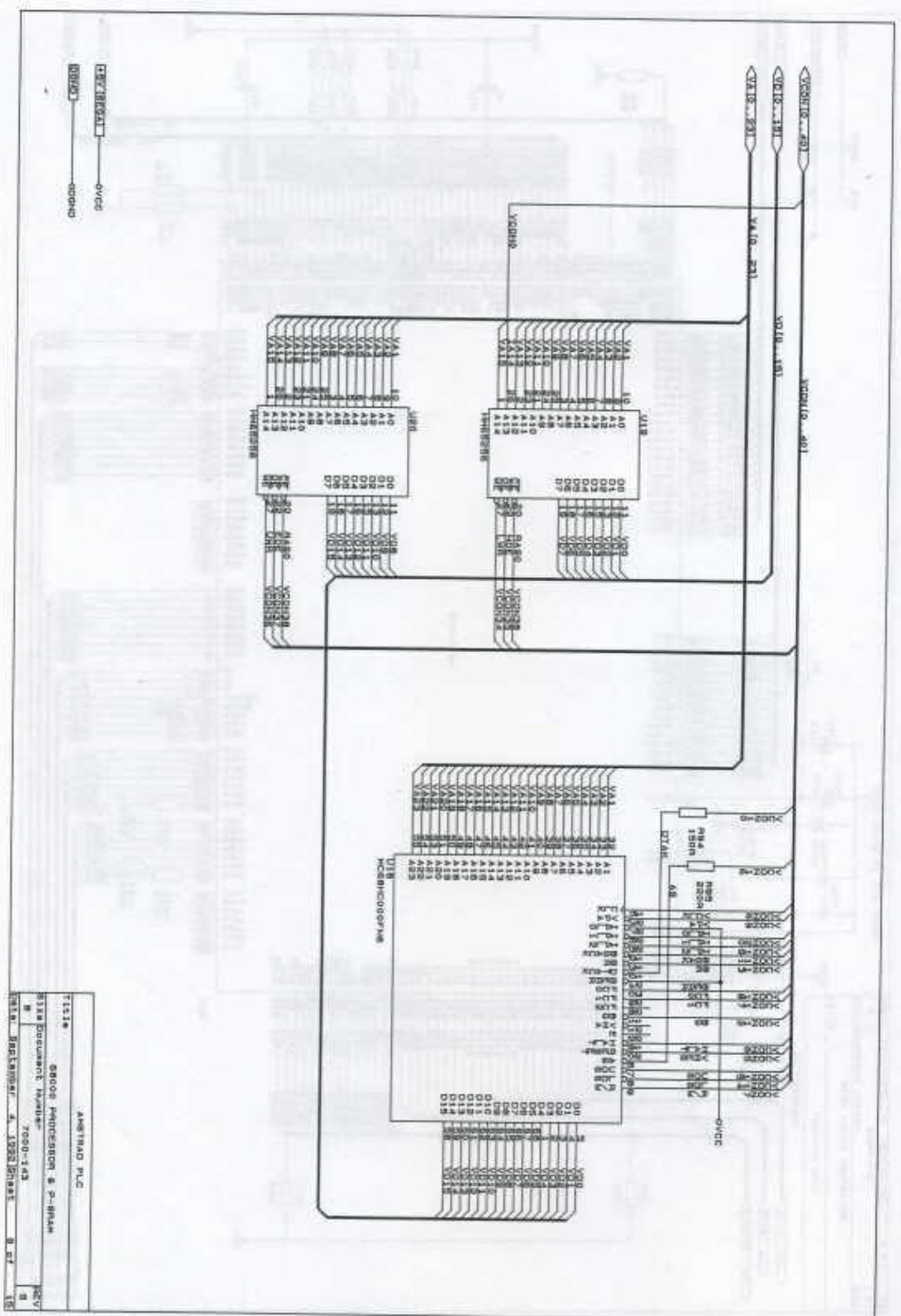
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PC Address Decoder		
Rev	5	
Doc	7000-121	
Date	September 4, 1982	Sheet 1 of 1



