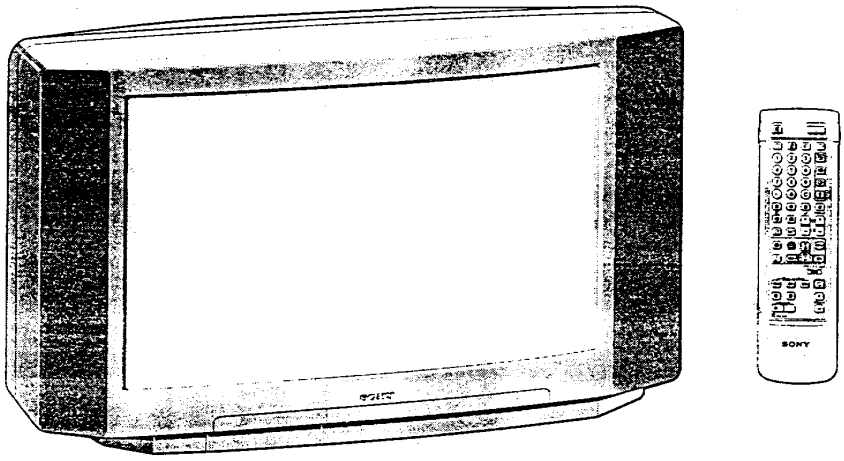
ASON004-331/18

SERVICE MANUAL

AE-3 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-32WS3A	RM-838	Italian	SCC-J26A-A
KV-32WS3B	RM-838	French	SCC-J27A-A
KV-32WS3D	RM-838	AEP	SCC-J23B-A
KV-32WS3E	RM-838	Spanish	SCC-J28A-A
KV-32WS3K	RM-838	OIRT	SCC-J29A-A
KV-32WS3R	RM-838	OIRT	SCC-J29D-A
KV-32WS3U	RM-838	UK	SCC-J24B-A

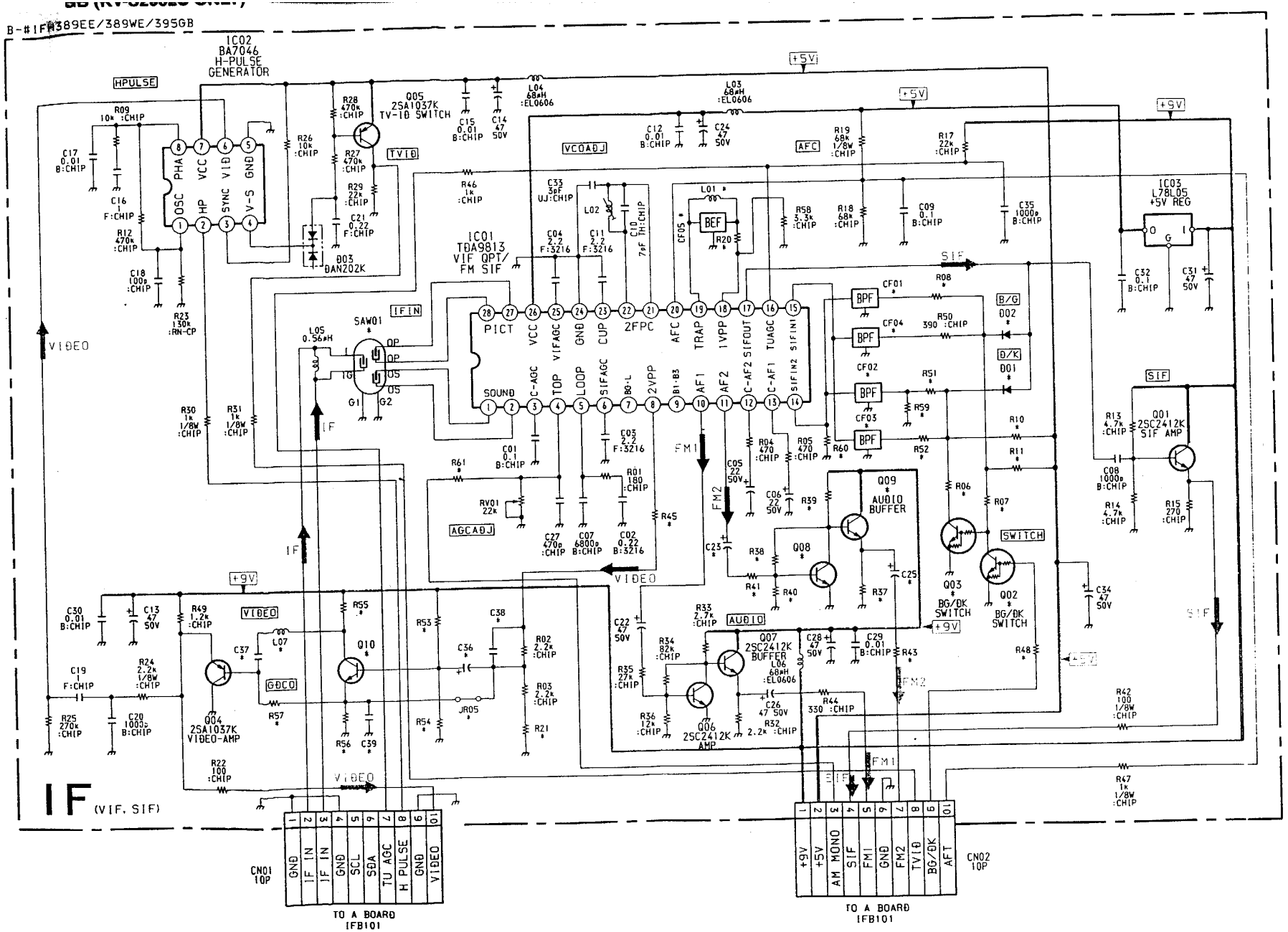


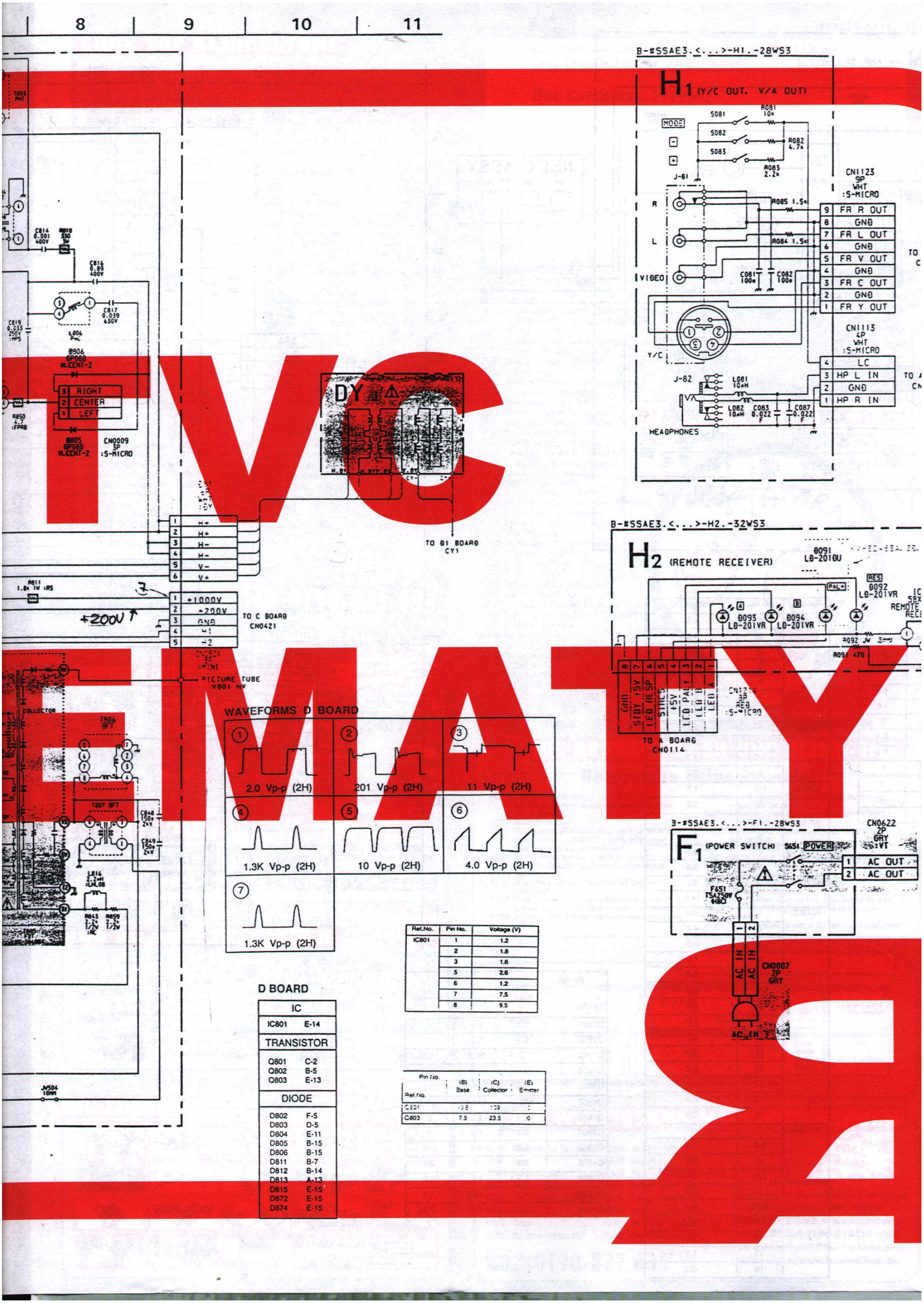
Super**Trinitron**

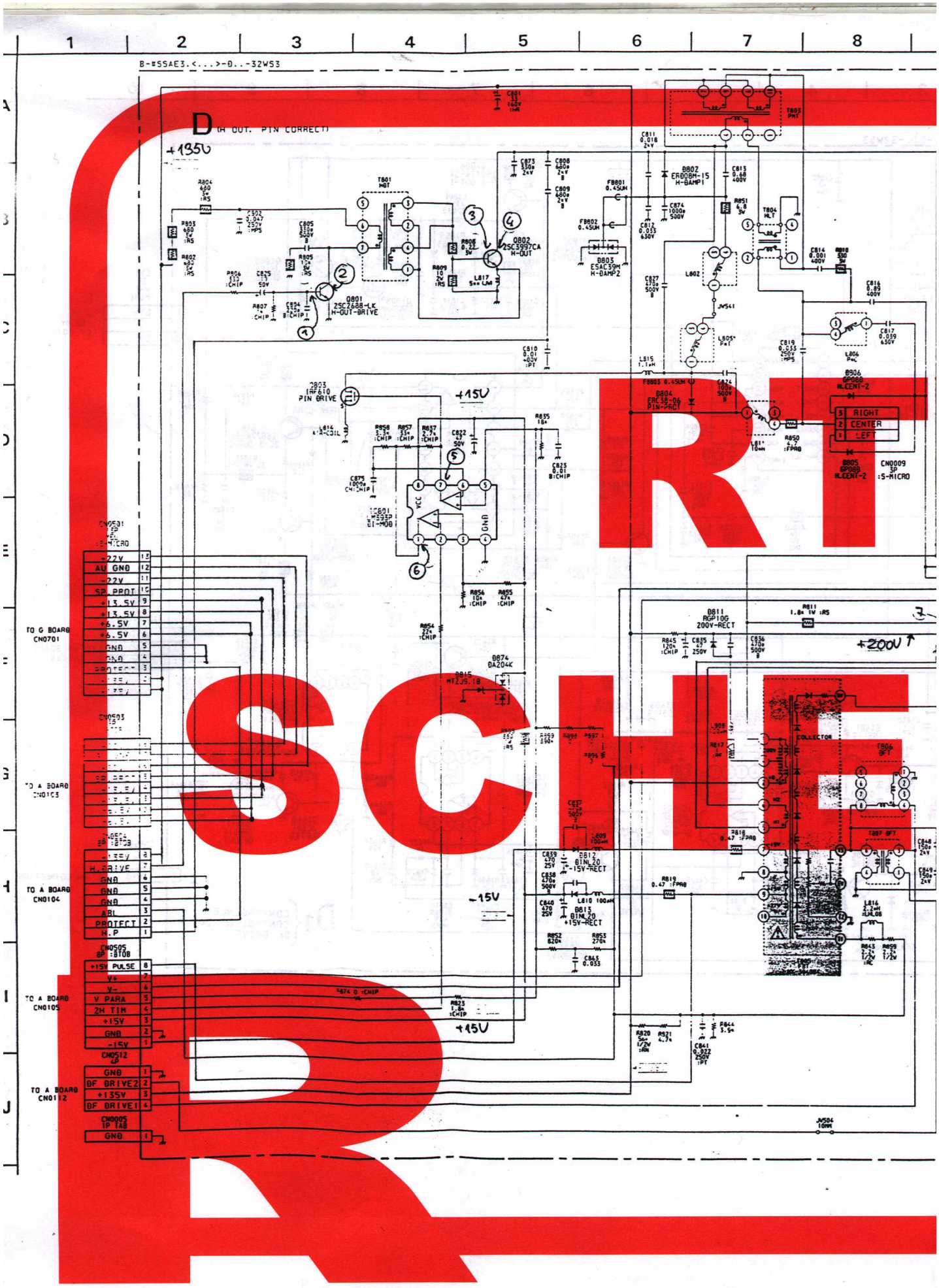
WIDE

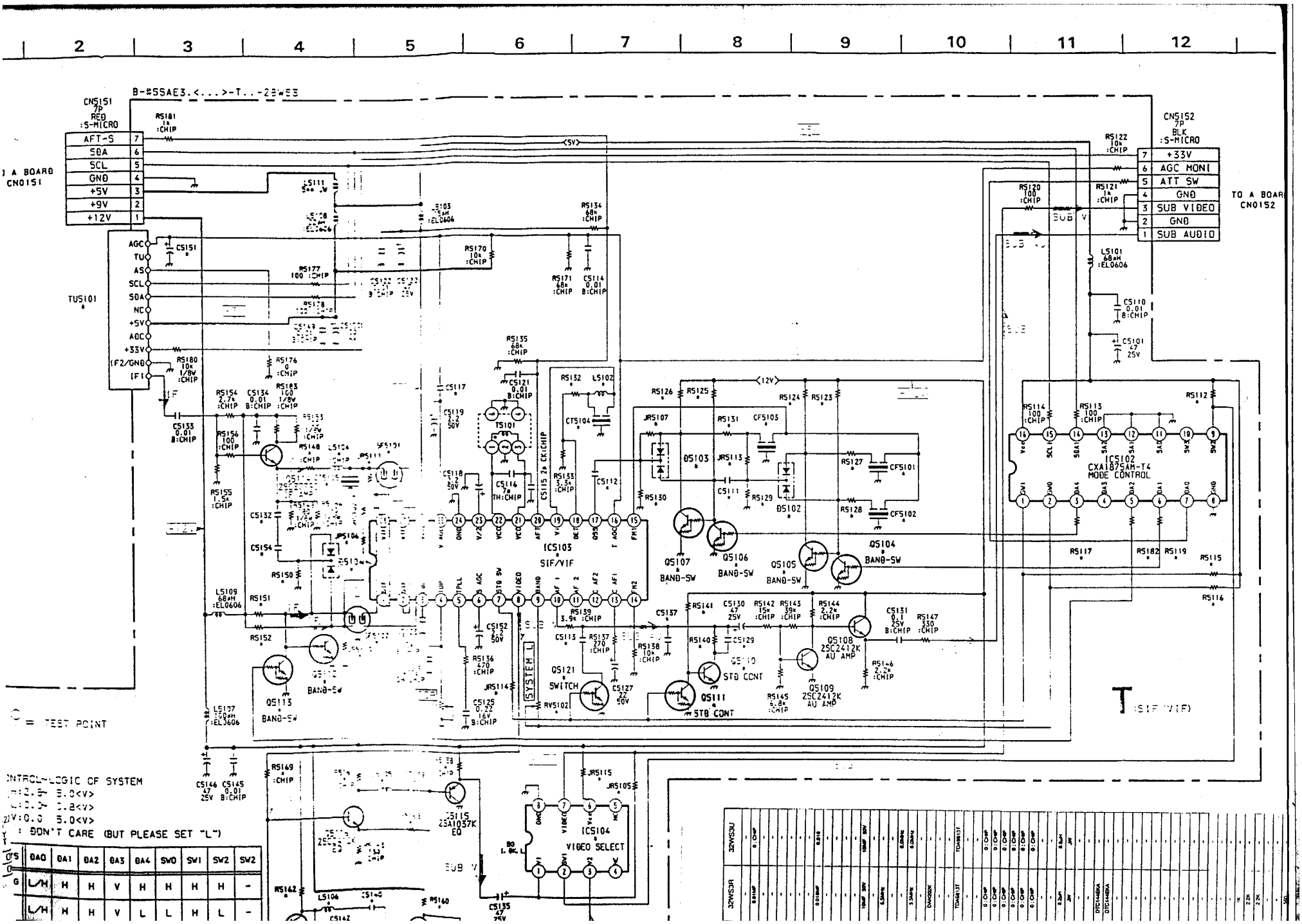
TRINITRON® COLOR TV

SONY


IC02
BA7046
H-PULSE
GENERATOR
HPULSE
Q05
2SA1037K
TV-IB SWITCH
TVIB
VCOADJ
AFC
+5V
+9V
IC03
L78L05
+5V REG
IC01
TDA9813
VIF OPT/
FM SIF
IFIN
SAW01
PICT
2FPC
SOUND
BPF
B/G
D/K
SIF
Q01
2SC2412K
SIF AMP
VIDEO
IF
AGCADJ
FM1
FM2
Q09
AUDIO
BUFFER
Q08
Q03
BG/DK
SWITCH
Q02
BG/DK
SWITCH
SWITCH
AUDIO
Q07
2SC2412K
BUFFER
Q06
2SC2412K
AMP
Q10
GOCO
Q04
2SA1037K
VIDEO-AMP
D03
DAN202K
IF (VIF, SIF)
CN01
10P
GND
IF IN
IF IN
GND
SCL
SDA
TU AGC
H PULSE
GND
VIDEO
TO A BOARD
(FB101)
CN02
10P
+9V
+5V
AM MONO
SIF
FM1
GND
FM2
TVIB
BG/DK
AFT
TO A BOARD
(FB101)


8
9
10
11
H1 (Y/C OUT, V/A OUT)
B-#SSAE3.<...>-H1.-28WS3
MODE
S081
S082
S083
R081 10k
R082 4.7k
R083 2.2k
J-81
R085 1.5k
R084 1.5k
C081 100p
C082 100p
L081 10uH
L082 10uH
C083 0.022 F
C087 0.022 F
HEADPHONES
CN1123 9P WHT :S-MICRO
FR R OUT
GND
FR L OUT
GND
FR V OUT
GND
FR C OUT
GND
FR Y OUT
CN1113 4P WHT :S-MICRO
LC
HP L IN
GND
HP R IN
H2 (REMOTE RECEIVER)
B-#SSAE3.<...>-H2.-32WS3
D901 LB-2010U
D902 LB-201VR
D903 LB-201VR
D904 LB-201VR
R092 JW
R094 470
CN1124 3P WHT :S-MICRO
GND
STBY +5V
LED RESP
STRCS
+5V
LED PAL+
LED B
LED A
TO A BOARD CN0114
F1 (POWER SWITCH)
S451 POWER
B-#SSAE3.<...>-F1.-28WS3
CN0622 2P GRY :VT
AC OUT
AC OUT
F451 T5A250V 4BO
AC IN
AC IN
CN0007 2P GRY
AC IN
CN0009 3P :S-MICRO
RIGHT
CENTER
LEFT
D805 GP06B M.CENT-2
D806 GP06B M.CENT-2
R850 4.7 :FPRB
R811 1.8k 1W :RS
+200V
TO C BOARD CN0421
H+
H+
H-
H-
V-
V+
TO B1 BOARD CY1
PICTURE TUBE V901 HV
WAVEFORMS D BOARD
2.0 Vp-p (2H)
201 Vp-p (2H)
11 Vp-p (2H)
1.3K Vp-p (2H)
10 Vp-p (2H)
4.0 Vp-p (2H)
1.3K Vp-p (2H)
Ref.No. | Pin No. | Voltage (V)
IC801 | 1 | 1.2
2 | 1.8
3 | 1.6
5 | 2.6
6 | 1.2
7 | 7.5
8 | 9.5
D BOARD
IC
IC801 E-14
TRANSISTOR
Q801 C-2
Q802 B-5
Q803 E-13
DIODE
D802 F-5
D803 D-5
D804 E-11
D805 B-15
D806 B-15
D811 B-7
D812 B-14
D813 A-13
D815 E-15
D872 E-15
D874 E-15
Ref.No. | Pin No. (B) Base | (C) Collector | (E) Emitter
C801 | 0.8 | 1.29 |
C803 | 7.5 | 23.5 | 0


SCHEMATIC DIAGRAM
+135V
+15V
-15V
+200V
TO G BOARD CN0701
TO A BOARD CN0103
TO A BOARD CN0104
TO A BOARD CN0105
TO A BOARD CN0112
RIGHT
CENTER
LEFT


2
3
4
5
6
7
8
9
10
11
12
CN5151
7P
REQ
:S-MICRO
AFT-S 7
SDA 6
SCL 5
GND 4
+5V 3
+9V 2
+12V 1
TO A BOARD CN0151
CN5152
7P
BLK
:S-MICRO
7 +33V
6 AGC MONI
5 ATT SW
4 GND
3 SUB VIDEO
2 GND
1 SUB AUDIO
TO A BOARD CN0152
TU5101
AGC
TU
AS
SCL
SDA
NC
+5V
AGC
+33V
(F2/GND)
(F1)
IC5103
SIF/VIF
IC5102
CXA1875AM-T4
MODE CONTROL
IC5104
VIDEO SELECT
IC5115
2SA1037K
EQ
Q5103
Q5107
BAND-SW
Q5106
BAND-SW
Q5105
BAND-SW
Q5104
BAND-SW
Q5113
BAND-SW
Q5121
SWITCH
Q5111
STB CONT
Q5110
STB CONT
Q5108
2SC2412K
AU AMP
Q5109
2SC2412K
AU AMP
Q5102
T5101
SYSTEM L
= TEST POINT
CONTROL LOGIC OF SYSTEM
: DON'T CARE (BUT PLEASE SET "L")
SW
BA0
BA1
BA2
BA3
BA4
SW0
SW1
SW2
SW2
L/H
H
V
L
T (SIF/VIF)

Ref.No.	Pin No.	Voltage (V)
IC3501	6	0.1
	9	0.1
	10	2.4
	11	4.8
	12	4.8
	14	0.5
	15	2.8
	16	2.4
	18	4.7
	21	2.6
	22	2.4
	23	4.7
	25	2.2
	26	0.5
	30	0.1
	42	4.4
	43	4.8
	56	4.8
	57	1.4
	59	4.2
	61	4.8
	62	4.8
	28	0.5
	27-29	-
	61	6.3
	62	4.2
IC3505	22	4.8
	23	4.3
	24	4.3
	26	4.8
IC3506	1	4.8
	2	1.2
	3	2.1
	4	1.8
	5	1.2
	6	2.2
	7	1.8
	8	1.8
	10	2.0
	11	1.1
	12	1.6
	13	2.0
	14	1.1
	16	4.8
IC3507	1	4.8
	2	1.3
	3	2.4
	4	2.0
	5	1.2
	6	2.0
	7	1.7
	8	1.4
	10	1.5
	11	0.8
	12	0.5
	13	0.1
	14	0.3
	16	4.8
IC3508	1	4.8
	2-7	1.2
	8	1.2
	10	1.5
	11	0.9
	12	1.3
	13	1.6
	14	1.3
	16	4.8
IC3509	1	4.8
	2	0.9
	3	1.5
	4	1.2
	5	1.3
	6	1.6
	7	1.3
	8	1.2
	10	1.5
	11	0.9
	12	2.4
	13	3.0
	14	1.6
	16	4.8
IC3510	1	4.8
	4	0.1
	5-8	2.3
	7	1.5
	8	1.6
	10-11	2.3
	12	4.3
	13	4.8
	14	4.2
	16	4.8
IC3511	3	1.6
	5	1.8
	6	4.8
	11	4.8
	13	4.8
	15	4.8
	17	2.4
	18	4.8
	22	4.8
	25	4.2
	26	1.8
	27	1.6
	28	4.8
	29-30	1.2
	34	4.8
	44	4.8
	56	4.8
	63	4.8
	71	4.8
	72	4.8
	73	1.3
	75	1.1
	88	4.8
	91-93	4.8
	107	4.8
	117	4.8
IC3512	2	2.4
	4	2.4
	5	4.8
	8-9	4.8
	11	4.8
	13	4.8
	14	1.5
	16	4.8
	17	0.1
	20	4.8
	21	2.5
	35	4.8
	44	4.8
IC3513	1	4.8
	3	4.8
	8	4.8
	9	2.3
	10	2.3
	12	1.7
	21	4.8
	23	4.8
	30	2.3
	31	2.3
	36	3.9
	37	3.8
	38	4.8
	46	4.8
	48	1.2
	50	4.8
	51	4.2
	55	4.8
	57	4.2
	59	1.9
	60	1.8
	64	4.8
	71	4.8
	77	4.8
	79	4.8
	80	1.3
	86	4.8
	98	4.8
	99	4.8

All Voltages are indicated in Volts DC

B1 BOARD

IC

	IC01	D-19
	IC02	D-20
	IC04	F-20
	IC05	A-19
	IC06	D-20
	IC07	C-19
	IC301	D-11
	IC302	C-11
	IC501	C-2
	IC502	A-14
	IC503	E-13
	IC504	D-15
	IC505	A-9
	IC506	B-15
	IC507	B-2
○	IC509	C-13
○	IC510	C-7
○	IC511	C-13
○	IC512	C-6
○	IC513	C-15
	IC1301	E-11
	IC1302	D-13
	IC1305	E-12
	IC3701	B-17
	IC3702	A-17
	IC3703	A-18
	IC3704	C-17
	IC3705	C-17
	IC3706	C-18
	IC3707	C-4
	IC3708	C-16
	IC3709	E-15
	IC3710	B-5
	IC3712	D-15
○	IC3713	E-4
	IC3714	C-5

TRANSISTOR

	Q01	F-3
	Q02	F-19
	Q03	F-2
	Q04	E-18
	Q05	E-19
	Q06	E-19
	Q301	C-10
	Q302	B-10
	Q303	B-9
	Q304	D-12
	Q305	C-12
	Q306	B-11
	Q307	B-9
	Q308	C-8
	Q309	C-9
●	Q351	F-6
●	Q352	E-6
●	Q353	F-6
●	Q354	E-8
●	Q356	E-7
●	Q358	E-6
	Q359	D-7
	Q360	D-6
	Q501	F-13
	Q502	F-13
	Q503	F-13
	Q504	B-6
●	Q505	E-8
	Q506	A-6
	Q507	F-7
	Q508	F-7
	Q509	F-8
●	Q510	E-13
	Q1301	E-9
	Q1302	E-10
	Q1303	E-9
	Q1304	E-10
	Q1305	E-10
	Q1306	E-10
	Q1307	E-9
	Q1316	E-12
	Q1317	D-9
	Q1318	D-12
	Q1319	D-12
	Q3700	C-16
	Q3701	E-17
	Q3703	C-3
	Q3704	B-4
	Q3706	E-18
	Q3708	E-16
	Q3709	E-17
	Q3710	E-3
	Q3712	D-17
	Q3713	E-18

DIODE

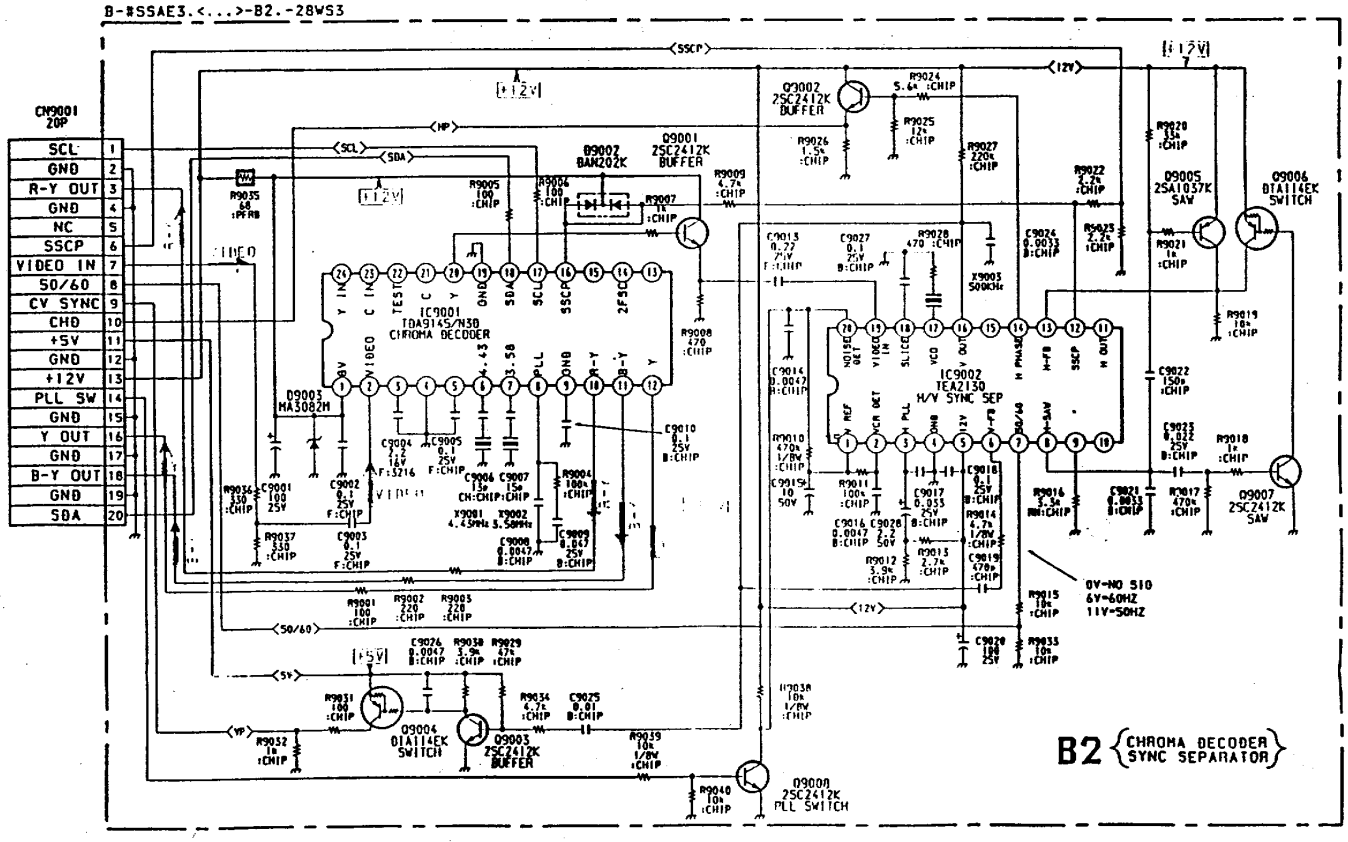
	D01	A-19
	D301	C-8
	D302	B-8
	D303	D-10
	D1301	F-10
	D1302	F-9
	D1304	E-12
	D1309	F-11
	D3700	D-4
	D3701	B-6
	D3702	B-6
	D3703	E-6

