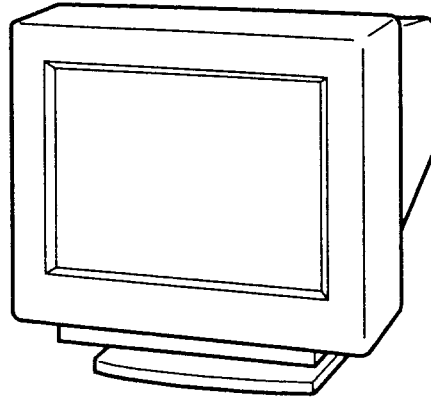


# GDM-20SHT

## SERVICE MANUAL

Chassis No. SCC-H71A-A

Multiscan **20sh**



## P-5 CHASSIS

### SPECIFICATIONS

Picture tube	0.25 mm aperture grille pitch 20 inches measured diagonally (19" visual) 90-degree deflection
Effective picture size	Approx. 384 x 290 mm (w/h) (15 1/4 x 11 1/2 inches)
Display picture size	Approx. 373 x 280 mm (w/h) (14 1/4 x 11 1/4 inches) or Approx. 350 x 280 mm (w/h) (13 3/4 x 11 1/4 inches)
Resolution	Horizontal: 640* to 1600 dots (*VGA mode) Vertical: 480* to 1200 lines (*VGA mode)
Deflection frequency	Horizontal: 30 to 107 kHz Vertical: 50 to 160 Hz
Input signal	Sync: Sync on Green: 0.286 Vp-p, Negative H/V Composite Sync: 75 ohms/2 kohms, TTL Positive/Negative H. Sync/V. Sync Separate: 75 ohms/2 kohms, TTL Positive/Negative Video: R/G/B: 0.714 Vp-p, Positive
AC input voltage/current	100 to 120 V, 50/60 Hz, max. 2.5 A 200 to 240 V, 50 - 60 Hz, max. 1.2 A
Dimensions	Approx. 474 x 474 x 502 mm (w/h/d) (18 1/2 x 18 1/2 x 19 3/4 inches)
Mass	Approx. 31 kg (68 lb 4 oz)
Supplied accessories	AC power cord (1) 15-pin mini D-sub (HD15 - HD15) video cable (1) Ferrite core (1) Binder (1)

For Service Manuals  
**MAURITRON SERVICES**  
8 Cherry Tree Road, Chinnor  
Oxfordshire, OX9 4QY.  
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Fax (01844) 352554  
email:- mauritron@diel.pipex.com

Design and specifications are subject to change without notice.

TRINITRON® COLOR GRAPHIC DISPLAY  
**SONY®**



# Power Saving Function

This monitor meets the power saving guidelines set by TCO92 guidelines (NUTEK). It is capable of reduced power consumption when used with a computer equipped with Display Power Management Signaling (DPMS). By sensing the absence of the sync signal coming from the computer, it will reduce the power consumption as follows:

**CAUTION:** The Power Saving function will automatically put the monitor into the Active-off state if the power switch is turned on without any video signal input. Once the horizontal and vertical syncs are sensed, the monitor will automatically return to its Normal operation state.

	State	Power consumption	Required resumption time	Power indicator	POWER SAVING indicator
1	Normal operation	100%	—	green on	off
2	Suspend (1st step of power saving)	approx. 10%	approx. 3 sec.	green on	orange on
3	Active-off (2nd step of power saving)	approx. 7%	approx. 10 sec.	off	orange on

## TIMING SPECIFICATION

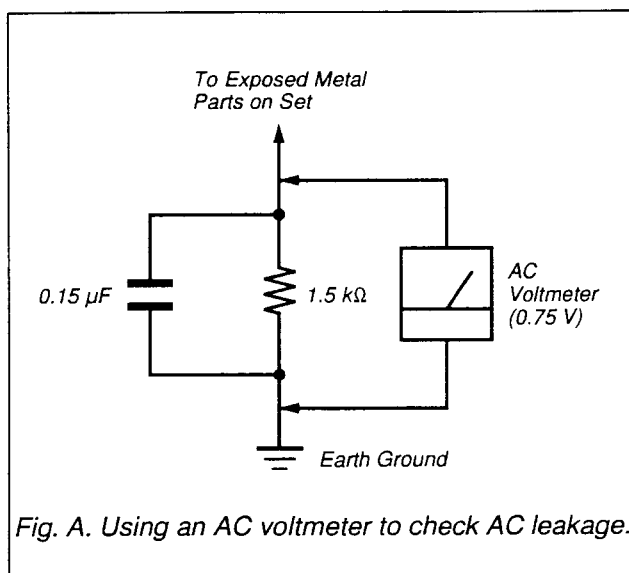
Mode	1	2	3	4	5	6	7	8	9
Graphics mode	VGA (Graphics)	VESA-75	Macintosh 16" Color	Macintosh 19" Color	Macintosh 21" Color	VESA-75	VESA-75	VESA-80	VESA-85
Resolution (H x V)	640 x 480	800 x 600	832 x 624	1024 x 768	1152 x 870	1280 x 1024	1600 x 1200	1600 x 1200	1600 x 1200
Dot Clock	25.17 MHz	49.5 MHz	57.283 MHz	80 MHz	100 MHz	135 MHz	202.5 MHz	216 MHz	229.5 MHz
<b>H Frequency</b>	31.463 kHz	46.875 kHz	49.725 kHz	60.241 kHz	68.681 kHz	79.976 kHz	93.750 kHz	100.00 kHz	106.250 kHz
H Total	31.784 $\mu$ S	21.333 $\mu$ S	20.111 $\mu$ S	16.600 $\mu$ S	14.560 $\mu$ S	12.504 $\mu$ S	10.667 $\mu$ S	10.000 $\mu$ S	9.412 $\mu$ S
H Front porch	0.318 $\mu$ S	0.323 $\mu$ S	0.559 $\mu$ S	0.550 $\mu$ S	0.320 $\mu$ S	0.119 $\mu$ S	0.316 $\mu$ S	0.296 $\mu$ S	0.279 $\mu$ S
H Sync width	3.814 $\mu$ S	1.616 $\mu$ S	1.117 $\mu$ S	1.200 $\mu$ S	1.280 $\mu$ S	1.067 $\mu$ S	0.948 $\mu$ S	0.889 $\mu$ S	0.837 $\mu$ S
H Back porch	1.589 $\mu$ S	3.232 $\mu$ S	3.910 $\mu$ S	2.050 $\mu$ S	1.440 $\mu$ S	1.837 $\mu$ S	1.501 $\mu$ S	1.407 $\mu$ S	1.325 $\mu$ S
H Blanking	5.721 $\mu$ S	5.172 $\mu$ S	5.586 $\mu$ S	3.800 $\mu$ S	3.040 $\mu$ S	3.022 $\mu$ S	2.765 $\mu$ S	2.593 $\mu$ S	2.440 $\mu$ S
H Active Area	26.063 $\mu$ S	16.162 $\mu$ S	14.524 $\mu$ S	12.800 $\mu$ S	11.520 $\mu$ S	9.481 $\mu$ S	7.901 $\mu$ S	7.407 $\mu$ S	6.972 $\mu$ S
<b>V Frequency</b>	59.929 Hz	75.000 Hz	74.550 Hz	74.927 Hz	75.062 Hz	75.025 Hz	75.000 Hz	80.000 Hz	85.000 Hz
V Total	525 H Lines	625 H Lines	667 H Lines	804 H Lines	915 H Lines	1066 H Lines	1250 H Lines	1250 H Lines	1250 H Lines
V Front porch	2 H Lines	1 H Line	1 H Line	3 H Lines	3 H Lines	1 H Line	1 H Line	1 H Line	1 H Line
V Sync width	2 H Lines	3 H Lines	3 H Lines	3 H Lines	3 H Lines	3 H Lines	3 H Lines	3 H Lines	3 H Lines
V Back porch	25 H Lines	21 H Lines	39 H Lines	30 H Lines	39 H Lines	38 H Lines	46 H Lines	46 H Lines	46 H Lines
V Blanking	29 H Lines	25 H Lines	43 H Lines	36 H Lines	45 H Lines	42 H Lines	50 H Lines	50 H Lines	50 H Lines
V Active Area	496 H Lines	600 H Lines	624 H Lines	768 H Lines	870 H Lines	1024 H Lines	1200 H Lines	1200 H Lines	1200 H Lines
<b>Sync</b>	External	External	External	External	External	External	External	External	External
Sync Polarity H	(-)	(+)	(-)	(-)	(-)	(+)	(+)	(+)	(+)
Sync Polarity V	(-)	(+)	(-)	(-)	(-)	(+)	(+)	(+)	(+)
Scan Mode	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace

- VGA does not include the border area.
- Recommended horizontal frequency timings are:  
Horizontal front porch is 0.1  $\mu$ sec or more.  
Horizontal sync. width is 0.8  $\mu$ sec or more.  
Horizontal back porch is 0.6  $\mu$ sec or more.  
Horizontal blanking width is 2.4  $\mu$ sec or more.

## SAFETY CHECK-OUT (US Model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC Leakage. Check leakage as described below.



### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOMs that are suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

### WARNING!!

**NEVER TURN ON THE POWER IN A CONDITION IN WHICH THE DEGAUSS COIL HAS BEEN REMOVED.**

### SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY SHADING AND MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.**

### AVERTISSEMENT!!

**NE JAMAIS METTRE SOUS TENSION QUAND LA BOBINE DE DEMAGNETISATION EST ENLEVEE.**

### ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

**LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  $\Delta$  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIÉS DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.**

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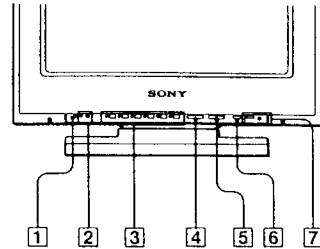
The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

## SECTION 1 GENERAL

### Function of Controls

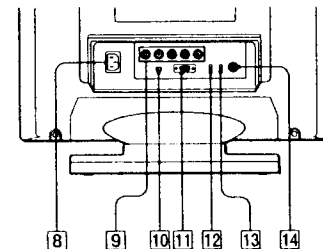
See the given pages for further description.

#### Front panel



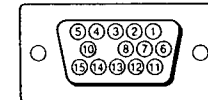
- 1 RESET button (page 10)  
Resets the adjustment data to the factory-preset levels for the input signal being received.
- 2 MOIRE button and indicator (page 10)  
Eliminates moire.
- 3 Adjustment parameter buttons and indicators  
Select the adjustment parameters. The indicator of the selected parameter lights.  
ROTATION: Raster rotation and color distortion (page 10)  
COLOR: Color temperature (page 9)  
CONV: Convergence (page 9)  
SHAPE: Pincushion and keystone distortions (page 9)  
SIZE: Picture size (page 9)  
CENTER: Centering (page 8)
- 4 (brightness) buttons  
Adjust the picture brightness in normal operation mode (page 8).  
Act as +/- or  $\phi/\theta$  controls to adjust picture size, centering, convergence, rotation, keystone distortion and color temperature (pages 8 - 10).
- 5 (contrast) buttons  
Adjust the picture contrast in normal operation mode (page 8).  
Act as +/- or  $\phi/\theta$  controls to adjust picture size, centering, convergence, beam landing, pincushion distortion, color temperature and moire (pages 8 - 10).

#### Rear panel



- 6 POWER SAVING indicator (page 11)  
Lights up when the monitor is in Power Saving mode. Flashes when the limit value for an adjustment is reached. Also flashes if you press the adjustment buttons on the front panel in the Lock mode.
  - 7 power switch and indicator  
Turns the monitor on and off. The indicator illuminates when the monitor is turned on.  
To disconnect the power completely, unplug the power cord.
  - 8 AC IN connector (page 6)  
Input for the supplied AC power cord.
  - 9 Video input connectors (5 BNC) (page 6)  
Accept RGB video and sync signals.
- | BNC connectors     | R   | G                       | B    | HD                 | VD     |
|--------------------|-----|-------------------------|------|--------------------|--------|
| Input signals      |     |                         |      |                    |        |
| Sync on Green      | Red | Composite Sync on Green | Blue | —                  | —      |
| H/V Composite Sync | Red | Green                   | Blue | H/V Composite Sync | —      |
| H/V Separate Sync  | Red | Green                   | Blue | H Sync             | V Sync |
- 10 BNC/D-SUB switch (page 6)  
Selects the RGB or D-sub signal.
  - 11 75Ω/2kΩ switch  
Switches the impedance of the sync input connectors (9, 11) termination to 75 Ω or 2 kΩ. This monitor is initially set to 2 kΩ, which is appropriate for the majority of IBM compatible and Macintosh systems. For unique systems which may require 75Ω, see the Operating Instructions of your computer.
  - 12 CONTROL LOCK switch  
Locks the monitor so that the buttons, except the power switch, on the front panel cannot be operated (Lock mode). With this switch, you can ensure that the display remains in the optimum condition even when the monitor is placed where the control buttons can be touched by unauthorized persons.  
To release the Lock mode, set to OFF.  
Normally keep this switch set to OFF.
  - 13 SERVICE terminal  
The terminal is to be used by service personnel only.

- 11 Video input connector (15-pin mini D-sub) (page 6)  
Accepts D-sub video and sync signals. To connect this connector, use the supplied 15-pin mini D-sub cable.



Pin No.	Signal	Pin No.	Signal
1	Red	9	N/C
2	Green (Composite Sync on Green)	10	Ground
3	Blue	11	Ground
4	Ground	12	Bi-Directional Data (SDA)*
5	DDC Ground*	13	H. Sync
6	Red Ground	14	V. Sync
7	Green Ground	15	Data Clock (SCL)*
8	Blue Ground		

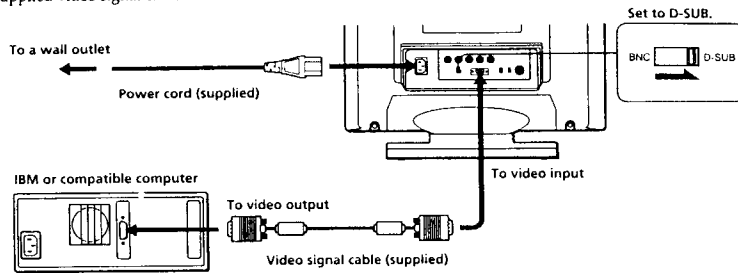
\* Display Data Channel (DDC) Standard by VESA

# Connection

You can connect this monitor to any IBM or compatible system, Macintosh, and other various computers. In order to comply with the mandatory FCC standards, use the supplied video signal cable.

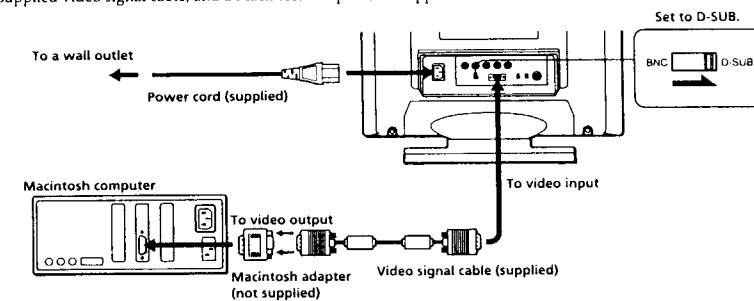
## Connecting an IBM or compatible system

Use the supplied video signal cable.



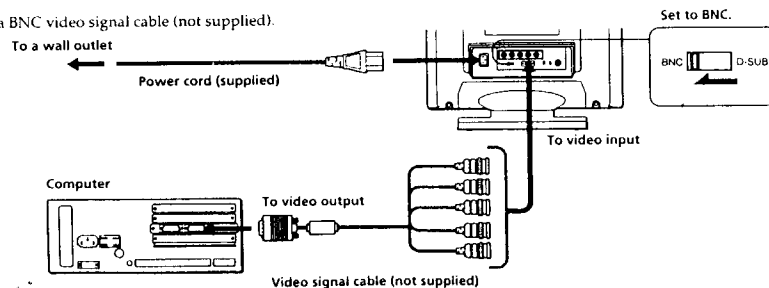
## Connecting a Macintosh system

Use the supplied video signal cable, and a Macintosh adapter (not supplied).



## Connecting a computer to the BNC connector

Use a BNC video signal cable (not supplied).



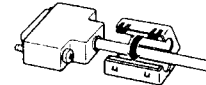
## Attaching the ferrite cores

When you use a video signal cable other than the supplied one, be sure to attach the supplied ferrite core as illustrated.