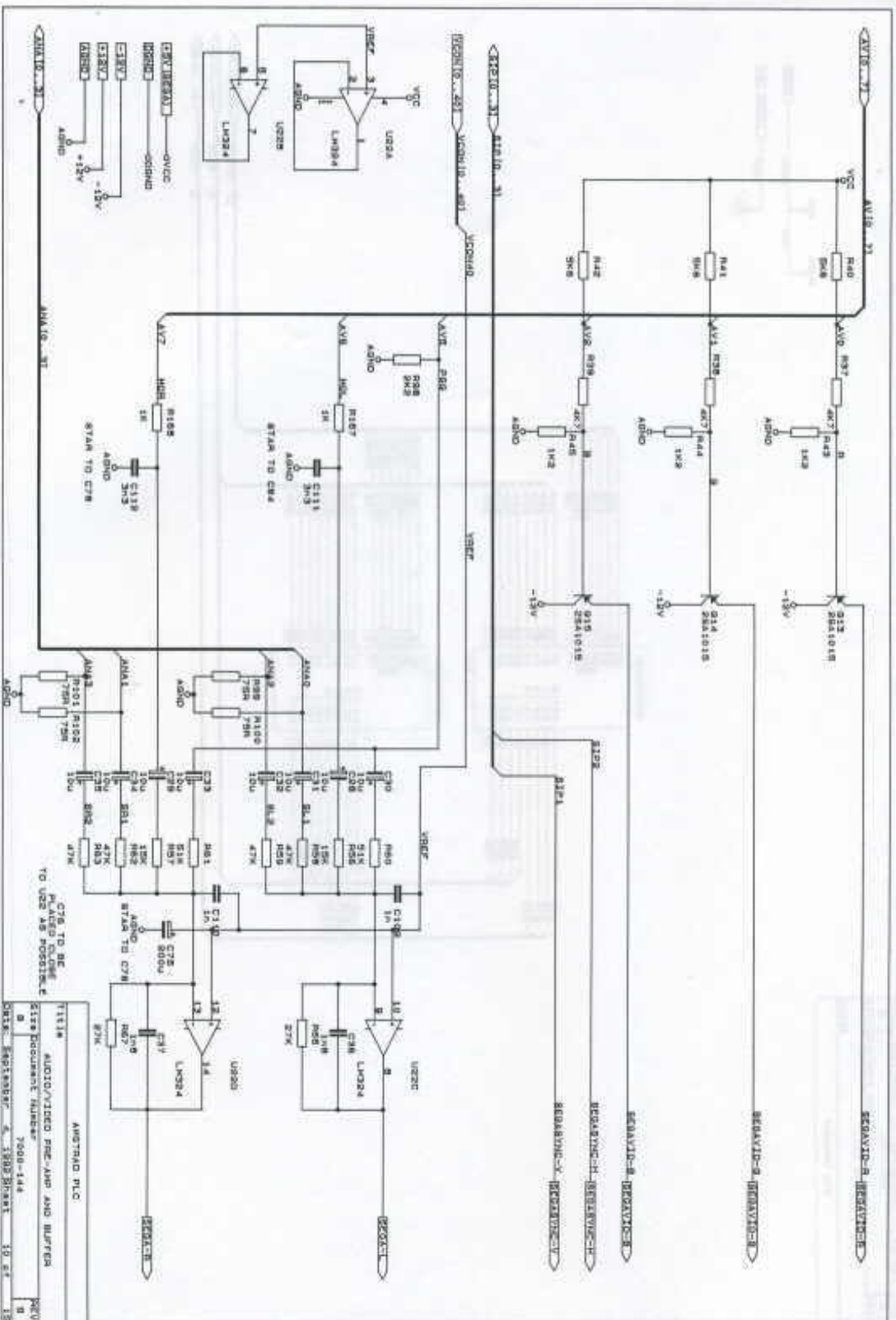


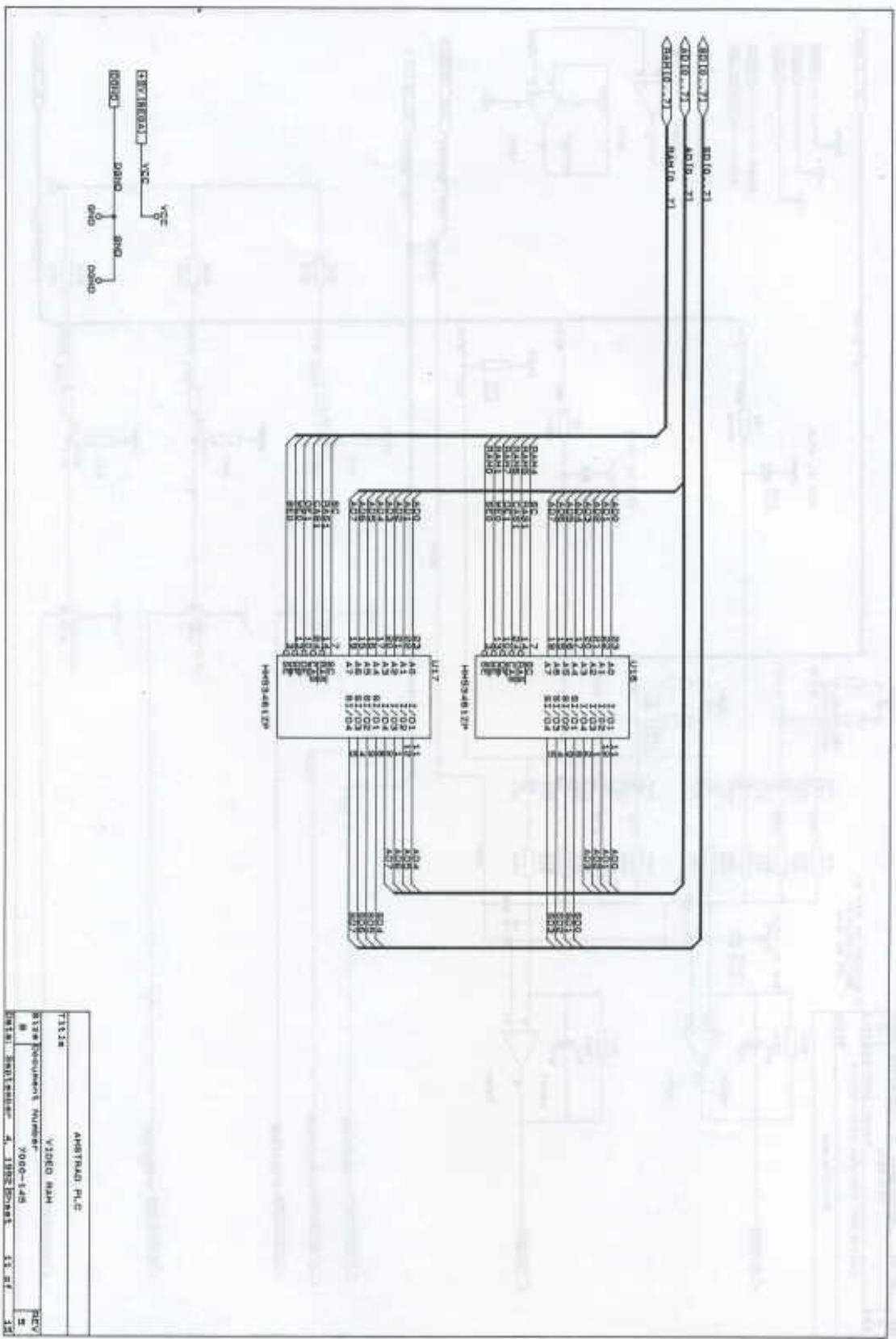
240 SUB-PROCESSOR CIRCUIT			
REV	1	DATE	10/10/81
BY	1	DATE	10/10/81
CHKD	1	DATE	10/10/81
APPD	1	DATE	10/10/81