○ mark : KV-32WS3A,3D,3E,3K,3R and 3U only
● mark : KV-32WS3B only

Ref.No.	Pin No.	Voltage (V)
IC3514	3	4.2
IC3515	5	1.6
	23	1.6
	26	4.2
	28	4.6
IC3516	6	1.6
IC3517	7-8	0.1
	10	0.1
	11	3.0
	13	1.6
	23	3.2
	36-38	3.2
	40	3.2
	53	3.2
	62	3.2
	78-81	0.1
	83-84	3.0
	85	1.6
	87-88	3.2
	90	0.1
	93	0.1
	98-99	0.1
IC3520	1	1.8
	2	0.1
	3	4.8
	8	4.8
	16	4.8
	17	4.8
	33	4.8
	34	1.4
	35	4.8
	39-39	2.4
	43	1.8
IC3521	1	0.5
	2-3	4.8
	6	1.2
	8-10	4.9
	11	1.5
	14	4.8
IC3525	6-7	3.8
	11-12	0.1
	13-14	3.0
	15-16	0.1
	20	4.8
IC3527	9	1.7
	13-18	0.1
	30	4.8
IC3528	1-2	4.8
	3	2.3
	6	2.3
	9	0.1
	12	0.1
	14	4.1
	16	4.8

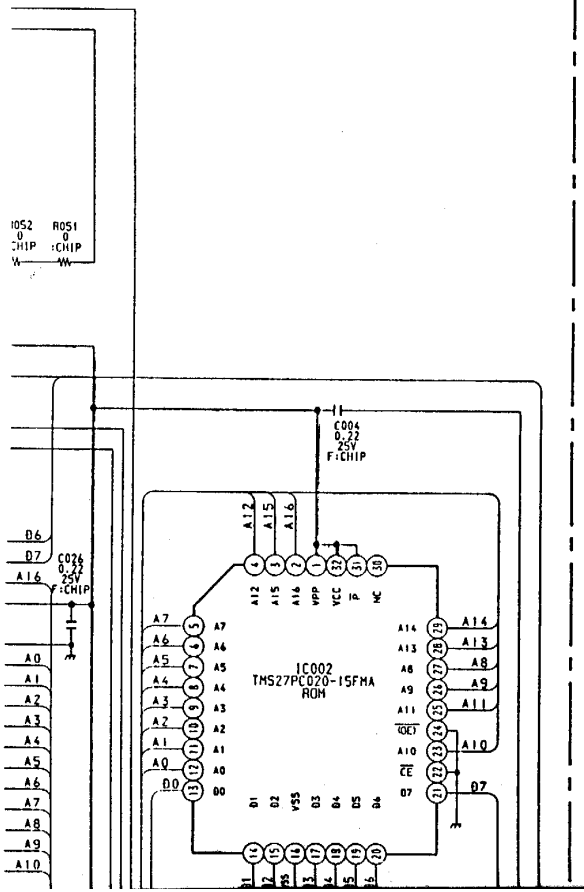
Pin No. / Ref.No.	(B) Base
Q3501	5.2
Q3502	2.5
Q3503	-
Q3504	5.2
Q3505	5.8
Q3506	2.5
Q3507	3.1
Q3510	0
Q3512	3.8
Q3513	2.5

(KV-32WS3B ONLY)



10 | 11 | 12 | 13

A (2/2) { RGB DECODER, CRT DRIVER
NICAM DECODER, MEGA TEXT,
MICRO CONTROLLER }



WAVEFORMS A BOARD

① PAL 1.0 Vp-p (H)	① SECAM 1.0 Vp-p (H)	② PAL 2.0 Vp-p (H)
② SECAM 2.0 Vp-p (H)	③ 4.9 Vp-p (H)	④ 3.0 Vp-p (V)
⑤ PAL 0.8 Vp-p (H)	⑤ SECAM 1.0 Vp-p (H)	⑥ PAL 1.7 Vp-p (H)
⑥ SECAM 1.8 Vp-p (H)	⑦ 4.5 Vp-p (H)	⑧ 2.0 Vp-p (H)
⑨ 2.0 Vp-p (H)	⑩ 1.5 Vp-p (H)	⑪ 0.7 Vp-p (H)
⑫ 1.0 Vp-p (H)	⑬ 1.0 Vp-p (2H)	⑭ 2.0 Vp-p (H)
⑮ 2.0 Vp-p (H)	⑯ 1.5 Vp-p (H)	⑰ 1.0 Vp-p (2H)
⑱ 1.0 Vp-p (2H)	⑲ 0.7 Vp-p (2H)	⑳ 1.0 Vp-p (2H)
㉑ 1.0 Vp-p (2H)	㉒ 3.0 Vp-p (2H)	㉓ 1.0 Vp-p (2H)
㉔ 3.2 Vp-p (2H)	㉕ 3.5 Vp-p (2H)	㉖ 2.5 Vp-p (2H)

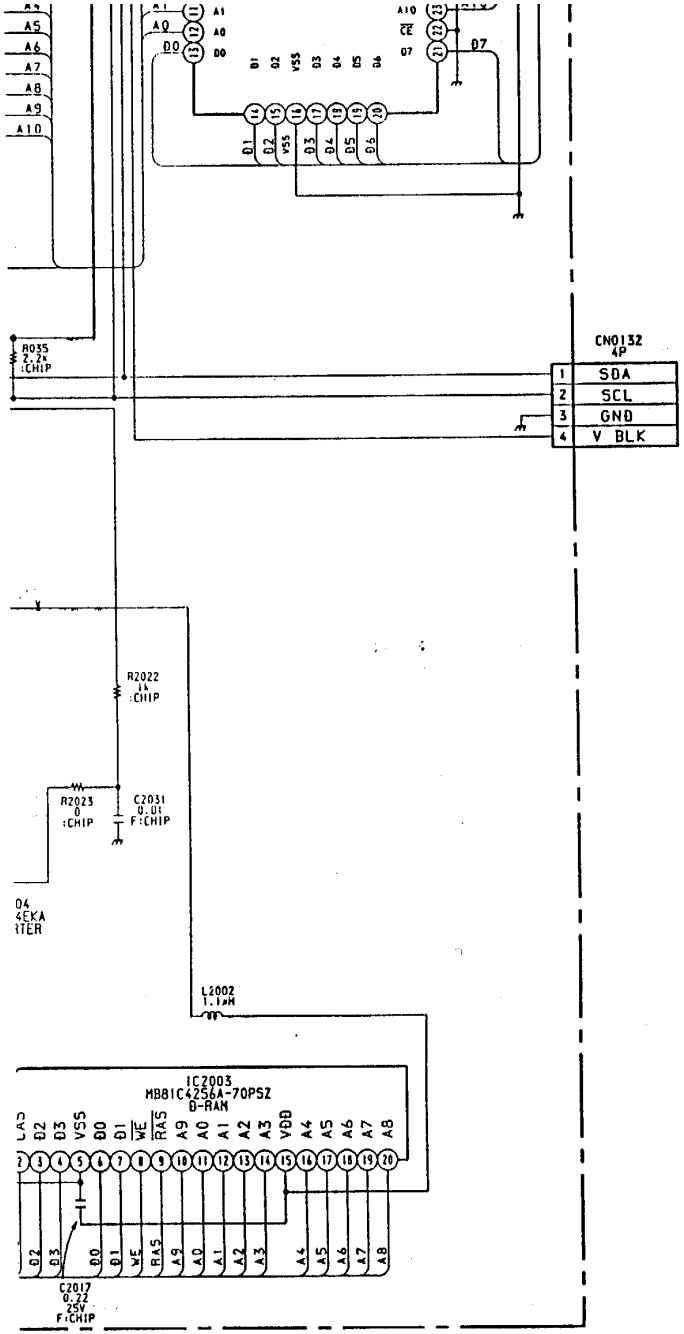
Ref.No.	Pin No.	Voltage (V)
IC1001	1	0
	2	0
	3	5.0
	4	4.0
	5-6	-
	7	0
	8-9	-
	10	0.2
	11	-
	12	1.5
	13-18	-
	19	1.0
	20-25	-
	26	GND
	27	2.0
	28	2.5
	29	2.5
	30	4.0
	31-54	-
	55	GND
	56	5.0
	57	5.0
	58	GND
	59-60	-
	61	0.3
	62	1.2
	63	0
	64	0
IC1101	1-2	-
	3	1.0
	4	2.2
	5-6	-
	7	2.2
	8	0
	9-10	-
	11	2.2
	12	1.0
	13-14	-
	15	GND
	16	2.2
	17	4.0
	18-21	-
	22	2.2
	23	0
	24	-
	25	2.2
	26	-
	27-30	2.1
	31-33	-
	34	1.0
	35-37	2.1
	38	4.1
	39	GND
	40	-
	41	1.7
	42	3.1
	43	2.1
	44	GND
	45-47	2.1
	48	GND
	49-50	4.4
	51-52	-
	53-54	4.0
	55-60	-
	61	4.4
	62	GND
	63	2.2
	64	-
IC201	1	0
	2-7	6.1
	8	12.0
	9-10	4.0
	11	0.1
	12	0
	13-15	3.0
	16	0
	17-19	6.1
	20	0
	21	6.1
	22	0
	23-31	6.1
	32-35	0
	36-43	6.1
	44	0
IC202	1	5.4
	2	12.0
	3	5.4
	4	GND
	5	0.5
	6-7	0
	8	0.5
IC2011	1-3	4.4
	4-6	-
	7	-
	8-9	0
	10	0.2
IC1003	1-4	GND
	5-6	5.0
	7	GND
	8	5.0
IC251/261	1	-20.0
	2	0
	3	20.0
	4	0
	5	10.0
	6	-20.0
	7-8	0
	9	GND
	10-11	0
IC1531	1	3.7
	2	0.3
	3	5.8
	4	GND
Ref.No.	Pin No.	Voltage (V)
	44	4.4
	45-47	-
	48	4.4
IC1501	1	2.2
	2	14.0
	3	-14.0
	4	-16.0
	5	-1.4
	6	14.5
	7	2.2
IC681	1	13.3
	2	12.0
	3	GND
	4	2.3
IC682	1	5.7
	2	5.0
	3	GND
	4	2.3
IC683	1	2.4
	2	GND
	3	4.0

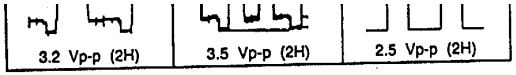
All Voltages are indicated in Volts DC

Ref.No.	Pin No.	Voltage (V)
IC001	6	5.0
	16-17	3.7
	18	2.8
	19	3.6
	20-21	5.0
	22-23	4.0
	24	5.0
	26	2.1
	27	2.3

J BOARD

IC
IC401 C-4





Ref.No.	Pin No.	Voltage (V)
IC684	1	11.9
	2	GND
	3	9.0
IC685	1	5.8
	2	GND
	3	5.0
IC686	1	5.6
	2	5.0
	3	GND
	4	2.3
IC572	1-3	6.0
	6	9.0
	7	GND
	8-10	9.0
	11-12	GND
	13-14	4.0
	15	0.6
	16	0.6
	17	0.5
	18-20	0.3
	21-22	NC
	23	0.2
	25	4.0
	26	4.7
	28-30	GND
	31	9.0
	32	GND
	33-35	4.4
	37-39	GND
	41	2.5
	42	GND
	44-45	2.7
	46	2.6
	47	8.7
	48	NC

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q102	4.7	0	0
Q103	0	1.7	0
Q106	31.4	32.0	32.0
Q107	0.5	0	0
Q203	0.6	0.1	0
Q251	0.6	0	0
Q252	0	0.6	0
Q253	13.4	-0.4	13.4
Q254	-2.1	0	0
Q255	-2.0	0	0
Q256	-0.1	2.3	0
Q257	0.6	0	0
Q259	21.5	10.5	21.1
Q260	0	21.5	0
Q351	2.8	1.7	3.5
Q352	1.8	0	2.5
Q571	6.4	9.0	5.7
Q581	0.6	0	0
Q1001	0.3	0	1.0
Q1106	3.0	5.6	2.4
Q1107	3.0	5.6	2.4
Q1108	5.6	11.6	5.2
Q1502	0.4	9.0	-3.7
Q1531	5.6	0	6.1
Q1532	9.0	4.4	9.0
Q1533	0.5	0.4	0
Q1544	1.1	4.5	0.6
Q1545	4.5	9.0	4.0
Q1447	4.4	-0.0	5.0
Q1548	6.4	9.0	5.7
Q1549	0.9	-0.2	1.4
Q1532	-1.2	3.0	-1.8

	18	2.5
	19	3.8
	20-21	5.0
	22-23	4.0
	24	5.0
	26	2.1
	27	2.3
	28	4.7
	29	0
	30	4.8
	31	2.4
	32	1.8
	34	5.0
	36	5.0
	37	3.4
	38	3.3
	39-40	5.0
	41	0.1
	42	0.4
	43	5.0
	44	4.8
	48	0.3
	49	1.3
	50	5.0
	51	2.4
	52	5.0
	53	4.5
	54	5.0
	55	3.8
IC002	1	5.0
	31-32	5.0
IC2002	2	1.5
	4-5	0.1
	6-7	1.7
	10	0.8
	11-12	5.0
	16	5.0
	17	0.1
	21	5.0
	23	3.0
	25	5.0
	45	4.4
	65	0.8
	66-67	5.0
	68	4.5
IC2003	15	4.5

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q002	4.2	4.7	4.8
Q005	-0.1	0	0
Q006	0	4.8	0.8
Q007	4.8	0.9	0.8
Q008	0.3	4.8	0
Q2001	0.3	5.0	0
Q2002	0	4.8	0
Q2004	0.3	4.0	0
Q2005	3.8	12.0	3.1
Q2006	0.1	0	0
Q2008	4.0	0.1	0

J BOARD

IC	
IC401	C-4
IC402	D-9
TRANSISTOR	
Q401	C-4
Q402	C-4
Q403	C-5
Q404	D-6
DIODE	
D401	B-5
D403	B-4
D405	B-4
D406	B-4
D407	B-4
D901	B-5
D902	B-6
D903	A-8
D904	A-9
D905	B-7
D906	A-7
D907	B-11
D908	E-11
D909	C-11
D910	C-11
D911	E-11
D913	B-9
D914	E-10
D915	C-8
D916	D-9
D917	D-8
D919	B-8
D920	D-6
D921	D-4
D922	D-5
D923	D-7
D924	D-10
D925	D-11
D926	D-10
D927	E-11
D928	B-11
D930	B-10
D931	A-7
D932	B-6

38	Automatic selection of Screen Modes: (not for S (4:3) Models. 4:3 -> Zoom -> Zoom up -> Zoom Center -> Zoom down -> Zoom Center -> smart -> (if Pal+ signal) PALPLUS -> wide.
39	Reset Programme Table (NVM Bank 0ACH) The sorting of programmes in "Programme Sorting Menu" is reset.
40	see TT10
41	no function
42	no function
43	no function
44	no function
45	Set NVM to Protect mode (Bank 0AEH Adr. 0FFH write with 0)
46	IR Channel Presetting Mode. The channel presaetting can be done by a Special IR transmitter Sequence: TT46 -> -- PR Number select dispaly appears Select Prog. No from where the channel shall be stored. --> Now TV is waiting for IR sequence <-- --> If no IR transmission starts TT46 is released after 20 secs <-- (Note: When TT46 is active. any transmission will be interpreted as PROG data !
47	Direct access to Headphone Source Selection (Production use)
48	Direct access to AGC Adjustment (PWM) output.
49	The EEPROM Testbyte is erased. After Power OFF -> ON the complete EEPROM data (exept channel tables) is overwritten. EEPROM Protection byte is set to 0 protection mode
50	see TT10
51	Strobo mode is activated.
52	no function.
53	Photo mode test (Photo mode can be released by 'Menu' command").
54	Direct access to Velocity Modulation VM (Production use)
55	MTX Slicer Control "Low Pass" (only Sys L)
56	MTX Slicer Control "No Compensation"
57	Megatext Service Menu ON
58	MTX Small Framing Code Window
59	MTX Wide Framing Code Window
60	see TT10

61	Set Dolby default values.
62	ACI disable.
63	ACI enable.
64	Reset all IIC Slave commands (Production use)
65	Reset stored error codes in NVM.
66	Reset for PALplus local controller and Sub Controller.
67	Direct access to Headphone Volume. With cursor Up/Down the Headphone Volume can be controlled (w/o OSD, menu display) (Production use)
68	Ignore errors.
69	reset ignore errors (show errors)
70	see TT10
71	Picture Rotation Function On/Off toggle.
72	Dolby register setting menu.
73	Megatext RGB textlevel one step decreased (max 3 steps down starting from E0h) (Production use)
74	Megatext RGB textlevel one step decreased (max 1 steps down starting from E0h) (Production use)
75	reserved
76	CXD 2030 Default data setting.
77	CXD 2031 Default data setting
78	CXD 2032 Default data setting
79	CXD 2033 Default data setting
80	see TT10
81	CXD 2033D Default data setting
82	CXD 2035 Default data setting
83	CXA 1526 Default data setting
84	CXA 1839 Default data setting
85	CXA 1840 Default data setting
86	TDA 9145 Default data setting
87	TDA 9160 Default data setting
88	no function
89	no function
90	see TT10

4-4. ERROR MONITOR AND DETECTION

In the menu 'Error Monitor', information about the error status of the set is displayed.

- Actual operating time
- Last five errors which are stored in the NVM.
- Actual error.

Error Monitor

Operating Time
000355 h 35min

Saved Errors
1. 40h=D1 Board
2.. 60h=Q Board
3. 70h=T Board
4. 00h=no error occured
5. 00h=no error occured

Actual Error
-> 00h=no error occured

to reset the NVM press 'TT' 65

Additionally the Error Reader can be connected to the service connector to read out the actual errors.

The device check itself is active while the TV set is running out of stand-by mode. The devices are checked by sending an I²C start sequence and if there is no acknowledgement back from the devices it is regarded as an error. Each device is checked three times and if at every attempt there is no reply from the relevant device an error is given. To read the error codes press 'TT' followed by 22 on the commander to view the Error Monitor menu.

To reset the error codes in the NVM press 'TT' followed by 65 on the remote commander.

TABLE OF ERROR CODES

Error Code	Device	Description	Board
000h	no device	no error has occured	-
001h	IIC 1 and IIC 2	IIC 1 and IIC 2 blockaded	-
002h	IIC 1	IIC1 is blockaded	-
003h	IIC 2	IIC 2 is blockaded	-
010h	A Board	A Board is defective	-
020h	A1 Board	A1 Board is defective	-
030h	BX-Board (B,B1,B2)	B, B1, or B2 Board is defective	-
040h	D1 Board	D1 Board defect	-
050h	J Board	J Board defect	-
060h	Q Board	Q Board defect	-
070h	T Board	T Board defect	-
011h	CXP85332	No response from the Subcontroller	A
012h	ST24C16	No response from the NVM	A
013h	SDA5273	No response from the Megatext IC	A
014h	TDA6812	No response from the Sound Processor	A
015h	SAA7283	No response from the Nicam Decoder	A
016h	UV916H	No response from the Main Tuner	A
017h	CXA1839Q	No response from the Video Controller	A
018h	CXA1840	No response from the CRT Driver	A
019h	RGB8443	No response from RGB/YUV	A
021h	TDA6622	Audio processor of the Center and Surround channel in the case of Dolby Prologic does not respond.	A1
022h	TDA7317	No response from the Equalizer.	A1
031h	CXD2030R	No response from the Digital Video Processor.	B/B1
032h	CXD2031R	No response from the Twin Picture IC.	B1
033h	CXD2032R	No response from the Digital Sampling Rate Converter.	B/B1
034h	CXD2033R	No response from the Picture in Picture IC.	B
035h	CXD2035R	No response from the Aspect Converter.	B/B1
036h	TDA9160	No response from the Chroma Decoder.	B/B1
037h	TDA9145	No response from the Chroma Decoder (on French models only.)	B2
041h	CXA1526	No response from the Convergence IC.	D1
051h	CXA1855	No response from the AV-Switch	J
061h	83C85202	No response from the Local Controller.	Q
071h	UV1316/TSA5526	No response from the Subtuner.	T
072h	CXA1875	No response from the Port Expander.	T

L Band 1 Adjustment (RV5102) for B models only

1. Input a 34.1Mhz signal to the IF testpoint on the T-Board.
2. Receive a channel so that the IC5103 is selected for (System L Band 1).
3. Measure the voltage at the AFT testpoint (Pin 7 of CN5151) and adjust T5102 to obtain 2.5V+/-0.2V.

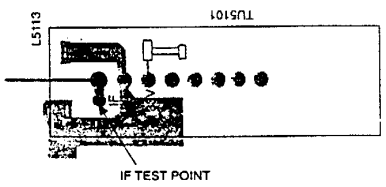
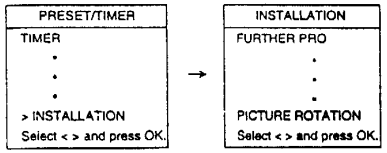


Fig. 4-6

Picture Rotation Adjustment

1. Input a PAL color bar signal.
2. Press the [MENU] button on the commander to get the menu on screen.
3. Press the ▲ and ▼ buttons of the commander and move > to PRESET/TIMER followed by INSTALLATION and PICTURE ROTATION.



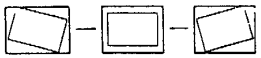


Fig. 4-8

4-3. TEST MODE 2:

Is available by pressing the Test button twice. OSD "TT" appears. The functions described below are available by pressing the two numbers. To release Test Mode 2, press 0, 10, 20 ... twice or switch the TV into Standby Mode. Pressing the two Local Control buttons (+ and –) during Power ON will also switch into "TT" mode.

In TT mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the menu to reappear . The Function is kept even when the menu is not displayed!!

00	Switch back to normal mode - TT mode off
01	Switch service menu on
02	Direct access to Noise reduction
03	Set Volume to 30%
04	Service Menu in "Service Mode"
05	Service Menu in "Production Mode"
06	Set Volume to 80%
07	Aging mode
08	Shipping condition (Production request) To ensure that all TV sets leave the Production with the same pressettings. Programme 1 is selected, AV IN is set to AV1, AV Out is set to TV Out, Volume and HP Volume is set to 35%, Resolution is set to high, Format is set to 4:3, Pip is set to Top Left position, Pip is switched off, TT mode is switched off, all analogue values are set to the reset setting, space Sound - Equalizer - Loudness = off, DNR off, Dig. Mode = 1, Wide Zoom Mode for 28W models, Menu Language Reset, Prog. Pointer table reset Non Interlace is allowed in Text mode.
09	Language reset. With this function the "Language Byte" in the NVM (Bank 0AAH Address 0DCH) is erased (set to 0FFH). The Language Menu appears now automatically when the TV set is switched ON as long as no new language is selected.
10	The TT number will be deleted. All numbers with 0 (10, 20, 30, 40, 50, 60, 70, 80, 90) will reset the TT number. A new number can be selected. TT display is kept
11	Direct access to Balance. With Cursor Up/Down the Balance can be controlled (w/o OSD, Menu display)
12	Direct access to Hue. With Cursor Up/Down the Hue can be controlled (w/o OSD, Menu display)
13	Dispaly of Software Version and TV set configuration
14	Production Info Display
15	Read factory setting from ROM (Program code) and store this data at Last Power Memory data location (The previous last power memory data is overwritten) AE3 has 3 packages of Analogue data: 1. Last Power memory data. This data is sent continiously to the corresponding IC's (TDA1839, SC, TDA6812) with this data the TV picture/sound appears. 2. Reset data. By pressing "Reset" in the menu this data is transfered from Reset Data location to the Last Power data location in the NVM. That means the Last Power Memory Data is overwritten by the Reset data last Power memory and Reset data is now the same. 3. Factory fixed data. Fixed data is held in the ROM code of the micro processor (ROM can't be changed)

16	Save actual Last Power Memory data at Reset Data location)The previous Reset data is overwritten)
15/16	With these two functions, it is possible to preset user defined Reset values (just TT16) or to preset factory defined Reset values (first TT15 then TT16)
17	This function presets the Labels for the AV sources: AV1, RGB, AV2, YC2, AV3, YC3, AV4, YC4.
18	Text possible On/Off selection of Text (toggle function)
19	Direct access to Stereo Separation With cursor Up/Down the Stereo separation can be adjusted (w/o OSD, Menu display)
20	see TT10
21	Picture Rotation automatic function : (-4) -> (+4) -> 0
22	Operating Timer and Error Monitor display
23	Direct access to Sub Brightness Adjustment With cursor Up/Down the Sub BRT can be adjusted (w/o OSD, Menu display)
24	Direct access to Sub Color. With Cursor Up/Down the Sub Color can be adjusted.
25	Status menu display (SubController, CXA1840 Status, Main Controller.
26	Text Character selection (Char set 06 ->West Europe)
27	Text Character selection (Char set 38 ->East Europe)
28	Text Character selection (Char set 40 ->West Europe) US English
29	Text Character selection (Char set 55 ->West Europe) Turkish
30	see TT10
31	Text Character selection Char set Russian
32	Text Character selection Char set Greek
33	Programme catching test (Programme catching can be released by "Menu command")
34	Multi PIP adjustment. Direct access to 3.58 horizontal write position. With Cursor Up/Down the 3.58 H write Pos can be adjusted (w/o OSD, Menu display).
35	Multi PIP adjustment. Direct access to 4.43 horizontal write position. With Cursor Up/Down the 4.43 H write Pos can be adjusted (w/o OSD, Menu display).
36	Mtx Register 112 = intern display clock
37	Mtx Register 112 = extern display clock

4-2. VOLUME ELECTRICAL ADJUSTMENTS

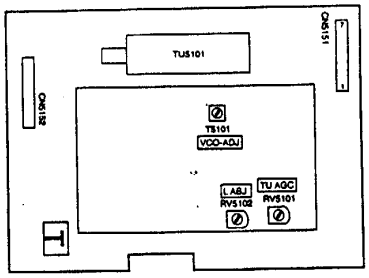


Fig. 4-5 - T Board Component Side -

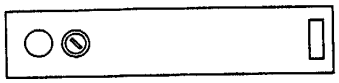
IF Coil Adjustments (T5101) A, B, D, E, K and L models

1. Input a 38.9Mhz signal to the IF testpoint on the T-Board.
2. Receive a channel so that the IC5103 is selected for system B/G.
3. Measure the voltage at the AFT testpoint (Pin 7 of CN5151) and adjust T5101 to obtain 2.5V+/-0.2V.

IF Coil Adjustment (T5101) UK models only.

1. Input a 39.5Mhz signal to the IF testpoint on the T-Board.
2. Receive a channel so that the IC5103 is selected for system I.
3. Measure the voltage at the AFT testpoint (Pin 7 of CN5151) and adjust T5101 to obtain 2.5V+/-0.2V.

AGC Adjustment (IF Block)



- IF Block top side -

Fig. 4-7

1. Receive an off-air signal.
2. Adjust the AGC VR so that there is no snow noise and cross-modulation visible on the screen.
3. Change the receiving channel and confirm status.

Sub Brightness Adjustment

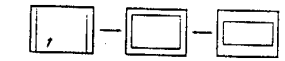
1. Input a Phillips pattern.
2. Select 'RESET' from the menu to normalize the set.
3. Set the CONTRAST to minimum.
4. Press "Test" "Test" and 01 on the remote commander.
5. Adjust the BRIGHTNESS with the +/- buttons on the remote commander after selection of 'Sub Bright' so that the 0 IRE section of the gray scale is completely cut off and the 20 IRE section is only just visible on the screen.
6. Press 'MENU' and '0' twice to release Test mode 2.
7. Select 'RESET' from the menu to normalize the set.

DEFLECTION SYSTEM ADJUSTMENT

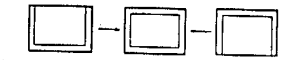
1. Enter into the service mode and select 'CRT Driver'.The 'CRT Driver CXA1840' adjustment menu will be displayed.
2. Select and adjust each item in order to get an optimum image.

Item No	Adjustment Item	Data Amount
1	V POS	adj
2	V SIZE	adj
3	V LIN BAL	adj
4	V LIN	adj
5	V SCROLL	127
6	V ASP PAP	2
7	H POS	adj
8	H SIZE	adj
9	H PIN CUSH	adj
10	H TILT	adj
11	H UP COR	adj
12	H LOW COR	adj
13	AFC V BOW	adj
14	AFC V ANGLE	adj
15	V COMP	5
16	H COMP	0
17	WV CENT RF	144
18	WV AREA RF	36
19	W CENT VCR	160
20	W AREA VCR	20

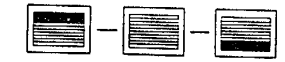
V SIZE



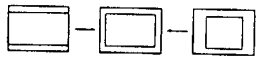
V POS



V LIN



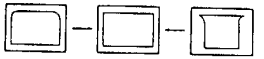
H SIZE



H PIN CUSH

H TILT

H UP COR



H LOWER COR

AFC V BOW

AFC V ANGLE

H POS

5. Press OK button to write the data.

If the menu display prevents viewing the screen while carrying out the adjustments, it can be removed by pressing on the remote commander. Pressing once again will restore the menu on screen.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander, RM-838.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing the + (plus) and - (minus) buttons on the customer front panel.

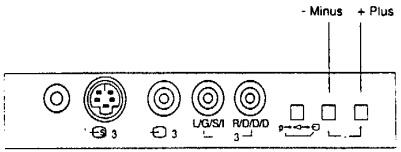


Fig. 4-1

2. "TT" will appear on the upper right corner of the screen.