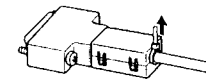
### Note

If you do not attach the ferrite core, the monitor will not conform to mandatory FCC standards.

1 Close the lid.



2 Pull the supplied plastic binder tightly.



## Preset Mode

The Multiscan 20sh automatically adjusts the display size and position to the optimum in accordance with the input signal up to 18 different types. It has factory-preset adjustment data for 9 different types of signals (preset mode). When a computer or a workstation

that issues such signal is connected, the optimum display is obtained without any manual adjustment. The factory-preset adjustment data are listed below:

No.	Display (dots x lines)	Horizontal frequency	Vertical frequency	Graphics mode
1	640 x 480	31.5 kHz	60 Hz	VGA Graphic <sup>1)</sup>
2	800 x 600	46.9 kHz	75 Hz	VESA <sup>2)</sup>
3	832 x 624	49.7 kHz	75 Hz	Macintosh 16" color <sup>3)</sup>
4	1024 x 768	60.2 kHz	75 Hz	Macintosh 19" color
5	1152 x 870	68.7 kHz	75 Hz	Macintosh 21" color
6	1280 x 1024	80.0 kHz	75 Hz	VESA
7	1600 x 1200	93.8 kHz	75 Hz	VESA
8	1600 x 1200	100 kHz	80 Hz	VESA
9	1600 x 1200	106.3 kHz	85 Hz	VESA

- 1) VGA is a trademark of IBM Corporation.
- 2) VESA is a trademark of the non-profit organization, Video Electronics Standard Association.
- 3) Macintosh is a trademark of Apple Computer Inc.

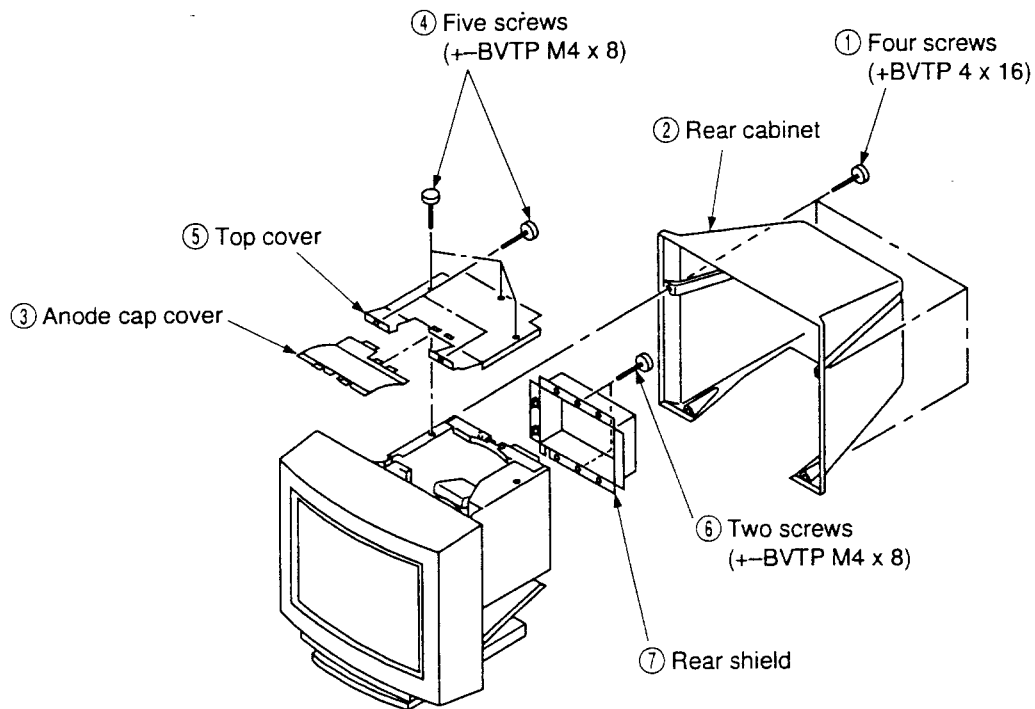
### Notes

- The buttons on the front panel allow manual adjustment when a signal from equipment other than the preset-type models is input. Nine different manually adjusted data are stored in memory, and called back when the same signal is input again so that the optimum display for this signal is obtained automatically.

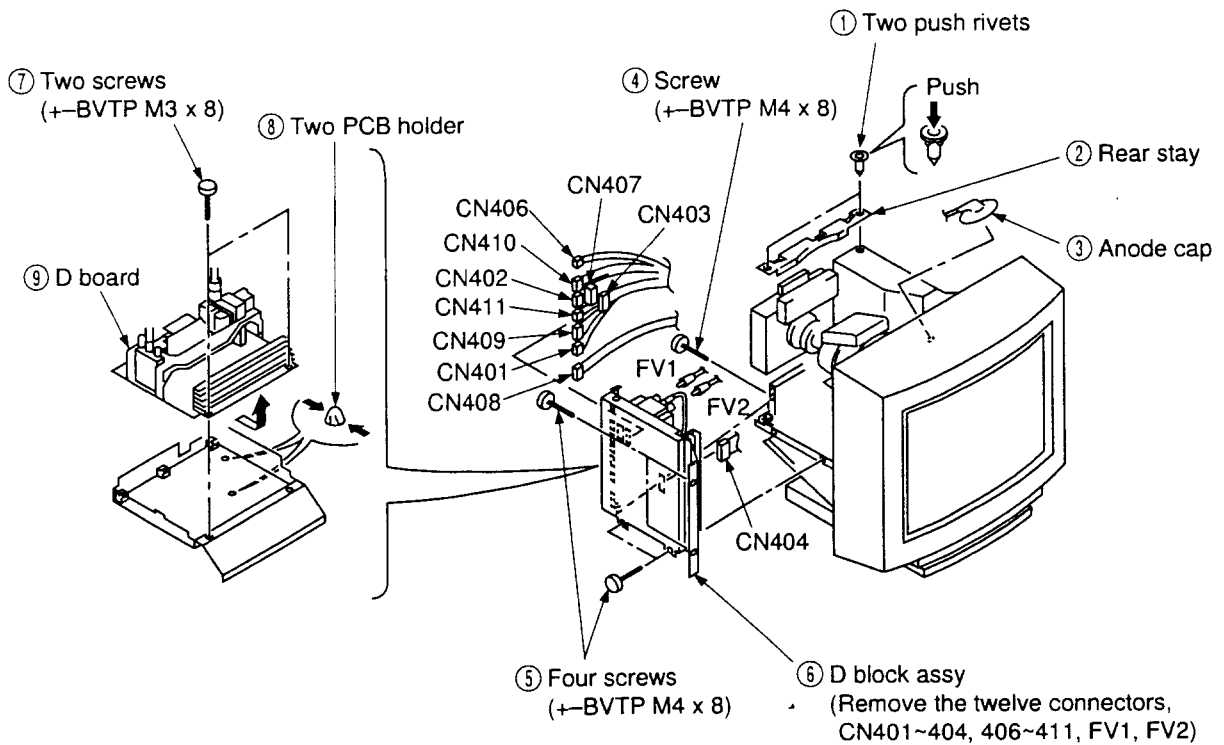
- The type of input video signal is distinguished according to its signal specifications, such as horizontal frequency or sync polarity. When the signal specifications of the input signals are almost same, these signals may not be distinguished as being different.
- If you use a computer or video board of high output level (about 1.0 Vp-p), you may not be able to obtain the optimum display. In such case, try decreasing the picture contrast (page 8).

## SECTION 2 DISASSEMBLY

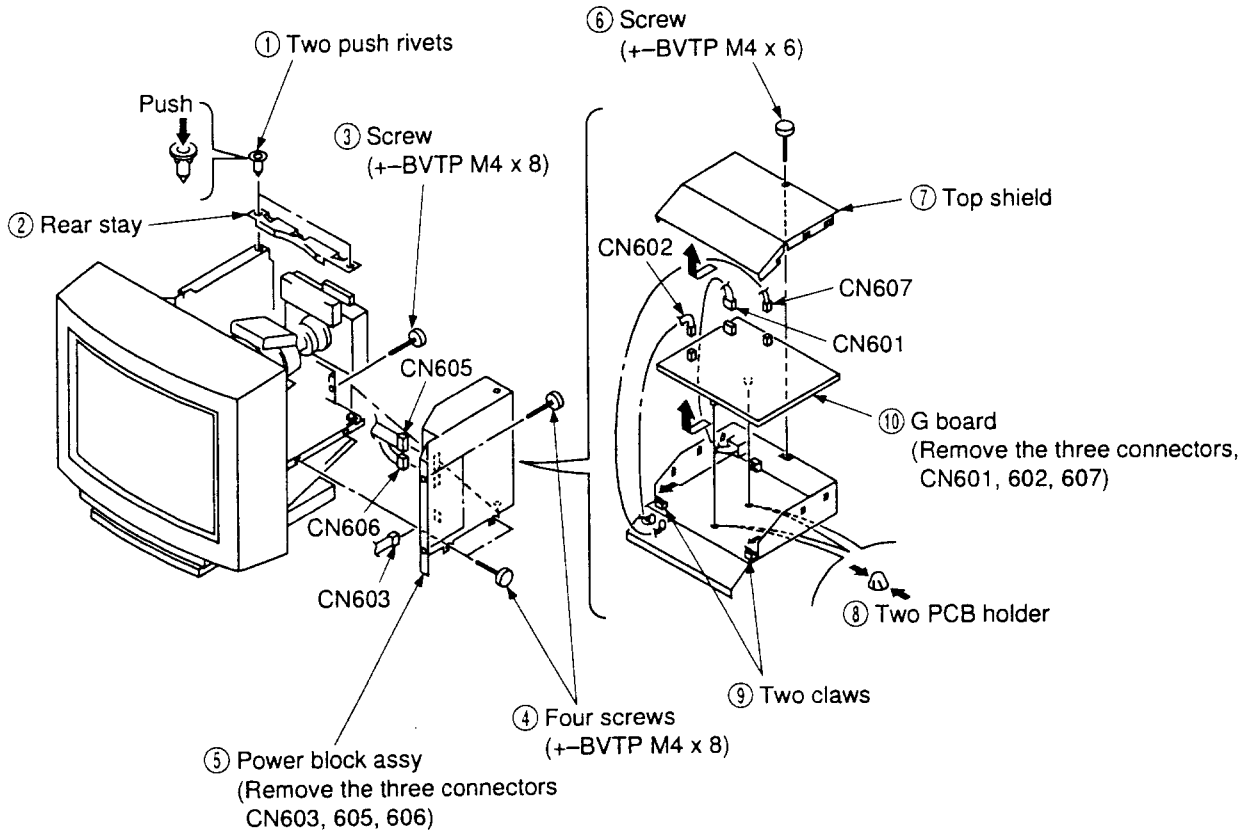
### 2-1. REAR CABINET AND TOP COVER REMOVAL