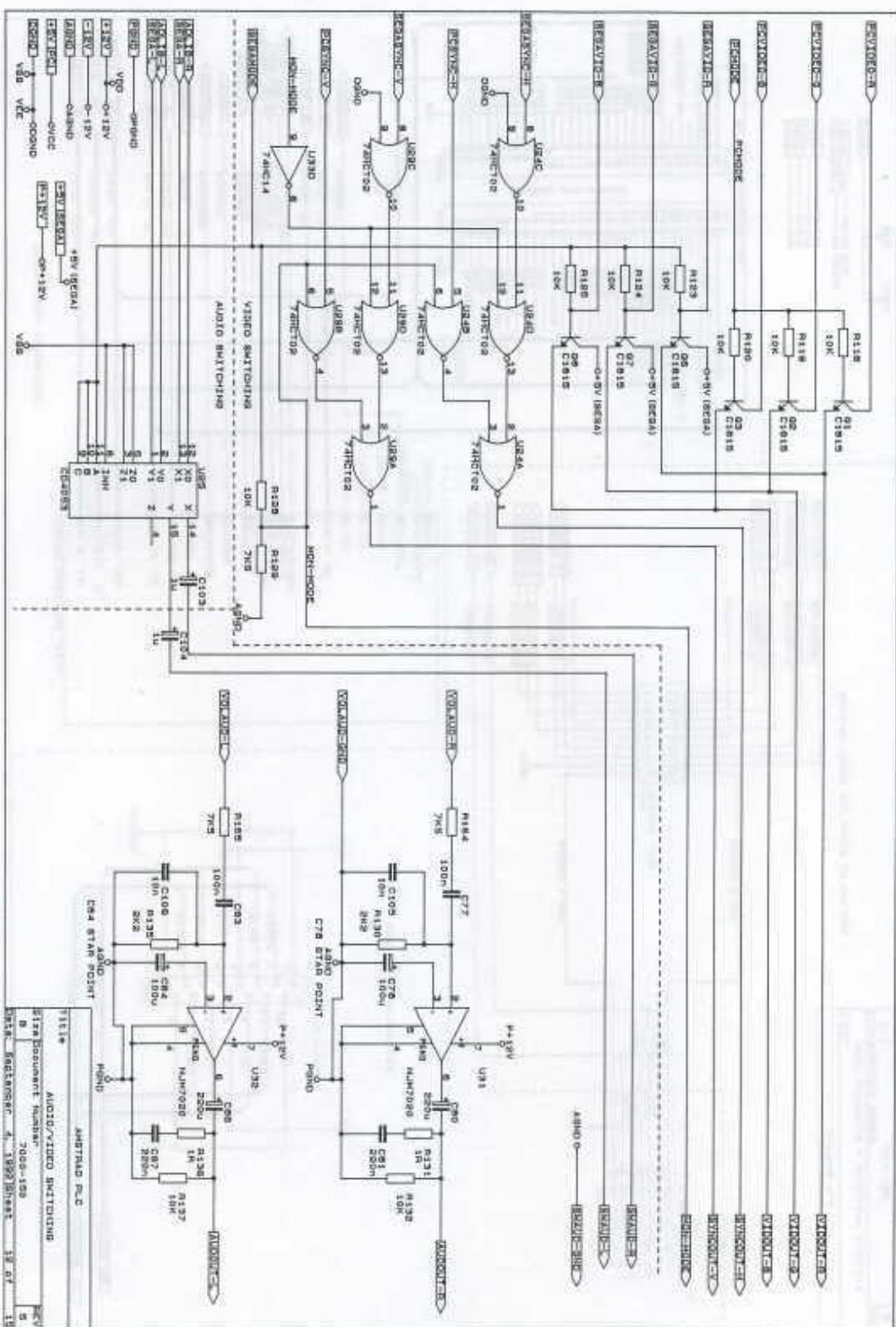


ASSTRAD PLC	
FILE	ASSTRAD PLC
Size Document Header	7000-103
File - Implementation - 1993 Sheet	8 of 16