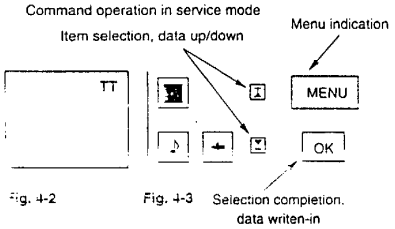


Fig. 4-2 Fig. 4-3

3. Press "Test" " "Test" and 01 on the commander to get the menu on screen.

AE -- V7-62	AE-3	08/06/95
Init TV		
PIP Adjust		
Adjustments		
Video Contr		
CRT Driver		
Dynamic Conv		
Video Proc		
PIP		
PIP Dynamic		
Aspect / Field		
PAP		
SRC		
TDA6812		
PALPLUS		
TDA9160		
TDA9145		

4. Press the ▲ and ▼ buttons on the remote commander to select the adjustment item.
5. Press the OK button to proceed to the next menu.
6. If the adjustment item is 'CRT Driver', press the ▼ button to move to 'CRT Driver'.
7. The Menu as indicated in Fig 4-5 will appear on the screen.

	CRT Driver	CXA1840
1	V POS	adj
2	V SIZE	adj
3	V LIN BAL	adj
4	V LIN	adj
5	V SCROLL	127
6	V ASP PAP	2
7	H POS	adj
8	H SIZE	adj
9	H PIN CUSH	adj
10	H TILT	adj
11	H UP COR	adj
12	H LOW COR	adj
13	AFC V BOW	adj
14	AFC V ANGLE	adj
15	V COMP	5

Back O K Select

Fig. 4-4

8. Press the ▼ button to move > to the adjustment item and press the OK button.
9. Press the ▲ and ▼ buttons to change the data in order to comply with each standard.
10. Press the OK button to write data into memory.
11. Turn off the power to quit the service mode when adjustments have been completed.

CXA1839 (VIDEO CONT)

Item No	Adjustment Item	Data Amount
1	SUB BRT	8
2	SUB COL1	8
3	SUB CONT1	8
4	PIC	53
5	HUE	31
6	COL	31
7	BRT	31
8	SHP	31
9	SUB HUE	7
10	D.COIL	off
11	SHP LIM	off
12	AGE WHT	off
13	R-Y/R	13
14	R-Y/B	15
15	G-Y/R	7
16	G-Y/B	5
17	RGB LEV2	8
18	SUB SHP	3
19	SUB FO	1
20	PRE/OVER	0
21	NR LEVEL	1
22	DC TRAN	0
23	DYN PIC	1
24	CEC LEVEL	2
25	VM LEVEL	2
26	ABL MODE	1
27	DYN ABL	off
28	Y SYM SW	off
29	AGE BLK	off

CXD2035 (ASPECT)

Item No	Adjustment Item	Data Amount
1	COMPRESS	7
2	FRAME WID	5

CXD2030 (VIDEO PROCESSOR)

Item No	Adjustment Item	Data Amount
1	DNR	on
2	DNR VALUE	5
3	TA SYN CLP	16
4	TB BGP	50
5	TD CLP	25
6	FOTO CD SW	off
7	BLK PORCH	16
8	NT TD BGP	25
9	PAL TD BGP	25
10	N.SECAM TB	50
11	SECAM TB	50
12	358 NR LVL	3
13	443 NR LVL	5

CXD2031 (PAP)

Item No	Adjustment Item	Data Amount
1	M.PH.WR.ST	45
2	S.PH.WR.ST	34
3	M.RD. START	40
4	BRT SUB	8

Typical Value (OSD based) when receiving PAL Philips pattern.

Other features

- Digital comb filter (High resolution)
- FASTEXT
- TOPTEXT (KV-32WS3A only)
- DNR (Digital Noise Reduction)
- Scroll Commander
- Dolby Digital Surround System
- 100Hz Digital Plus
- Graphic Equalizer
- PAP (Picture and Picture)
- PAL plus (KV-32WS3A/32WS3D/32WS3E/32WS3K/32WS3U only)
- NICAM stereo (KV-32WS3B/32WS3E/32WS3U only)

[RM-838]

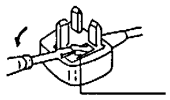
Remote control system	infrared control
Power requirements	1.5V dc 1 battery IEC designation R6 (size AA)
Dimensions	Approx. 65x225x21 mm (w/h/d)
Weight	Approx. 157g (Not including battery)

Design and specifications are subject to change without notice.

Item \ Model name	KV-32WS3A	KV-32WS3B	KV-32WS3D	KV-32WS3E	KV-32WS3K KV-32WS3R	KV-32WS3U
Pal Comb	ON	ON	ON	ON	ON	ON
PIP	OFF	OFF	OFF	OFF	OFF	OFF
RGB Priority	ON	ON	ON	ON	ON	ON
60 Programs	OFF	OFF	OFF	OFF	OFF	OFF
PAL PLUS	ON	ON	ON	ON	ON	ON
DOLBY	ON	ON	ON	ON	ON	ON
DSP	OFF	OFF	OFF	OFF	OFF	OFF
EQUALIZER	ON	ON	ON	ON	ON	ON
SUB TUNER	ON	ON	ON	ON	ON	ON
PAP	ON	ON	ON	ON	ON	ON
MLT.PIP	OFF	OFF	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front 3	ON	ON	ON	ON	ON	ON
Scart 4	ON	ON	ON	ON	ON	ON
DYN. CONV.	ON	ON	ON	ON	ON	ON
PIC. ROT.	ON	ON	ON	ON	ON	ON
Language Preset	Italian	French	German	Spanish	OIRT	English

WARNING (KV-32WS3U only)

The flexible mains lead is supplied connected to a B.S. 1363 fused plug having a fuse of 5 AMP capacity. Should the fuse need to be replaced, use a 5 AMP FUSE approved by ASTA to BS 1362, ie one that carries the ⓐ mark.
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR YOUR SOCKET OUTLETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET OUTLET.
When an alternative type of plug is used it should be fitted with a 5 AMP FUSE, otherwise the circuit should be protected by a 5 AMP FUSE at the distribution board.



How to replace the fuse.
Open the fuse compartment with the screwdriver blade and replace the fuse.

ITEM MODEL	Television System	Channel Coverage	Colour System
Italian	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
French	B/G/H, D/K, I, L	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69 I B21-69 L VHF: F2-F10 UHF: F21-F69 Cable TV: B-Q	SECAM, PAL NTSC 3.58 (video input only) NTSC4.43 (video input only)
AEP	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: B-Q UHF: S21-S41	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
Spanish	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 SECAM D/K VHF: R01-R12 UHF: R21-R60	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
OIRT	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 Cable TV (1): S1-S41 Cable TV (2): S01-S05, M1-M10, U1-U10 ITALY VHF: A-H UHF: H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: B-Q UHF: S21-S41	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)
UK	I	UHF: 21-69	SECAM, PAL, PAL + NTSC 3.58 (video input only) NTSC4.43 (video input only)

MODEL	Italian	French	AEP	Spanish	OIRT	UK
Power Consumption	146W	164Wh	162W	164Wh	162W	242W

SPECIFICATIONS

Picture Tube	Super Trinitron Wide Approx. 82 cm (32 inches) (Approx. 76 cm picture measured diagonally) 110° -deflection

Rear/Front Terminals

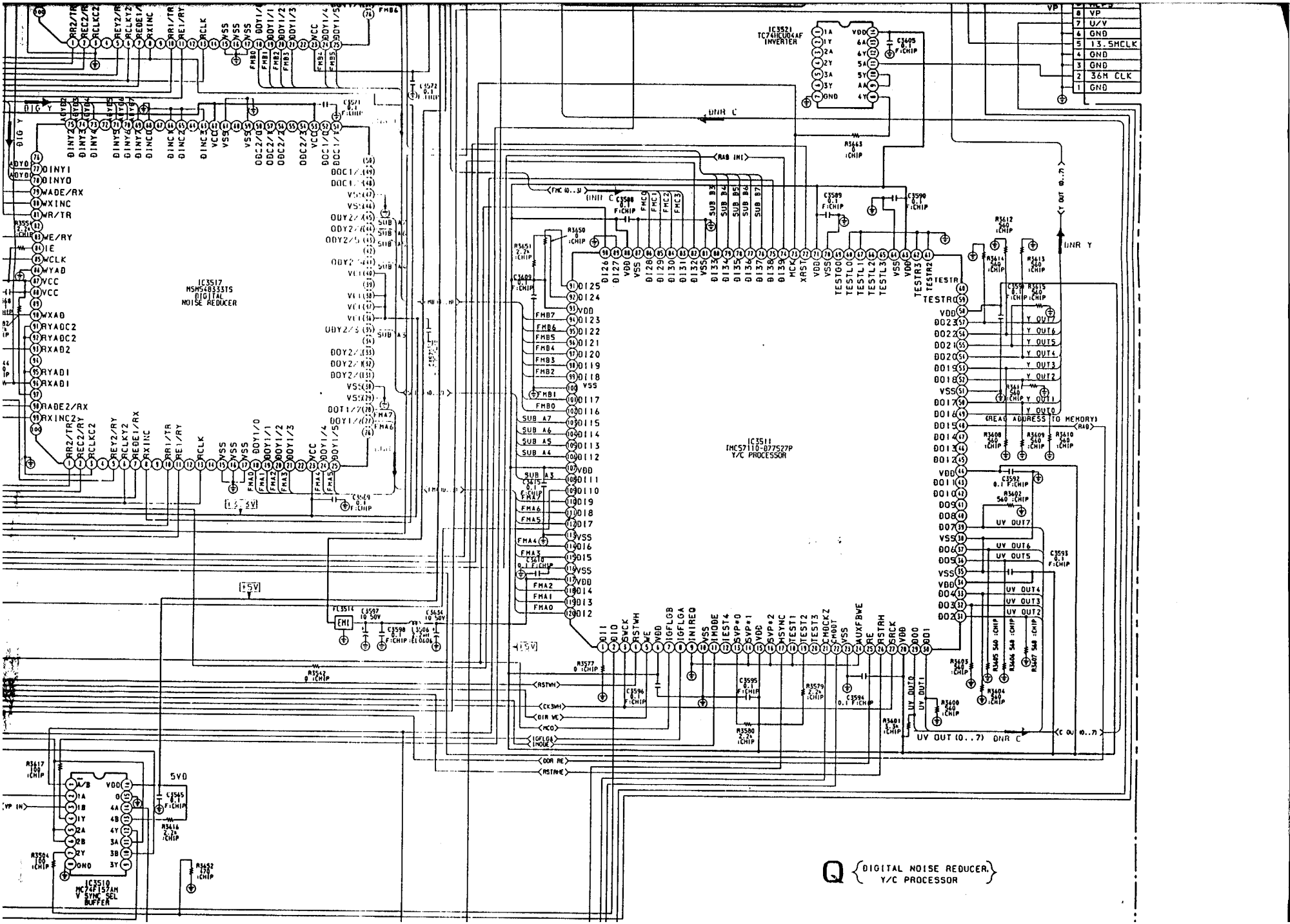
[REAR]

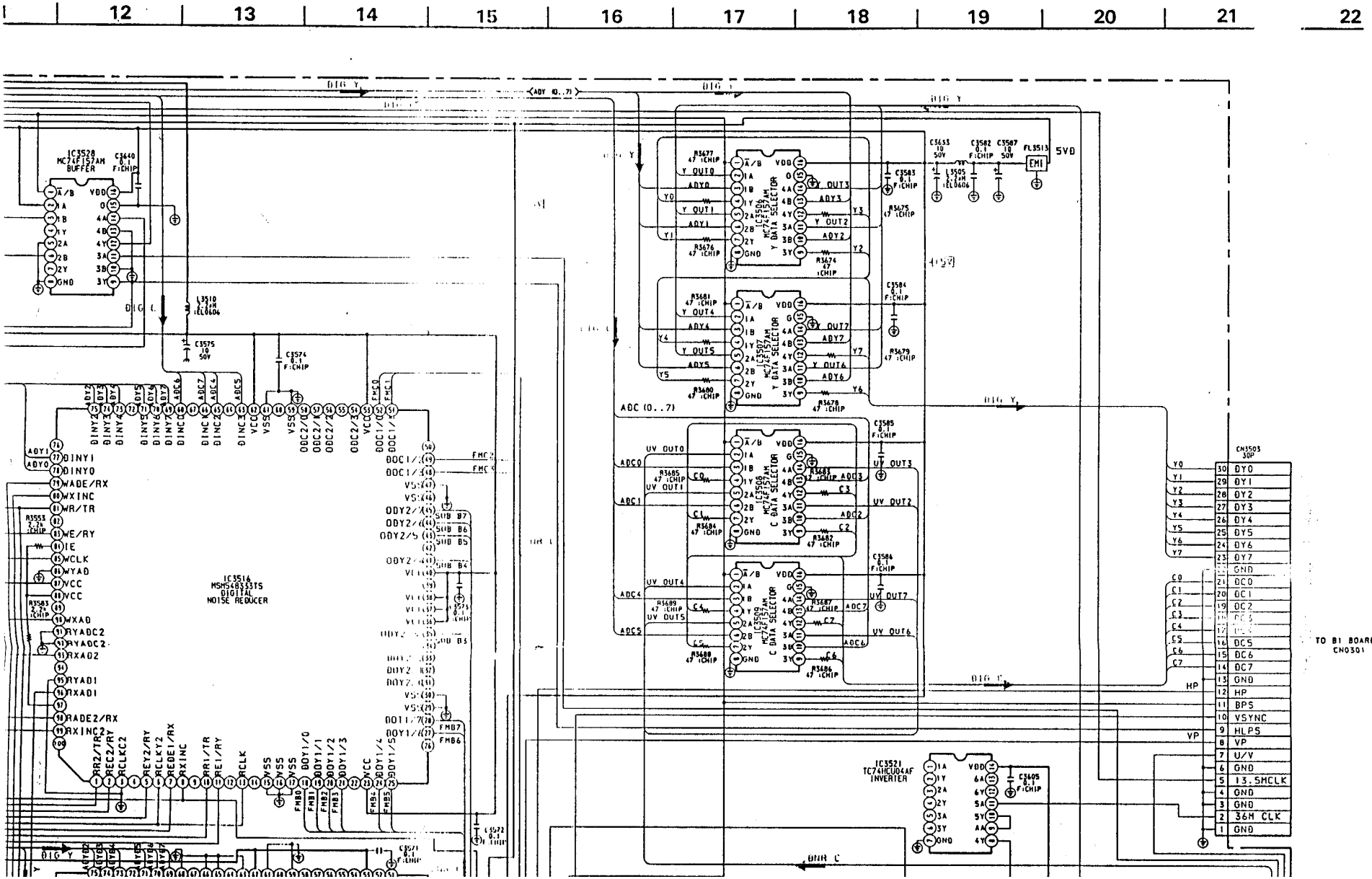
- 21-pin Euro connector (CENELEC standard)
  - Input for audio and video signals
  - Input for RGB
  - Outputs of TV video and audio signals
- S 2/ S2 21-pin Euro connector
  - Input for audio and video signals
  - Input for S video
  - Outputs of TV video and audio signals (selectable)
- S 4/ S4 21-pin Euro connector
  - Input for audio and video signals
  - Input for S video
  - Outputs of TV video and audio signals (monitor out)
- S2 , S4 S video inputs - 4 pin DIN
- Audio inputs (L, R) - phono jacks
- S video output - 4 pin DIN
- Audio outputs - phono jacks
- Audio outputs (variable) - phono jacks
- External speaker terminals : 2-pin DIN (5)

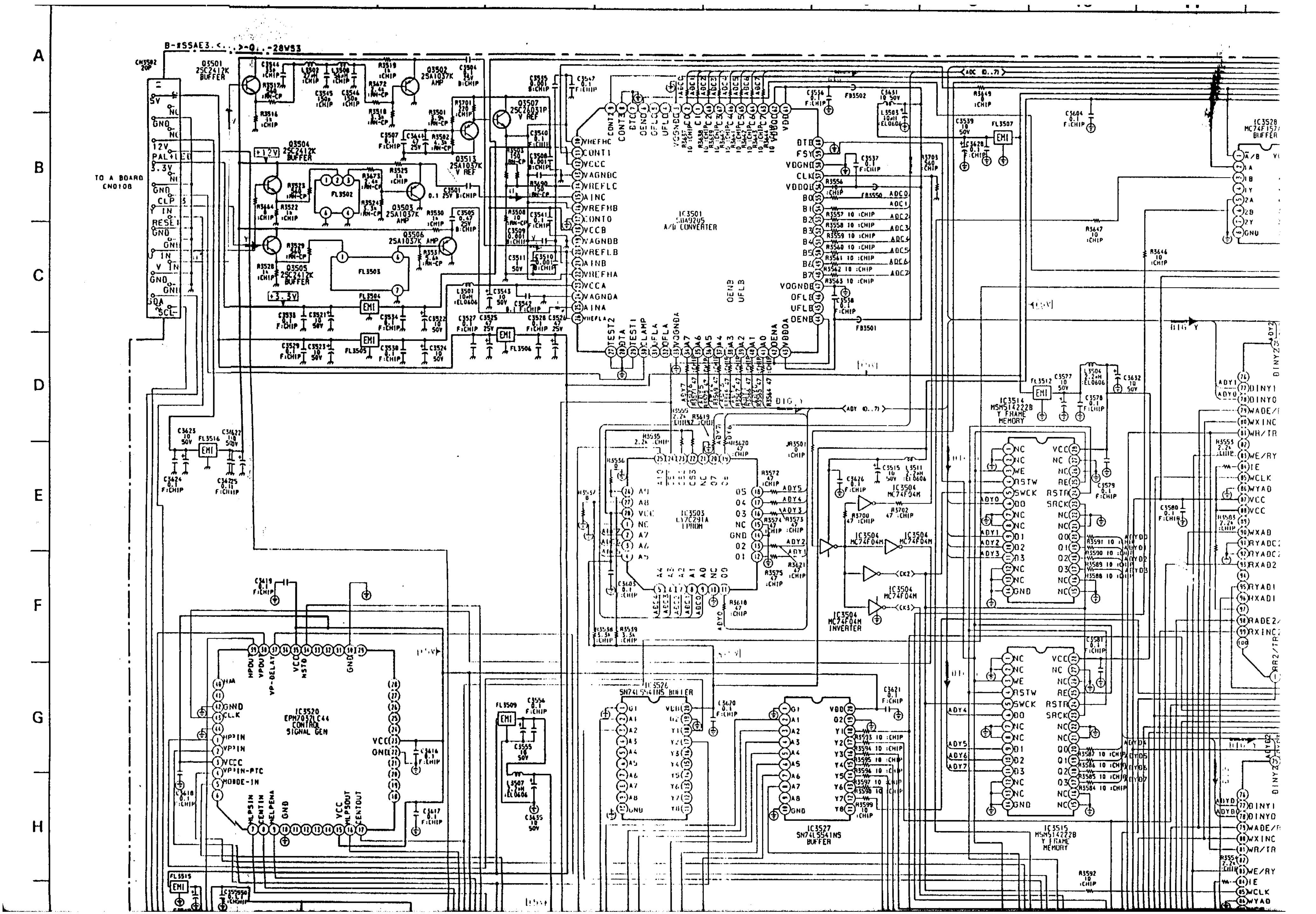
[FRONT]

- Video input - phono jack
- 3 Audio inputs - phono jacks
- S3 S video input - 4-pin DIN
- Ω Headphone jack : stereo minijack

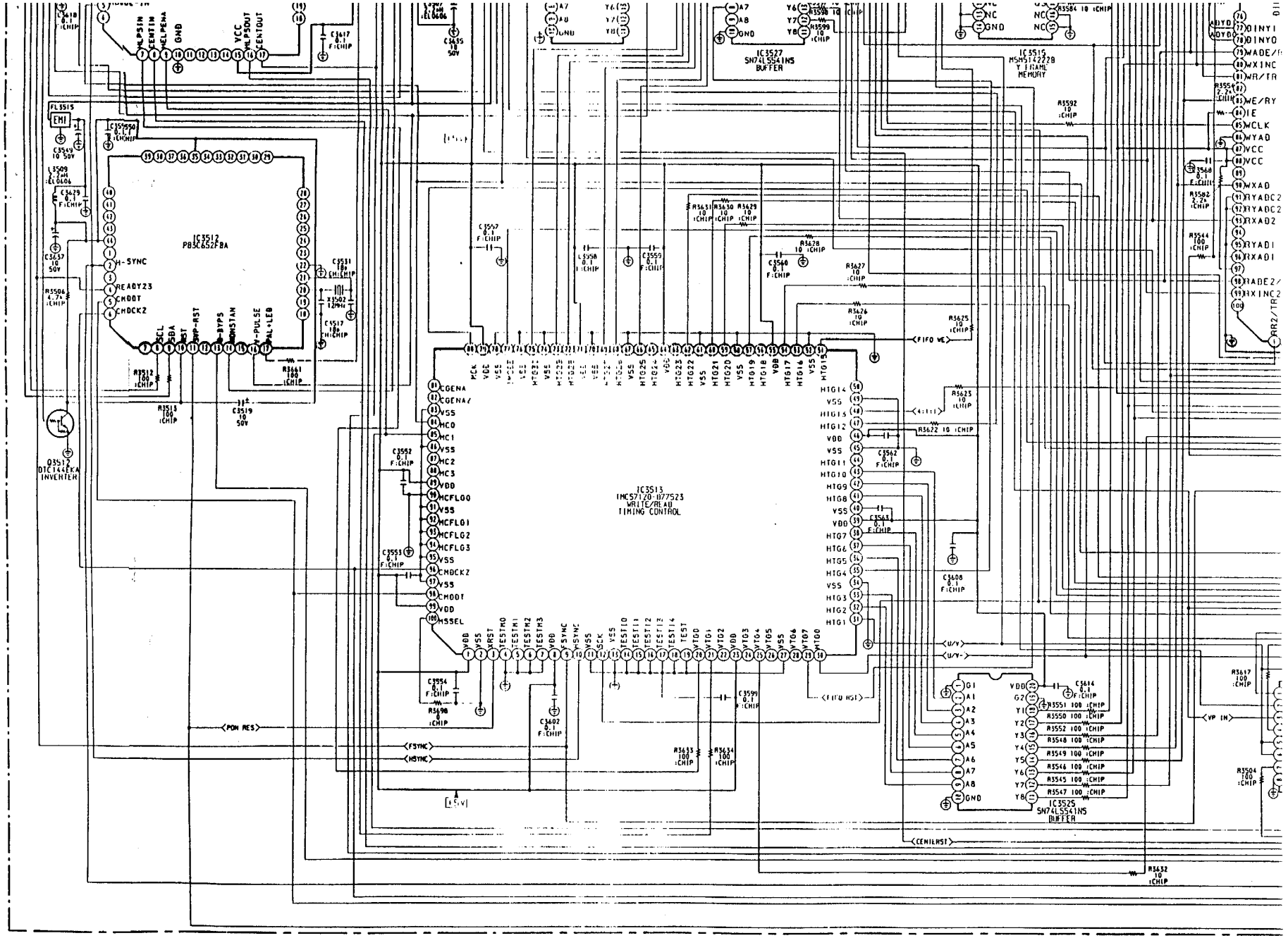
Sound output	2x30W (music power) Centre 1x30W Surround 2x15W
Dimensions	Approx. 906x552x566 mm
Weight	Approx. 65 kg
Supplied accessories	Remote Commander RM-838 (1) Scroll Commander RM-860 (1) Batteries R6 (2) Surround speaker (2) Surround Loudspeaker lead (2)

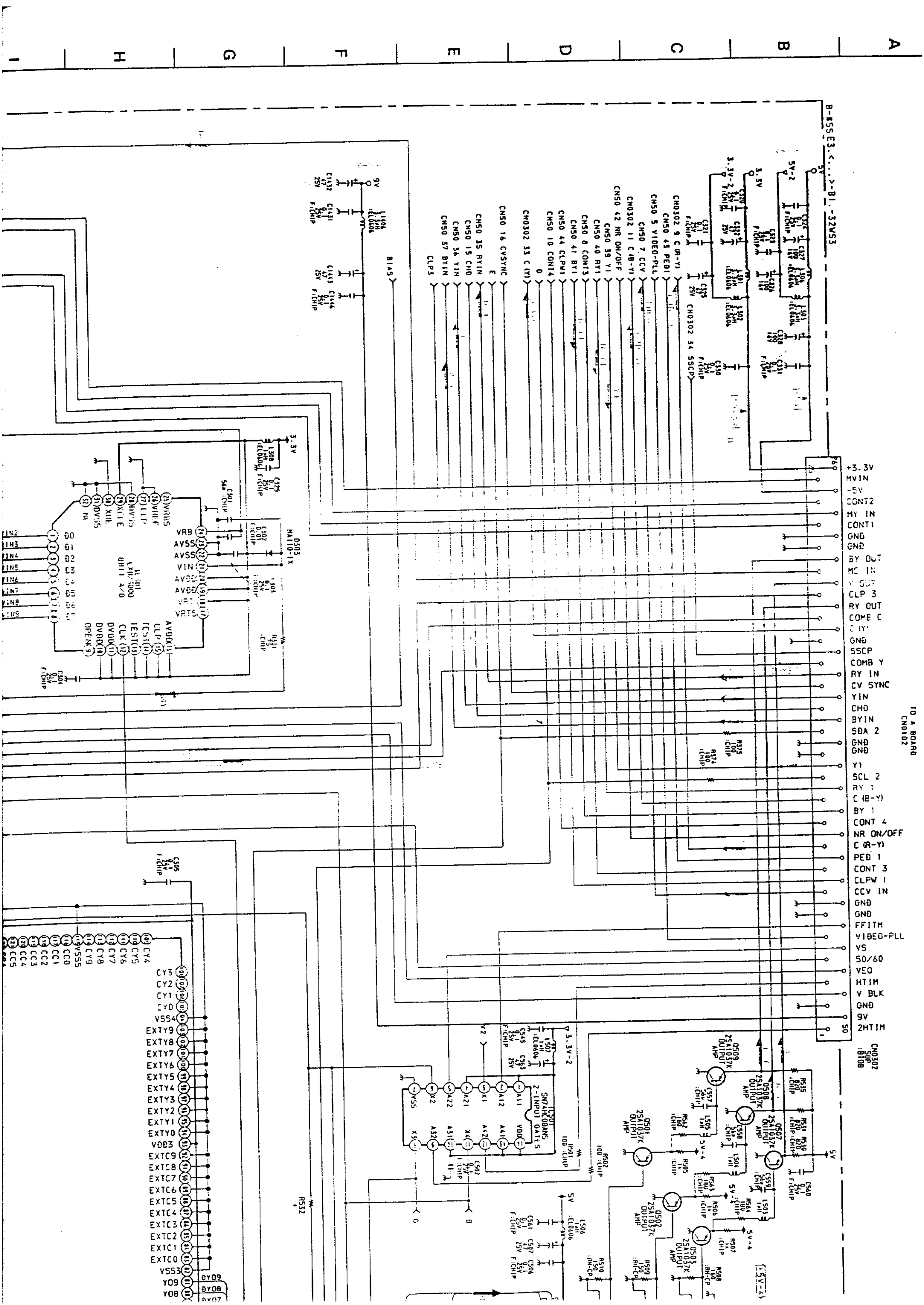

IC3517
MSM548333TS
DIGITAL
NOISE REDUCER
IC3511
IMC57110-077527P
Y/C PROCESSOR
IC3521
TC74HC86AF
INVERTER
IC3510
MC74F157AM
SYNC SEL
BUFFER
VP
U/V
GND
13.5MCLK
GND
GND
36M CLK
GND
DIG Y
UNR C
UNR Y
UV OUT (0..7) UNR C
(READ ADDRESS TO MEMORY)
Q {DIGITAL NOISE REDUCER, Y/C PROCESSOR}

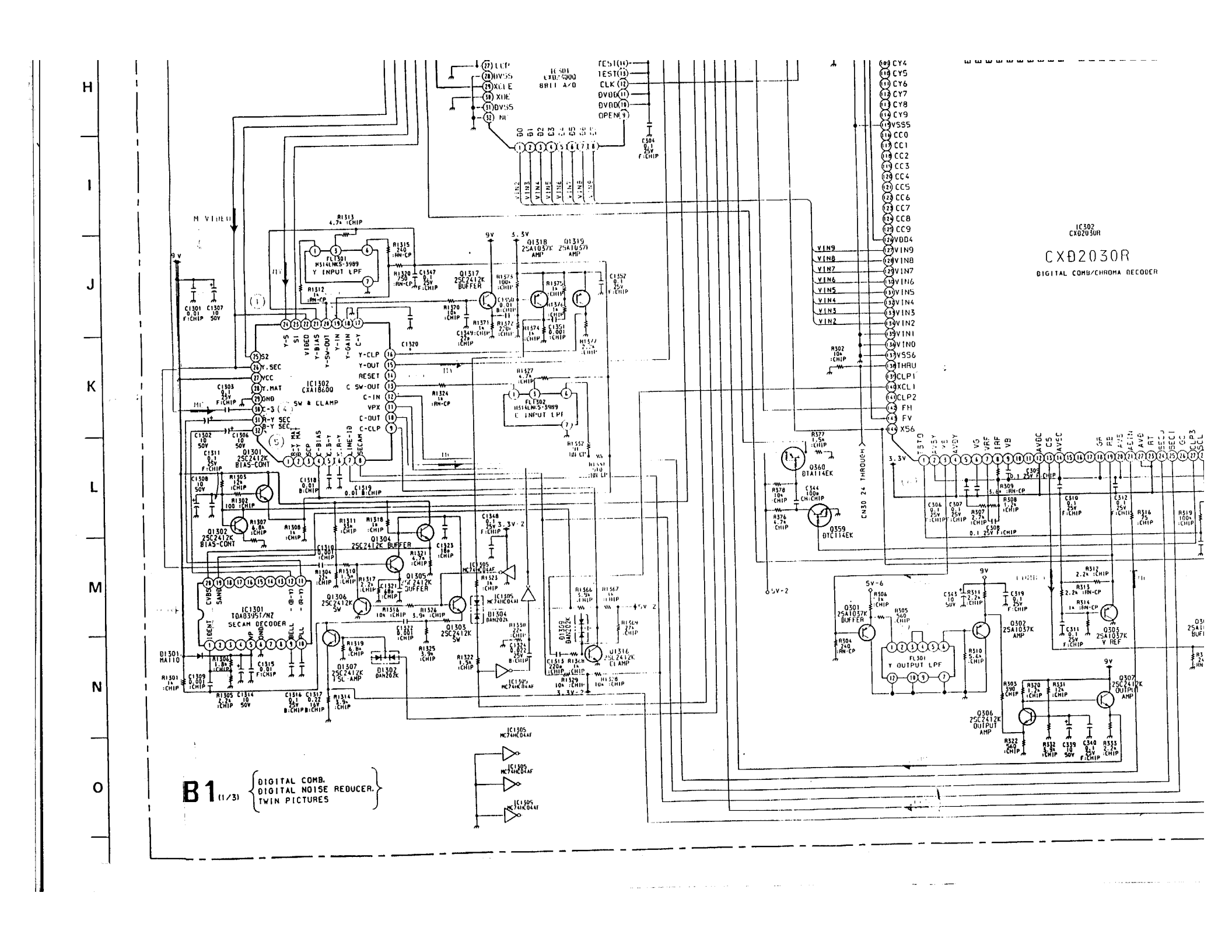

12
13
14
15
16
17
18
19
20
21
22
IC3528
MC74F157AM
BUFFER
IC3516
MSM5483S3TS
DIGITAL
NOISE REDUCER
IC3507
MC74F157AM
Y DATA SELECTOR
IC3508
MC74F157AM
C DATA SELECTOR
IC3521
TC74HCU04AF
INVERTER
5VD
EMI
CN3503
30P
TO B1 BOARD
CN0301
DIG Y
DIG C
ADY (0..7)
ADC (0..7)
HP
VP