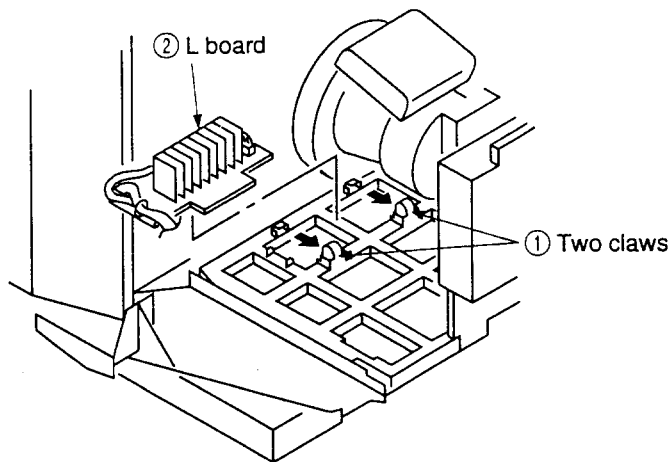
### 2-2. D BLOCK ASSY REMOVAL



2-3. POWER BLOCK ASSY REMOVAL

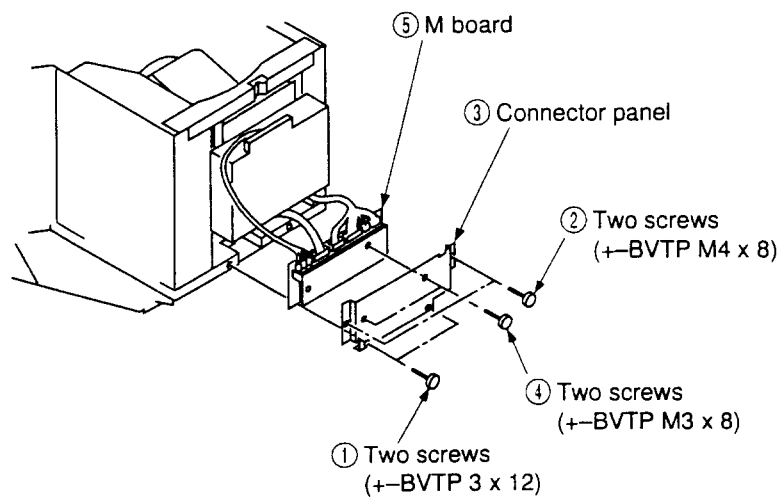


2-4. L BOARD REMOVAL

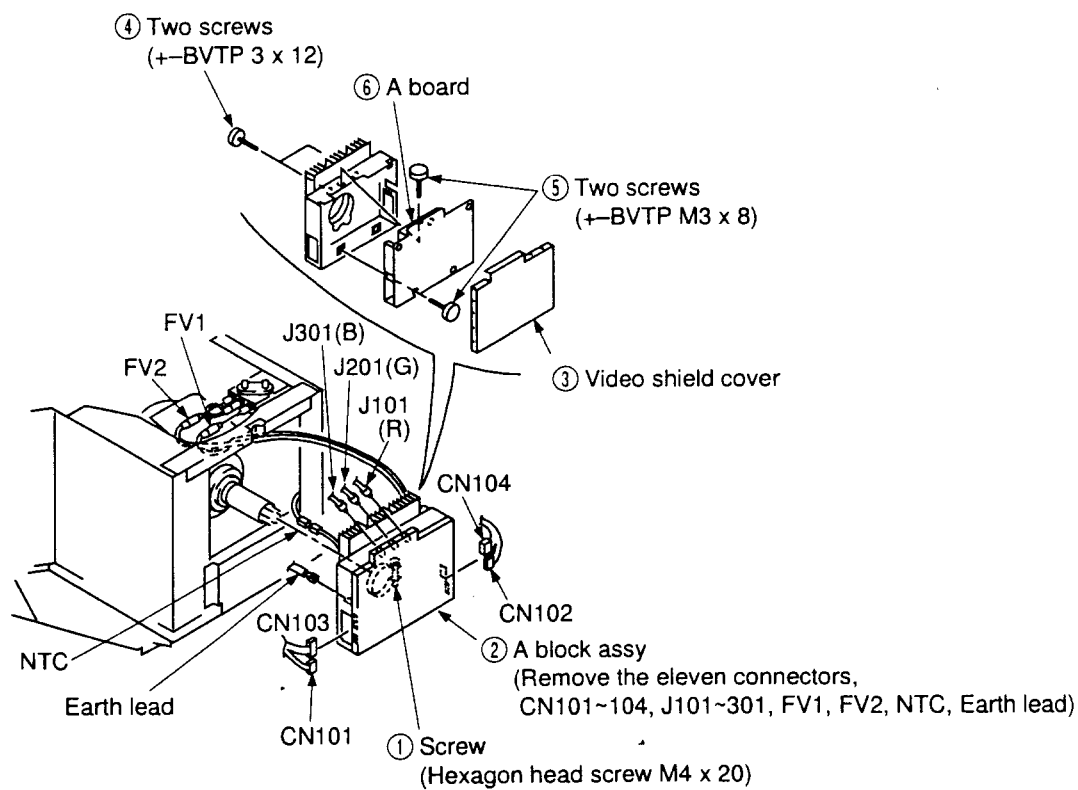




## 2-5. M BOARD REMOVAL



## 2-6. A BLOCK ASSY REMOVAL







REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R914	1-247-807-31	CARBON	100 5% 1/4W	C711	1-124-122-11	ELECT	100MF 20% 50V
R915	1-247-807-31	CARBON	100 5% 1/4W	C712	1-102-973-00	CERAMIC	100PF 5% 50V
R916	1-247-807-31	CARBON	100 5% 1/4W	C713	1-102-973-00	CERAMIC	100PF 5% 50V
R917	1-247-807-31	CARBON	100 5% 1/4W	C714	1-102-121-00	CERAMIC	0.0022MF 10% 50V
R918	1-247-807-31	CARBON	100 5% 1/4W	C715	1-126-964-11	ELECT	10MF 20% 50V
R919	1-247-807-31	CARBON	100 5% 1/4W	C716	1-126-964-11	ELECT	10MF 20% 50V
R921	1-247-903-00	CARBON	1M 5% 1/4W	C717	1-126-967-11	ELECT	47MF 20% 50V
R931	1-249-437-11	CARBON	47K 5% 1/4W	C718	1-126-967-11	ELECT	47MF 20% 50V
R932	1-249-437-11	CARBON	47K 5% 1/4W	C719	1-126-964-11	ELECT	10MF 20% 50V
R933	1-249-437-11	CARBON	47K 5% 1/4W	C720	1-126-964-11	ELECT	10MF 20% 50V
R934	1-249-437-11	CARBON	47K 5% 1/4W	C721	1-136-165-00	FILM	0.1MF 5% 50V
R935	1-247-903-00	CARBON	1M 5% 1/4W	C722	1-137-364-11	FILM	0.001MF 5% 50V
R936	1-247-895-00	CARBON	470K 5% 1/4W	C723	1-136-165-00	FILM	0.1MF 5% 50V
R937	1-249-437-11	CARBON	47K 5% 1/4W	C726	1-126-964-11	ELECT	10MF 20% 50V
R938	1-249-437-11	CARBON	47K 5% 1/4W	C727	1-126-964-11	ELECT	10MF 20% 50V
R939	1-247-895-00	CARBON	470K 5% 1/4W	C728	1-136-169-00	FILM	0.22MF 5% 50V
R940	1-249-437-11	CARBON	47K 5% 1/4W	C729	1-136-169-00	FILM	0.22MF 5% 50V
<u>SWITCH</u>				<u>CONNECTOR</u>			
S902	1-571-532-21	SWITCH, TACTIL		CN701* 1-564-514-11 PLUG, CONNECTOR 11P			
S903	1-571-532-21	SWITCH, TACTIL		CN702* 1-564-511-11 PLUG, CONNECTOR 8P			
S904	1-571-532-21	SWITCH, TACTIL		<u>DIODE</u>			
S906	1-571-532-21	SWITCH, TACTIL		D701	8-719-979-84	DIODE EGP20DPKG23	
S907	1-571-532-21	SWITCH, TACTIL		D702	8-719-979-84	DIODE EGP20DPKG23	
S908	1-571-532-21	SWITCH, TACTIL		D703	8-719-911-19	DIODE 1SS119-25	
S910	1-571-532-21	SWITCH, TACTIL		D704	8-719-911-19	DIODE 1SS119-25	
S911	1-571-532-21	SWITCH, TACTIL		D705	8-719-109-54	DIODE RD2.2ESB2	
S912	1-571-532-21	SWITCH, TACTIL		D706	8-719-109-54	DIODE RD2.2ESB2	
S913	1-571-532-21	SWITCH, TACTIL		<u>IC</u>			
S914	1-571-532-21	SWITCH, TACTIL		IC701	8-759-803-42	IC LA6500-FA	
S915	1-571-532-21	SWITCH, TACTIL		IC702	8-759-803-42	IC LA6500-FA	
S916	1-571-532-21	SWITCH, TACTIL		IC703	8-749-924-04	IC STK390-120	
<u>CRISTAL</u>				IC704	8-759-803-42	IC LA6500-FA	
X931	1-577-358-21	VIBRATOR, CERAMIC		<u>TRANSISTOR</u>			
.....				Q701	8-729-900-36	TRANSISTOR DTC124ES	
CONVERGENCE ADJ MCB ASSY (L BOARD)				<u>RESISTOR</u>			
.....				R701	1-215-469-00	METAL	100K 1% 1/4W
(BOARD PART NO. 1-657-356-11)				R703	1-249-423-11	CARBON	3.3K 5% 1/4W
4-382-854-21 SCREW (M3X14), P, SW (+) (IC703)				R704	1-215-434-00	METAL	3.6K 1% 1/4W
<u>CAPACITOR</u>				R705	1-215-423-00	METAL	1.2K 1% 1/4W
C703	1-137-364-11	FILM	0.001MF 5% 50V	R706	1-249-381-11	CARBON	1 5% 1/4W F
C704	1-136-165-00	FILM	0.1MF 5% 50V	R707	1-215-373-31	METAL	10 1% 1/4W
C705	1-137-364-11	FILM	0.001MF 5% 50V	R708	1-249-429-11	CARBON	10K 5% 1/4W
C706	1-136-165-00	FILM	0.1MF 5% 50V	R709	1-249-420-11	CARBON	1.8K 5% 1/4W
C707	1-102-518-11	CERAMIC	33PF 5% 50V				
C708	1-102-074-00	CERAMIC	0.001MF 10% 50V				
C709	1-107-889-11	ELECT	220MF 20% 25V				
C710	1-124-122-11	ELECT	100MF 20% 50V				



Les composants identifiés par un tramé et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R710	1-249-422-11	CARBON	2.7K	5%	1/4W		
R711	1-249-407-11	CARBON	150	5%	1/4W	F	
R712	1-249-386-11	CARBON	2.7	5%	1/4W	F	
R714	1-249-425-11	CARBON	4.7K	5%	1/4W		
R715	1-249-421-11	CARBON	2.2K	5%	1/4W		
R716	1-249-405-11	CARBON	100	5%	1/4W	F	
R717	1-249-405-11	CARBON	100	5%	1/4W	F	
R718	1-216-423-11	METAL OXIDE	27	5%	1W	F	
R719	1-216-351-00	METAL OXIDE	1.5	5%	1W	F	
R720	1-249-425-11	CARBON	4.7K	5%	1/4W		
R721	1-249-441-11	CARBON	100K	5%	1/4W		
R722	1-249-437-11	CARBON	47K	5%	1/4W		
R723	1-249-434-11	CARBON	27K	5%	1/4W		
R724	1-217-637-00	FUSIBLE	1	5%	1/4W	F	
R725	1-217-637-00	FUSIBLE	1	5%	1/4W	F	
R726	1-215-453-00	METAL	22K	1%	1/4W		
R727	1-249-423-11	CARBON	3.3K	5%	1/4W		
R728	1-215-434-00	METAL	3.6K	1%	1/4W		
R729	1-215-421-00	METAL	1K	1%	1/4W		
R730	1-249-381-11	CARBON	1	5%	1/4W	F	
R731	1-215-373-31	METAL	10	1%	1/4W		
R732	1-215-428-00	METAL	2K	1%	1/4W		
R733	1-249-422-11	CARBON	2.7K	5%	1/4W		
R739	1-215-458-00	METAL	36K	1%	1/4W		
R741	1-215-445-00	METAL	10K	1%	1/4W		

MISCELLANEOUS

- $\Delta$  1-411-471-11 COIL, DEMAGNETIZATION
- $\Delta$  1-411-472-11 COIL, LANDING CORRECTION
- $\Delta$  1-452-729-11 NECK ASSEMBLY (NA3011)
- $\Delta$  1-540-006-92 CAP ASSY, HIGH-VOLTAGE
- $\Delta$  1-540-157-11 INLET, AC (3P WITH NOISE FILTER)

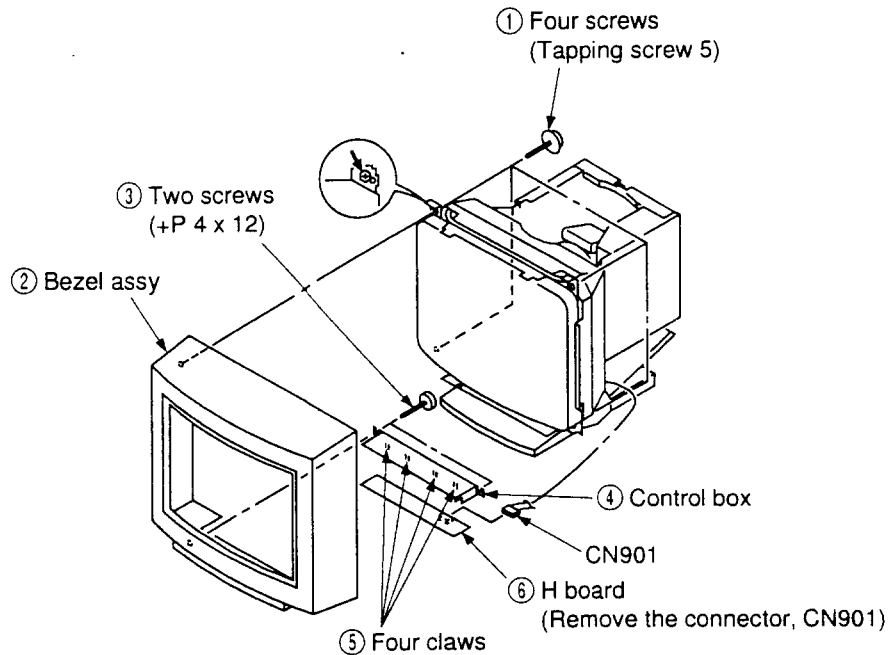
- 1-543-798-11 FILTER, CLAMP (FERRITE CORE)
- \* 1-543-830-11 CLAMP, SLEEVE FERRITE

- $\Delta$ \* 1-575-135-41 CABLE, COAXIAL (B)
- $\Delta$ \* 1-575-135-51 CABLE, COAXIAL (G)
- $\Delta$ \* 1-575-135-61 CABLE, COAXIAL (H)

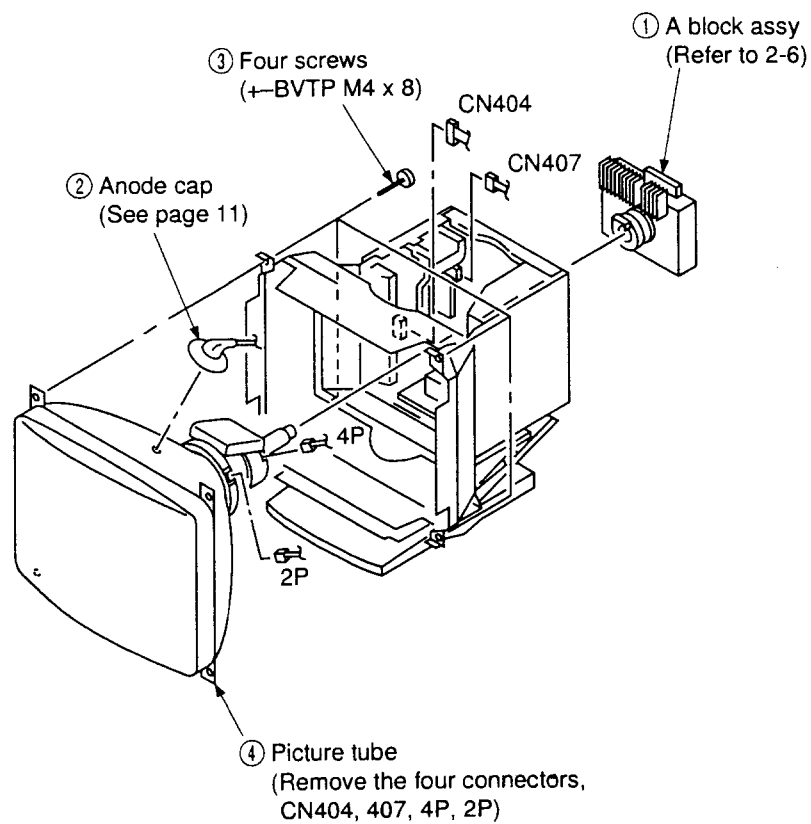
- $\Delta$  1-765-581-11 CORD SET, POWER SUPPLY 10A/250V
- 1-775-508-11 CABLE ASSY (15P DSUB CONNECTOR)

- $\Delta$  8-451-465-11 DEFLECTION YOKE Y20SHLM
- V901  $\Delta$  8-736-369-90 PICTURE TUBE M49KZK17X

2-7. H BOARD REMOVAL

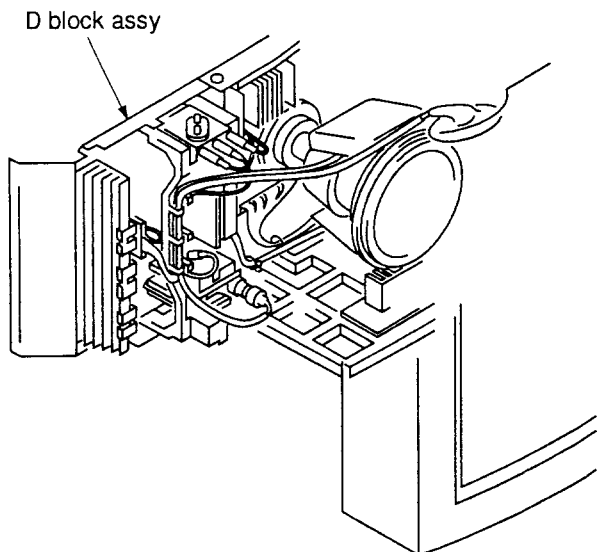


2-8. PICTURE TUBE REMOVAL

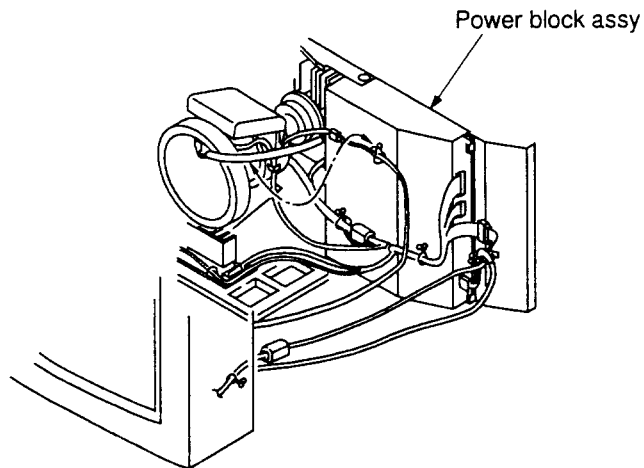


## 2-9. WIRING HARNESS LAYOUT

(1) Left Side



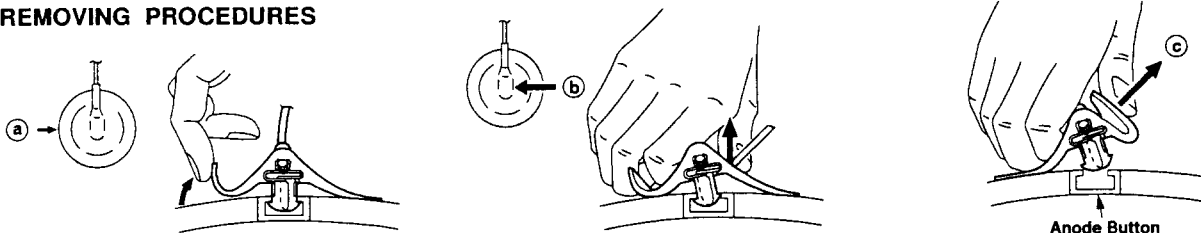
(2) Right Side



### • REMOVAL OF ANODE-CAP

NOTE: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

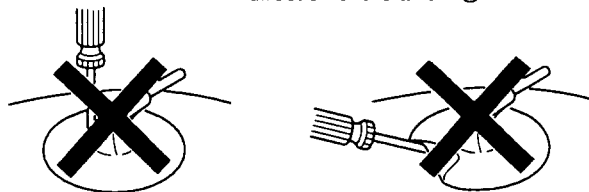
### • REMOVING PROCEDURES



- ① Turn up one side of the rubber cap in the direction indicated by the arrow ①.
- ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ②.
- ③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ③.

### • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.



## SECTION 3

### SAFETY RELATED ADJUSTMENT

When replacing or repairing the shown below table, the following operational checks must be performed as a safety precaution against X-rays emissions from the unit.

HV Regulator Circuit Check	D board DA board	CP1, R099, R102, R105, T6 C104, C106, IC101, IC102, Q106, R102, R104, R105, R106, R130 • Mounted D board • Mounted DB board
HV Hold-Down Circuit Check	D board	C025, CP1, D9, D21, R099, R102, R104, R114, R115, R116, T6 • Mounted D board
Beam Current Protector Circuit ① and ② Check	D board	C068, C076, C079, C081, CP1, D021, D022, D024, D025, L009, R099, R102, R104, R105, R107, T6 • Mounted D board
B+ Regulator Circuit Check	G board	IC657, R673 • Mounted G board
OVP Circuit Check	G board	C654, D658, D659, IC657, Q654, R659, RY603 • Mounted G board

#### Check Condition

Input signal: White dots, fH: 107 KHz BRT and CONT control to minimum.