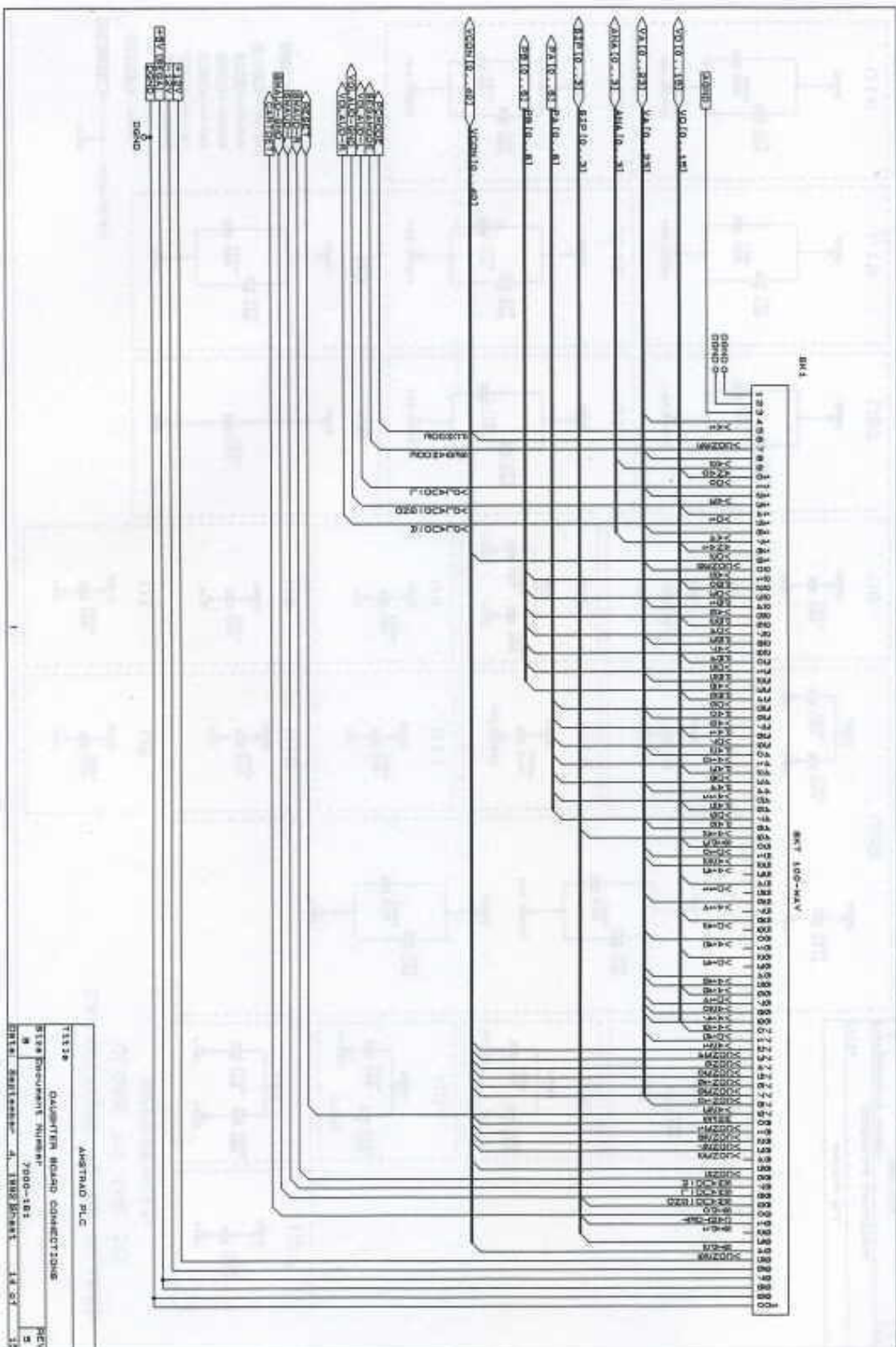




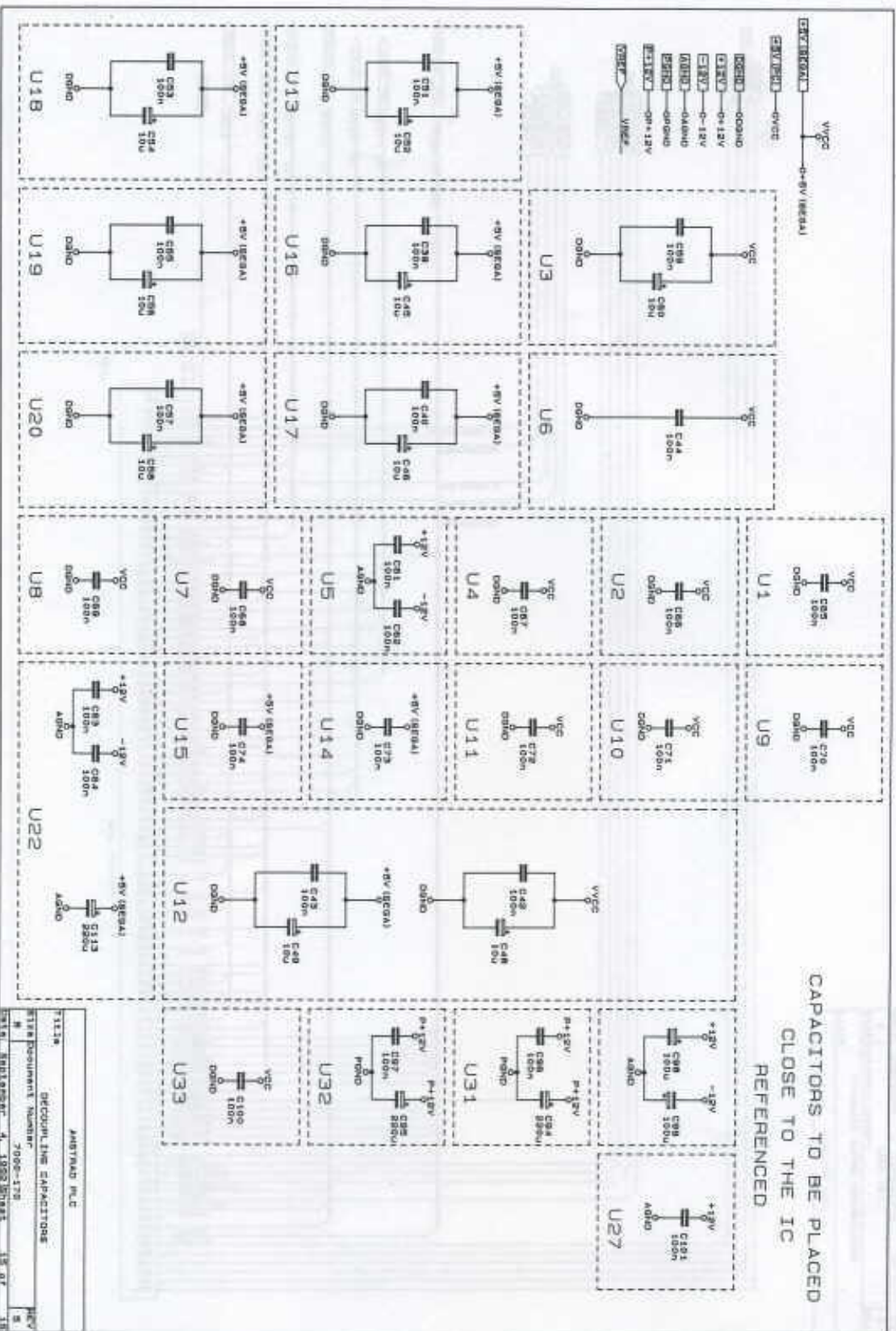
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Video Equipment Number		7000-140	
Rev		1	
Date: September 4, 1982		Sheet 11 of 15	



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ABSTRAD PLC	REV
DAUGHTER BOARD CONNECTIONS	REV
PLC Mounting Number 7000-101	REV
DATE: September 4, 1992	Sheet 1 of 1



Alignment Procedure

Model : 14" Dual Sync Monitor PC14DSM

1. Preparation

1) Testing Equipment

Amstrad Mega PC & Test Program (KENVGA.EXE)

2) Set monitor so that CRT faces to East and to be safe from abnormal Magnetism.

3) Position of Volume before adjustment

Screen volume : at center
 Brightness volume (VR902) : at center
 Contrast VR (VR901) : at maximum
 Sub contrast VR (VR103) : 1/4 from Minimum
 R Bias VR (R817), G Bias VR (R827), B Bias (R807) : 1/4 from minimum
 Other volumes : at center

2. Adjustment

2-1. H Centering

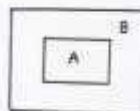
- 1) Without connecting signal cable
- 2) Adjust screen VR so that RASTER can be seen slightly.
- 3) Adjust S002 (H.RASTER CENT.SWITCH) so that Raster can be at center of the screen.

2-2. H.Hold & H.PHASE

- 1) Connect signal cable
- 2) Get game mode screen from Mega PC (Mode select signal (PIN15) : High)
- 3) Short each side of R502 by 1 F 50V Condenser to break H.Sync.
- 4) Adjust VR508 (H.Hold 1) and position on the point where flow of screen stops.
- 5) Get VGA mode (Mode select Signal (PIN15) : Low)
- 6) Adjust VR509 (H.Hold 2) and position on the point where flow of the screen stops.
- 7) Remove Condenser which is connected to R502.
- 8) Adjust V904 (H Phase) so that data area is at center horizontally
- 9) Adjust V508 (H Hold1) so that screen is at the center after getting Game mode.
- 10) Check if screen is at center after getting VGA mode.