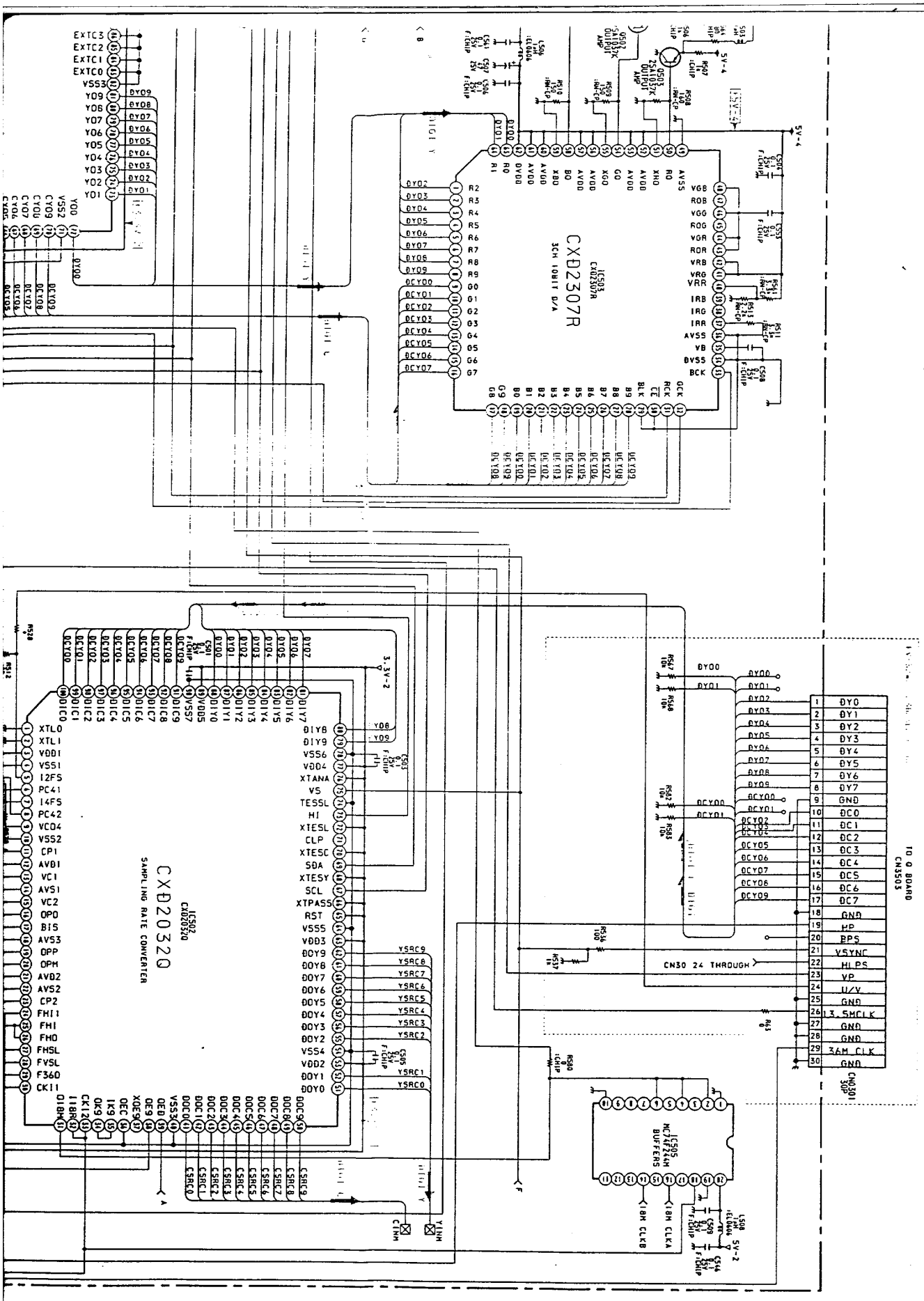


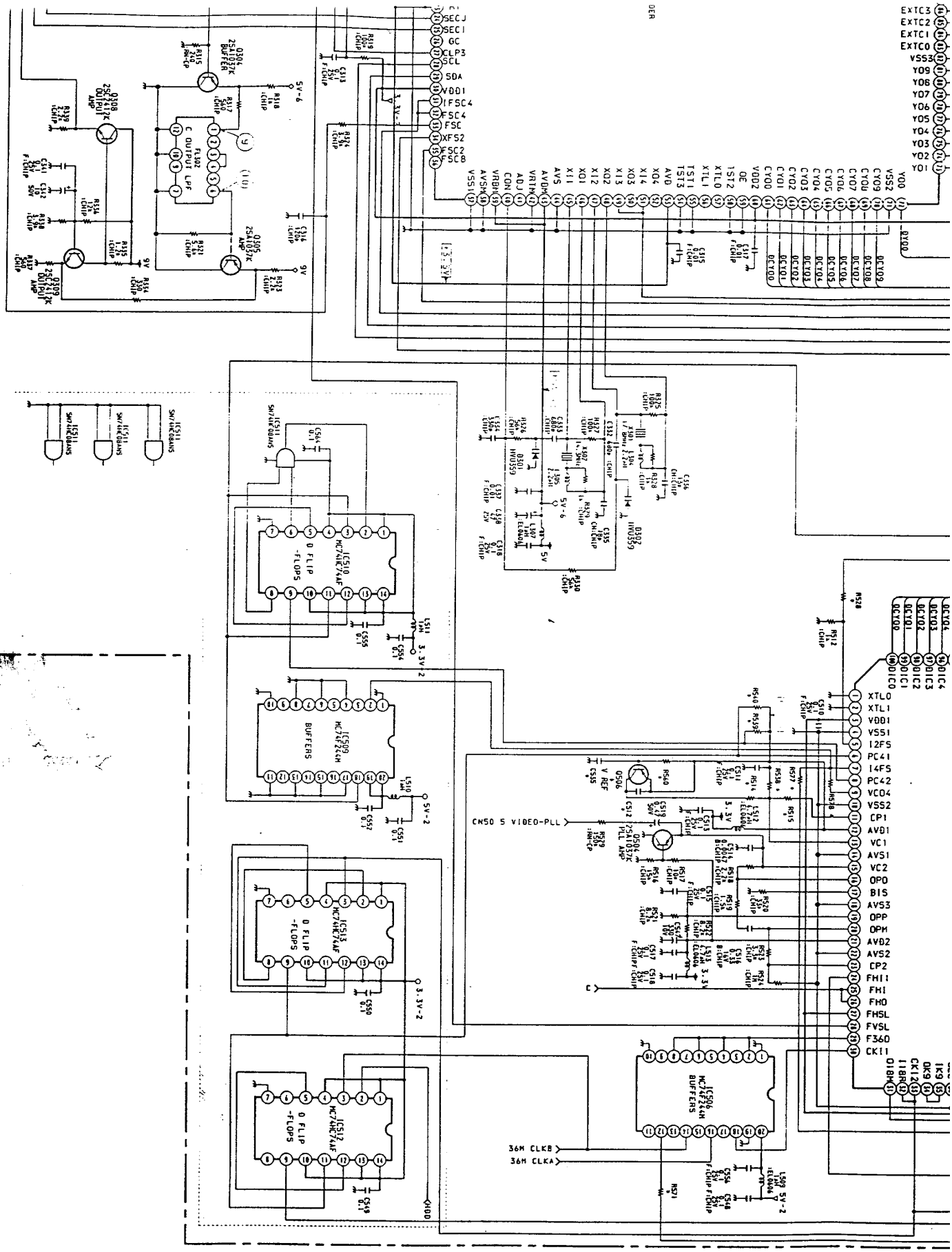
A
B
C
D
E
F
G
H
B-855AE3
CN3502 20P
TO A BOARD CN0108
Q3501 2SC2412K BUFFER
Q3502 2SA1037K AMP
Q3503 2SA1037K AMP
Q3504 2SC2412K BUFFER
Q3505 2SC2412K BUFFER
Q3506 2SA1037K AMP
Q3507 2SC2603TP V REF
Q3513 2SA1037K V REF
FL3502
FL3503
+12V
+3.3V
IC3501 SDA9205 A/D CONVERTER
IC3503 L7C291A EPROM
IC3504 MC74F04M INVERTER
IC3514 MSM514222B Y FRAME MEMORY
IC3515 MSM514222B Y FRAME MEMORY
IC3520 EPM7032LC44 CONTROL SIGNAL GEN
IC3526 SN74LS541NS BUFFER
IC3527 SN74LS541NS BUFFER
IC3528 MC74F157 BUFFER
ADC (0..7)
ADY (0..7)

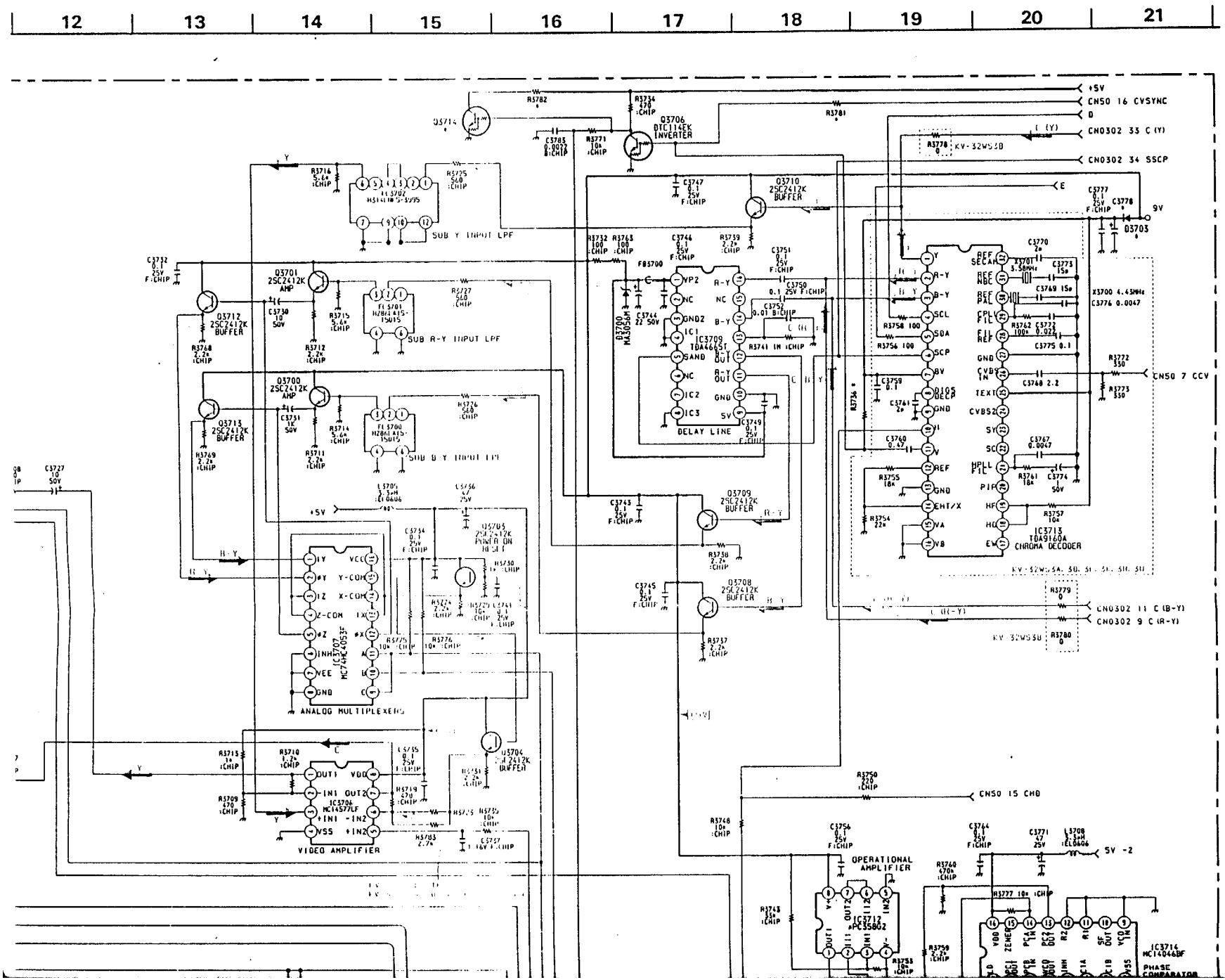

IC3512
P85C652FBA
H-SYNC
READY23
CMDOT
CMDCKZ
IC3513
IMC57120-077523
WRITE/READ
TIMING CONTROL
IC3527
SN74LS541NS
BUFFER
IC3515
M5M5142228
FRAME
MEMORY
IC3525
SN74LS541NS
BUFFER
Q3517
DTC144EKA
INVERTER
FSYNC
HSYNC
PON RES
FIFO WE
FIFO HST
CENTERST
VP IN

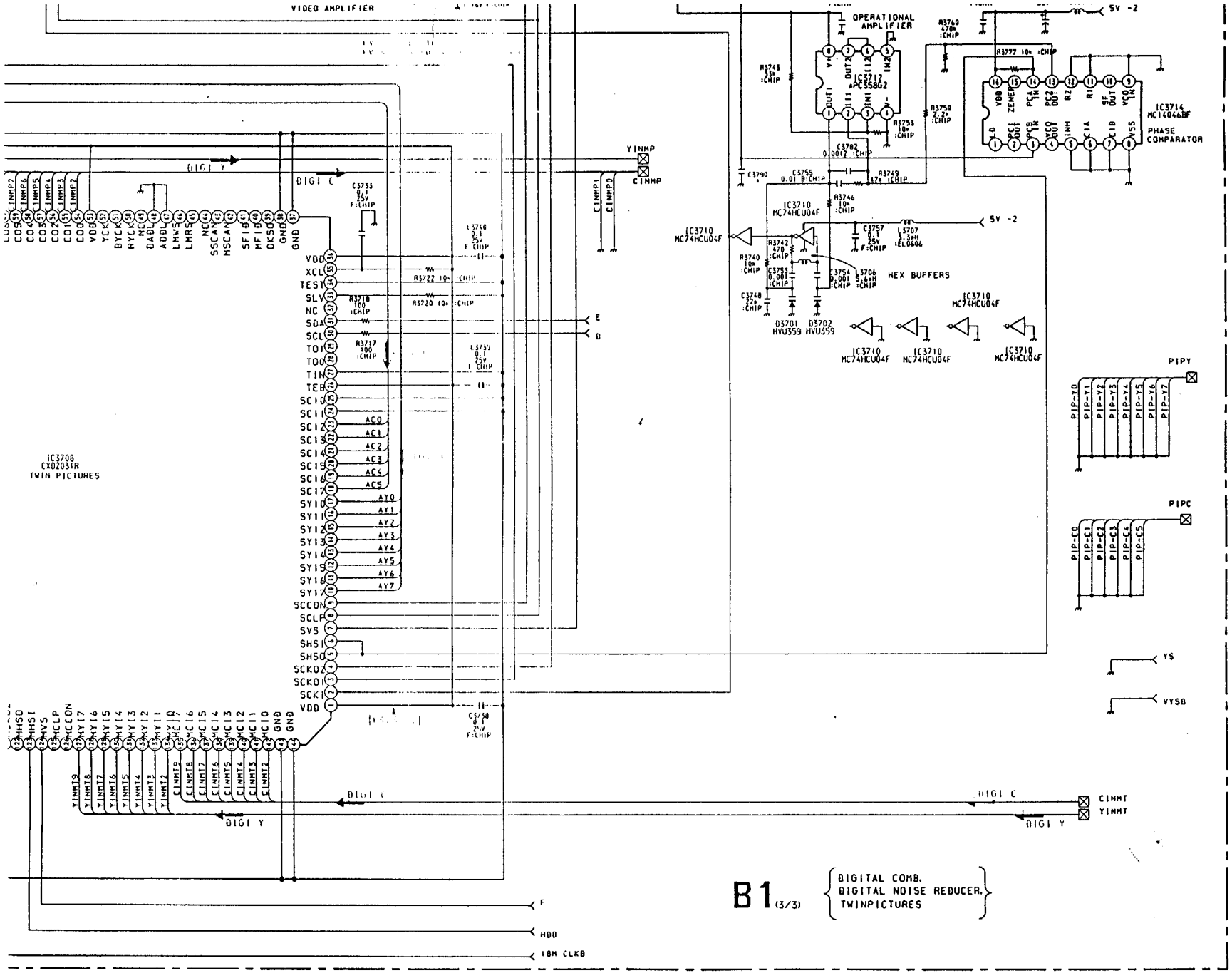

A
B
C
D
E
F
G
H
+3.3V
MVIN
-5V
CONT2
MY IN
CONT1
GND
GND
BY OUT
MC IN
Y OUT
CLP 3
RY OUT
COMB C
GND
SSCP
COMB Y
RY IN
CV SYNC
YIN
CHD
BYIN
SDA 2
GND
GND
Y1
SCL 2
C (B-Y)
BY 1
CONT 4
NR ON/OFF
C (R-Y)
PED 1
CONT 3
CLPW 1
CCV IN
GND
GND
FFITM
VIDEO-PLL
VS
50/60
VEO
HTIM
V BLK
GND
9V
2HTIM
TO A BOARD CN0102
CN0302 SUP :BIOB

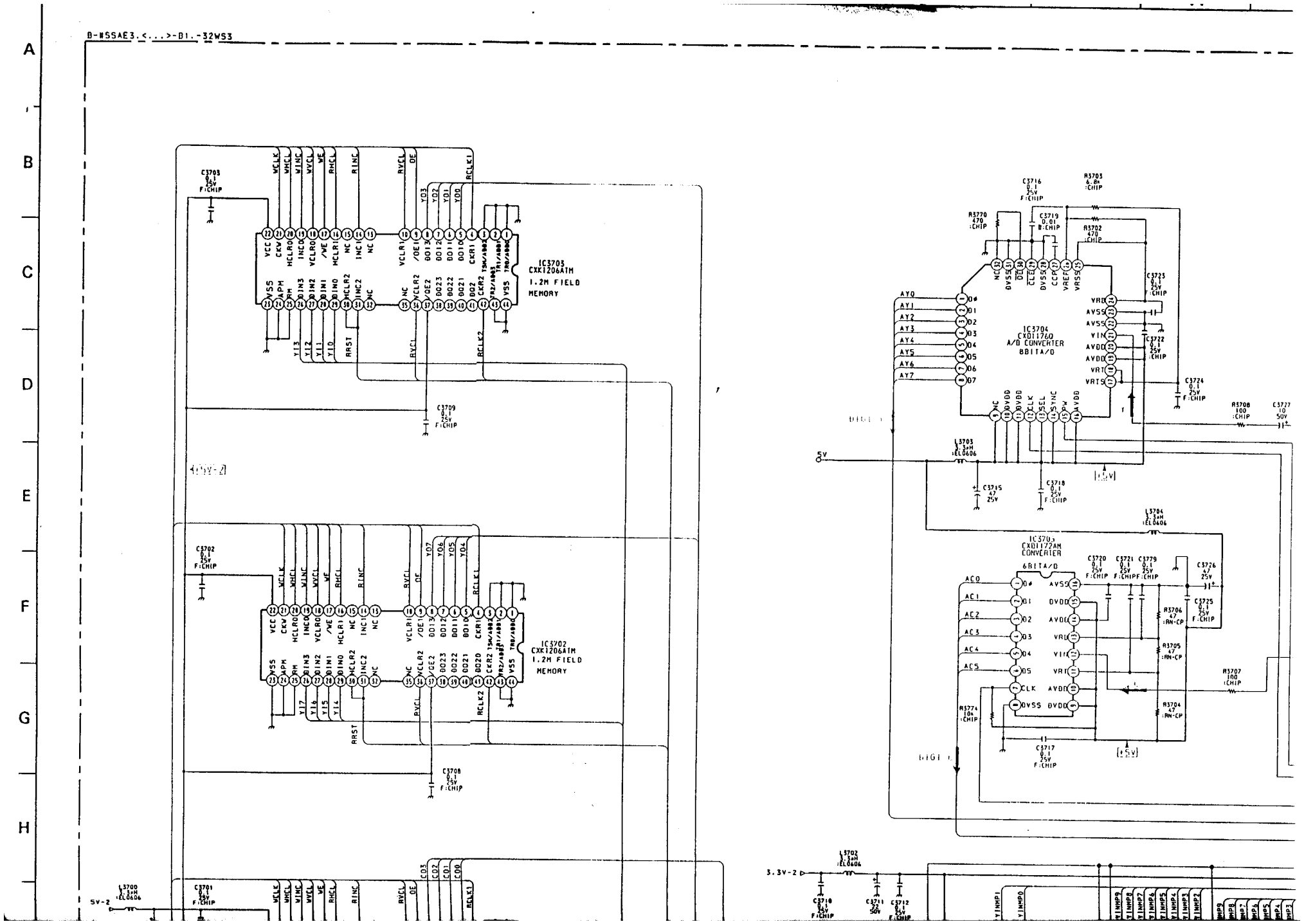

IC302
CXD2030R
DIGITAL COMB/CHROMA DECODER
IC1302
CXA1860Q
SW & CLAMP
IC1301
TDA3951/NZ
SECAM DECODER
IC501
CXD1300Q
8BIT A/D
B1 (1/3) { DIGITAL COMB.
DIGITAL NOISE REDUCER.
TWIN PICTURES }