#### a) HV Regulator Check

- 1) Check that the voltage at pin ⑦ of N405 is  $9.00 \pm 0.03$  VDC.

#### b) HV Hold-Down Circuit Check

- 1) Using an external DC power supply, apply the voltage is less than 8.87 VDC between pin ⑤ of CN405 on D board and confirm that the HV Hold-Down circuit works (Raster disappears or Power LED blinks.)

#### c) Beam Current Protector Circuit Check-1

- 1) Short between pin ⑤ of CN405 on D board and GND by a short clip under Power off condition.
- 2) Confirm that the raster appears on the CRT screen under Power on condition.
- 3) Connect a variable resistor (12 K $\Omega$  or more) and an ammeter in series between pin ④ of CN405 on D board and GND, then decrease gradually the resistance of the variable resistor from maximum to minimum, and confirm that the beam current protector circuit-1 works (TV Raster disappears or Power LED blinks).

The current must be less than 1.35 mA.

- 4) Remove the short clip between pin ⑤ of CN405 on D board and GND.

#### d) Beam Current Protector Circuit Check-2

- 1) Confirm that the raster appears on the CRT screen under Power on condition.
- 2) Connect a variable resistor (12 K $\Omega$  or more) and an ammeter in series between pin ④ of CN405 on D board and GND, then decrease gradually the resistance of the variable resistor from maximum to minimum, and confirm that the beam current protector circuit-2 works (TV Raster disappears or Power LED blinks).

The current must be less than 1.50 mA.

#### e) OVP Circuit Check

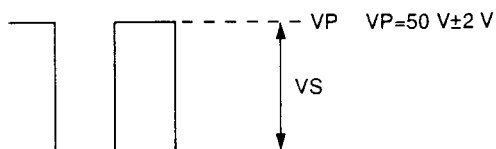
- 1) Using an external DC power supply, increase gradually the voltage between pin ① of CN605 on G board and GND, and confirm that the OVP circuit works (TV Raster disappears when the voltage between pin ① of CN605 on G board and GND is less than 199.0 VDC.

## SECTION 4 ADJUSTMENTS

Input Signals: SONY-STD-2 (63.337 kHz x 59.978 kHz, 1280 x 1024)

### 1. Confirming VIDEO output waveform, and adjusting RV101, 201, 301

- 1) Enter the full white signal.
- 2) Set the R/G/B contrast data to "00", and confirm at the KR, KG, KB pins of CRT socket that the pedestal voltage is as shown below.

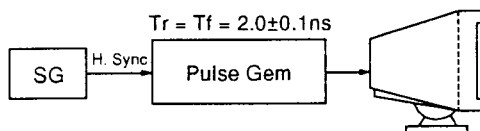


- 3) Set the R/G/B contrast data to "FF", connect an oscilloscope to the KR, KG, KB pins of CRT socket, and adjust the RV101, 201, 301, so that the VIDEO output waveform Vs satisfies the following specification.

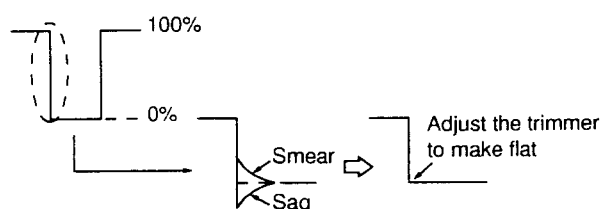
Vs KR : 42 Vp-p ± 1 Vp-p  
 Vs KG, KB : 40 Vp-p ± 1 Vp-p

### 2. Confirming and adjusting transient response

- 1) Connect respective measuring units as shown below.

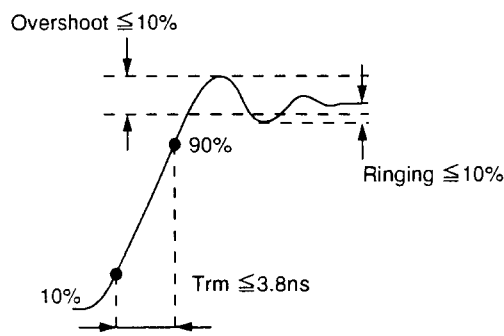


- 2) Enter the pulse signals from pulse generator to R input and set contrast data to "FF".
- 3) Connect an oscilloscope probe to KR, set the time axis to 20 ms/div, and adjust the CT101 not to allow a sag or smear in the falling edge of waveform.



- 4) Press the x10MODE button of time axis on oscilloscope, and confirm that the Tr, Tf, undershoot, overshoot, and ringing of waveform are within the specification.

- 5) If the undershoot is over the specification, readjust the trimmer so that the undershoot is below 12%.



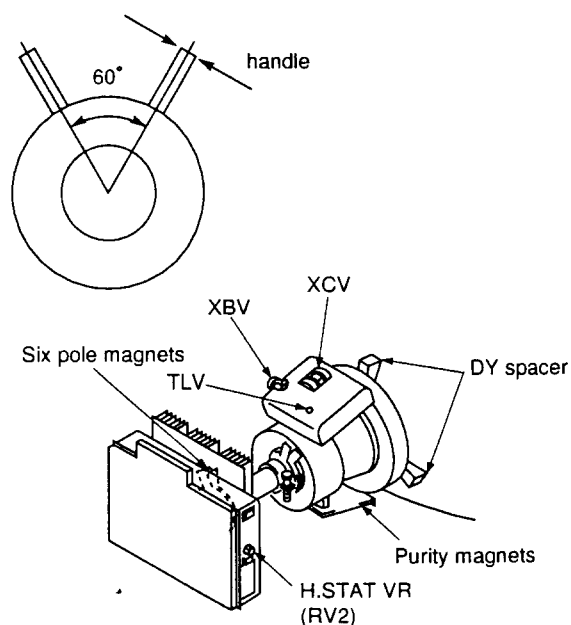
- 6) Also for the KG and KB pins of CRT socket, perform adjustment given in steps (2) to (5) in the same manner. (For the KG, adjust CT201; for the KB, adjust CT301)

### ● Landing Rough Adjustment

1. Enter the full white signal.
2. Adjust the contrast to the maximum.
3. Make the screen monogreen. (turn off R, B input signals).
4. Reverse the DY, and adjust coarsely the purity magnet so that a green raster positions in the center of screen.
5. Moving the DY forward, adjust so that an entire screen becomes monogreen.
6. Adjust the tilt of DY, and fix lightly with a clamp.

### ● Convergence Rough Adjustment

1. Enter the white crosshatch signal.
2. Open the hexode knob mounted at the CRT neck to 60°.
3. Adjust coarsely the horizontal convergence using the H-STAT VR on the board A.
4. Adjust coarsely the vertical convergence through the V-STAT bus adjustment.



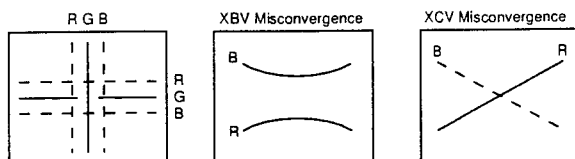


● **Landing Fine Adjustment**

1. Place the set in the Helmholtz coil.
2. Enter a green signal only, and adjust the contrast to the maximum.
3. Attach a wobbling coil to the specified position of CRT neck.
4. Attach a landing adjuster sensor on the CRT.
5. Using a landing checker, adjust the DY position, purity, tilt of DY, and landing at the center and four corners.
6. Remove the landing adjuster sensor.
7. Swing up and down the DY so that the top and bottom pins are equal. Also, swing left and right the DY so as to attain the best horizontal trapezoid, and insert wedges in the form of reverse "Y" to secure the DY.
8. Attach a landing adjuster sensor on the CRT.
9. Confirm the landing at each corner, and if out of specification, stick a disk magnet to the funnel section, and perform adjustment.
10. Change over the input signal to R, G, B and confirm that the purity of monicolor is good.
11. Confirm that the DY is not tilted, then fix the purity magnet with a white pen.

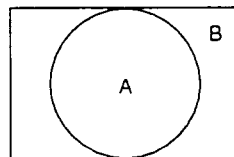
● **Convergence Fine Adjustment**

1. Enter the white crosshatch signal of the mode 3.
2. Confirm that the V-STAT and H-STAT for the user control are in the center.
3. Adjusting the RV-2 (H-STAT VR) on the board A, make red, green, and blue lines parallel (vertical lines). Through the bus adjustment, adjust the V-STAT to make red, green, and blue lines parallel (horizontal line).
4. Adjust the magnet ring (hexode) at the rear of NTC so that the distance between red and green, and the distance between blue and green of three color lines are equal. If the compensation is deficient, adjust additionally the magnet ring at the rear of DY.
5. Returning the H-STAT VR and the V-STAT bus control adjusted in step 3, eliminate a misconvergence in the center of green.
6. Fine adjustment of convergence
  - 1) Adjust the XBV misconvergence with the XBV reactor.
  - 2) Adjust the XCV misconvergence with the XCV reactor.
  - 3) Adjust the Vertical misconvergence with the TVL.
  - 4) Confirm the convergence of entire screen.
  - 5) Fix the XBV, XCV, hexode, and H-STAT VR with a white pen.



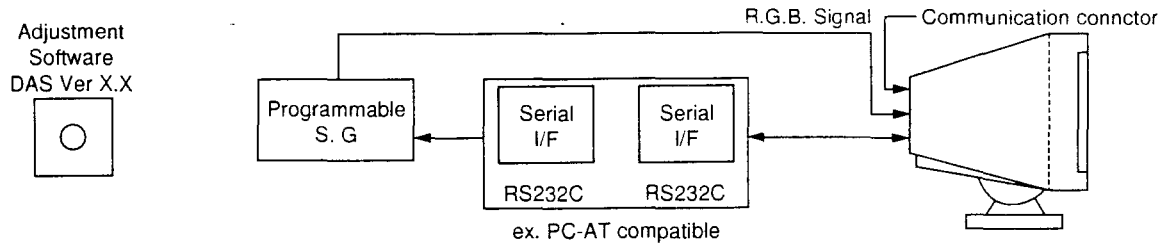
● **Digital Convergence Fine Adjustment**

1. Enter the white crosshatch signal of the mode 3.
2. Connect only the R and B signals.
3. Adjustment of NTC (bus adjustment)
  - 1) Adjust the center convergence of screen with the V-STAT.
  - 2) Adjust the bottom convergence of screen with the NTC BOTTOM.
  - 3) Adjust the top convergence of screen with the NTC TOP.
4. H-CONV. adjustment (bus adjustment)
  - 1) Set the bus data H-STAT to 148 (94h), and adjust the H-STAT with the H-STAT VR on the board A.
  - 2) Adjust the convergence at the position as shown in the order of numbers.
  - 3) The H-STAT, if finely adjusted again, should be in the range of 120 to 168.
  - 4) Save the data.
  - 5) Although the adjustment is executed for the signals other than mode 3, the factory area for V-STAT and H-STAT is common to all modes, and therefore, do not change the V-STAT and H-STAT after they are adjusted in the mode 3.
  - 6) Copy the bus data of mode 3 to all modes.
  - 7) Execute adjustment in all modes in the same manner as that in 4-2).
  - 8) After the adjustment is over, save the data.
  - 9) If out of specification 0.24 mm or less, adjust using a sheet of permalloy. (Replace the DY, if more than five sheets are required.)



A	Prime mode 0.24 mm Others 0.24 mm
B	Prime mode 0.24 mm Others 0.28 mm

Connect the communication cable of the computer to the connector located on the D board on the monitor. Run the service software and then follow the instruction.



### ● White Balance Adjustment Methods

Adjustments procedure	Input signal	Value of CONT, BRT	Adjust point
<b>ADJUSTMENT G2</b>			
1		COLOR Mode "H"	
2	Grayscale pattern	CONT=255, BRT=85	G2
<b>ADJUSTMENT 9300K</b>			
1	Gray scale	RBKC, BBKC to 0 CONT=255, BRT=85	GBKC
2	Gray scale	CONT=255, BRT=85	RBKC, BBKC
3	Full white pattern	CONT=255, BRT=85	RDCM, GDCM, BDCM
4	Full white pattern	CONT=0, BRT=85	RDCN, GDCN, BDCN
5	Black pattern	CONT=0, BRT=255	RBKM, GBKM, BBKM
6	Full white pattern	CONT=255, BRT=255	RDMM, GDMM, BDMM
7	Confirm white balance tracks with CONT and BRT. Set CONT=255 and BRT=85 color save		
<b>ADJUSTMENT 6500K</b>			
1	COPY 9300K data to 6500K. Select color mode to "MID"		
2	Gray pattern	CONT=255, BRT=85	RBKC, BBKC
3	Full white pattern	CONT=255, BRT=85	GDCM, BDCM
4	Full white pattern	CONT=0, BRT=85	GDCN, BDCN
5	Black pattern	CONT=0, BRT=255	RBKM, GBKM, BBKM
6	Full white pattern	CONT=255, BRT=255	RDMM, GDMM, BDMM
7	Confirm white balance tracks with CONT and BRT. Set CONT=255 and BRT=85 color save		
<b>ADJUSTMENT 5000K</b>			
1	COPY 9300K data to 5000K. Select color mode to "LOW"		
2	Gray pattern	CONT=255, BRT=85	RBKC, BBKC
3	Full white pattern	CONT=255, BRT=85	GDCM, BDCM
4	Full white pattern	CONT=0, BRT=85	GDCN, BDCN
5	Black pattern	CONT=0, BRT=255	RBKM, GBKM, BBKM
6	Full white pattern	CONT=255, BRT=255	RDMM, GDMM, BDMM
7	Confirm white balance tracks with CONT and BRT. Set CONT=255 and BRT=85 color save		

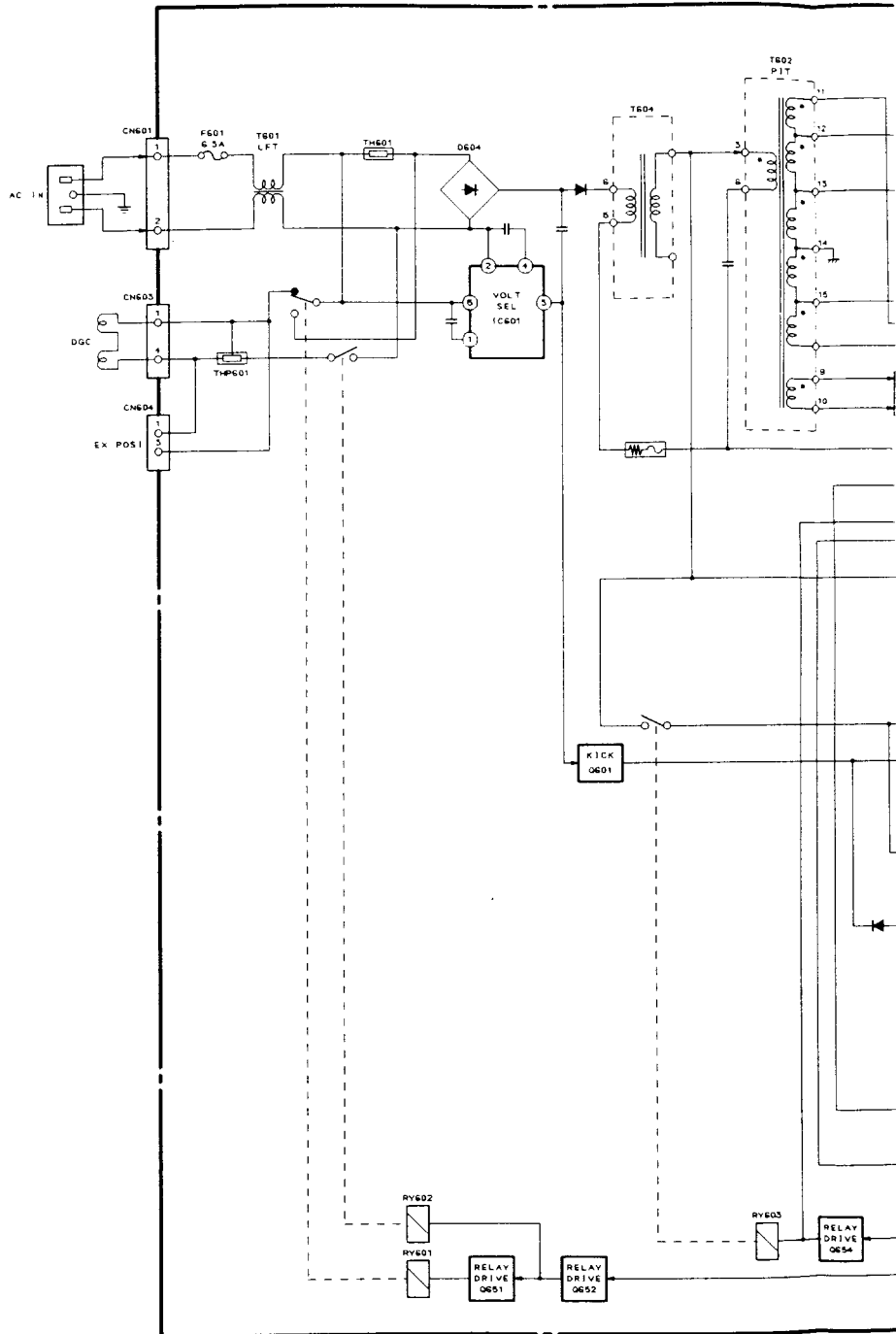
● DIAGNOSIS

The monitor is equipped with self diagnosis and failure indication. Indicators will blink when the monitor detects adjustment limit or a major failure.