2-3 FOCUS

- 1) Get "H" character screen
- 2) Adjust Focus volume of FBT so that Focus is optimum at B zone.



2-4. SIDE PINCUSHION

- 1) Get cross hatch screen of 480 mode.
- 2) Adjust VR434 (Side pincushion) so that left & right of screen is straight.

2-5 V.Linearity

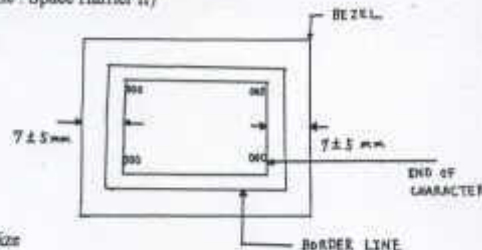
- 1) Get cross hatch pattern at 480 mode
- 2) Adjust VR422 so that vertical cross hatch intervals are same.

2-6. V.Center

- 1) Get cross hatch pattern at VGA 480 mode.
- 2) Adjust VR903 (V.Center) so that screen is at center vertically.

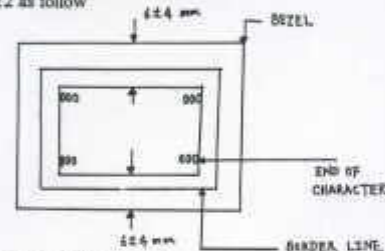
2-7. H.Size

- 1) Get cross hatch pattern at VGA 480 mode.
- 2) Adjust H.Width coil (L504) so that horizontal size is 240 ± 9 (mm).
- 3) Adjust VR906 (H.size) to get screen as follow in Game mode. (Game : Space Harrier II)



2-8. V.Size

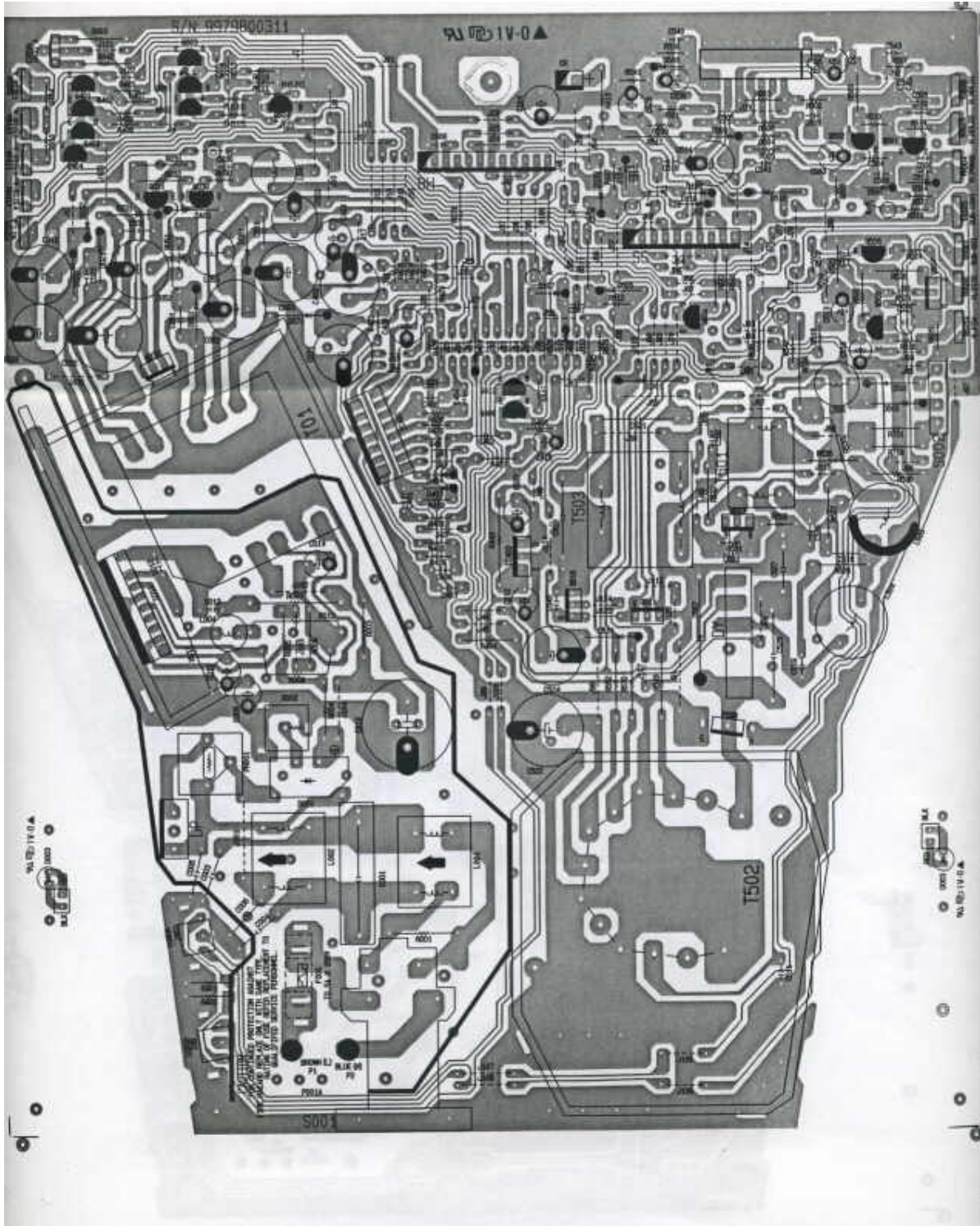
- 1) Get cross hatch screen at VGA 480 mode.
- 2) Adjust VR905 (V.Size 1) so that vertical size is 180 ± 9 (mm).
- 3) Get cross hatch screen at VGA 400 mode.
- 4) Adjust VR410 (V.size 2) to get vertical size 180 ± 9 (mm).
- 5) Get cross hatch screen at VGA 350 mode.
- 6) Adjust VR411 (V.size 3) so that vertical size is 180 ± 9 (mm).
- 7) Get game mode (Game : Space Harrier II).
- 8) Adjust VR412 as follow



- 9) Check vertical size at all modes again.