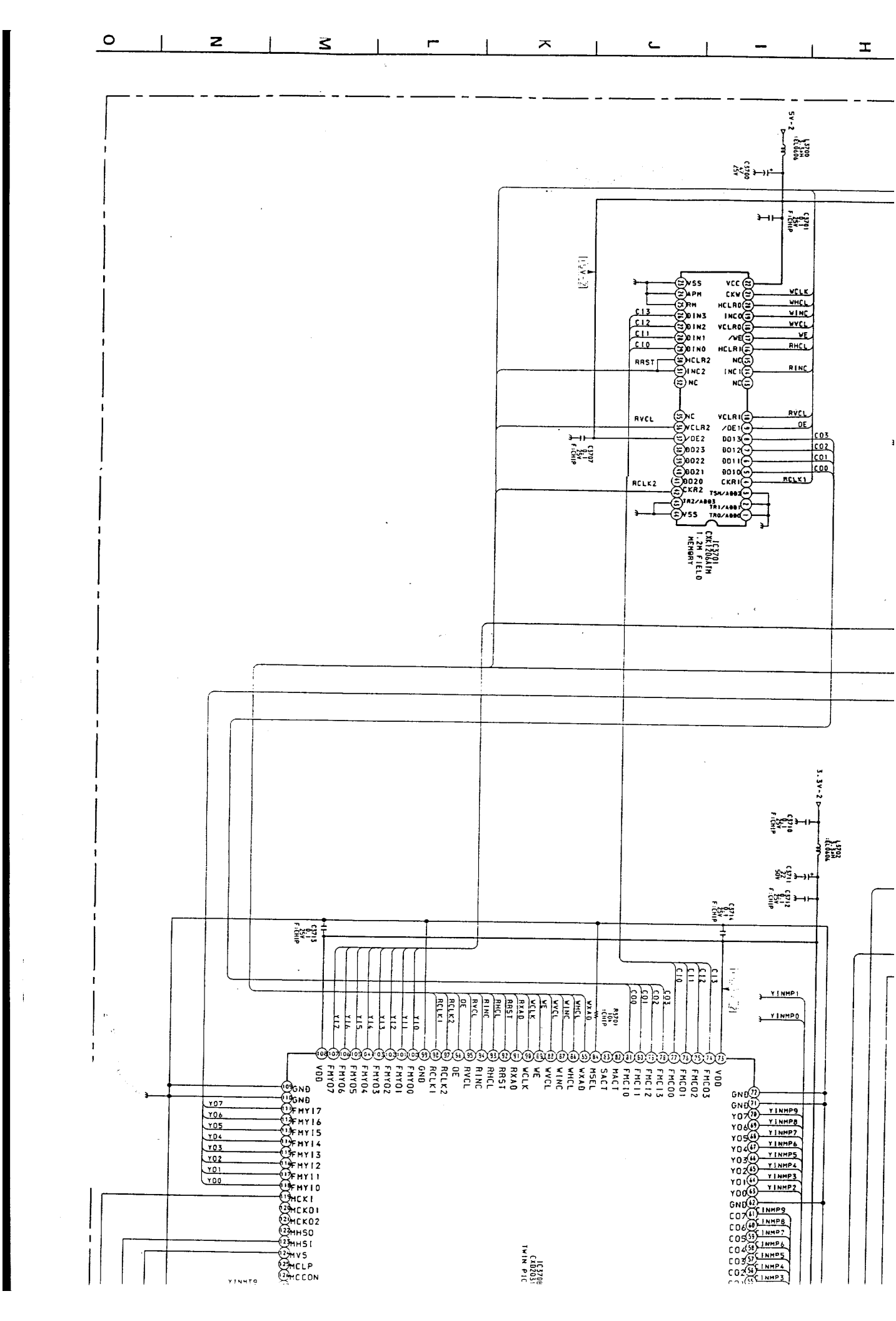

CXD2307R
3CH 10BIT D/A
CXD2020Q
SAMPLING RATE CONVERTER
MC74F244M
BUFFERS
TO Q BOARD
CN3503
CN30 24 THROUGH
CN0301
30P

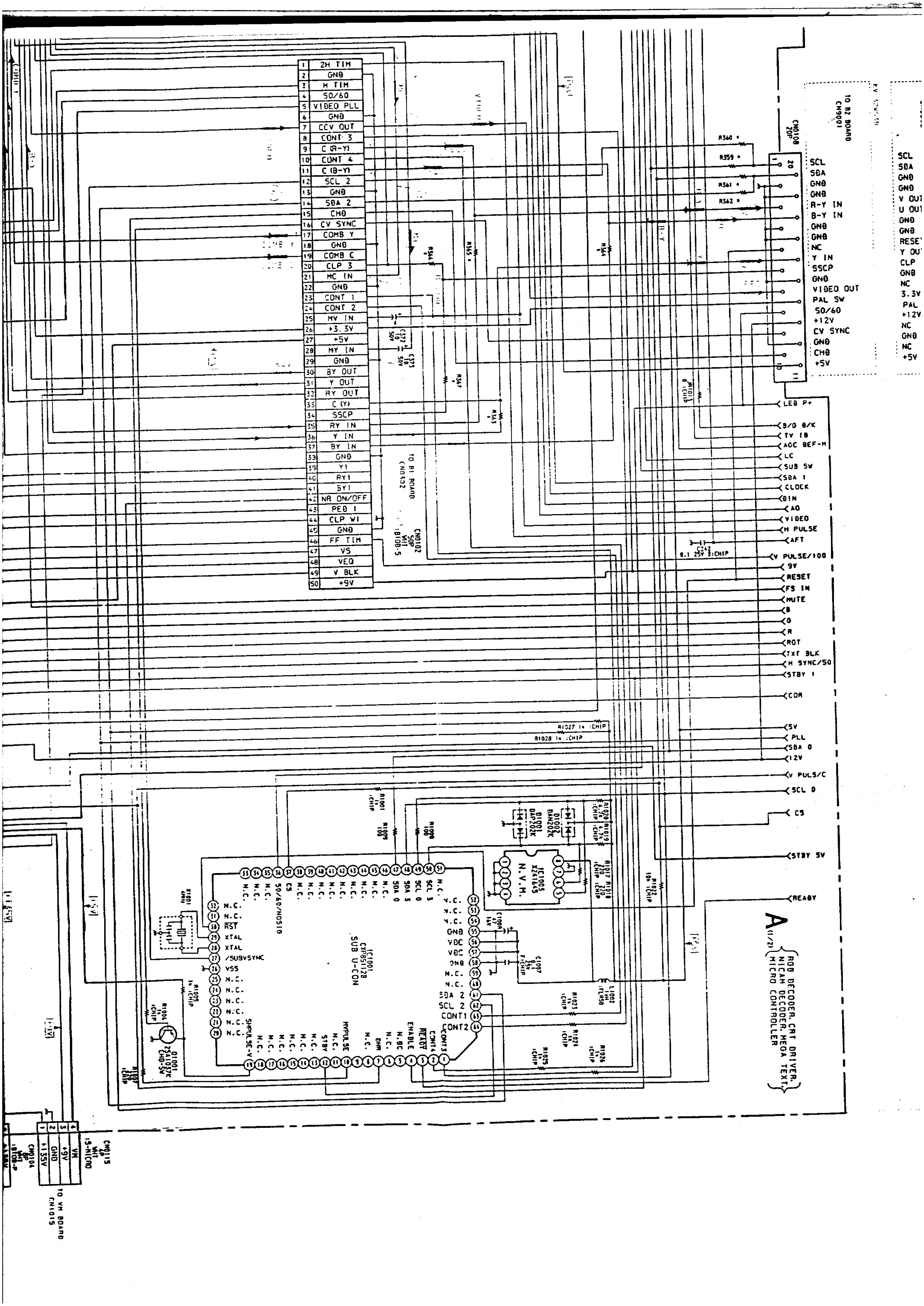


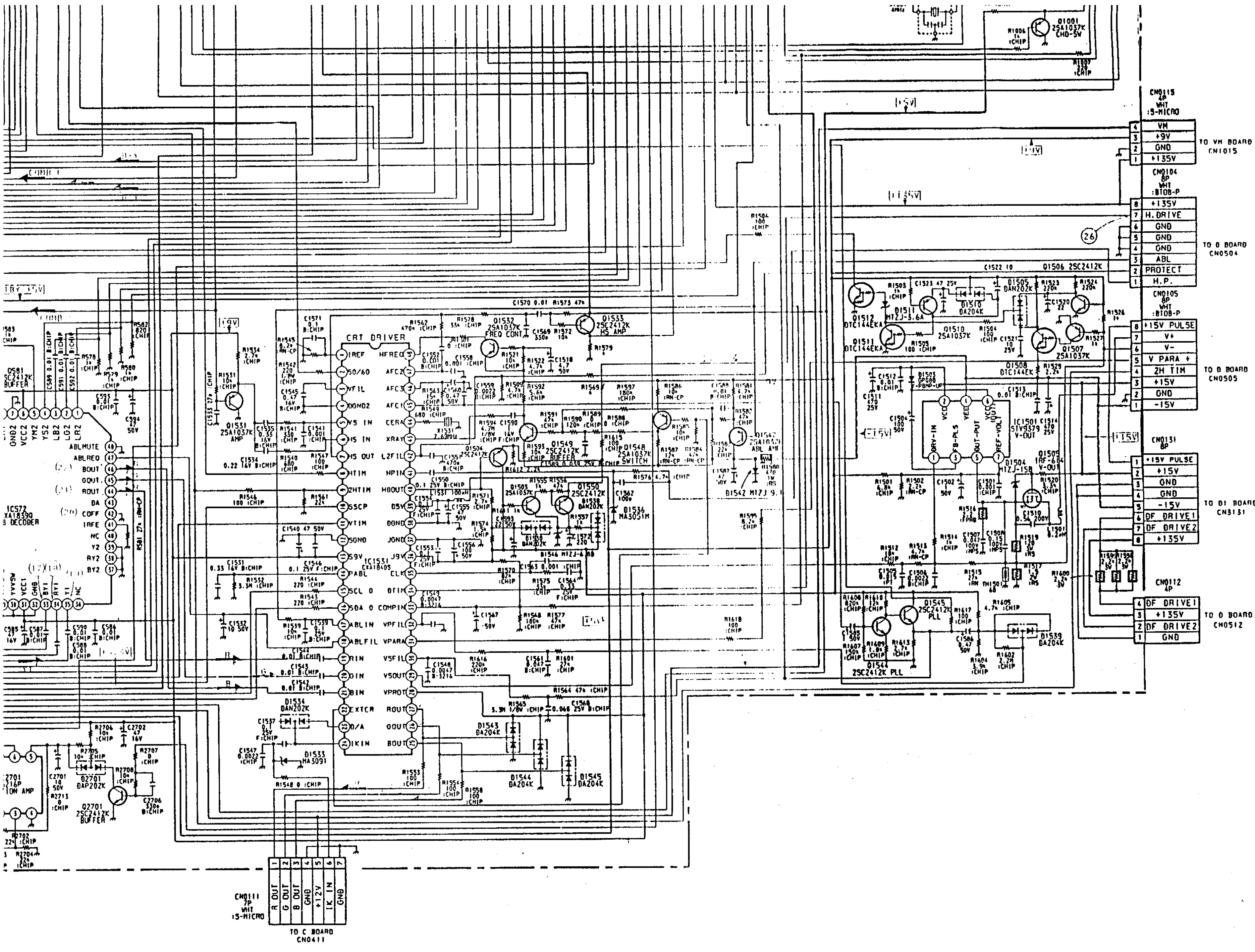

12
13
14
15
16
17
18
19
20
21
+5V
CN50 16 CVSYNC
D
CN0302 33 C (Y)
CN0302 34 SSCP
9V
CN50 7 CCV
CN0302 11 C (B-Y)
CN0302 9 C (R-Y)
CN50 15 CHD
5V -2
Q3714
Q3706 DTC114EK INVERTER
Q3710 2SC2412K BUFFER
Q3703
Q3701 2SC2412K AMP
Q3712 2SC2412K BUFFER
Q3700 2SC2412K AMP
Q3713 2SC2412K BUFFER
Q3709 2SC2412K BUFFER
Q3708 2SC2412K BUFFER
Q3705 2SC2412K POWER ON RESET
Q3704 2SC2412K BUFFER
SUB Y INPUT LPF
SUB R-Y INPUT LPF
SUB B-Y INPUT LPF
IC3709 TDA4665T
DELAY LINE
IC3713 TDA9160A CHROMA DECODER
IC3707 MC74HC4053F
ANALOG MULTIPLEXERS
IC3706 MC1457LF
VIDEO AMPLIFIER
IC3712 PC35802
OPERATIONAL AMPLIFIER
IC3714 MC14046BF
PHASE COMPARATOR
X3701 3.58MHz
X3700 4.43MHz
KV-32WS50
KV-32WS5A, 5B, 5I, 5K, 5N, 5U


VIDEO AMPLIFIER
OPERATIONAL AMPLIFIER
IC3712 μPC358G2
IC3714 MC14046BF
PHASE COMPARATOR
IC3710 MC74HCU04F
HEX BUFFERS
D3701 HVU359
D3702 HVU359
IC3708 CXD2031R TWIN PICTURES
DIGI Y
DIGI C
YINMP
CINMP
E
O
PIPY
PIPC
YS
VYSO
CINMT
YINMT
F
HDD
18M CLKB
B1 (3/3)
DIGITAL COMB.
DIGITAL NOISE REDUCER.
TWINPICTURES

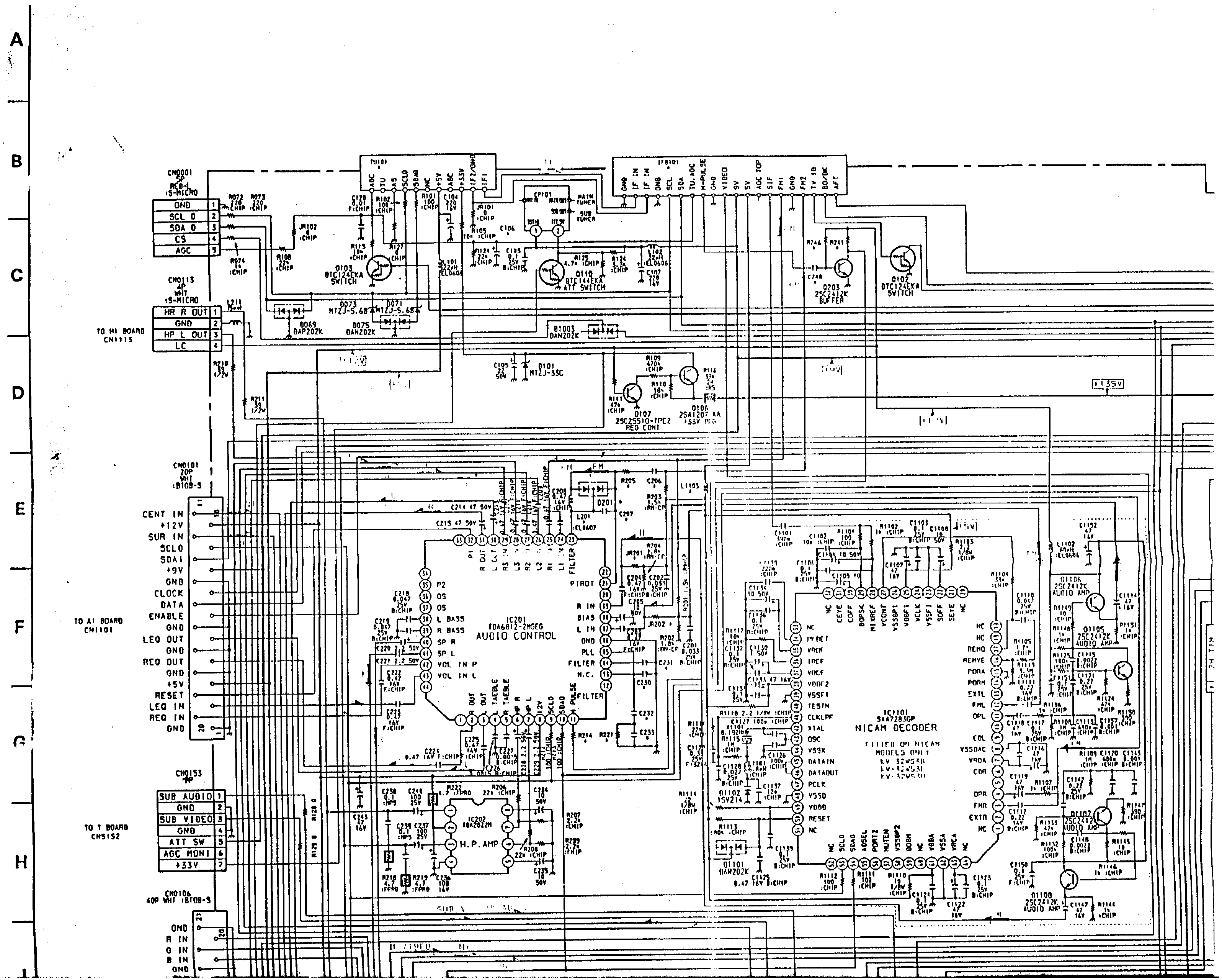

B-N5SAE3.<...>-01.-32WS3
IC3703
CXK1206ATM
1.2M FIELD
MEMORY
IC3702
CXK1206ATM
1.2M FIELD
MEMORY
IC3704
CXD1176Q
A/D CONVERTER
8BIT A/D
IC3705
CXD1172AM
CONVERTER
6BIT A/D
5V
3.3V-2
5V-2



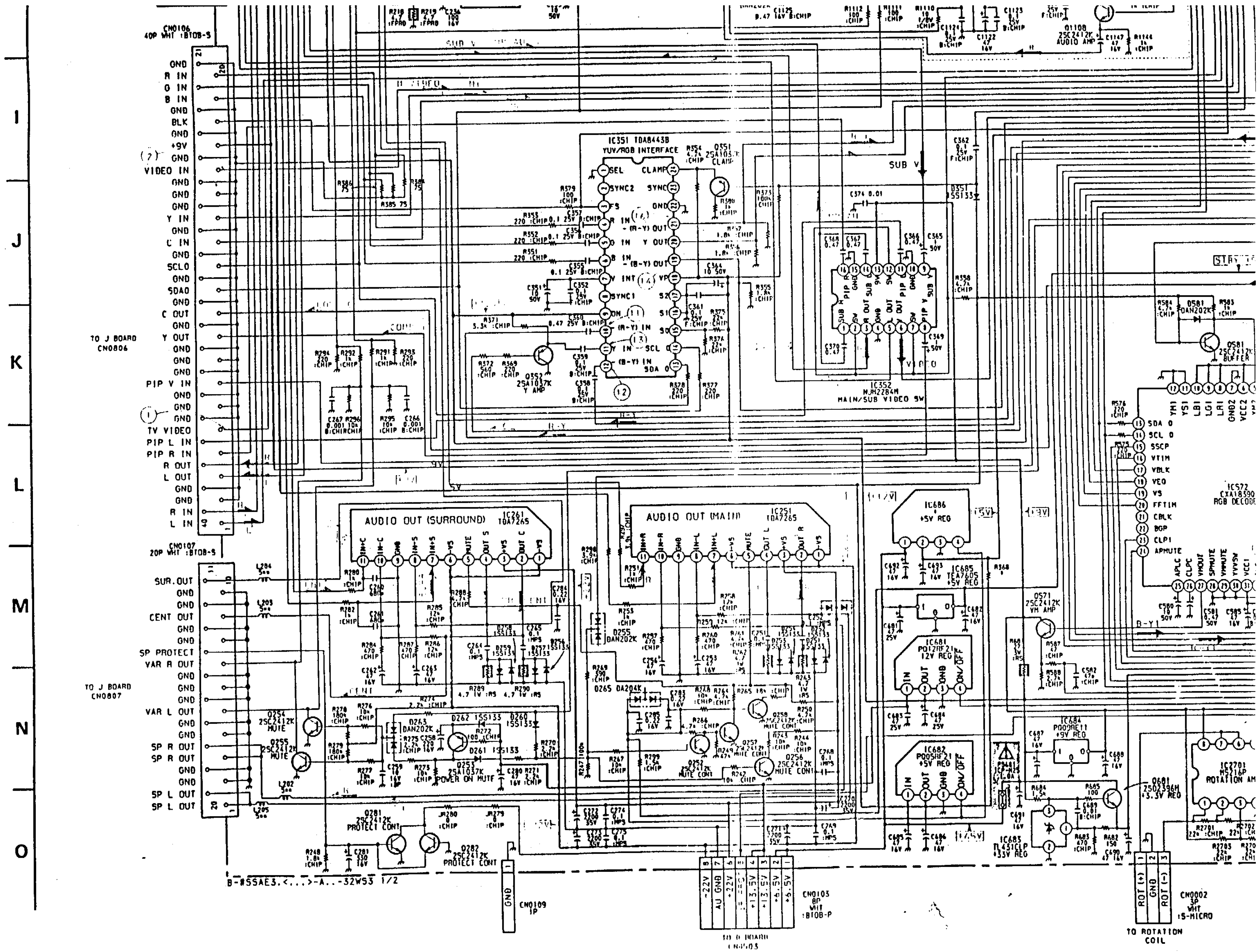

1 2H TIM
2 GND
3 H TIM
4 50/60
5 VIDEO PLL
6 GND
7 CCV OUT
8 CONT 3
9 C (R-Y)
10 CONT 4
11 C (B-Y)
12 SCL 2
13 GND
14 SDA 2
15 CHD
16 CV SYNC
17 COMB Y
18 GND
19 COMB C
20 CLP 3
21 MC IN
22 GND
23 CONT 1
24 CONT 2
25 MV IN
26 +3.3V
27 +5V
28 MY IN
29 GND
30 BY OUT
31 Y OUT
32 RY OUT
33 C (Y)
34 SSCP
35 RY IN
36 Y IN
37 BY IN
38 GND
39 Y1
40 RY1
41 BY1
42 NR ON/OFF
43 PED 1
44 CLP W1
45 GND
46 FF TIM
47 VS
48 VEQ
49 V BLK
50 +9V
TO R1 BOARD CN0502
CN0102 50P WHT :B1DB-S
CN0108 20P
TO R2 BOARD CN9001
SCL
SDA
GND
GND
R-Y IN
B-Y IN
GND
GND
NC
Y IN
SSCP
GND
VIDEO OUT
PAL SW
50/60
+12V
CV SYNC
GND
CHD
+5V
SCL
SDA
GND
GND
V OUT
U OUT
GND
GND
RESET
Y OUT
CLP
GND
NC
3.3V
PAL
+12V
NC
GND
NC
+5V
R360
R359
R361
R362
R363
R364
R365
R366
R367
R1013
LED P+
B/G B/K
TV IB
AOC BEF-M
LC
SUB SW
SDA 1
CLOCK
BIN
AO
VIDEO
H PULSE
AFT
C1043 0.1 25V B:CHIP
V PULSE/100
9V
RESET
FS IN
MUTE
B
G
R
ROT
TXT BLK
H SYNC/50
STBY 1
COR
5V
PLL
SDA 0
12V
V PULS/C
SCL 0
CS
STBY 5V
READY
R1027 1k :CHIP
R1028 1k :CHIP
R1001 1k :CHIP
R1009 100
R1008 100
D1001 DAP202K
D1002 DAN202K
IC1003 X24164S
N.V.M.
IC1001 CXP85112B
SUB U-CON
N.C.
RST
XTAL
XTAL
/SUBVSYNC
VSS
50/60/NOSIO
CS
SDA 0
SDA 3
SCL 0
SCL 3
GND
VDC
VDC
GND
SDA 2
SCL 2
CONT1
CONT2
CONT3
CONT4
READY
ENABLE
N.BC
DHR
HMPULSE
STBY
SHPULSE-V
X1001 4MHz
R1005 1k :CHIP
R1006 1k :CHIP
Q1001 2SA1037K CHD-SW
C1006 47 16V
C1007 0.1 25V F:CHIP
L1002
R1022 10k :CHIP
R1023 1k :CHIP
R1024 1k :CHIP
R1025 1k :CHIP
R1026 1k :CHIP
A (1/2) RGB DECODER, CRT DRIVER, NICAM DECODER, MEGA TEXT, MICRO CONTROLLER
CN0104 8P WHT :B1DB-P
CN0115 4P WHT :S-MICRO
1 +135V
2 GND
3 +9V
4 VM
TO VM BOARD CN1015



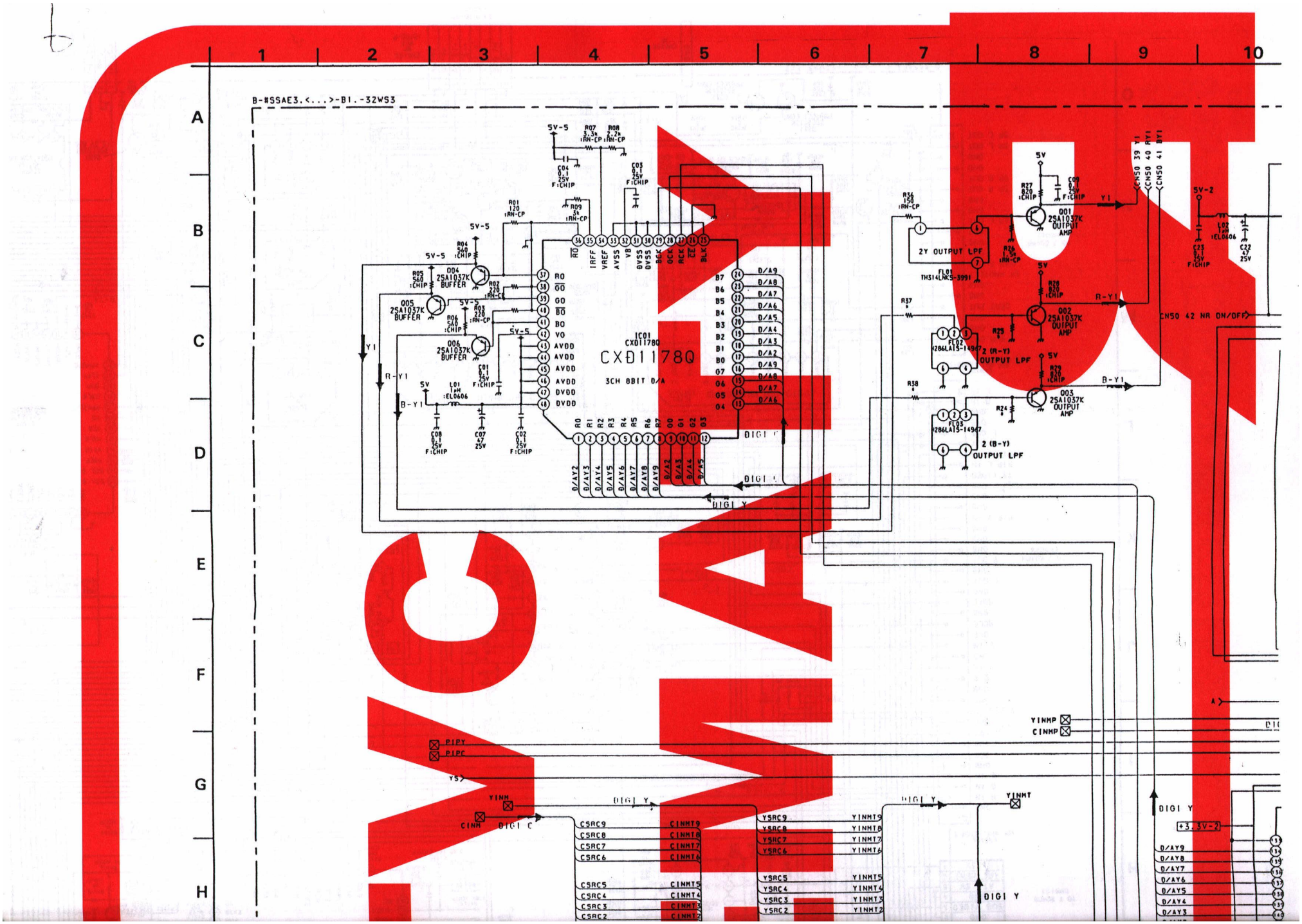
CRT DRIVER
IC1531 CXA1840S
IC572 XA1839Q 3 DECODER
IC1501 STV9379 V-OUT
Q581 2SC2412K BUFFER
Q1531 2SA1037K AMP
Q1532 2SA1037K FREQ CONT
Q1533 2SC2412K HS AMP
Q1549 2SC2412K BUFFER
Q1548 2SA1037K SWITCH
Q1547 2SA1037K ABL AMP
Q1544 2SC2412K PLL
Q1545 2SC2412K PLL
Q1510 2SA1037K
Q1511 DTC144EKA
Q1512 DTC144EKA
Q1507 2SA1037K
Q1508 DTC144EK
Q1506 2SC2412K
Q1001 2SA1037K CHD-5V
Q2701 2SC2412K BUFFER
CN0115 4P WHT :S-MICRO
VM
+9V
GND
+135V
TO VH BOARD CN1015
CN0104 8P WHT :B10B-P
+135V
H.DRIVE
GND
GND
GND
ABL
PROTECT
H.P.
TO D BOARD CN0504
CN0105 8P WHT :B10B-P
+15V PULSE
V+
V-
V PARA +
2H TIM
+15V
GND
-15V
TO D BOARD CN0505
CN0131 8P
+15V PULSE
+15V
GND
GND
-15V
DF DRIVE1
DF DRIVE2
+135V
TO D1 BOARD CN3131
CN0112 4P
DF DRIVE1
+135V
DF DRIVE2
GND
TO D BOARD CN0512
CN0111 7P WHT :S-MICRO
R OUT
G OUT
B OUT
GND
+12V
IK IN
GND
TO C BOARD CN0411



A
B
C
D
E
F
G
H
CN0001 5P RED-1 :S-MICRO
GND
SCL 0
SDA 0
CS
AGC
CN0113 4P WHT :S-MICRO
HR R OUT
GND
HP L OUT
LC
TO HI BOARD CN1113
TU101
IF8101
Q103 DTC124EKA SWITCH
Q110 DTC144EKA ATT SWITCH
Q203 2SC2412K BUFFER
Q102 DTC124EKA SWITCH
D069 DAP202K
D075 DAN202K
D073 MTZJ-5.6B
D071 MTZJ-5.6B
D1003 DAN202K
D101 MTZJ-33C
Q107 2SC2551O-TPE2 REG CONT
Q106 2SA1207 AA +33V REG
CN0101 20P WHT :BTOB-5
CENT IN
+12V
SUR IN
SCLO
SDA1
+9V
GND
CLOCK
DATA
ENABLE
GND
LEO OUT
GND
REO OUT
GND
+5V
RESET
LEO IN
REO IN
GND
TO AI BOARD CN1101
IC201 TDA6812-2MGEG AUDIO CONTROL
IC202 TDA2822M H.P. AMP
IC1101 SAA7283GP NICAM DECODER
FITTED ON NICAM MODELS ONLY
Q1106 2SC2412K AUDIO AMP
Q1105 2SC2412K AUDIO AMP
Q1107 2SC2412K AUDIO AMP
Q1108 2SC2412K AUDIO AMP
D1101 DAN202K
D1102 1SV214
CN0153 7P
SUB AUDIO
GND
SUB VIDEO
GND
ATT SW
AOC MONI
+33V
TO T BOARD CN5152
CN0106 40P WHT :BTOB-5
GND
R IN
G IN
B IN
GND