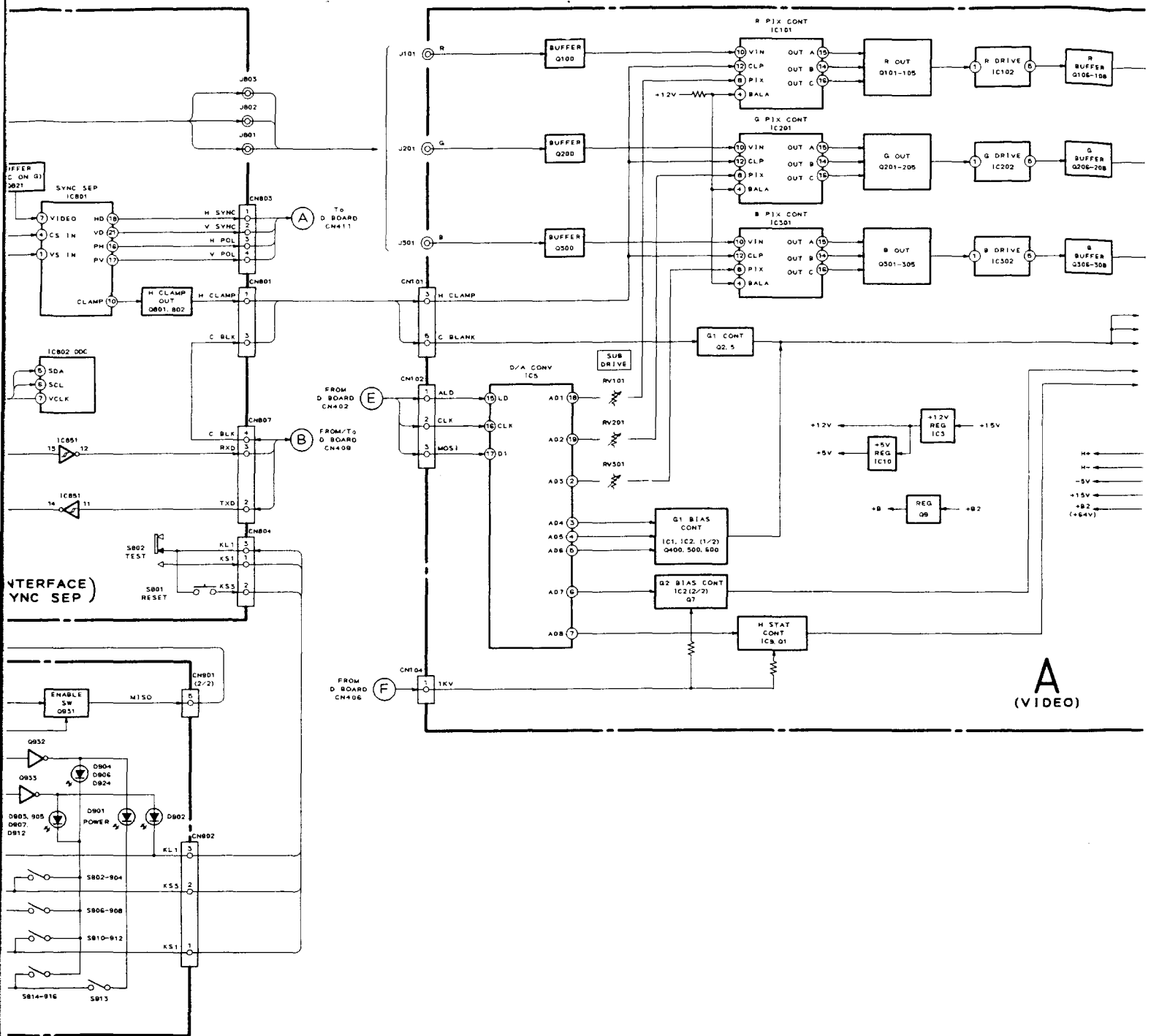
	LED State	CONVER	SHAPE	SIZE	CENTER	Power Save (Amber)	Power (Green)
Power ON	Normal	OFF	OFF	OFF	OFF	OFF	ON
NO. H Sync	Stand-by	OFF	OFF	OFF	OFF	ON	ON
NO. V Sync	Suspend	OFF	OFF	OFF	OFF	ON	ON
NO. H/V Sync	Active off	OFF	OFF	OFF	OFF	ON	OFF
Out of Range	Out of Range	OFF	OFF	OFF	OFF	ON	Flashing
H. Failure	Failure	OFF	OFF	OFF	ON	Flashing	Flashing
V. Failure	Failure	OFF	OFF	ON	OFF	Flashing	Flashing
IK Protector	Failure	OFF	ON	OFF	OFF	Flashing	Flashing
HV Protector	Failure	ON	OFF	OFF	OFF	Flashing	Flashing