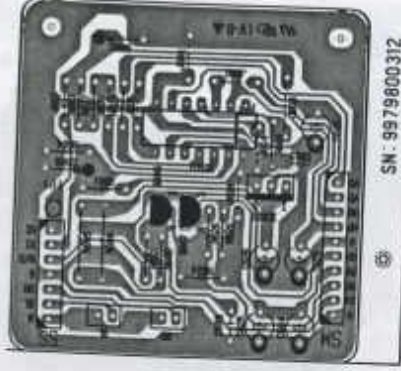
2-9 WHITE BALANCE

- 1) Get all black screen at VGA 480 mode
- 2) turn screen VR clockwise until one of R,G,B colours appears.
- 3) Turn Bias volume until colour of screen becomes dark gray
- 4) Adjust screen VR until Raster disappears.
- 5) Get bright white screen at VGA 480 mode.
- 6) Position TV colour Analyzer at center of white screen.
 Check the axis of X,Y.
 Turn R gain VR (VR121) so that Axis X can be 0.313 ± 0.03 .
 Turn G gain VR (VR131) so that Axis Y can be 0.329 ± 0.03
- 7) Adjust Contrast VR so that brightness can be 5.0 FT-L.
 Turn R Bias VR (R817) so that X axis can be 0.313 ± 0.03 .
 Turn G Bias VR (R827) so that Y axis can be 0.329 ± 0.03 .
- 8) Turn contrast VR and check if Axis X,Y are within spec.
 If not, repeat 6),7).
- 9) Get cross hatch screen at VGA 480 mode and turn contrast VR at maximum. Turn SUB Brightness VR (VR961) until Raster disappears.
- 10) Get Bright white screen at VGA 480 mode, check if brightness is over 100 NIT (29 Ft-L). If not, adjust Sub contrast VR (VR103).