I
J
K
L
M
N
O
CN0106
40P WHT :B10B-S
GND
R IN
G IN
B IN
BLK
+9V
VIDEO IN
Y IN
C IN
SCLO
SDAO
C OUT
Y OUT
PIP V IN
TV VIDEO
PIP L IN
PIP R IN
R OUT
L OUT
L IN
TO J BOARD CN0806
CN0107
20P WHT :B10B-S
SUR.OUT
CENT OUT
SP PROTECT
VAR R OUT
VAR L OUT
SP R OUT
SP L OUT
TO J BOARD CN0807
IC351 TDA8443B
YUV/RGB INTERFACE
IC352
NJM2284M
MAIN/SUB VIDEO SW
SUB V
AUDIO OUT (SURROUND)
IC261 TDA7265
AUDIO OUT (MAIN)
IC251 TDA7265
IC686
+5V REG
IC685
TEA7605
+5V REG
IC681
PQ12RF21
12V REG
IC682
PQ05RF21
+5V REG
IC684
PQ09RE11
+9V REG
IC683
TL431CLP
+33V REG
Q571
2SC2412K
VM AMP
Q681
2SD2396M
+3.3V REG
IC572
CXA1839Q
RGB DECODE
IC2701
M5216P
ROTATION AMP
Q581
2SC2412K
BUFFER
Q281
2SC2412K
PROTECT CONT
Q282
2SC2412K
PROTECT CONT
GND
CN0109
1P
-22V
AU GND
+13.5V
-13.5V
+6.5V
-6.5V
CN0103
8P
WHT
:B10B-P
TO D BOARD CN0103
ROT (+)
ROT (-)
CN0002
3P
WHT
:S-MICRO
TO ROTATION COIL
B-#55AE3.<...>-A..-32WS3 1/2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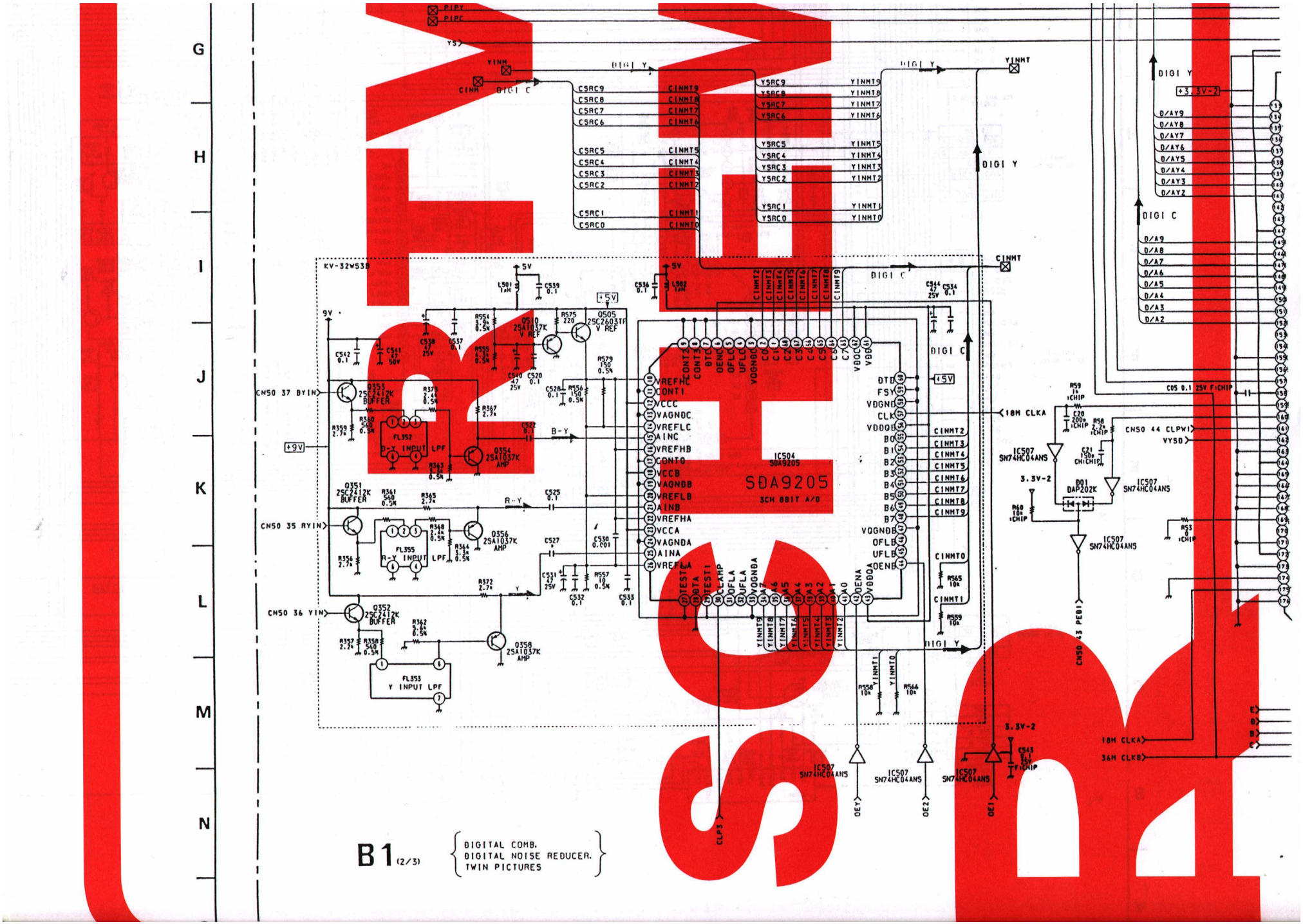
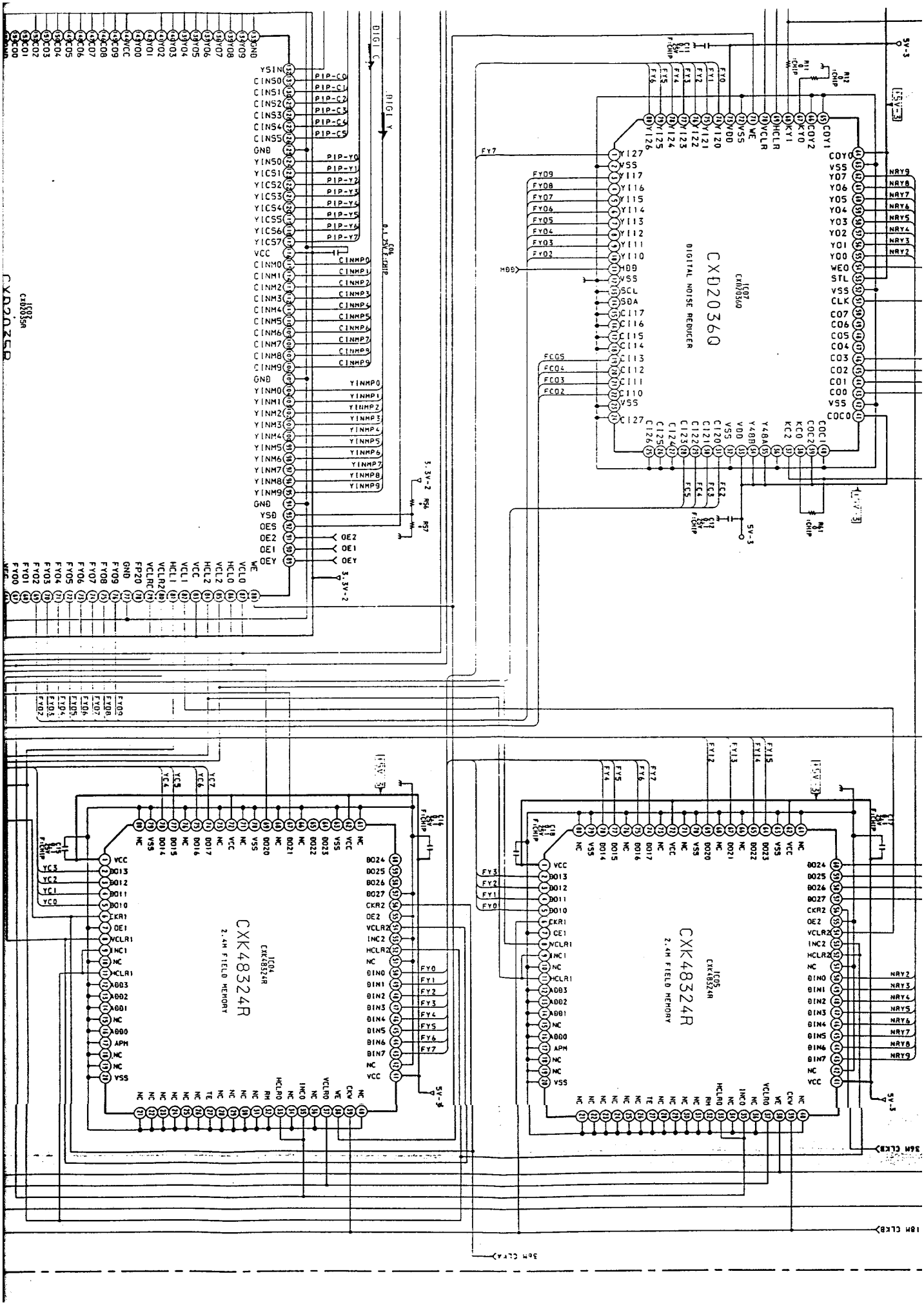
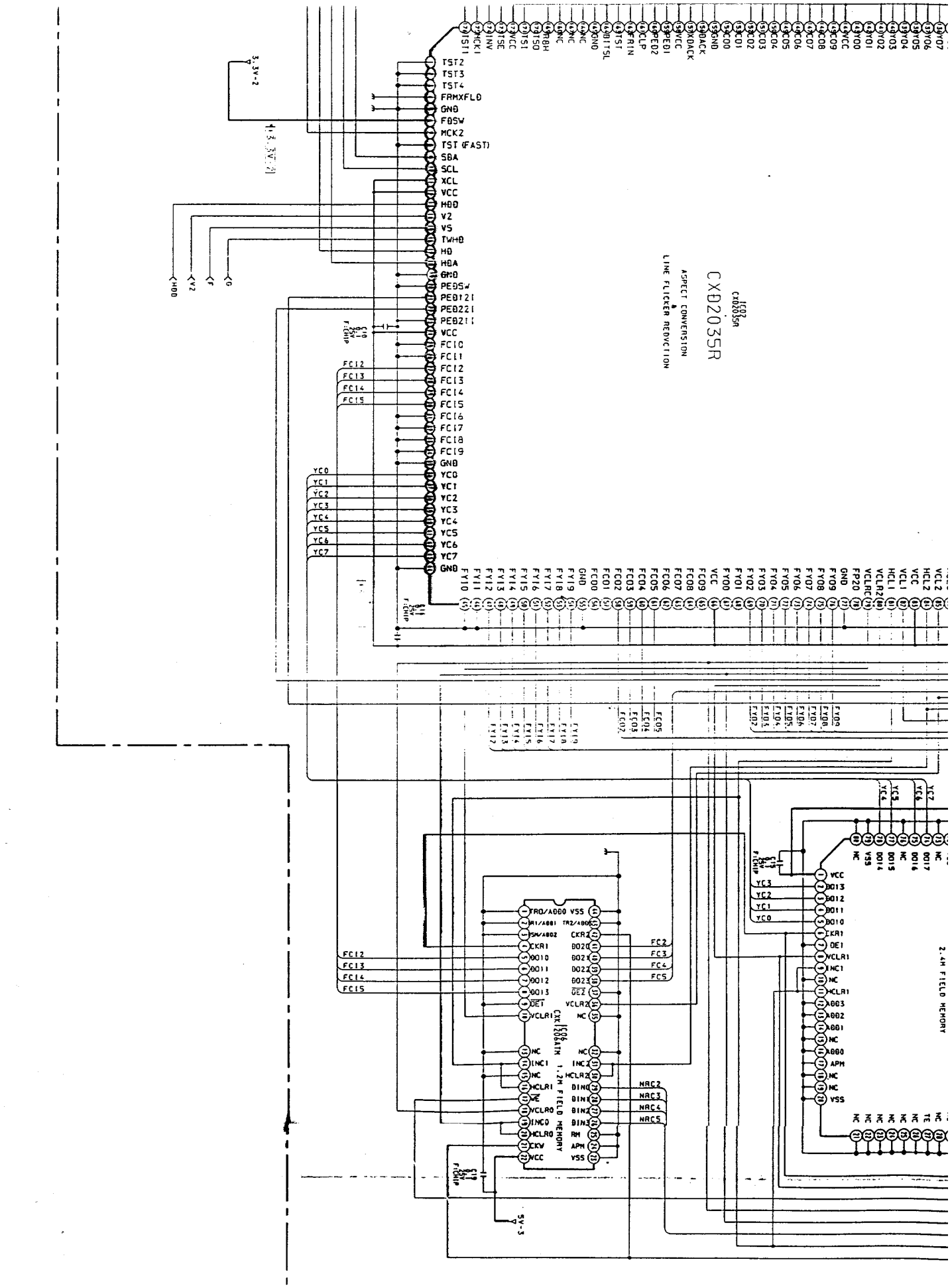
IC01
CXD1178Q
3CH 8BIT D/A
CXD1178Q
2Y OUTPUT LPF
2 (R-Y)
OUTPUT LPF
2 (B-Y)
OUTPUT LPF
Q001 2SA1037K OUTPUT AMP
Q002 2SA1037K OUTPUT AMP
Q003 2SA1037K OUTPUT AMP
Q004 2SA1037K BUFFER
Q005 2SA1037K BUFFER
Q006 2SA1037K BUFFER
FL01 TH314LWC5-3991
FL02 4286LA15-14947
FL03 4286LA15-14947
5V-5
5V
5V-2
Y I
R-Y I
B-Y I
DIGI Y
DIGI C
YINMP
CINMP
PIPY
PIPC
YINM
CINM
YINMT
CN50 39 Y I
CN50 40 R-Y I
CN50 41 B-Y I
CN50 42 NR ON/OFF
+3.3V-2

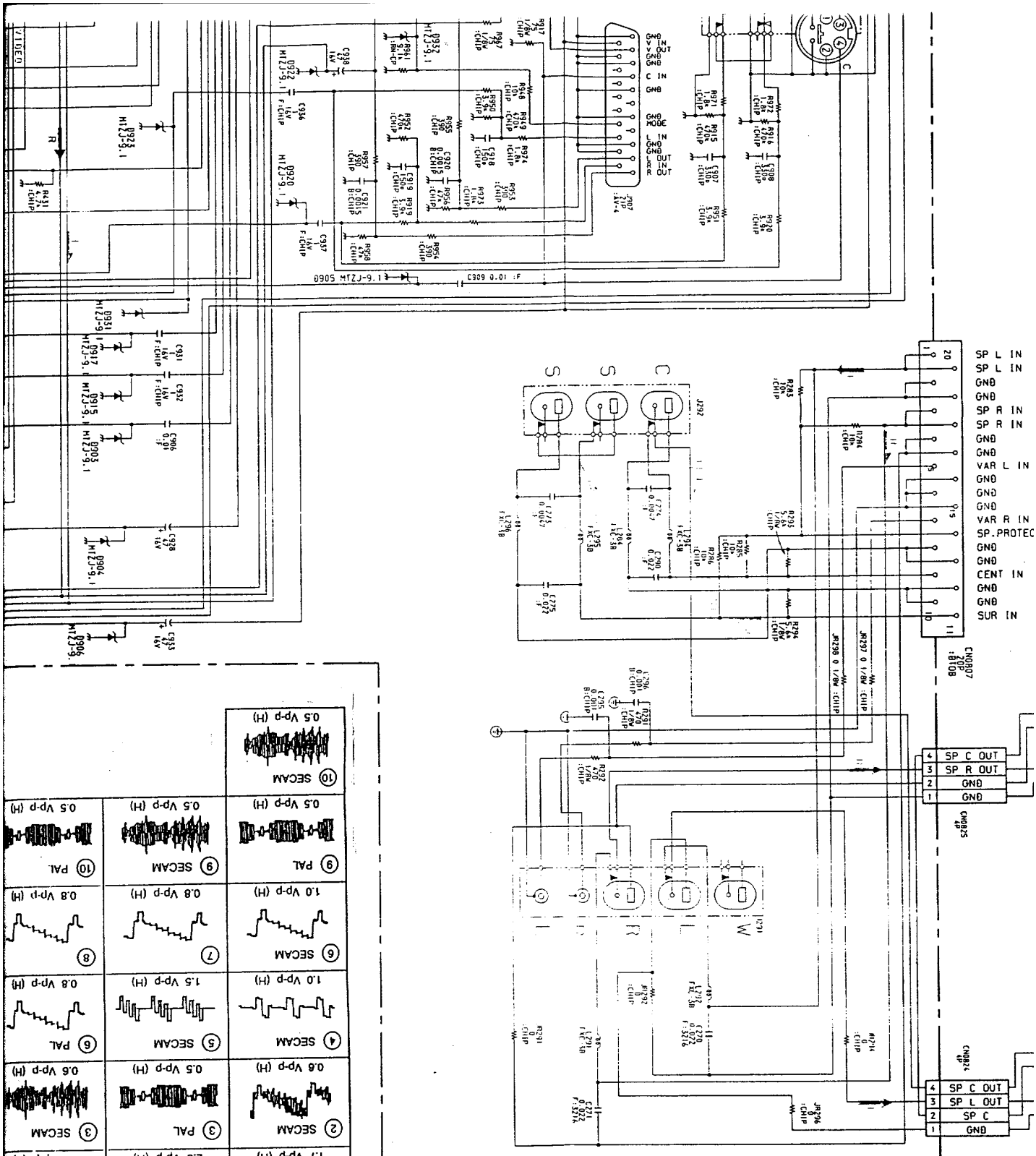


B1 (2/3)

{ DIGITAL COMB.
DIGITAL NOISE REDUCER.
TWIN PICTURES }


CXD2036Q
DIGITAL NOISE REDUCER
CXK48324R
2.4M FIELD MEMORY
CXD2035R
5V-3
3.3V-2
36M CLKA
18M CLKB


CXD2035R
ASPECT CONVERSION & LINE FLICKER REDUCTION
1.2M FIELD MEMORY
2.4M FIELD MEMORY
TST2
TST3
TST4
FRMXFL0
GND
F0SW
MCK2
TST (FAST)
SBA
SCL
XCL
VCC
H00
V2
V5
TWH0
H0
H0A
GM0
PE05W
PE0121
PE0221
PE0211
FC10
FC11
FC12
FC13
FC14
FC15
FC16
FC17
FC18
FC19
YC0
YC1
YC2
YC3
YC4
YC5
YC6
YC7
FY10
FY11
FY12
FY13
FY14
FY15
FY16
FY17
FY18
FY19
FC00
FC01
FC02
FC03
FC04
FC05
FC06
FC07
FC08
FC09
FY00
FY01
FY02
FY03
FY04
FY05
FY06
FY07
FY08
FY09
VCL1
VCL2
HCL1
HCL2
FP20
VCLR2
VCLRC
5V-3
3.3V-2



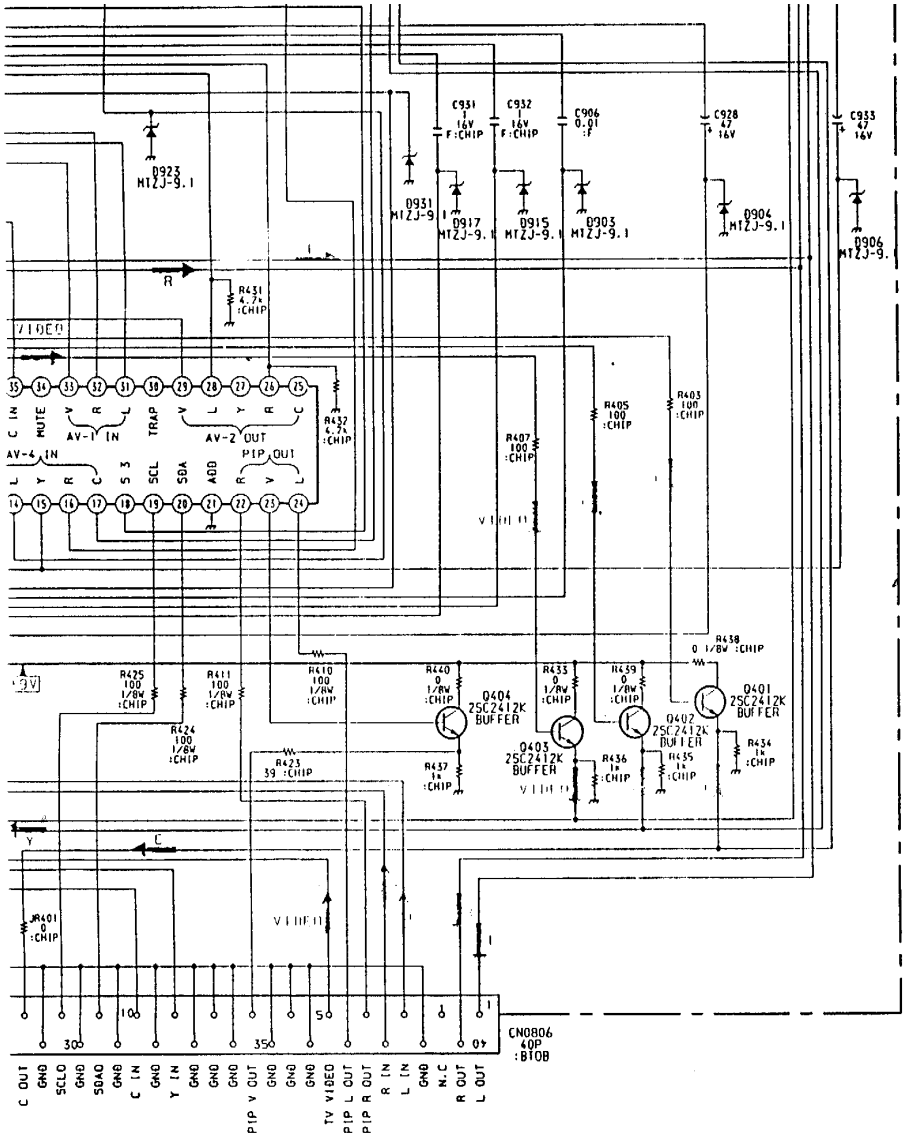
WAVEFORMS B1 BOARD

⑩ SECAM 0.5 Vp-p (H)		
⑨ PAL 0.5 Vp-p (H)	⑨ SECAM 0.5 Vp-p (H)	⑩ PAL 0.5 Vp-p (H)
⑥ SECAM 1.0 Vp-p (H)	⑦ 0.8 Vp-p (H)	⑧ 0.8 Vp-p (H)
④ SECAM 1.0 Vp-p (H)	⑤ SECAM 1.5 Vp-p (H)	⑥ PAL 0.8 Vp-p (H)
② SECAM 0.6 Vp-p (H)	③ PAL 0.5 Vp-p (H)	③ SECAM 0.6 Vp-p (H)
① PAL 1.7 Vp-p (H)	① SECAM 2.0 Vp-p (H)	② PAL 0.6 Vp-p (H)

Ref.No.	Pin No.	(B) Base	(C) Collector	(E) Emitter
Q401		5.7	9.0	-0.3
Q402		5.5	9.0	5.0
Q403/404		4.4	9.0	3.9

Ref.No.	Pin No.	Voltage (V)
IC401	1-6	4.5
	7-11	4.5
	12-17	4.5
	18-20	4.5
	21-23	4.5
	24	2.2
	25	1.8
	26	4.5
	27	4.7
	28	8.5
	29	8.4
	30-31	4.4
	32	4.5
	33-34	4.5
	35	8.5
	36	8.5
	37	8.5
	38-39	4.5
	40-41	4.4
	42	4.5
	43	8.5
	44	8.4
	45	8.5
	46	4.7
	47-48	4.5
IC402	1	4.5
	2	1.8
	3	2.5
	4	8.6
	5	1.7
	6	8.6
	7	2.2
	8	

B1 BOARD (1/3) * MARK



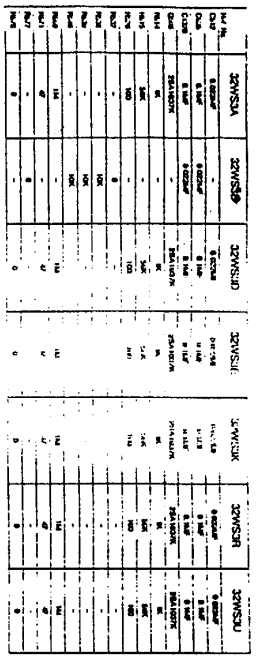
1 BOARD

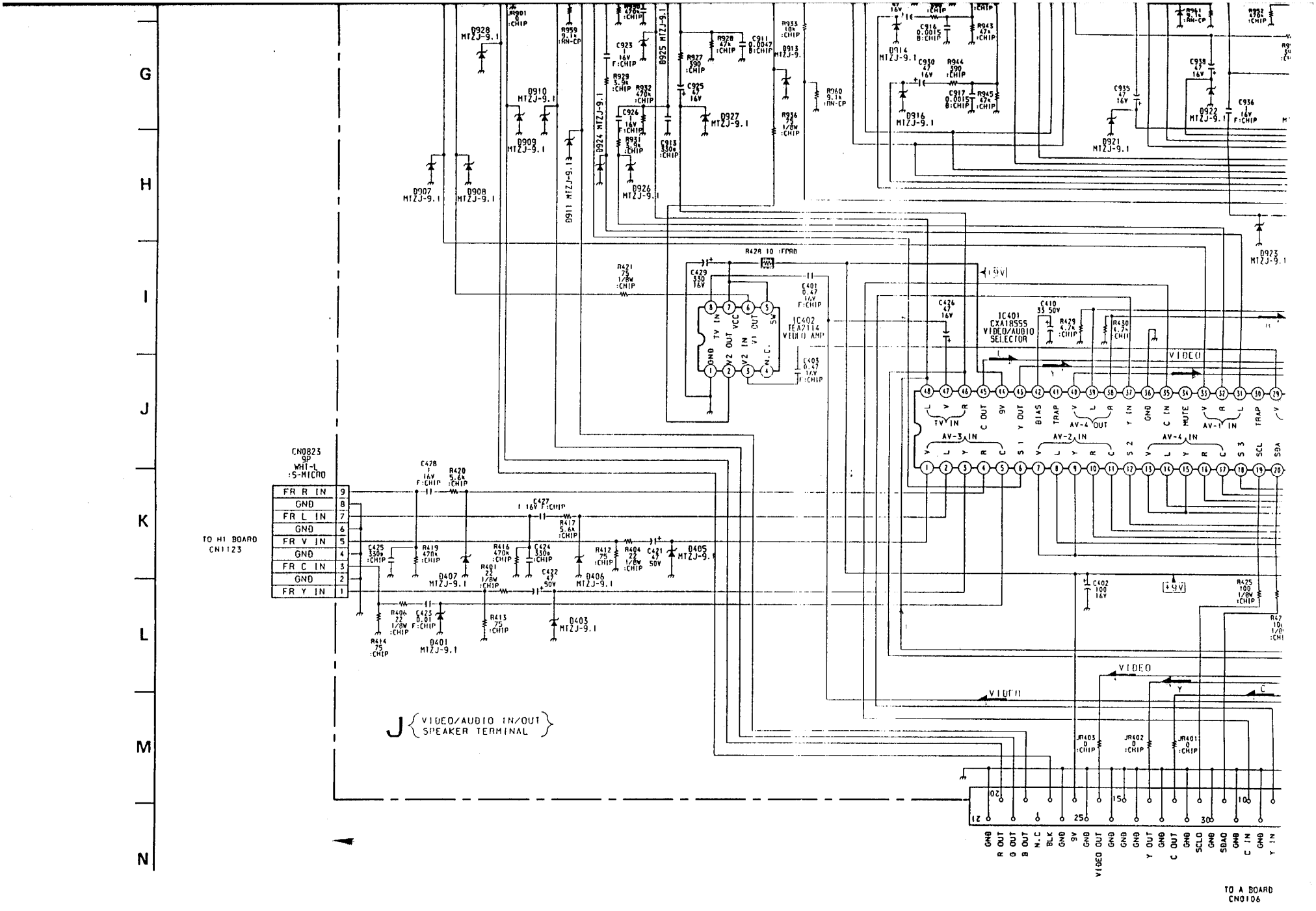
① SECAM	2.0 Vp-p (H)	② PAL	0.6 Vp-p (H)
③ PAL	0.5 Vp-p (H)	③ SECAM	0.6 Vp-p (H)
⑤ SECAM	1.5 Vp-p (H)	⑥ PAL	0.8 Vp-p (H)
⑦	0.8 Vp-p (H)	⑧	0.8 Vp-p (H)
⑨ SECAM	0.5 Vp-p (H)	⑩ PAL	0.5 Vp-p (H)

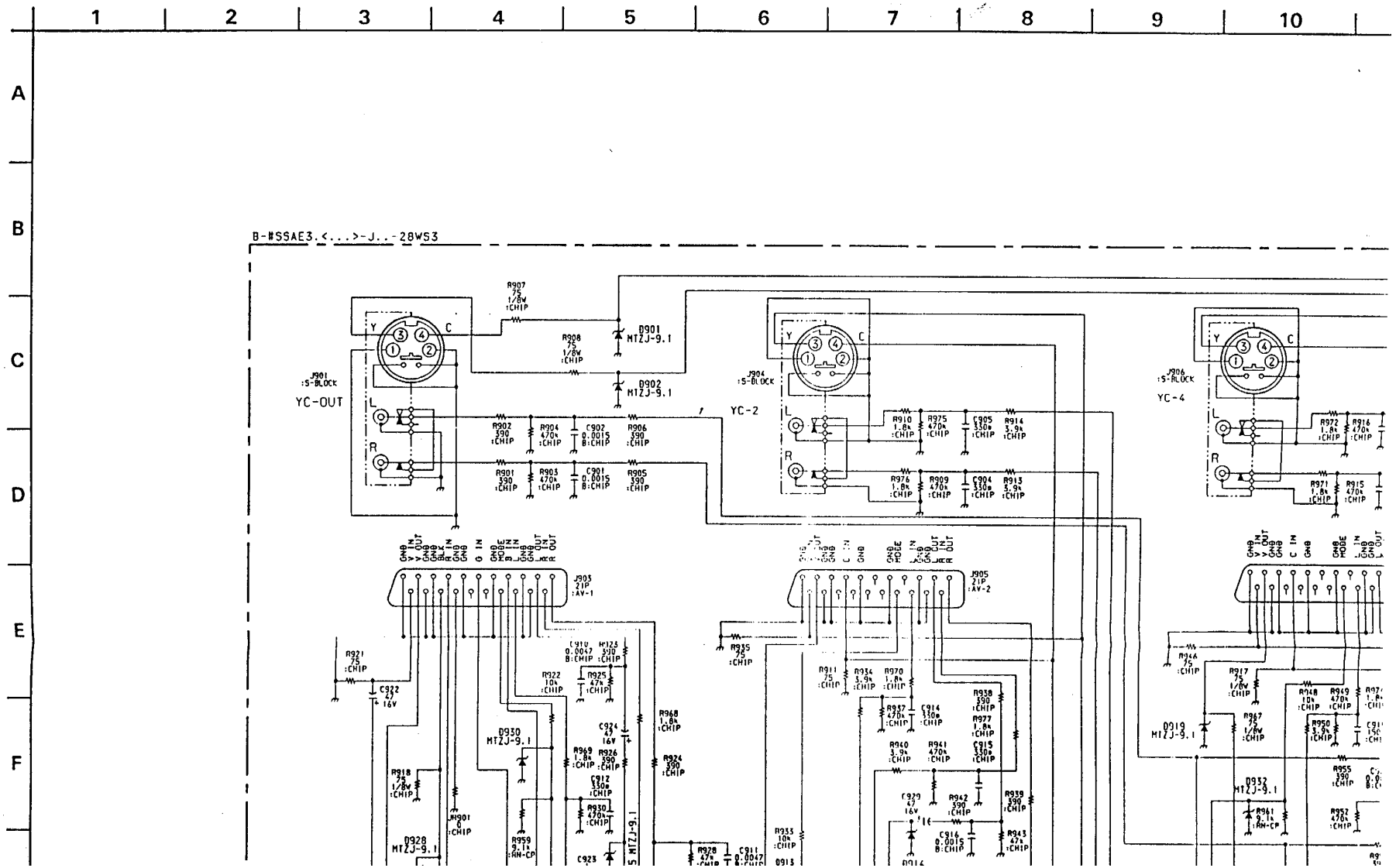
Ref.No.	Pin No.	Voltage (V)
IC301	10-11	3.2
	12	1.1
	13-16	3.2
	18-20	3.2
	21	2.3
	24	1.7
	29	3.2
IC302	1	3.0
	3	0.4
	4	3.2
	6	4.4
	7-8	3.0
	9	0.4
	12	3.2
	13	0.5
	21	2.4
	22-23	3.2
	24	0.1
	26	3.2
	27	0.1
	28-29	3.2
	30	3.0
	31-36	3.2
	39	4.8
	40	2.0
	43	4.8
	45	3.1
	46	3.1
	47-48	4.8
	49	3.2
	51	3.2
	53	3.2
	60	3.1
	93	3.1
IC502	3	3.1
	5	1.0
	6	1.6
	7-9	1.0
	11	1.5
	12	3.2
	13	1.5
	15	1.8
	16	1.8
	17	1.2
	19-20	1.6
	21	3.2
	23-25	1.8
	26	1.7
	27	3.1
	28	0.3
	29	1.1
	30	1.6
	31	1.2
	32-33	1.5
	34-35	1.3
	63	3.1
	63	3.1
	65-66	3.1
	67	4.2
	68	3.1
	69	4.1
	70	3.1
	72	3.1
	73	1.8
	75	0.1
	76-77	3.1
	89	3.1
IC503	31-33	1.2
	35	1.2
	37	1.9
	40	2.0
	41-42	5.0
	43-44	3.0
	46	3.0
	48	3.0
	50	0.6
	52-53	4.8
	54	0.6
	56	4.8
	58	0.6
	60-61	4.8
	62	1.4
IC 505	2	1.2
	4	1.2
	6	1.2
	14	1.5
	16	1.5
	18	1.5
	20	4.8
IC 506	2	1.0
	4	1.0
	6	1.0
	8	1.0
	12	1.3
	14	1.4
	16	1.4
	18	1.4
	20	4.8
IC1301	1	4.4
	5	8.0
	9	3.2
	10	4.2
	11-12	2.9
	19	0.8
	20	7.0
IC1302	4	2.8
	5-6	4.2
	7	2.2
	8	0.1
	9	0.2
	10	2.4
	11	3.0
	12-13	2.6
	15	2.3
	16	0.1
	17	3.0
	19-21	2.8
	22	3.6
	24	3.6
	26	3.6
	27	8.8
	30	4.2
	31-32	4.0

All Voltages are indicated in Volts DC

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q301	0.4	0	1.1
Q302	1.0	0	1.8
Q303	1.0	0	1.8
Q304	0.5	0	1.2
Q305	1.0	0	1.7
Q306	2.1	8.1	1.4
Q307	8.2	8.8	8.6
Q308	8.2	8.8	8.6
Q309	2.1	8.2	1.8
Q501/502/503	0.6	0	1.3
Q504	1.9	0	1.9
Q507	1.2	0	1.9
Q508	1.3	0	1.9
Q509	1.2	0	1.9
Q1301	3.4	8.8	2.8
Q1302	3.4	3.4	2.9
Q1303	0	7.5	0
Q1304	7.5	8.8	6.9
Q1307	0	8.7	0.8
Q1316	0.6	0.3	0
Q1318	3.2	0.2	3.2
Q1319	3.2	0.1	3.2




CN0823
9P
WHT-L
:S-MICRO
FR R IN
GND
FR L IN
GND
FR V IN
GND
FR C IN
GND
FR Y IN
TO H1 BOARD
CN1123
J {VIDEO/AUDIO IN/OUT SPEAKER TERMINAL}
IC401
CXA1855S
VIDEO/AUDIO
SELECTOR
IC402
TEA2114
VIDEO AMP
VIDEO
TO A BOARD
CN0106