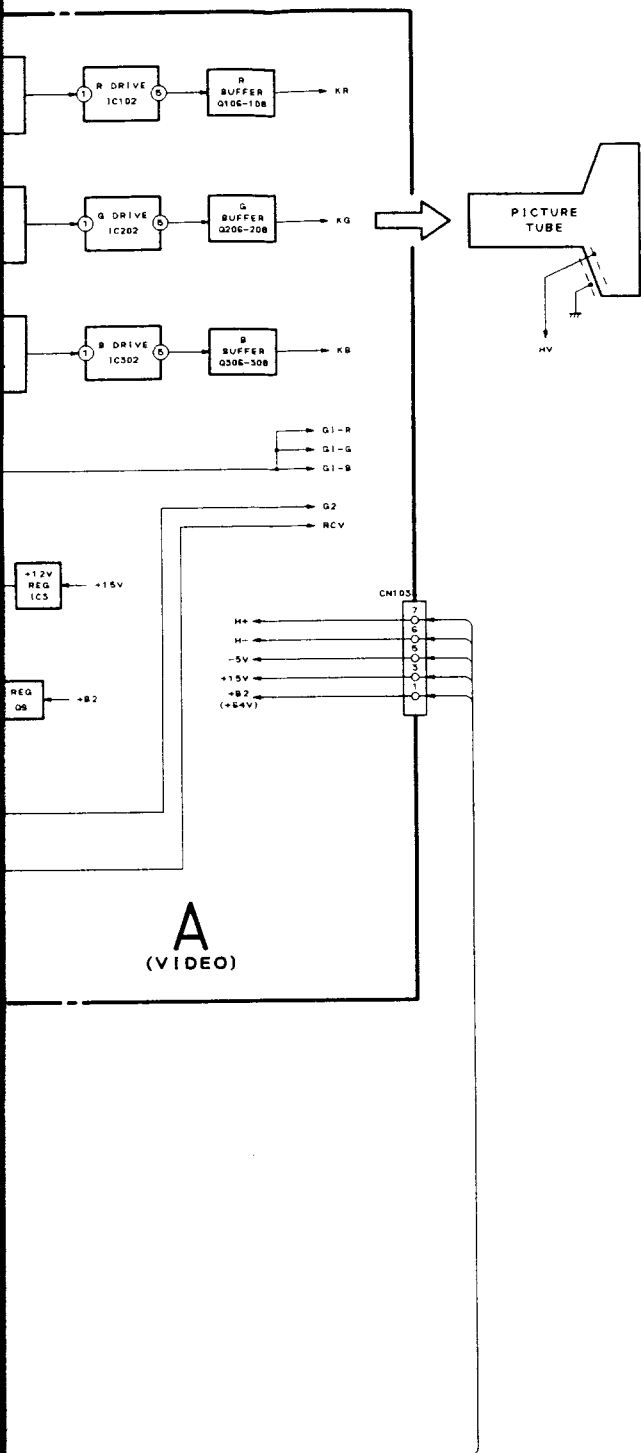
SECTION 5  
DIAGRAMS

5-1. BLOCK DIAGRAMS



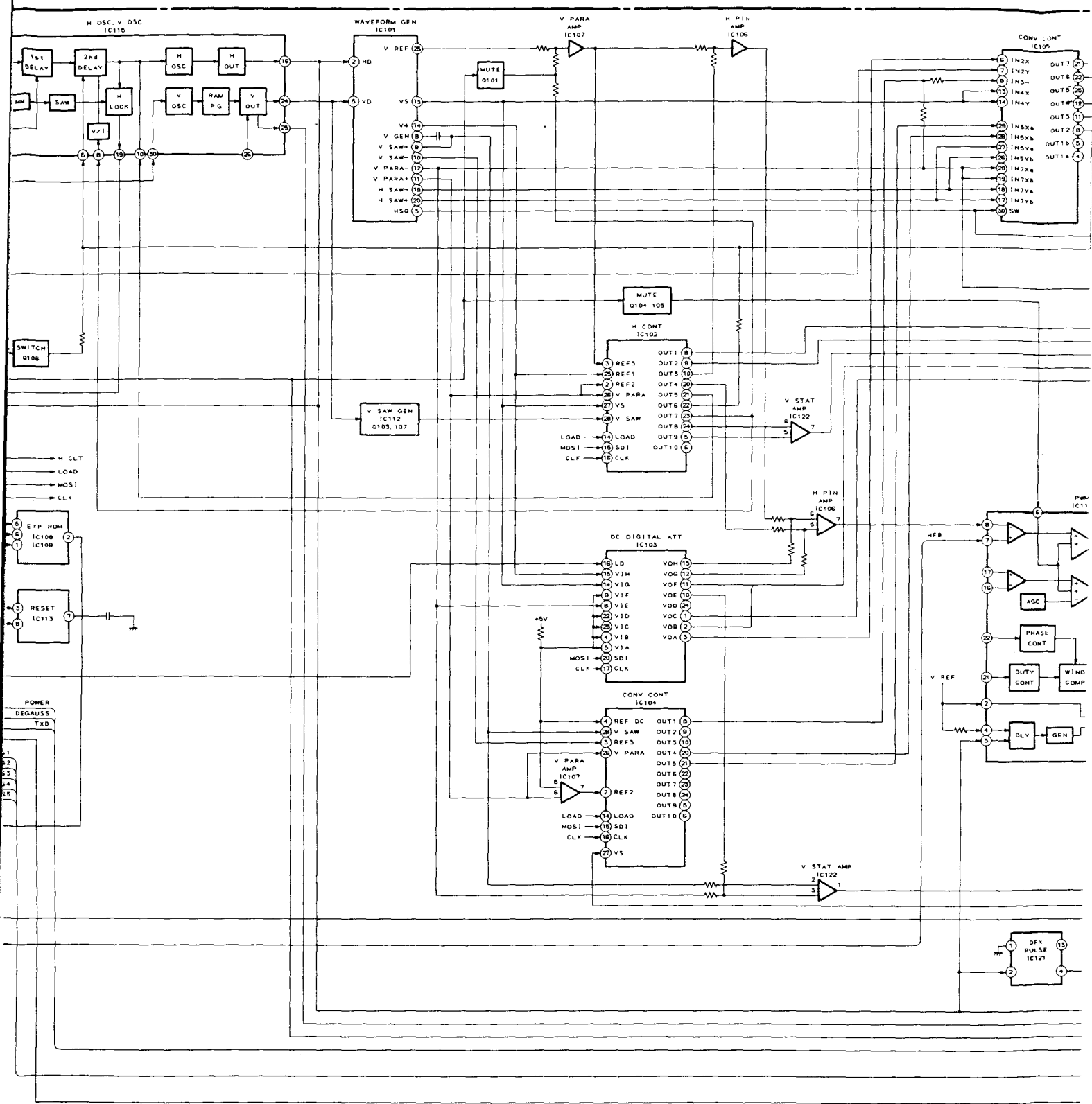




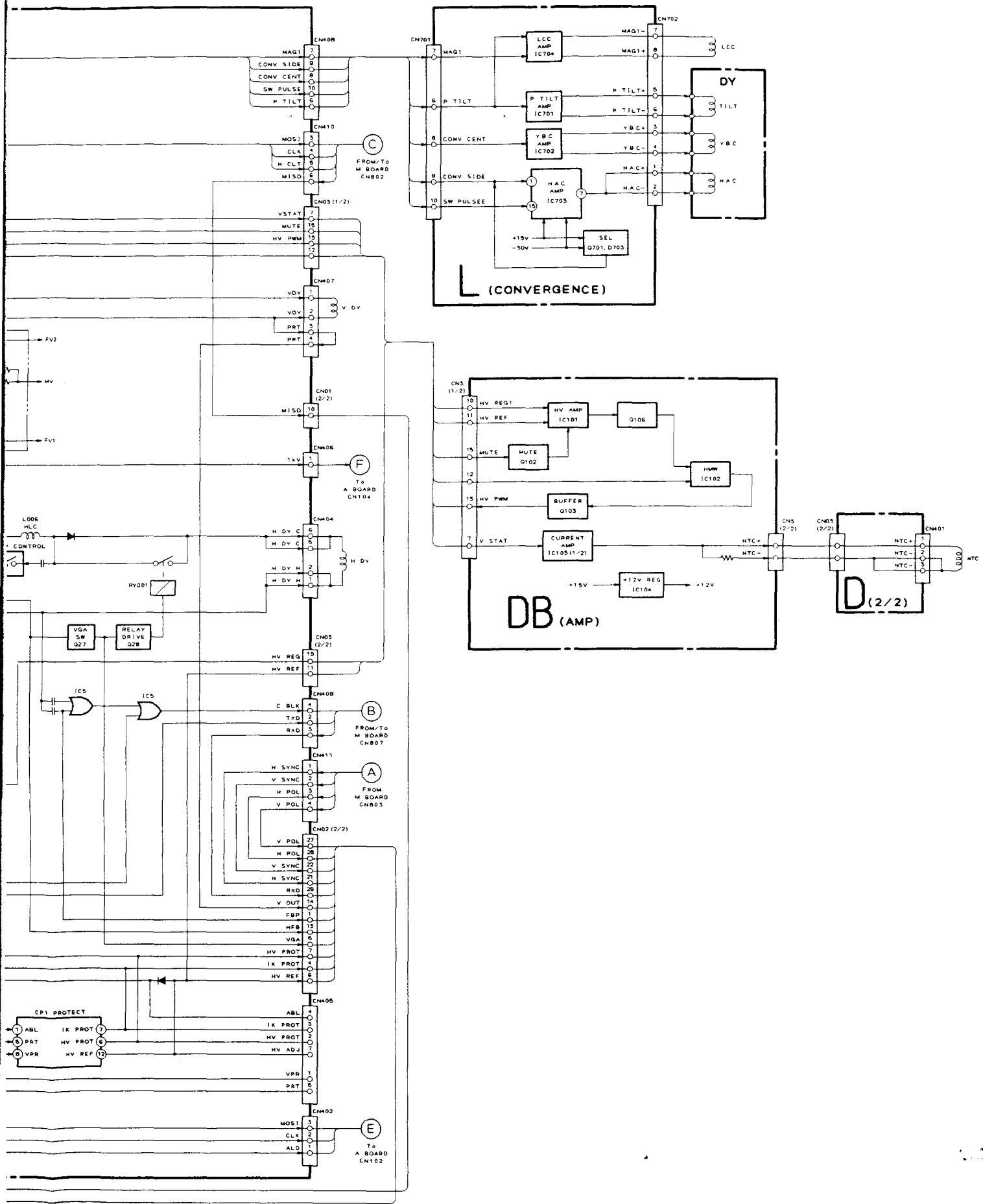




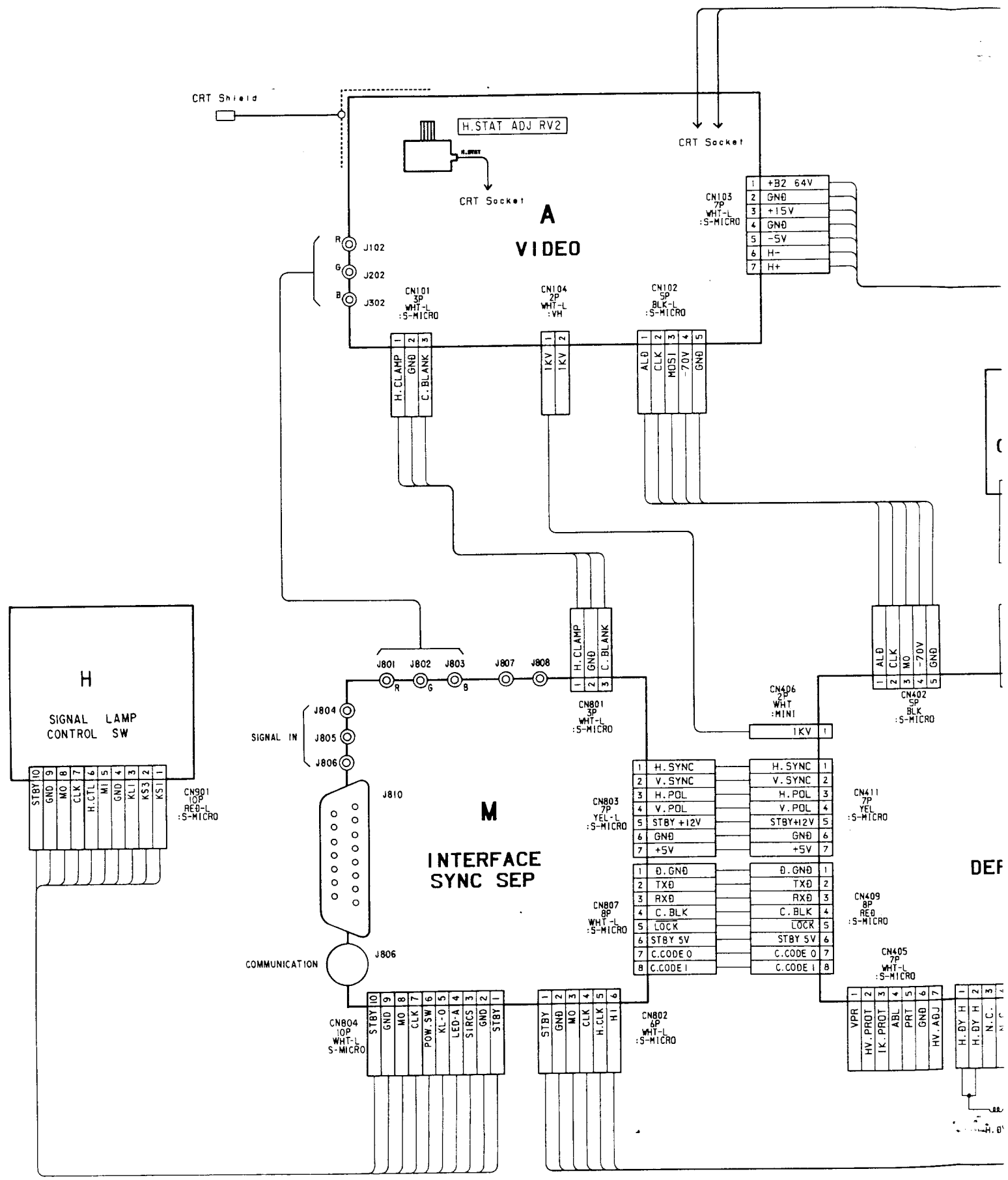


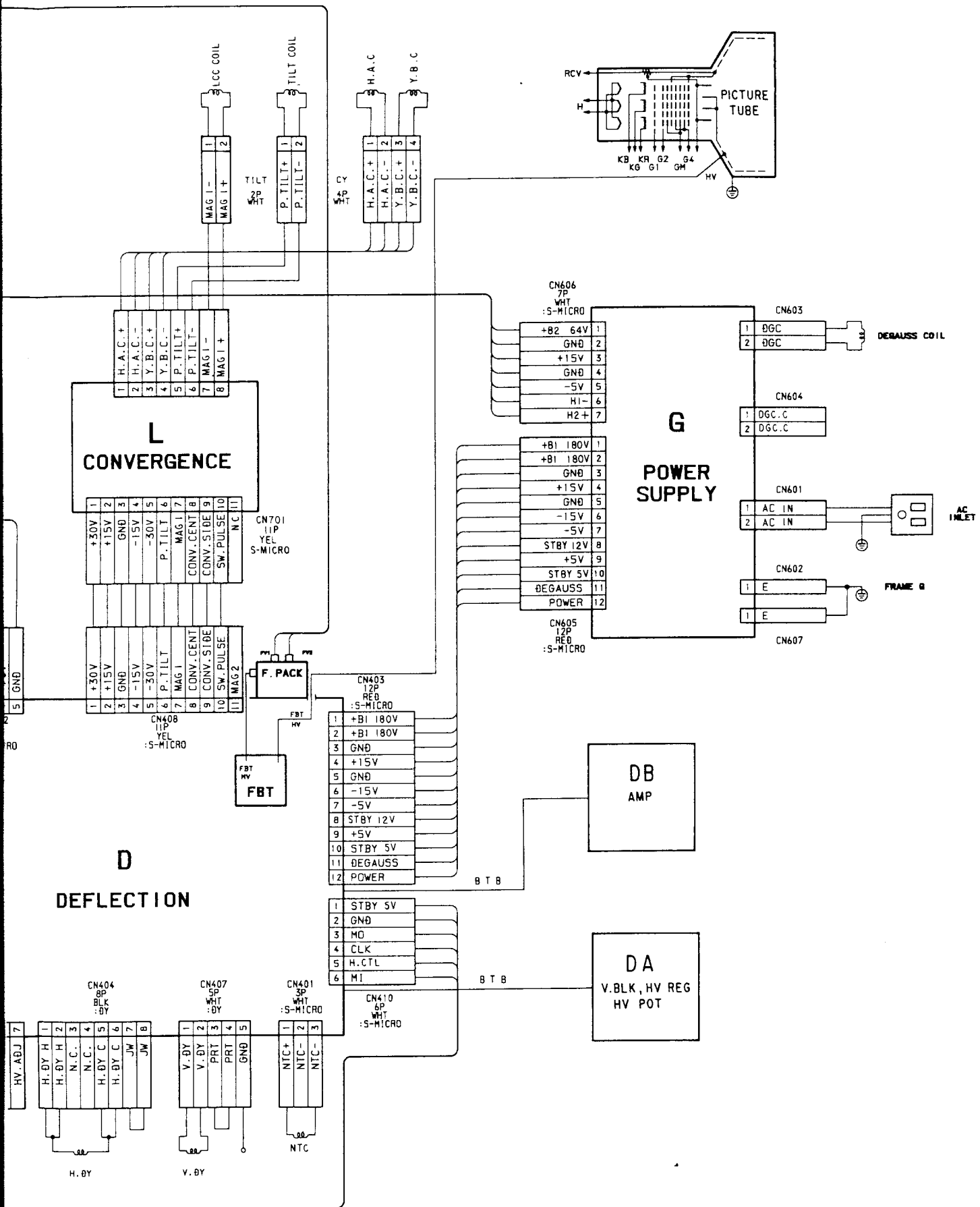




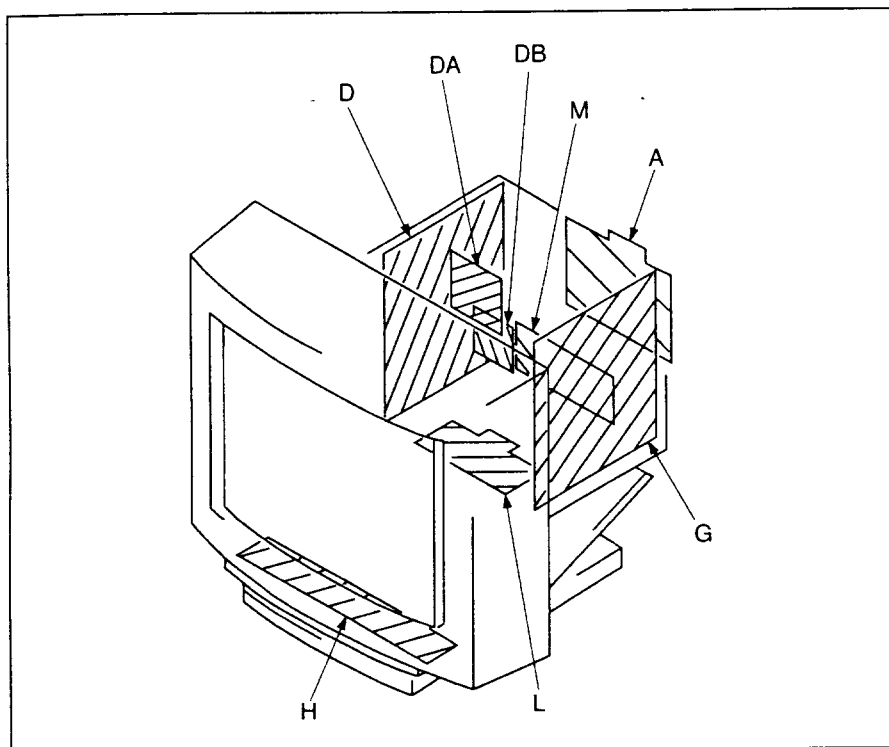


5-2. FRAME SCHEMATIC DIAGRAM





## 5-3. CIRCUIT BOARDS LOCATION



## 5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\mu\text{F}$   
50 WV or less are not indicated except for electrolytic.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm  
Rating electrical power 1/4 W

- All resistors are in ohms.
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-ground.
- : earth-chassis.
- All voltages are in V.
- Readings are taken with a 10 M $\Omega$  digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- \* : Can not be measured.
- Circled numbers are waveform references.
- : B + bus.
- : B - bus.

**Reference information**

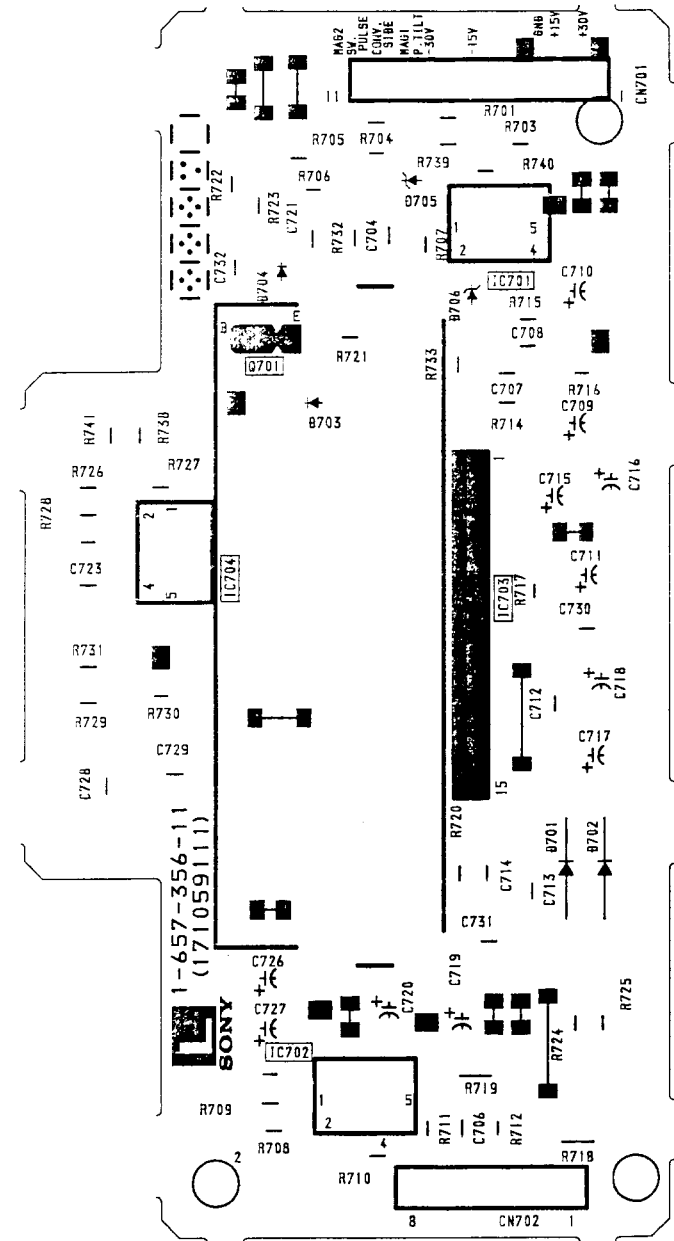
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

**Note: The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.**

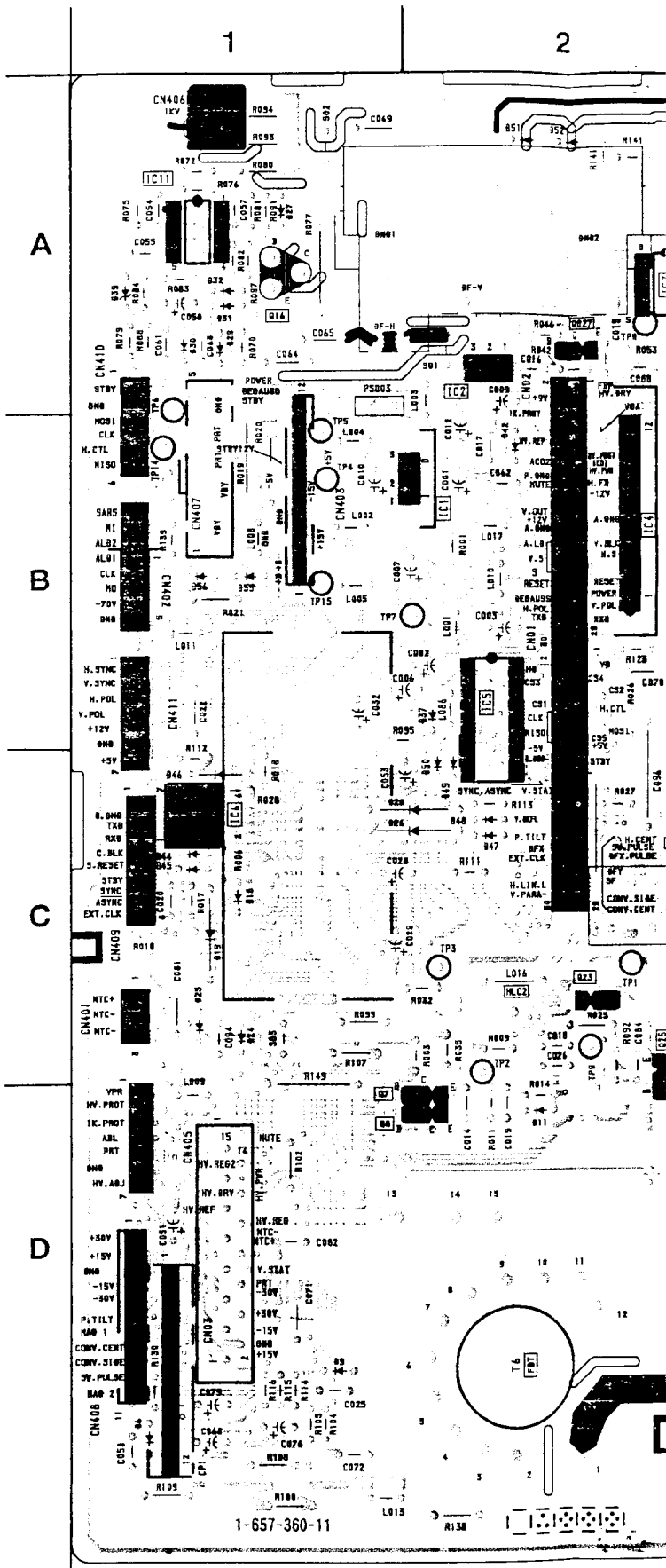
**Note: Les composants identifiés par un tramé et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.**