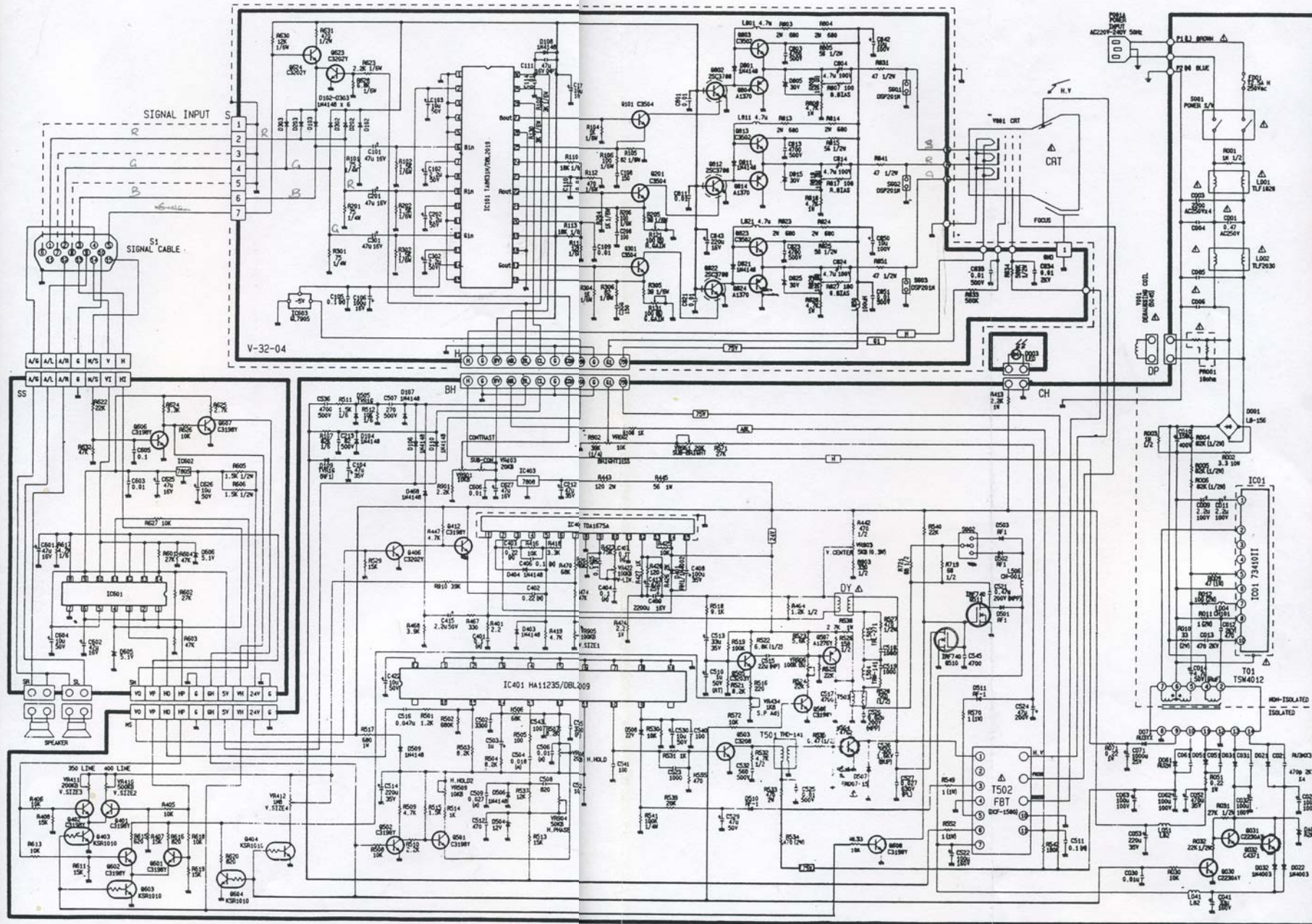


AUDIO PCB TOP VIEW



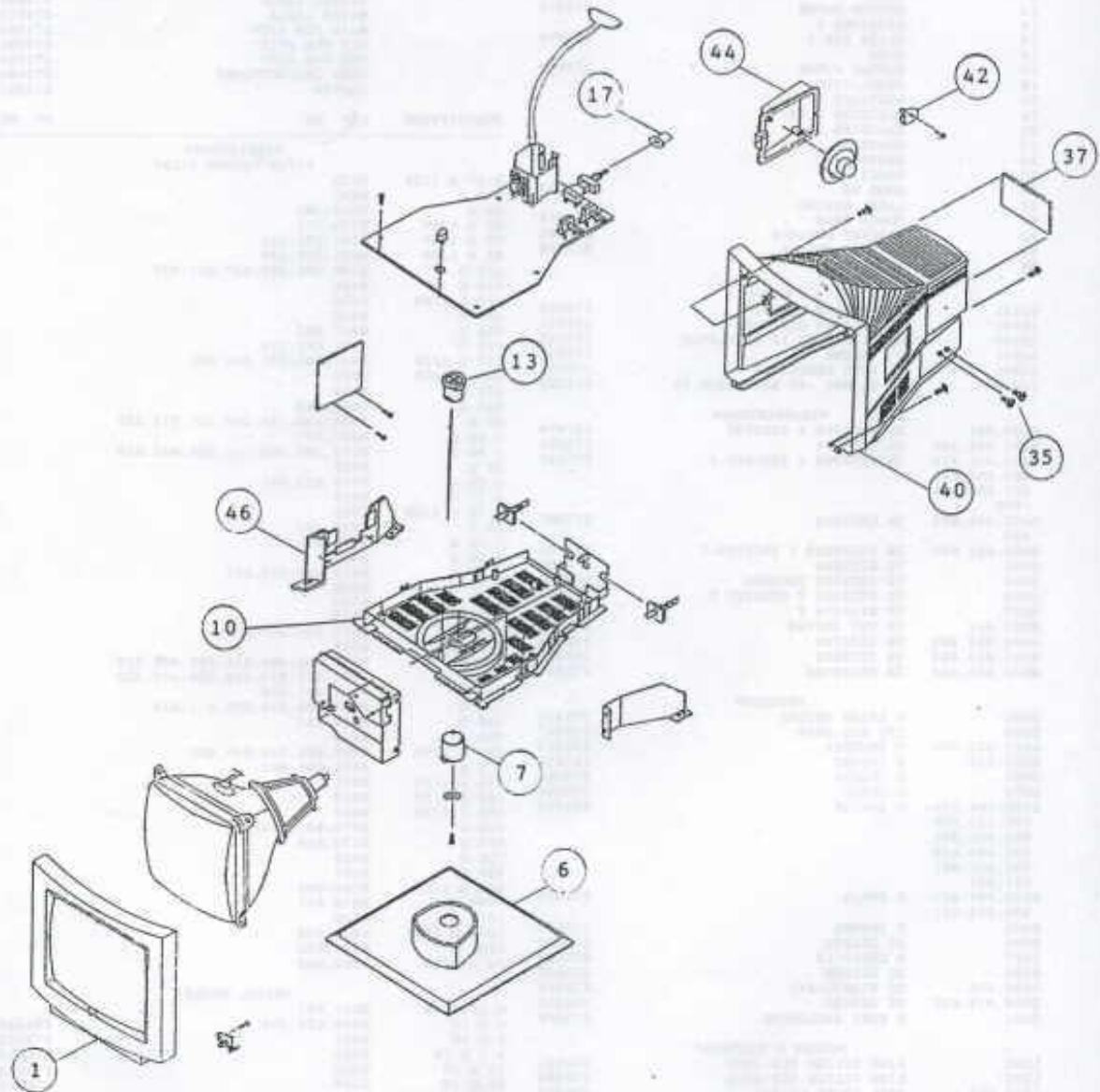
AUDIO PCB BOTTOM VIEW





MAIN SCHEMATIC DIAGRAM

CABINET EXPLODED VIEW



REF. NO.	DESCRIPTION	PT. NO.
	CABINET PARTS LIST	
3	COVER FRONT	273873
2	SCREW CHT MOUNTING	
3	BUSHING WASHER	
5	BRAND INLEY	
6	BASE STAND	272589
7	SLIDE PAD B	272978
8	SCREW TAPTITE 4X14MFZN	
9	FOOT	272982
10	BOTTOM COVER	273975
11	RETAINER B	
13	SLIDE PAD A	272978
15	BUSH	
17	BUTTON POWER	273977
19	INSULATION	
20	HEATSINK A	
22	HEATSINK C FBI	
25	HEATSINK B	
27	HEATSINK	
28	HEATSINK D	
30	SHAFT	
35	KNOB VR	273978
37	LABEL RATING	
40	COVER REAR	273974
42	BRACKET SPEAKER	273995
44	SPEAKER HOLDER	273996
46	SUPPORTER L	

IC101	IC T8831N DBL2019
IC401	IC DBL2009 HA11235
IC403	IC GL7808 8V 1A REGULATOR
IC601	IC 74LSB6 TTL
IC802	IC 7805 REGULATOR
IC803	IC GL7905 -5V REGULATOR 1A

Q030, 031	TR KTC1025 Y 2SC2230
Q101, 201, 301	TR 2SC3504
Q401, 402, 412	TR KTC3198 Y 2SC1815 Y
501, 602, 506	
601, 602, 406	
-608	
Q403, 404, 603	TR HSR1010
604	
Q406, 623, 424	TR KTC32025 Y 2SC1969 Y
Q503	TR KTC3208
Q504	TR 2SC4763 2SC3882
Q505	TR KTC3203 Y 2SC2120 Y
Q507	TR KTA1276 Y
Q510, 511	TR FET 1B740
Q802, 812, 822	TR 2SC3788
Q803, 813, 823	TR 2SC3502
Q804, 814, 824	TR 2SC1370E

D001	D LB156 BRIDGE
D003	LED KLG-208E
D021,021,051	D 1R5GNH5
D022,032	D 1N4003
D061	D 1S1834
D071	D HUZYX
D102-104,106- 108,110,203	D 1N4148
203,302,303	
403,404,468	
506,509,801	
811,821	
D109,501-503	D TVR1G
505,510,511	
D401	D 1N4002
D504	D2 DZ12NB
D507	D ERD07-15
D808	D2 DZ22BM
D405,606	D2 BZX83C-5V1
D806,815,826	D2 DZ30HM
D401	D R2KY AVALANCHE

L001	LINE FILTER TLF-1020
L002	LINE FILTER TLF-2030
L004.850	COIL CHOKE CH-101
L041.051	COIL CHOKE L-82
L504	COIL N LINEARITY TRL-271
L505	COIL WIDTH TRW-141
L506	COIL CHOKE CH-001
L001.811.821	COIL PEAKING 4.7UH