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
B-#SSAE3.<...>-J..-28WS3
J901
:S-BLOCK
YC-OUT
J904
:S-BLOCK
YC-2
J906
:S-BLOCK
YC-4
J905
21P
:AV-1
J905
21P
:AV-2
D901
MTZJ-9.1
D902
MTZJ-9.1
D928
MTZJ-9.1
D930
MTZJ-9.1
D919
MTZJ-9.1
D932
MTZJ-9.1
R907
75
1/8W
:CHIP
R908
75
1/8W
:CHIP
R902
390
:CHIP
R904
470k
:CHIP
C902
0.0015
B:CHIP
R906
390
:CHIP
R901
390
:CHIP
R903
470k
:CHIP
C901
0.0015
B:CHIP
R905
390
:CHIP
R910
1.8k
:CHIP
R975
470k
:CHIP
C905
330p
:CHIP
R914
5.9k
:CHIP
R976
1.8k
:CHIP
R909
470k
:CHIP
C904
330p
:CHIP
R913
5.9k
:CHIP
R972
1.8k
:CHIP
R916
470k
:CHIP
R971
1.8k
:CHIP
R915
470k
:CHIP
R921
75
:CHIP
C922
47
16V
R922
10k
:CHIP
C910
0.0047
B:CHIP
R925
47k
:CHIP
R968
1.8k
:CHIP
R924
390
:CHIP
C924
47
16V
R969
1.8k
:CHIP
R926
390
:CHIP
C912
330p
:CHIP
R930
470k
:CHIP
R918
75
1/8W
:CHIP
R901
0
:CHIP
R959
9.1k
:AN-CP
C923
R928
47k
C911
0.0047
B:CHIP
R933
10k
:CHIP
R935
75
:CHIP
R911
75
:CHIP
R934
5.9k
:CHIP
R970
1.8k
:CHIP
R938
390
:CHIP
R937
470k
:CHIP
C914
330p
:CHIP
R977
1.8k
:CHIP
R940
3.9k
:CHIP
R961
470k
:CHIP
C913
330p
:CHIP
C929
47
16V
R942
390
:CHIP
R939
390
:CHIP
C916
0.0015
B:CHIP
R943
47k
:CHIP
R944
75
:CHIP
R917
75
1/8W
:CHIP
R948
10k
:CHIP
R949
470k
:CHIP
R967
75
1/8W
:CHIP
R950
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R955
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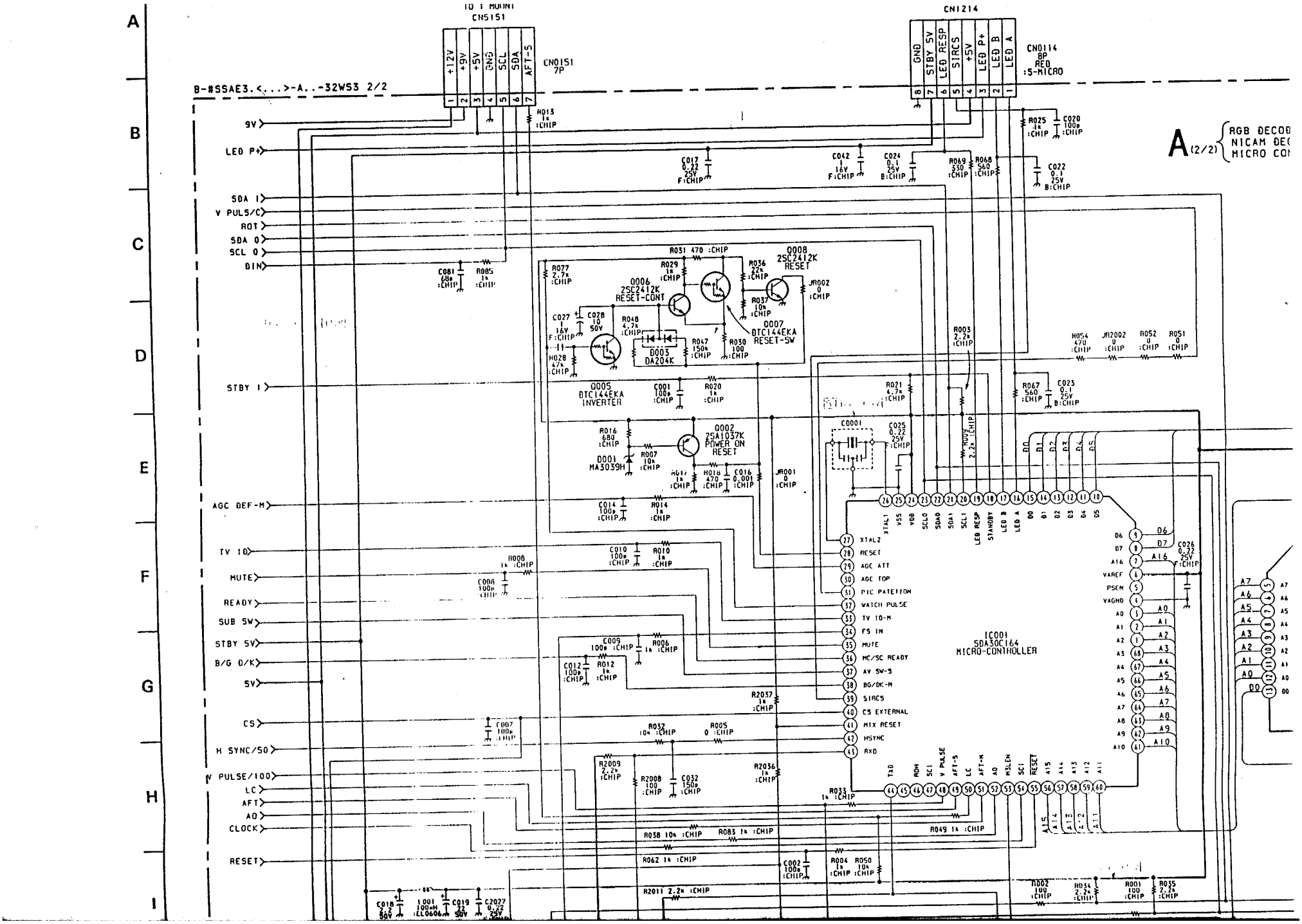
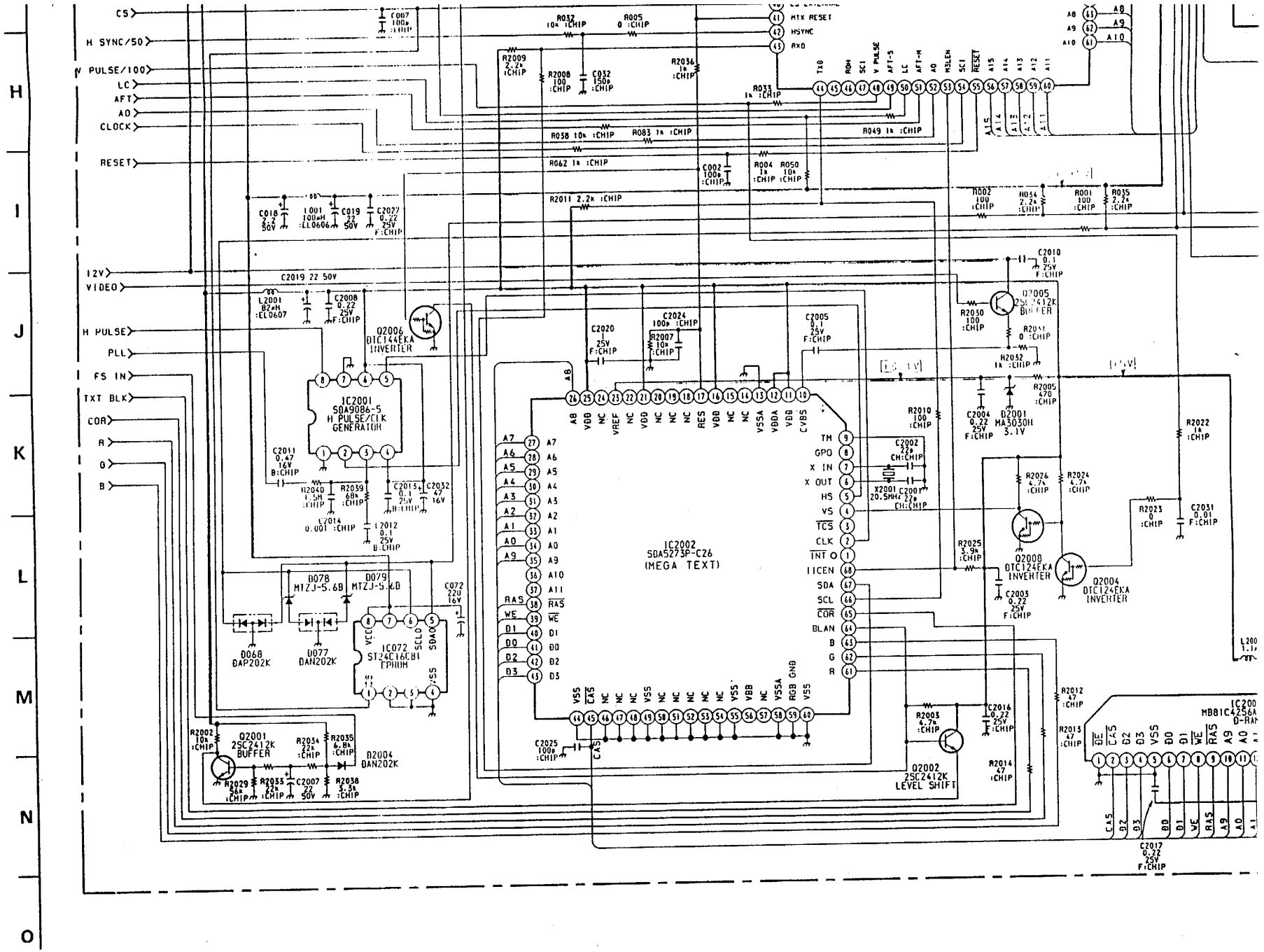
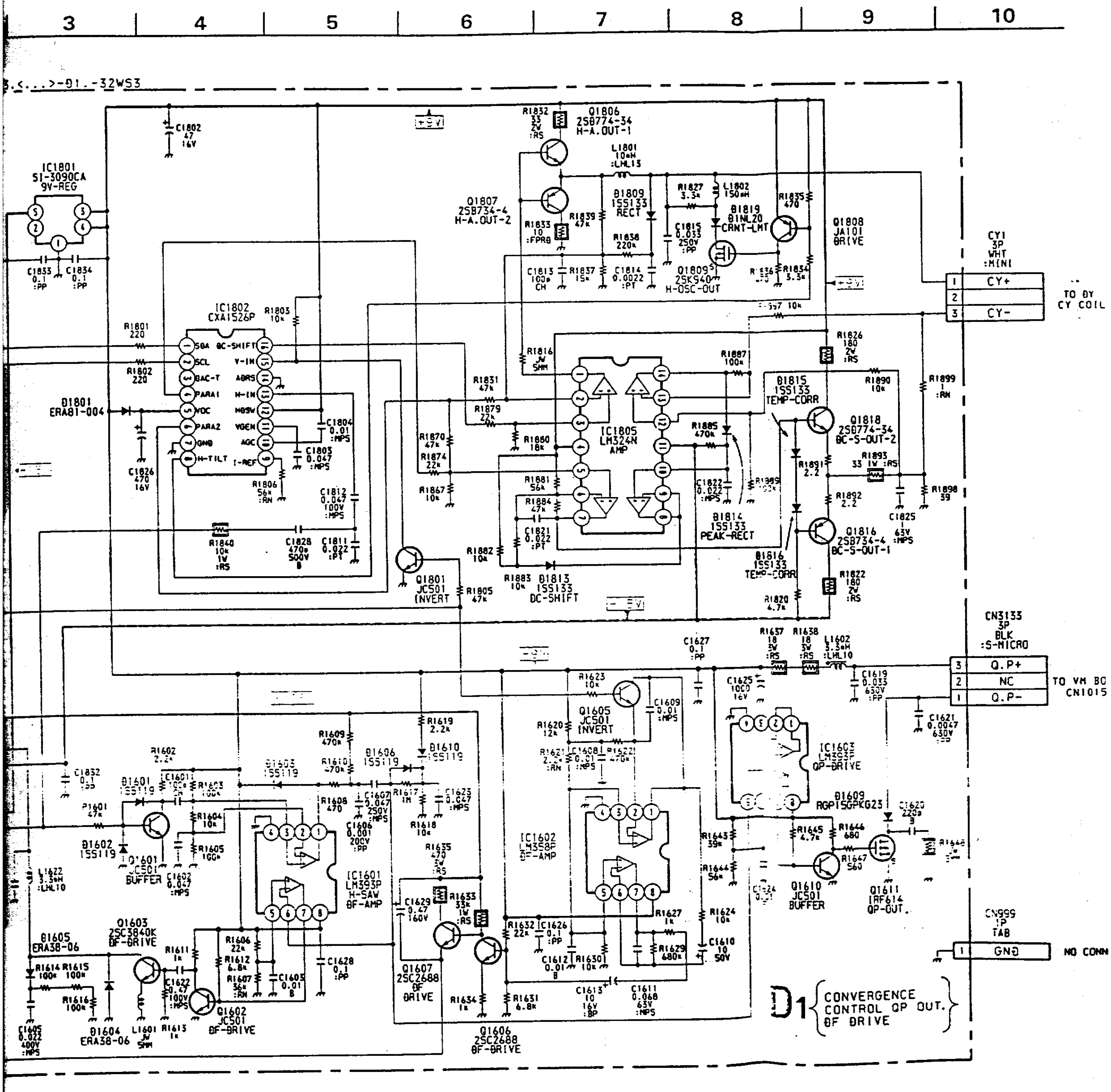
R961
9.1k
:AN-CP
R952
470k
:CHIP


B-#SSAE3.<...>-A..-32WS3 2/2
CN5151
CN0151 7P
+12V
+9V
+5V
GND
SCL
SDA
AFT-S
CN1214
CN0114 8P RED :S-MICRO
GND
STBY 5V
LED RESP
SIRCS
+5V
LED P+
LED B
LED A
A (2/2) RGB DECOD NICAM DEC MICRO CO
9V
LED P+
SDA I
V PULS/C
ROT
SDA O
SCL O
DIN
STBY I
AGC DEF-M
TV IO
MUTE
READY
SUB SW
STBY 5V
B/G D/K
5V
CS
H SYNC/50
V PULSE/100
LC
AFT
AO
CLOCK
RESET
Q0006 2SC2412K RESET-CONT
Q0008 2SC2412K RESET
Q0007 DTC144EKA RESET-SW
Q0003 DA204K
Q0005 DTC144EKA INVERTER
Q0002 2SA1037K POWER ON RESET
D0001 MA3039H
IC001 SDA30C164 MICRO-CONTROLLER
XTAL2
RESET
AGC ATT
AGC TOP
PIC PATTERN
WATCH PULSE
TV IO-M
FS IN
MUTE
MC/SC READY
AV SW-S
BG/DK-M
SIRCS
CS EXTERNAL
MIX RESET
HSYNC
RXD
XTAL1
VSS
VDD
SCL0
SDA0
SDA1
SCL1
LED RESP
STANDBY
LED B
LED A
D0
D1
D2
D3
D4
D5
D6
D7
A16
VAREF
PSEN
VAGND
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
TXD
RDM
SCI
V PULSE
AFT-S
LC
AFT-M
AO
MSLCH
SCI
RESET
A15
A14
A13
A12
A11


CS
H SYNC/50
V PULSE/100
LC
AFT
AD
CLOCK
RESET
12V
VIDEO
H PULSE
PLL
FS IN
TXT BLK
COR
R
G
B
IC2001
SDA9086-5
H PULSE/CLK
GENERATOR
IC2002
SDA5273P-C26
(MEGA TEXT)
IC072
ST24C16CB1
EPROM
Q2001
2SC2412K
BUFFER
Q2002
2SC2412K
LEVEL SHIFT
Q2005
2SC2412K
BUFFER
Q2006
DTC144EKA
INVERTER
Q2008
DTC124EKA
INVERTER
Q2004
DTC124EKA
INVERTER
D2001
MA3030H
3.1V
D078
MTZJ-5.6B
D079
MTZJ-5.6B
D068
DAP202K
D077
DAN202K
D2004
DAN202K
X2001
20.5MHz
MB81C4256A
D-RAM



3
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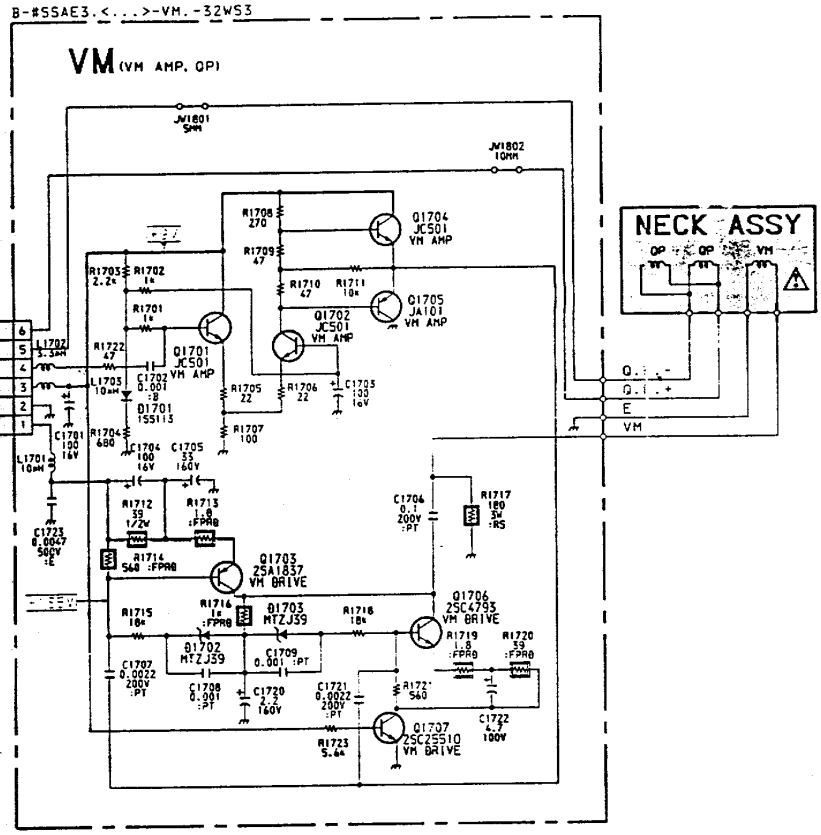
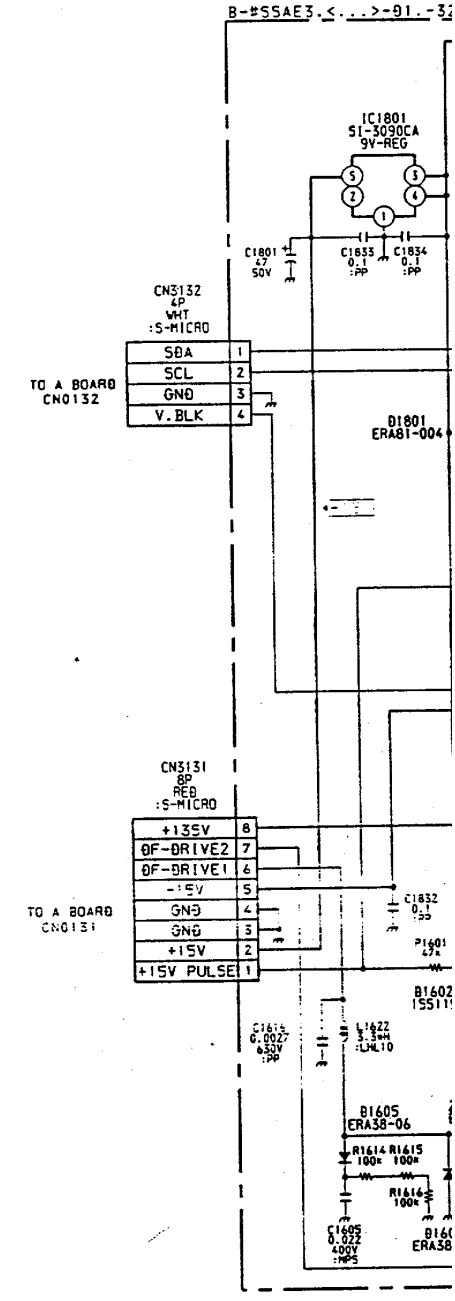
IC1801
SI-3090CA
9V-REG
IC1802
CXA1526P
IC1805
LM324N
AMP
Q1806
2SB774-34
H-A.OUT-1
Q1807
2SB734-4
H-A.OUT-2
Q1808
JA101
DRIVE
Q1809
2SK940
H-OSC-OUT
Q1818
2SB774-34
BC-S-OUT-2
Q1816
2SB734-4
BC-S-OUT-1
Q1801
JC501
INVERT
CY1
3P
WHT
:MINI
CY+
CY-
TO DY
CY COIL
CN3133
3P
BLK
:S-MICRO
Q.P+
NC
Q.P-
TO VM BD
CN1015
IC1603
QP-DRIVE
Q1611
IRF614
QP-OUT
Q1610
JC501
BUFFER
IC1602
LM358P
DF-AMP
IC1601
LM393P
H-SAW
DF-AMP
Q1605
JC501
INVERT
Q1606
2SC2688
DF-DRIVE
Q1607
2SC2688
DF
DRIVE
Q1603
2SC3840K
DF-DRIVE
Q1602
JC501
DF-DRIVE
Q1601
JC501
BUFFER
CN999
1P
TAB
GND
NO CONN
D1
CONVERGENCE
CONTROL QP OUT.
DF DRIVE

B-#SSAE3.<...>-VM.-32WS3



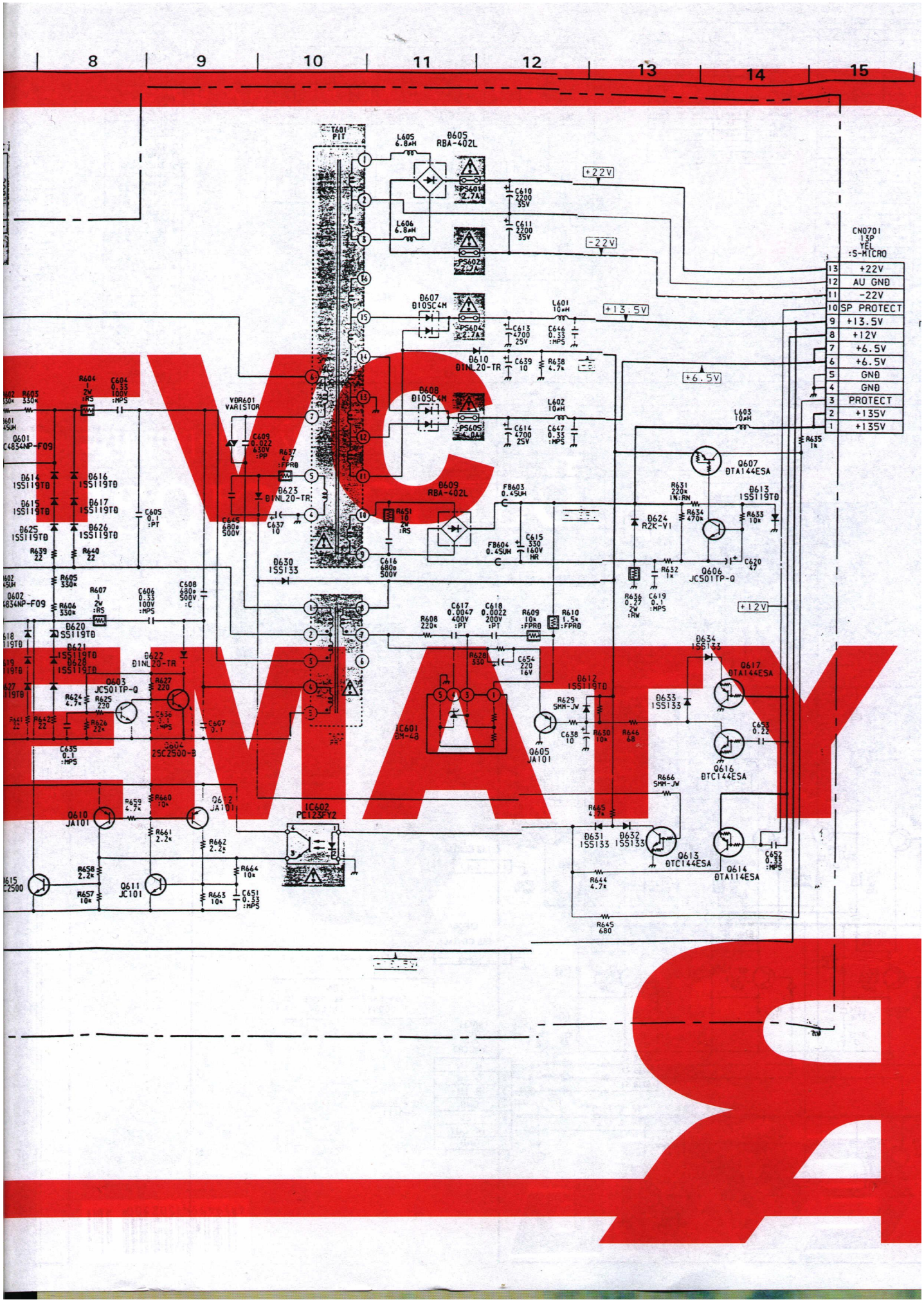
B-#SSAE3.<...>-01.-32

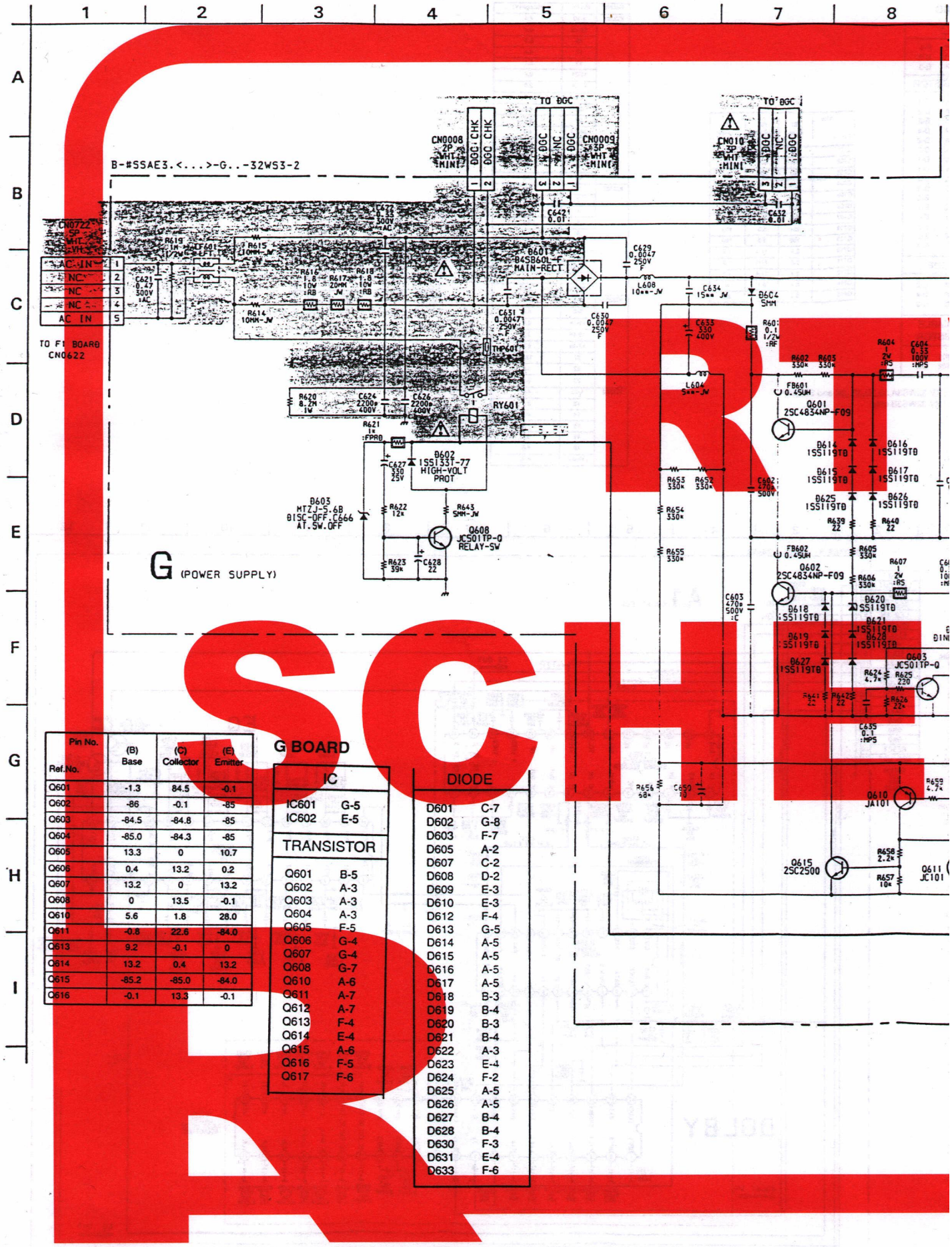


(B) Base	(C) Collector	(E) Emitter
2.5	9.0	1.8
2.5	6.0	1.8
135.0	55	0
6.7	9.0	6.3
6.0	0	6.3
0.6	55.0	0
0.7	0	0
0	0	0
0	0.2	0

Ref.No.	Pin No.	Voltage (V)
IC1601	1	1.8
	2	4.3
	3	4.6
	5	5.6
	6	5.4
	7	0.4
	8	9.0
IC1602	1	2.8
	2-3	3.7
	5-7	3.7
	8	9.0
IC1603	1-2	1.5
	3	1.3
	5	5.4
	6	5.3
	7	0.4
	8	9.0
IC1801	3-4	9.0
	5	14.0
IC1802	1	4.0
	2	4.0
	3	0.6
	4	4.0
	5	8.7
	6	3.2
	8	5.0
	9	2.0
	10	4.7
	11	5.0
	12	9.0
	13	4.5
	15	7.5
	16	3.3
IC1805	1	2.5
	2-3	1.4
	4	9.0
	5-6	1.4
	7	2.3
	8-10	-0.6
	11	-16.2
	12	1.0
	13	1.1
	14	-0.2

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q1601	0.4	1.5	0
Q1602	0.4	0.7	0
Q1603	0	90.0	-0.6
Q1605	0.2	2.8	3.7
Q1606	1.5	110.5	2.0
Q1607	110.5	134.9	109.5
Q1610	0.4	4.2	0
Q1801	0.1	7.5	0
Q1806	2.8	6.8	2.2
Q1807	2.8	0	2.2
Q1808	8.6	4.1	9.0
Q1816	1.1	-12.9	1.7
Q1818	2.4	4.5	1.8