— L Board —

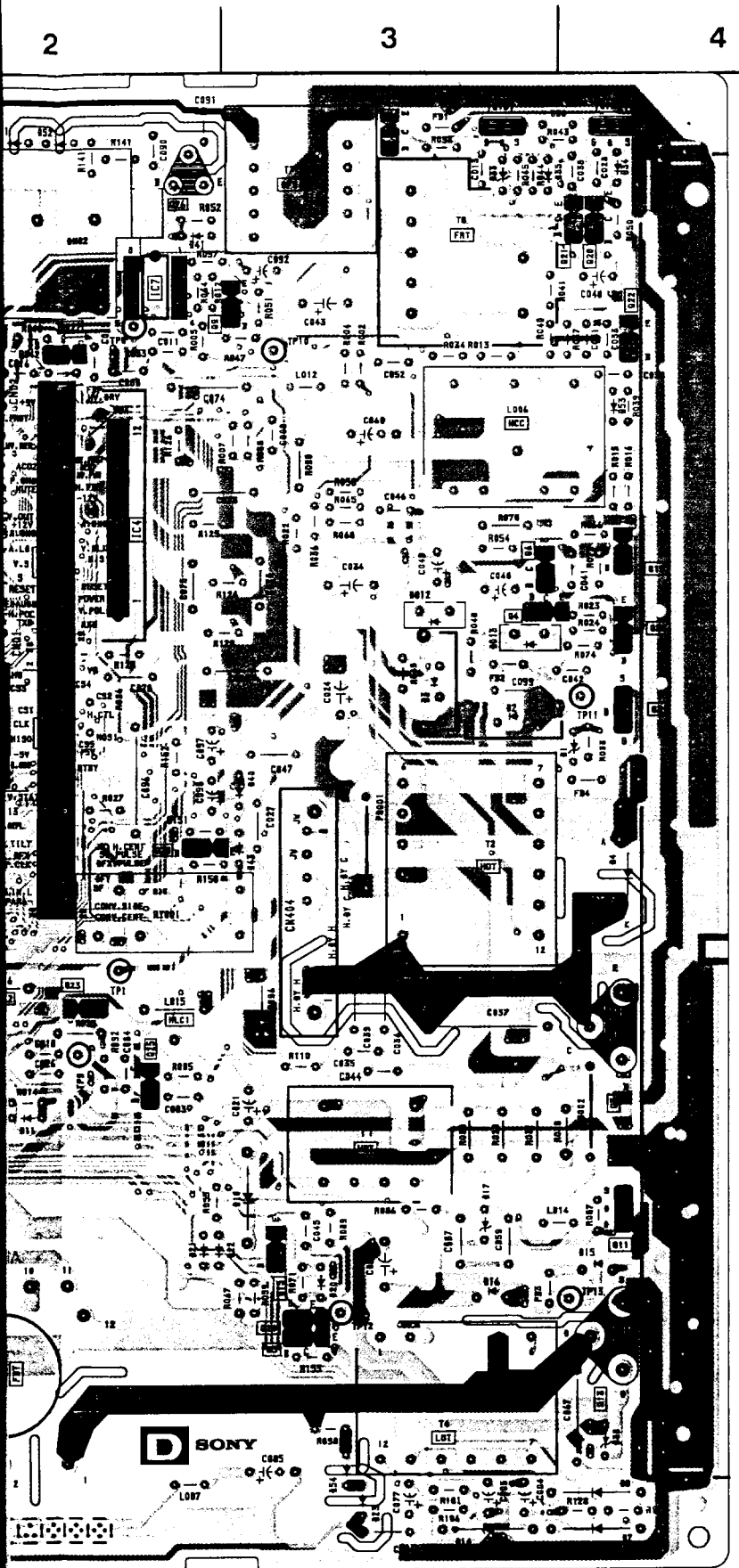


— D Board (Conductor Side) —



• Pattern from the side which enables seeing.  
 • Pattern of the rear side.

**D** [DEFLECTION]



● D BOARD

IC			D6	D-1	D-4
	(Conductor Side)	(Component Side)	D7	D-4	D-1
IC1	B-2	B-3	D8	D-4	D-1
IC2	A-2	A-3	D9	D-1	D-3
IC4	B-2	B-2	D10	D-3	D-2
IC5	B-2	B-3	D11	D-2	D-3
IC6	C-1	C-4	D14	D-3	D-1
IC7	A-2	A-2	D15	D-4	D-1
IC11	A-1	A-4	D16	D-3	D-1
			D17	D-3	D-1
			D18	C-1	C-3
			D19	C-1	C-4
			D20	D-3	D-2
			D21	D-2	D-2
			D22	D-2	D-2
			D23	D-3	D-2
			D24	C-1	C-4
			D25	C-1	C-4
			D26	C-1	C-3
			D27	A-1	A-3
			D28	C-1	C-3
			D29	A-1	A-4
			D30	A-1	A-4
			D31	A-1	A-4
			D32	A-1	A-4
			D33	A-3	A-1
			D34	A-4	A-1
			D35	A-3	A-1
			D36	A-3	A-1
			D37	B-2	B-3
			D38	D-4	D-1
			D39	A-1	A-4
			D40	C-3	C-2
			D41	A-2	A-2
			D42	B-2	B-3
			D43	C-3	C-2
			D44	C-1	C-4
			D45	C-1	C-4
			D46	C-1	C-4
			D47	C-2	C-3
			D48	C-2	C-3
			D49	C-2	C-3
			D50	C-2	C-3
			D51	A-2	A-3
			D52	A-2	A-3
			D53	A-4	B-1
			D54	D-3	D-2
			D55	B-1	B-3
			D56	B-1	B-4
			D012	B-3	B-1
			D013	B-3	B-1

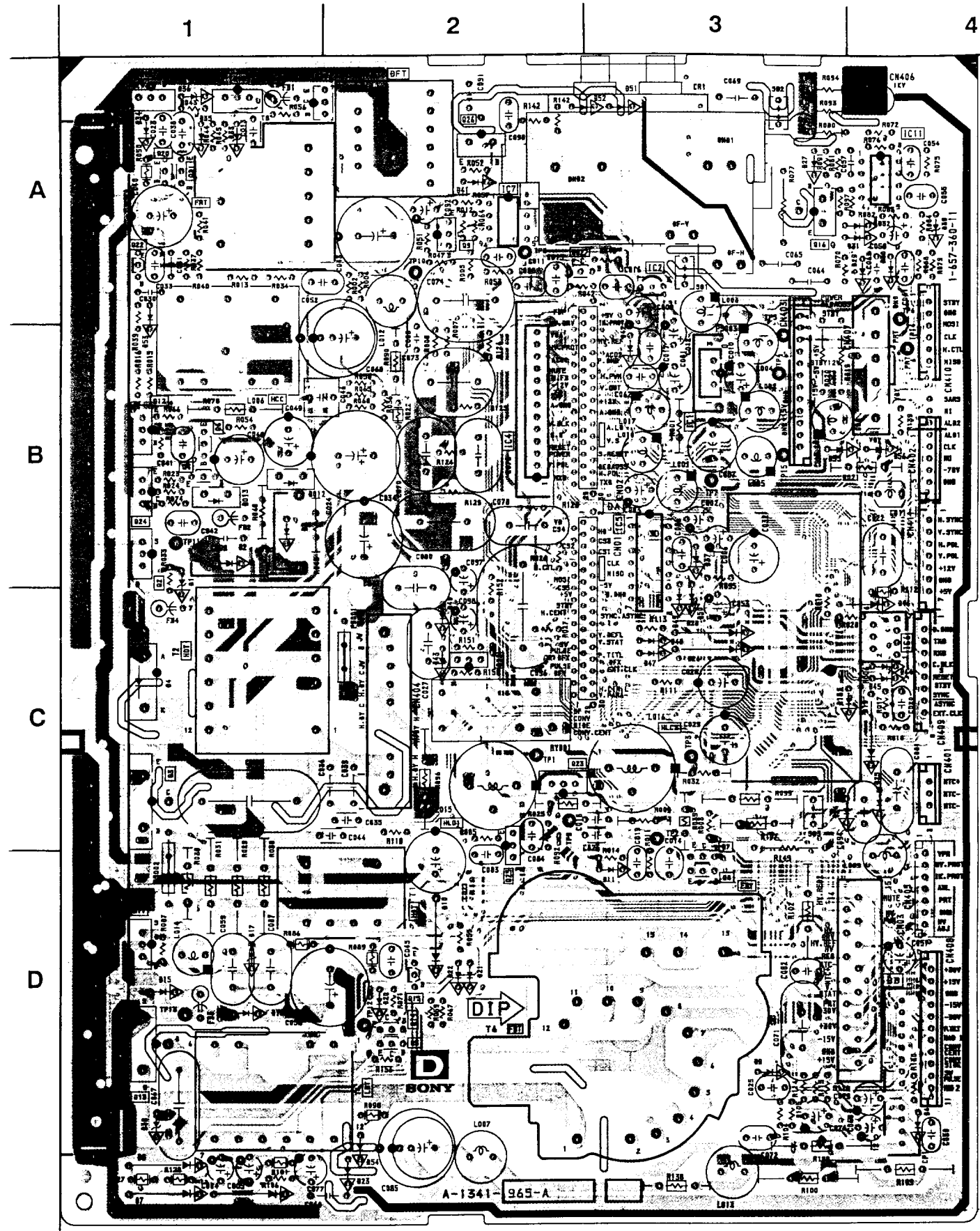
TRANSISTOR		
	(Conductor Side)	(Component Side)
Q2	B-4	B-1
Q3	C-4	C-1
Q4	B-3	B-1
Q5	D-3	D-2
Q6	B-3	B-1
Q7	D-1	D-3
Q8	D-1	D-3
Q9	A-2	A-2
Q11	D-4	D-1
Q12	B-4	B-1
Q13	D-4	D-1
Q14	D-3	D-2
Q15	D-3	D-2
Q16	A-1	A-3
Q17	A-3	A-1
Q18	A-3	A-1
Q19	A-4	A-1
Q20	A-4	A-1
Q21	A-3	A-1
Q22	A-4	A-1
Q23	C-2	C-2
Q24	B-4	B-1
Q25	C-2	C-2
Q26	A-2	A-2
Q28	C-2	C-2
Q027	A-27	A-2

DIODE		
	(Conductor Side)	(Component Side)
D1	B-4	B-1
D2	B-3	B-1
D3	B-3	B-1
D4	C-4	C-1