VR103.508.961	VR5F 20K G 1203
VR121.131	VR5F 100 G 1101
VR410	VR5F 500K G 1504
VR411	VR5F 200K G 1204N
VR412	VR5F 1W G 1105 0.1W
VR422.905.906	VR5F 100K G 1104
VR434	VR5F 1K G 1102
VR509	VR5F 10K G 1102
VR501	VR0T 10KB G 3017B
VR502	VR0T 10KB G 3017B
VR503	VR5F 5K G 15023 0.3W
VR504	VR5F 50K G 5X2.5 1W
VR509.019.829	VR5F 10K G 1103 EVNA9C

P001	FUSE TL 2.5A 250V	202251
PR001	POSTLOGIC PTH451C26	272953
S001	SW POWER PUSH WE-4A	273979
S002	SW LKVB P12T21	272994
T01	TX-SMPS TSW-4012	273987
T501	TX H DRIVE THD-141	273968
T502	TX FBT DCF-1500 E	272553
T503	TX SPC TPC-141	274013
V001	COIL DEGAUSS 5045	273985
V801	CRT M34KRM2X13	273982
	SPEAKER 3" - 8Q	274014
SG01-03	SURGE PROTECTOR QDSP-101M-S008	274015
V801C	CRT SOCKET S008626	272594
	SIGNAL CABLE	273969
	MAINS CABLE	274018
	MAIN PCB ASSY	273983
	CRT PCB ASSY	273985
	SUB PCB ASSY	273984
	USER INSTRUCTIONS	273980
	CARTON	273967

2.47 G 1/2W	R535
2.2 G	R401
39 G	R200,305
68 G 1/2W	R719,721
75 G 1/4W	R101,201,301
82 G 1/6W	R100,306,536
109 G	R106,206,505,607,817,827
120 G	R428
150 G 1/2W	R526
220 G	R516
330 G	R487,903
470 G	R112,442,555
470 G 1/2W	R527,631,831,841,851
560 G 1/2W	R528
620 G	R615
820 G	R616,520
1K G	R104,108,204,304,427,514,531
1.2K G	R404,501
1.5K G	R102,202,302,511,515,605,606
2K G	R426
2.2K G	R510,623,901
2.7K G	R625
2.7K G 1/2W	R522
3K G	R109,130
3.3K G	R418,624
3.9K G	R468
4.7K G	R419,447,509,617
4.7K G 1/2W	R532
5.8K G	R523
6.8K G	R620
8.2K G	R503,504,507,521
9.1K G	R518
10K G	R030,405,406,416,425,508,512 520,572,613,618,626,627,635
12K G	R114,537,630
15K G	R407,408,513,529,611,618
18K G	R110,113
20K G	R539
22K G 1/2W	R032,524,525,540,522
27K G	R571,601,602
27K G 1/2W	R031
39K G 1/4W	R910
39K G 1/4W	R902
47K G	R474,603,604,632
68K G	R470,506
75K G	R423
82K G	R107
82K G 1/2W	R004-006
100K G	R519,541
180K G	R542
560K G 1/4W	R833,834
680K G	R420,502
1M G 1/2W	R001,003

0.22 Q 1W	R051,071	
1 Q 1W	R545,552,570	175925
1 Q 2W	R011	273003
2.2 Q 1W	R424	274018
33 Q 2W	R010	170411
47 Q 1W	R009	176548
56 Q 1/2W FP	R095,815,825	193413
56 Q 1W	R445	
100 Q 2W	R012	
120 Q 2W	R442	176744
470 Q 2W	R532,534	
680 Q 1W	R517803,804,813,814,823,824	275904
2.2K Q 1W	R413	274010
2.7K Q 1W	R538	274017
4.7K Q 1W	R800,910,928	273002

3.3 G 10W 8002 274025

92pF 500V	C213	273005
100pF	C208, 540-542, 801	
120pF	C308	
150pF	C108	
270pF 500V	C507	174345
470pF	C512	

470pF 2KV	C012,013,021,031,051,061	176751
560pF 500V	C532	175876
820pF	C508	
1000pF 500V	C518,519,523	
2200pF 250VAC	IC003-006	
4700pF	C606	
4700pF 500V	C517,536,803,813,823	175981
0.01uF	C030,109,110,114,602,821	
0.01uF 500V	C525,606,811,833,851	175886
0.01uF 2KV	C834	272464
0.1uF	C605	
Line Across		
0.47uF 250VAC IC001		194214
ELECTROLYTIC		
1uF 50V	C503,510	
2.2uF 50V	C102,202,302,415	
2.2uF 100V	C009,011	
4.7uF 50V	C014	
4.7uF 100V	C804,814,824	
10uF 50V	C103,422,530,626	
10uF 100V	C842,850	
22uF 16V	C516	
33uF 35V	C513	
33uF 160V	C041	
47uF 16V	C101,111,201,601,602,625,627	
47uF 25V	C413	
47uF 35V	C104,212	
47uF 50V	C529	
47uF 200V	C524	
100uF 16V	C106,117	
100uF 35V	C408	
100uF 100V	C022,062,063	
100uF 160V	C032,522	
150uF 400V	C010	
220uF 16V	C843	
220uF 35V	C053,514	
470uF 35V	C052	
1000uF 25V	C071	
2200uF 16V	C409	
MYLAR		
3300pF	C502,505	
7500pF 1.6KV	C526	
0.01uF	C806	
0.018uF	C804	
0.027uF	C509	
0.027uF 630V	C527	
0.047uF	C516	
0.1uF	C105401,404-407,511	
0.22uF	C4,2,4,3	
0.47uF 200V	C521	
0.82uF 200V	C520	

CAUTION!

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the equipment manufacturer. Discard
used batteries according to manufacturer's instructions.

ADVERSE!

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og
type. Lever det brugte batteri tilbage til leverandoren.

VAROITUS!

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laite-valmistajan suosittelemaan
tyyppin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

ADVARSEL!

Lithiumbatteri – Eksplosjonsfare. Ved utskifting benyttes
kun batteri som anbefalt av apparatfabrikanten. Brukt
batteri returneres apparatleverandoren.

WARNING!

Explosionsfara vid felaktigt batteribyte. Använd samma
batterityp eller en ekvivalent typ som rekommenderas av
apparatillverkaren. Kassera använt batteri enligt
fabrikantens instruktion.