8
9
10
11
12
13
14
15
T601 PIT
L605 6.8uH
D605 RBA-402L
PS601 2.7A
L606 6.8uH
PS602 2.7A
+22V
-22V
C610 2200 35V
C611 2200 35V
CN0701 13P YEL :S-MICRO
13 +22V
12 AU GND
11 -22V
10 SP PROTECT
9 +13.5V
8 +12V
7 +6.5V
6 +6.5V
5 GND
4 GND
3 PROTECT
2 +135V
1 +135V
D607 D10SC4M
PS604 2.7A
L601 10uH
+13.5V
C613 4700 25V
C646 0.33 :MPS
D610 D1NL20-TR
C639 10
R638 4.7k
+6.5V
D608 D10SC4M
PS605 4.0A
L602 10uH
C614 4700 25V
C647 0.33 :MPS
L603 10uH
R635 1k
Q607 DTA144ESA
R604 1 2W :RS
C604 0.33 100V :MPS
R603 330k
VDR601 VARISTOR
Q601 C4834NP-F09
C609 0.022 630V :PP
R637 47 :FPRB
D623 D1NL20-TR
C637 10
C645 680p 500V
D609 RBA-402L
R651 10 2W :RS
C616 680p 500V
FB603 0.45UH
FB604 0.45UH
C615 330 160V NR
D624 R2K-V1
R631 220k 1%:RN
D613 1SS119TD
R634 470k
R633 10k
R632 1k
Q606 JC501TP-Q
C620 47
R636 0.27 2W :RW
C619 0.1 :MPS
+12V
D614 1SS119TD
D616 1SS119TD
D615 1SS119TD
D617 1SS119TD
D625 1SS119TD
D626 1SS119TD
C605 0.1 :PT
R639 22
R640 22
D630 1SS133
R605 330k
R606 330k
R607 1 2W :RS
C606 0.33 100V :MPS
C608 680p 500V :C
D620 SS119TD
D621 1SS119TD
D628 1SS119TD
D622 D1NL20-TR
Q603 JC501TP-Q
R627 220
R624 4.7k
R625 220
R626 22k
C656 0.1 :MPS
C607 0.1
C635 0.1 :MPS
Q604 2SC2500-B
R608 220k
C617 0.0047 400V :PT
C618 0.0022 200V :PT
R609 10k :FPRB
R610 1.5k :FPRB
R628 330
C654 220 16V
IC601 SM-48
D612 1SS119TD
R629 SMM-JW
C638 10
R630 10k
R646 68
Q605 JA101
D634 1SS133
Q617 DTA144ESA
D633 1SS133
C653 0.22
Q616 DTC144ESA
R666 SMM-JW
R665 4.7k
D631 1SS133
D632 1SS133
Q613 DTC144ESA
Q614 DTA114ESA
C652 0.33 :MPS
R644 4.7k
R645 680
Q610 JA101
Q612 JA101
R659 4.7k
R660 10k
R661 2.2k
R662 2.2k
IC602 PC123FY2
R658 2.2k
R657 10k
Q611 JC101
R664 10k
R663 10k
C651 0.33 :MPS
Q615 C2500



Ref.No. / Pin No.	(B) Base	(C) Collector	(E) Emitter
Q601	-1.3	84.5	-0.1
Q602	-86	-0.1	-85
Q603	-84.5	-84.8	-85
Q604	-85.0	-84.3	-85
Q605	13.3	0	10.7
Q606	0.4	13.2	0.2
Q607	13.2	0	13.2
Q608	0	13.5	-0.1
Q610	5.6	1.8	28.0
Q611	-0.8	22.6	-84.0
Q613	9.2	-0.1	0
Q614	13.2	0.4	13.2
Q615	-85.2	-85.0	-84.0
Q616	-0.1	13.3	-0.1

G BOARD

IC

IC601	G-5
IC602	E-5

TRANSISTOR

Q601	B-5
Q602	A-3
Q603	A-3
Q604	A-3
Q605	F-5
Q606	G-4
Q607	G-4
Q608	G-7
Q610	A-6
Q611	A-7
Q612	A-7
Q613	F-4
Q614	E-4
Q615	A-6
Q616	F-5
Q617	F-6

DIODE

D601	C-7
D602	G-8
D603	F-7
D605	A-2
D607	C-2
D608	D-2
D609	E-3
D610	E-3
D612	F-4
D613	G-5
D614	A-5
D615	A-5
D616	A-5
D617	A-5
D618	B-3
D619	B-4
D620	B-3
D621	B-4
D622	A-3
D623	E-4
D624	F-2
D625	A-5
D626	A-5
D627	B-4
D628	B-4
D630	F-3
D631	E-4
D633	F-6

T BOARD

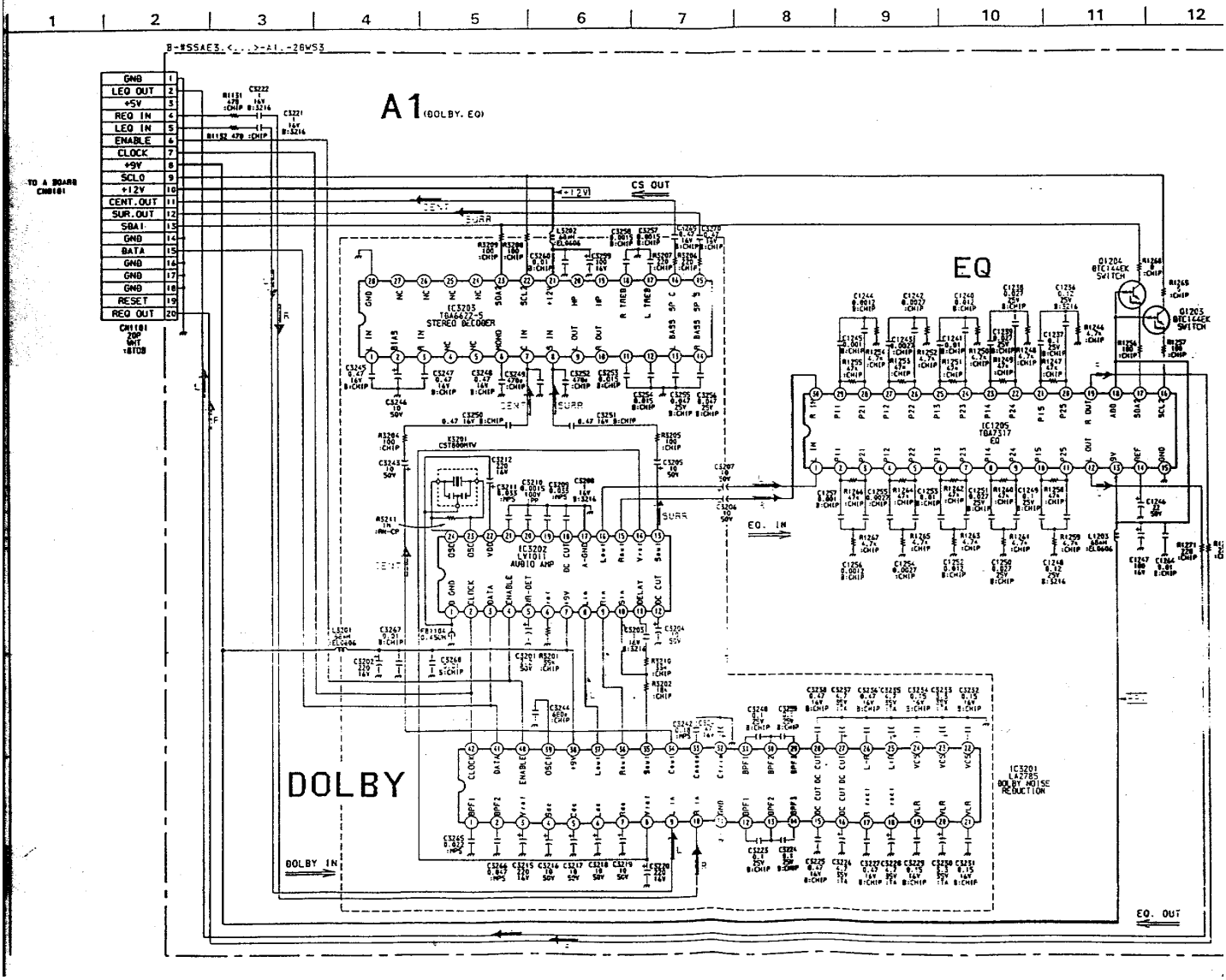
IC	
IC5102	F-1
IC5103	D-3
● IC5104	E-3
TRANSISTOR	
○ Q5104	E-3
○ Q5105	D-2
● Q5106	E-3
● Q5107	D-4
Q5108	D-2
Q5109	D-2
● Q5110	D-1
● Q5111	D-1
● Q5112	B-3
● Q5113	B-3
Q5114	B-5
Q5115	E-2
Q5116	D-1
● Q5117	E-2
● Q5118	E-2
● Q5121	C-1
DIODE	
○ D5102	D-3
● D5103	D-4
● D5104	B-3
VARIABLE RESISTOR	
RV5101	B-2
● RV5102	B-2

○ mark : KV-32WS3A,3B,3D,3E ,3K and 3R only
● mark : KV-32WS3B only

Ref.No.	(B) Base	(C) Collector	(E) Emitter
[illegible]	155	204	159
Q702	146	204	151
Q703	156	203	156
Q704	12.0	155	11.5
Q705	12.0	144	11.5
Q706	12.0	151	11.5
Q707	158	5.5	178
Q708	151	5.3	173
Q709	156	5.5	168
Q710	2.1	11.4	1.7
Q711	2.2	11.4	1.8
Q712	2.1	11.4	1.7
Q714	0.7	0.1	0
Q715	5.5	0.1	3.2

Ref.No.	Pin No.	Voltage (V)
IC3201	1-10	4.4
	12-15	4.4
	16	5.1
	17	4.4
	18	5.1
	19-21	4.4
	22-24	2.3
	25	5.2
	26	4.3
	27	5.0
	28-37	4.3
	38	8.6
	40	4.8
	41	4.0
	42	5.0
IC3202	2	5.0
	3	4.0
	4	5.0
	5	3.1
	6	0.7
	7	8.6
	8-16	4.3
	18-21	4.3
	22	4.0
	23-24	2.3
IC3203	1-3	6.0
	6-8	6.0
	11-14	6.0
	15-16	5.3
	17-18	6.0
	21	12.0
	22	4.0
	23	5.0
IC1205	1-12	4.4
	13	8.8
	14	4.4
	16	4.0
	17	5.0
	18	8.8
	19-30	4.4

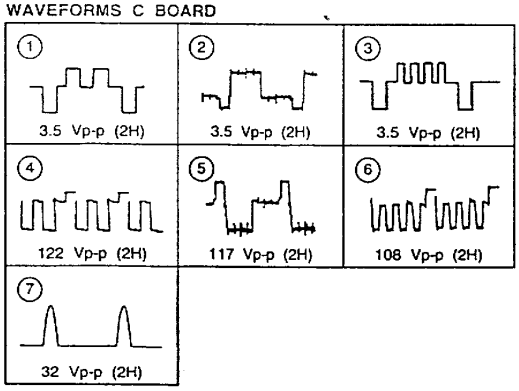
Ref.No.	Pin No. (B) Base	(C) Collector	(E) Emitter
Q1203	8.8	4.0	4.0
Q1204	8.8	5.0	5.0



Ref.No.	Pin No.	Voltage (V)
IC5101	1	2.0
	3	0.6
	4	5.0
	6	2.3
	7	5.0
	8	2.0
IC5102	1-2	2.7
	3-7	4.8
	9	2.7
	14	5.0
	15	4.0
	16	5.0
IC5103	1-2	3.2
	4	1.0
	5	2.0
	6	2.6
	8	2.1
	10	2.6
	13	2.1
	14	1.7
	15	2.6
	16	0.9
	17	2.0
	18-19	1.8
	20	3.3
	21-22	2.7
	27-28	3.2

Pin No. / Ref.No.	(B) Base	(C) Collector	(E) Emitter
Q5101	4.3	4.8	5.0
Q5102	4.8	0	0
Q5103	0	2.7	0
Q5104	4.5	0	0
Q5105	0	6.2	0
Q5106	4.8	12.0	4.0
Q5109	0.8	4.6	0
Q5114	3.8	10.2	3.0
Q5115	1.5	2.1	2.0
Q5116	2.1	12.0	1.4

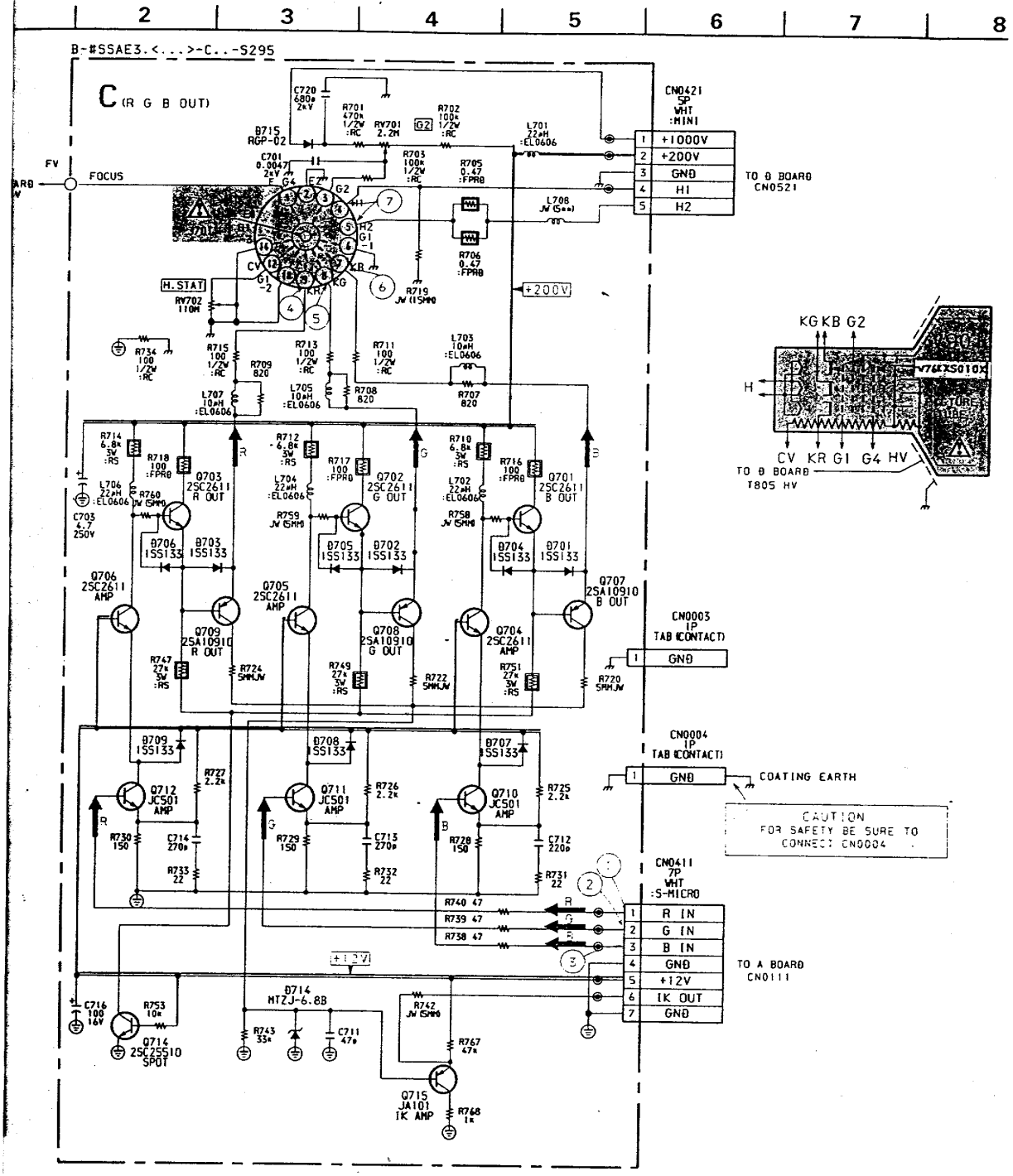
WAVEFORMS C BOARD

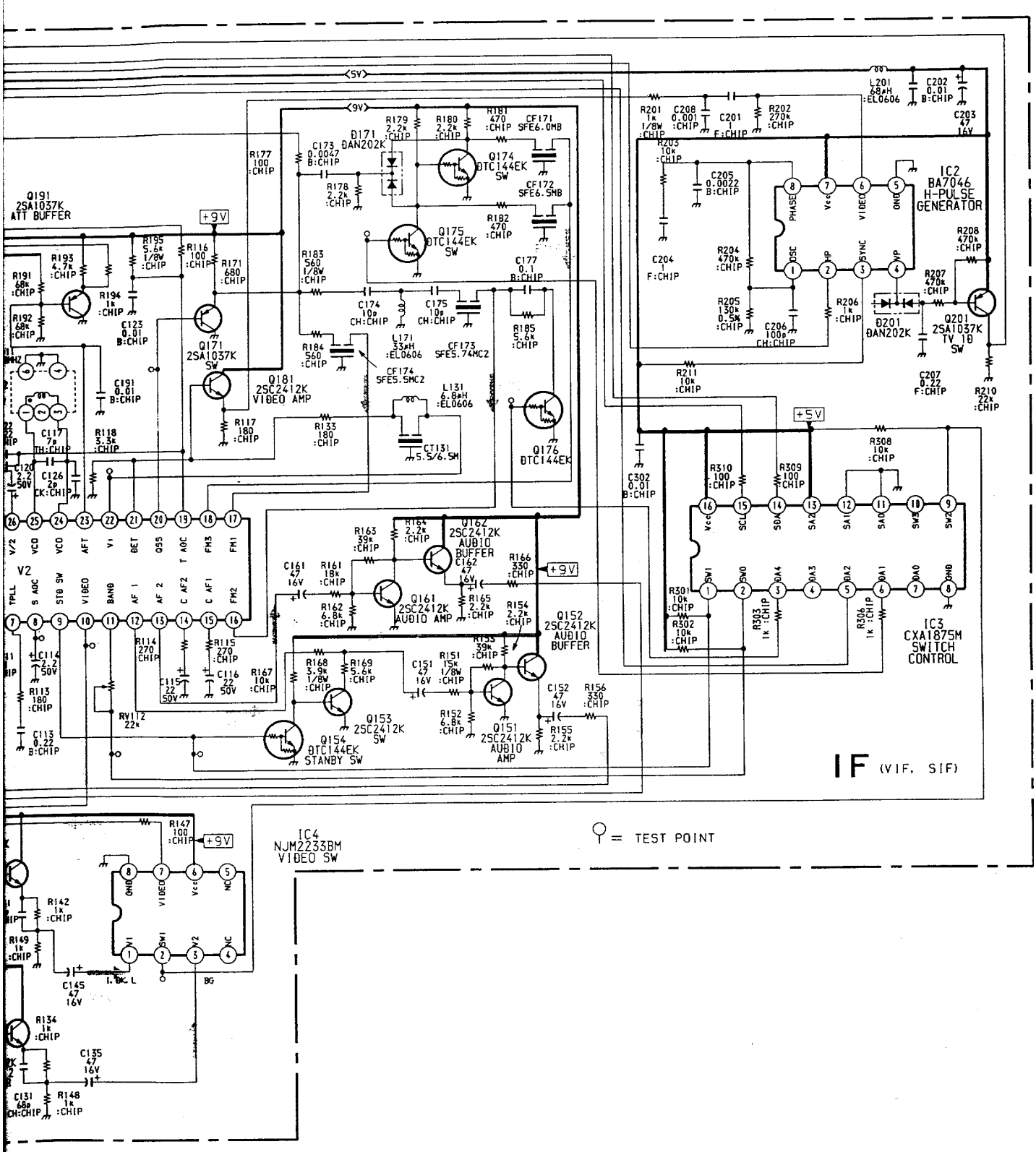


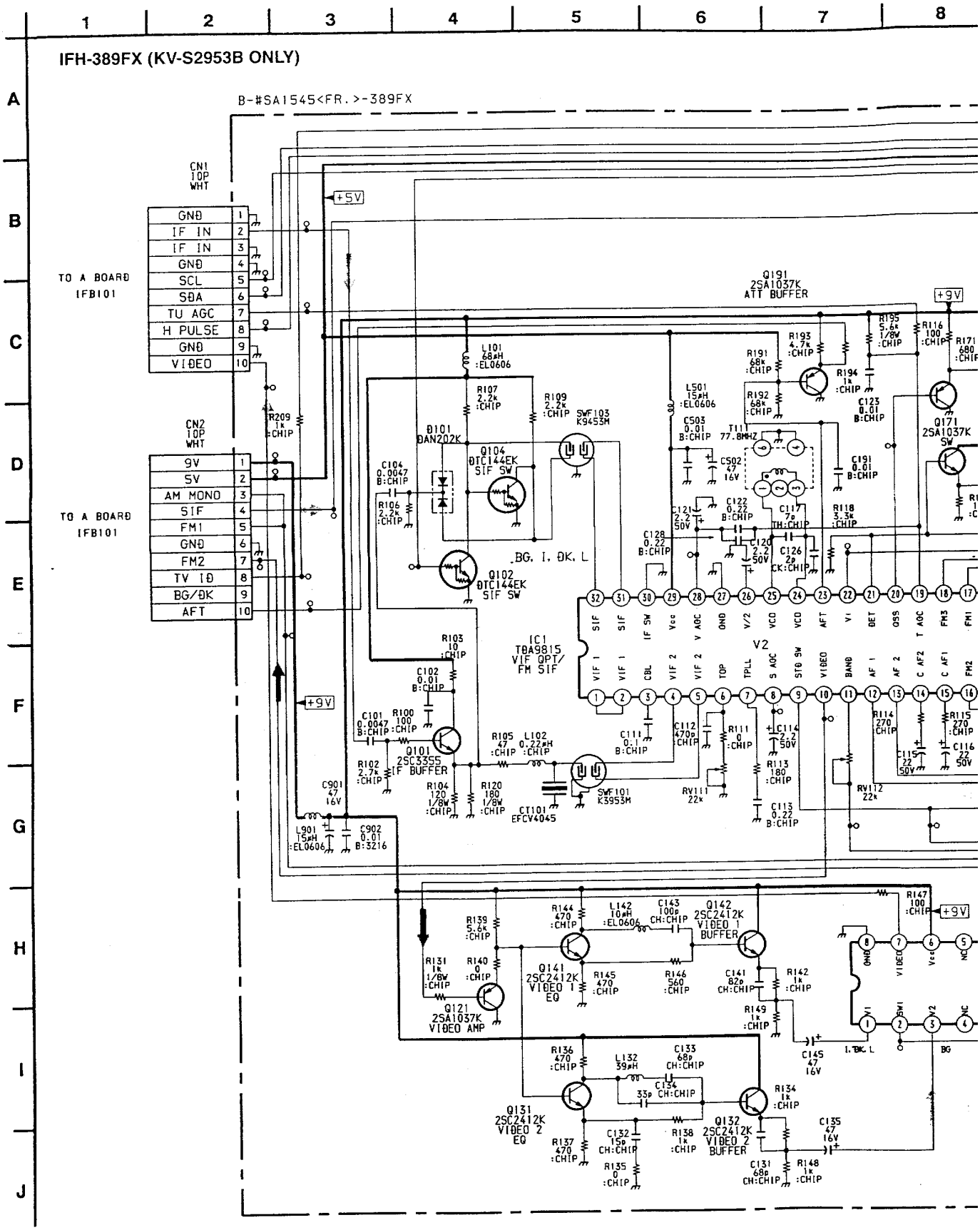
T BOARD

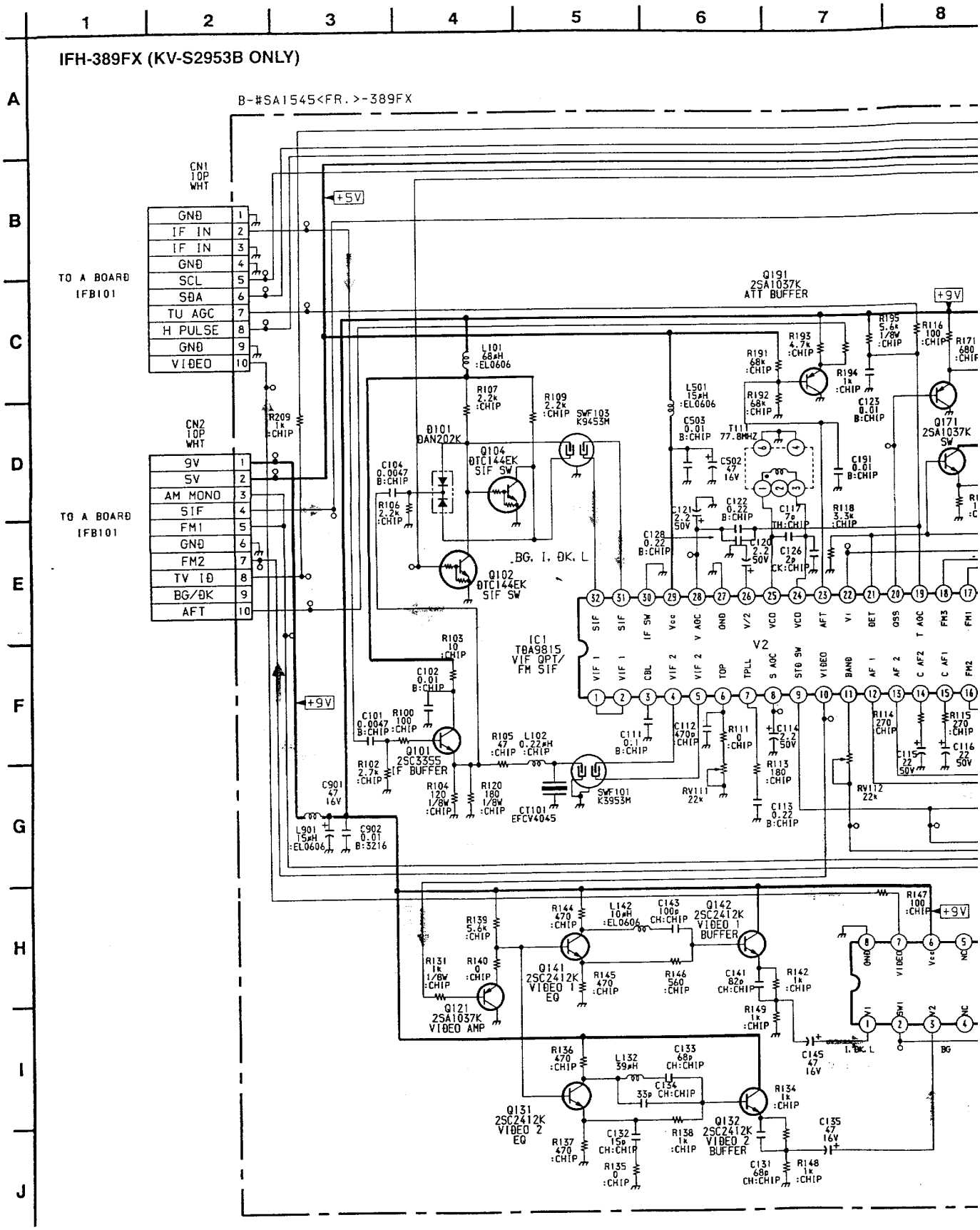
IC	
IC5102	F-1
IC5103	D-3
● IC5104	E-3
TRANSISTOR	
○ Q5104	E-3
○ Q5105	D-2
● Q5106	E-3
● Q5107	D-4
Q5108	D-2
Q5109	D-2
● Q5110	D-1
● Q5111	D-1
● Q5112	B-3
● Q5113	B-3
Q5114	B-5
Q5115	E-2
Q5116	D-1
● Q5117	E-2
● Q5118	E-2
● Q5121	C-1
DIODE	
○ D5102	D-3
● D5103	D-4
● D5104	B-3
VARIABLE RESISTOR	
RV5101	B-2
● RV5102	B-2

○ mark : KV-32W
● mark : KV-32W




7
8
9
10
11
12
13
14
IC2
BA7046
H-PULSE
GENERATOR
IC3
CXA1875M
SWITCH
CONTROL
IC4
NJM2233BM
VIDEO SW
IF (VIF, SIF)
= TEST POINT


IFH-389FX (KV-S2953B ONLY)
B-#SA1545<FR.>-389FX
CN1 10P WHT
GND 1
IF IN 2
IF IN 3
GND 4
SCL 5
SDA 6
TU AGC 7
H PULSE 8
GND 9
VIDEO 10
TO A BOARD IFB101
CN2 10P WHT
9V 1
5V 2
AM MONO 3
SIF 4
FM1 5
GND 6
FM2 7
TV ID 8
BG/DK 9
AFT 10
TO A BOARD IFB101
+5V
+9V
Q191 2SA1037K ATT BUFFER
Q171 2SA1037K SW
Q101 2SC3355 IF BUFFER
Q102 DTC144EK SIF SW
Q104 DTC144EK SIF SW
D101 DAN202K
IC1 TBA9815 VIF QPT/ FM SIF
V2
SWF101 K3953M
SWF103 K9453M
CT101 EFCV4045
T11 77.8MHZ
L101 68µH :EL0606
L501 15µH :EL0606
L901 15µH :EL0606
L102 0.22µH :CHIP
L142 10µH :EL0606
L132 39µH
Q121 2SA1037K VIDEO AMP
Q131 2SC2412K VIDEO 2 EQ
Q132 2SC2412K VIDEO 2 BUFFER
Q141 2SC2412K VIDEO 1 EQ
Q142 2SC2412K VIDEO 1 BUFFER
.BG, I, DK, L
BG
I, DK, L


IFH-389FX (KV-S2953B ONLY)
B-#SA1545<FR.>-389FX
CN1 10P WHT
GND 1
IF IN 2
IF IN 3
GND 4
SCL 5
SDA 6
TU AGC 7
H PULSE 8
GND 9
VIDEO 10
TO A BOARD IFB101
CN2 10P WHT
9V 1
5V 2
AM MONO 3
SIF 4
FM1 5
GND 6
FM2 7
TV ID 8
BG/DK 9
AFT 10
TO A BOARD IFB101
+5V
+9V
Q191 2SA1037K ATT BUFFER
Q171 2SA1037K SW
Q101 2SC3355 IF BUFFER
Q102 DTC144EK SIF SW
Q104 DTC144EK SIF SW
D101 DAN202K
IC1 TBA9815 VIF QPT/ FM SIF
V2
SWF101 K3953M
SWF103 K9453M
CT101 EFCV4045
T11 77.8MHZ
L101 68µH :EL0606
L501 15µH :EL0606
L901 15µH :EL0606
L102 0.22µH :CHIP
L142 10µH :EL0606
L132 39µH
Q121 2SA1037K VIDEO AMP
Q131 2SC2412K VIDEO 2 EQ
Q132 2SC2412K VIDEO 2 BUFFER
Q141 2SC2412K VIDEO 1 EQ
Q142 2SC2412K VIDEO 1 BUFFER
I, BG, L
BG