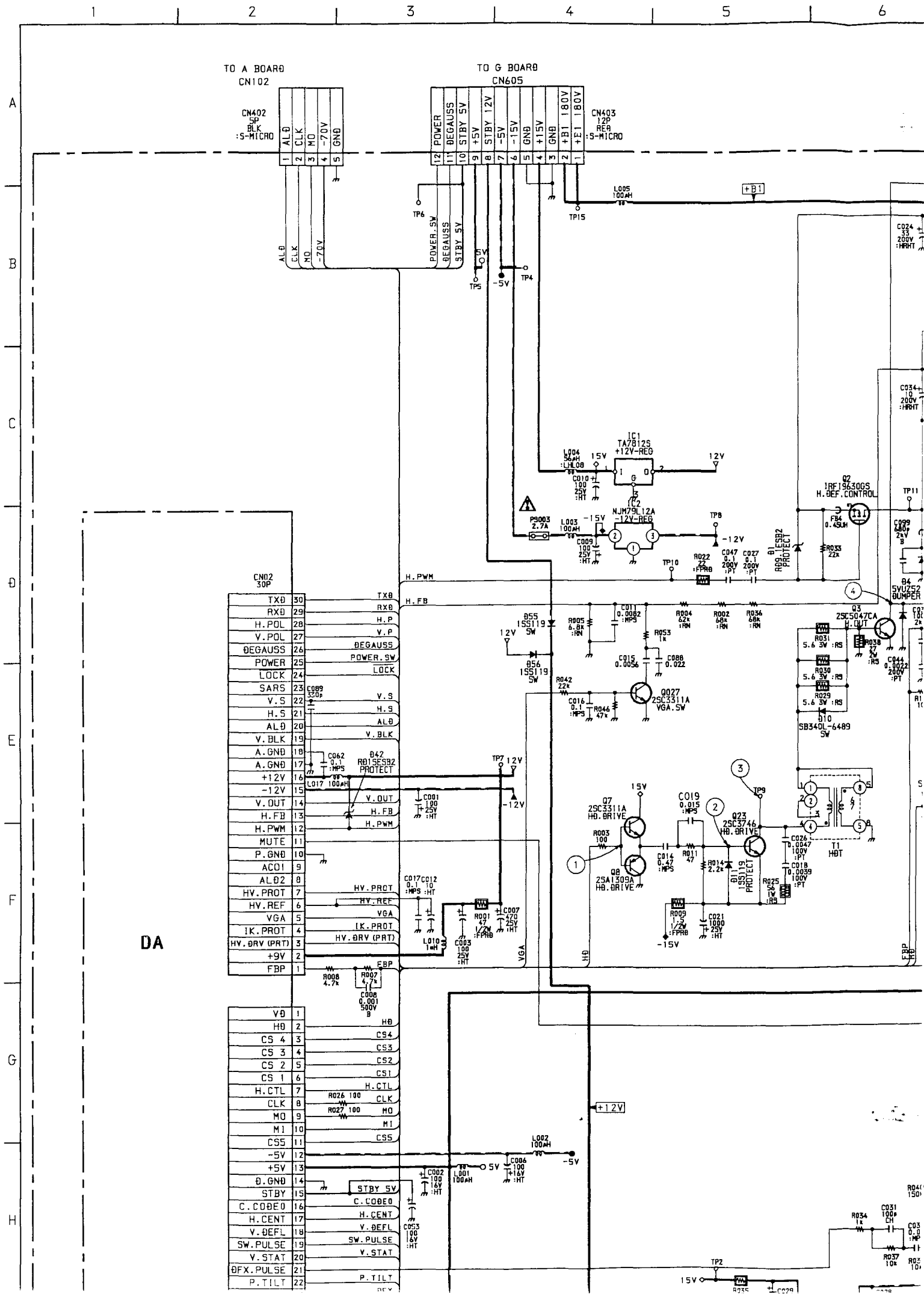


- D Board (Component Side) -

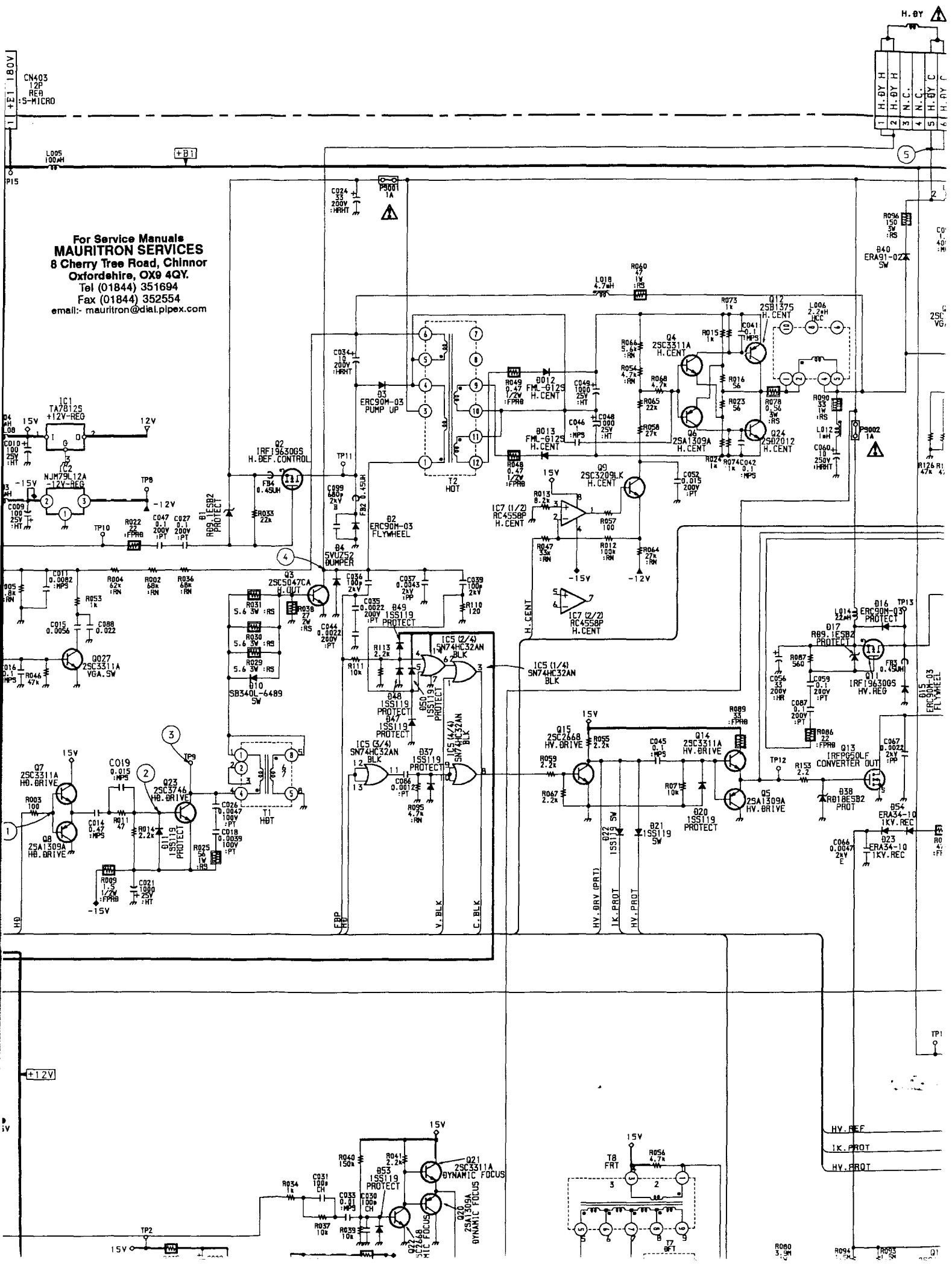


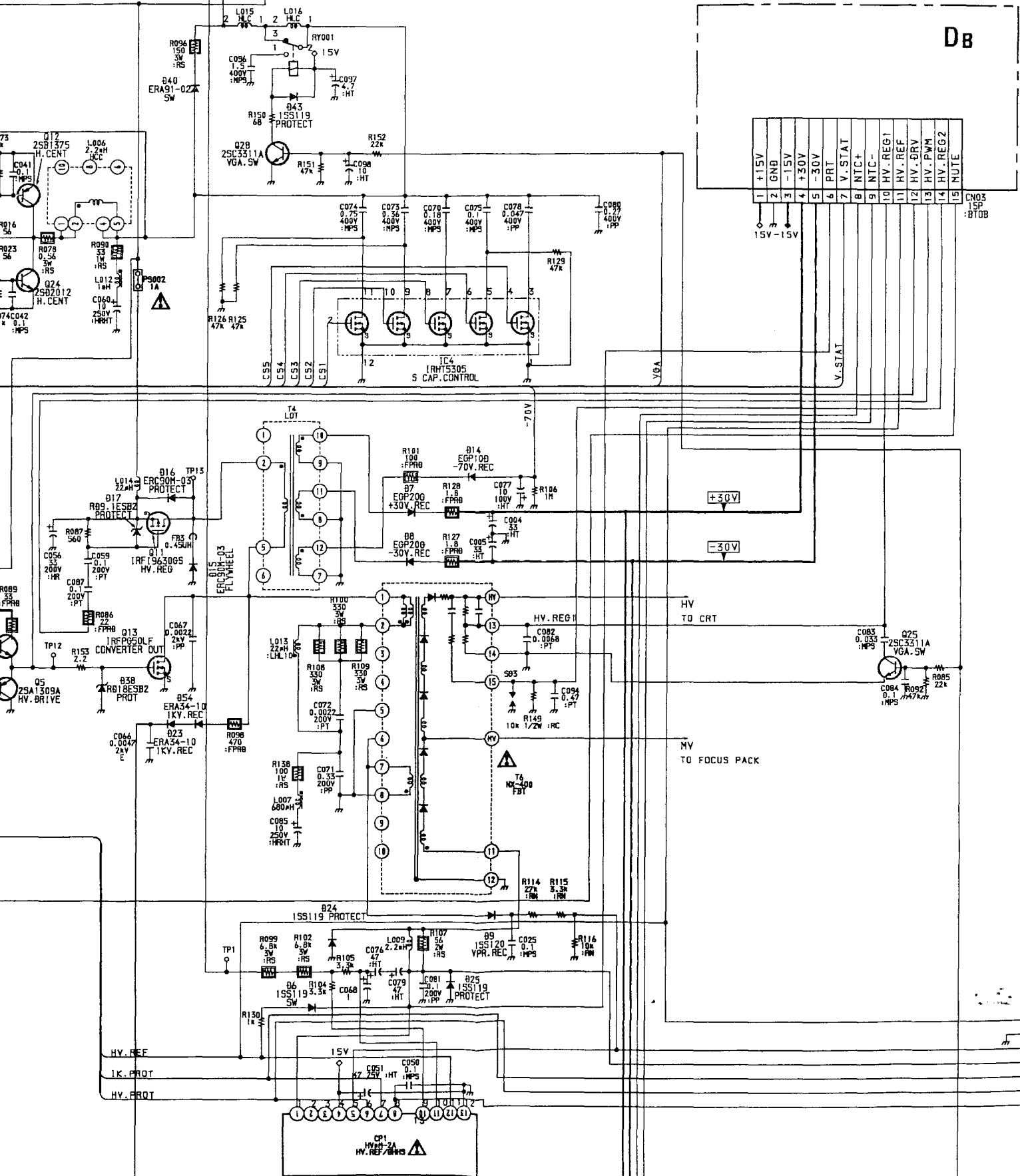
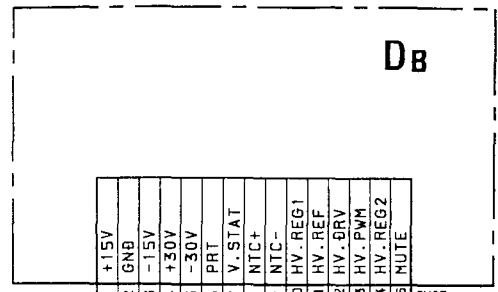
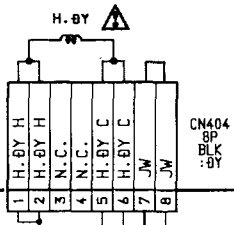
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

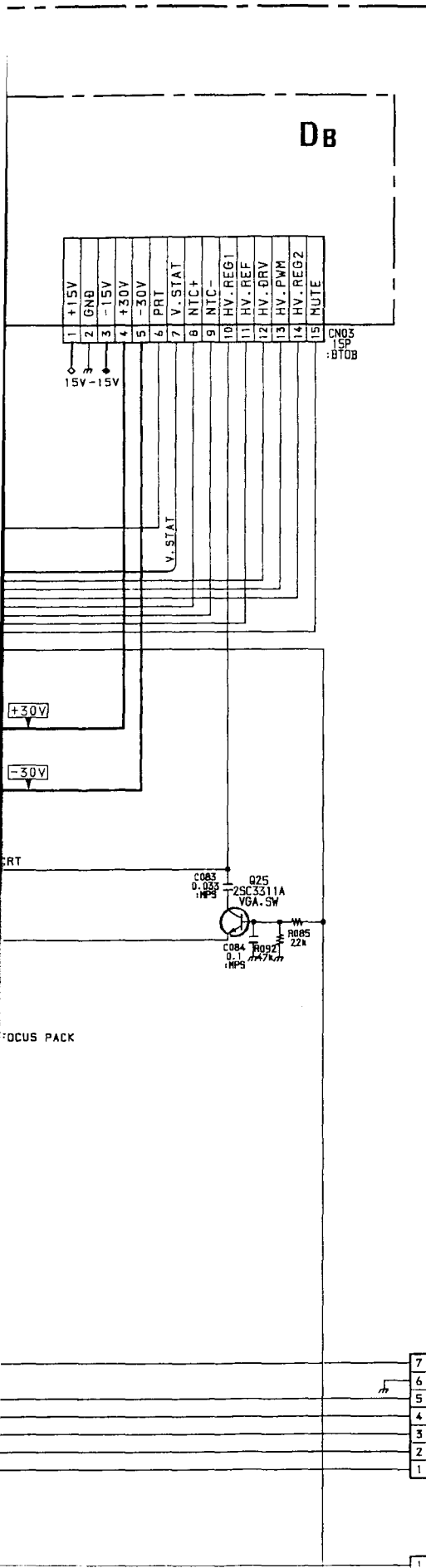
(1) Schematic Diagrams of D and L Boards



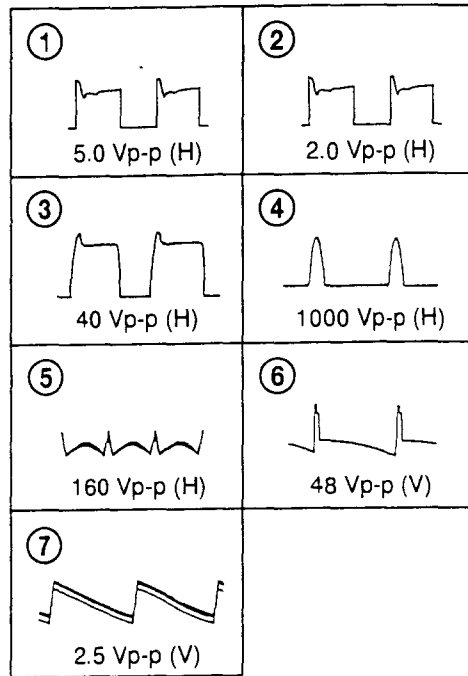
For Service Manuals  
**MAURITRON SERVICES**  
 8 Cherry Tree Road, Chinnor  
 Oxfordshire, OX9 4QY.  
 Tel (01844) 351694  
 Fax (01844) 352554  
 email:- mauritron@diat.pipex.com







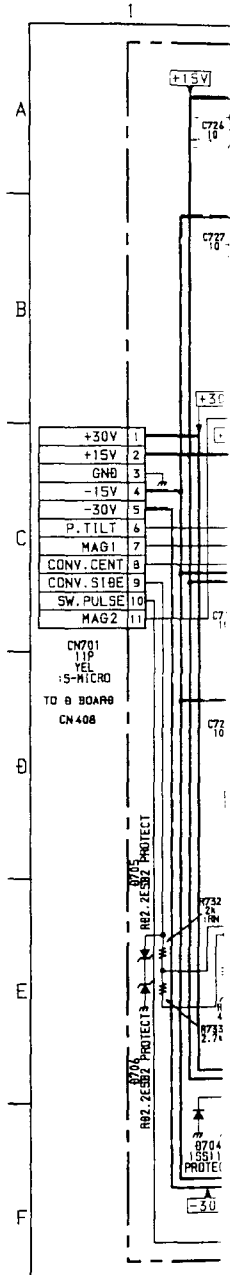
**D BOARD WAVEFORMS**



**VOLTAGE LIST**

● D BOARD

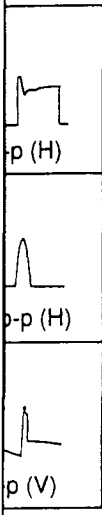
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC4	2	5.2	Q8	B	2.6	
	3	0		E	2.5	
	4	5.2	Q9	B	-3.9	
	5	0		C	34.9	
	6	5.2		E	-4.4	
	7	0	Q11	G	182.3	
	8	5.2		D	41.9	
	9	0		S	183.3	
	10	5.2		Q12	B	0
	11	0	C		45.9	
	IC5	1	0.2		E	48.2
2		0.4	Q13		G	9.5
3		0.5			D	42.2
4		0	Q14		B	9.5
5		0.2			C	15.1
6		0.4			E	9.5
8		0.7	Q15		B	0.2
9		0.8			C	10.3
10		0.8	Q16		B	-0.9
11		2.7			C	111.8
12		2.6			E	-0.7
IC6		1	0		Q17	B
		2	14.7	C		0
		3	-14.7	Q18	G	-0.2
	4	-15	D		0	
	5	0.3	S		0.2	
	6	14.3	Q19	G	12.3	
	7	0		D	0	
IC7	1	-3.9	Q20	B	13.7	
	2	0		E	13.3	
	3	3	Q21	B	13.3	
	4	-15.5		E	13.3	
	8	15.3		Q22	B	0.7
IC11	1	-2.7	C		13.7	
	2	0	Q23	B	-15.2	
	3	0		C	-0.2	
	5	1.9	E	-15.2		
	6	-0.2	Q24	B	44.7	
	7	7		C	45.9	
	E			E	43.9	
Q2	G	182.2	Q25	B	0.7	
	D	33.9				
	S	183.4				
Q3	B	-0.9				
	C	*				
Q4	B	45.9				
	C	47.5				



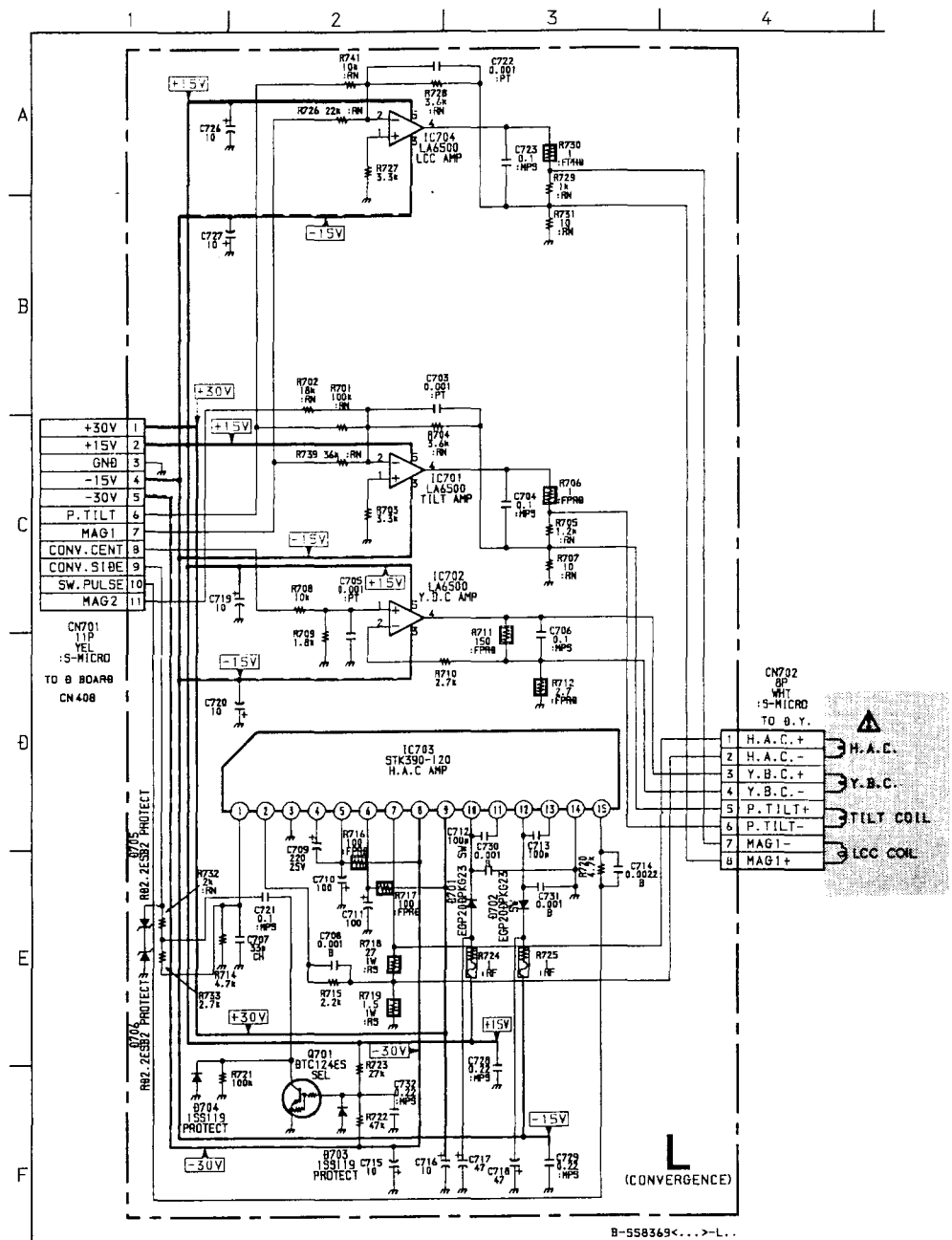
**VOLTAGE LIST**

● L BOARD

Ref.	Pin No.	Voltage
IC701	1	0
	2	0
	4	0
IC702	1	0.2
	2	0.2
	4	0.2
IC703	1	0
	2	0
	4	-29
	5	-30
	6	30
	7	0
	10	15
	11	31
	12	-2
	13	-31
15	-0	



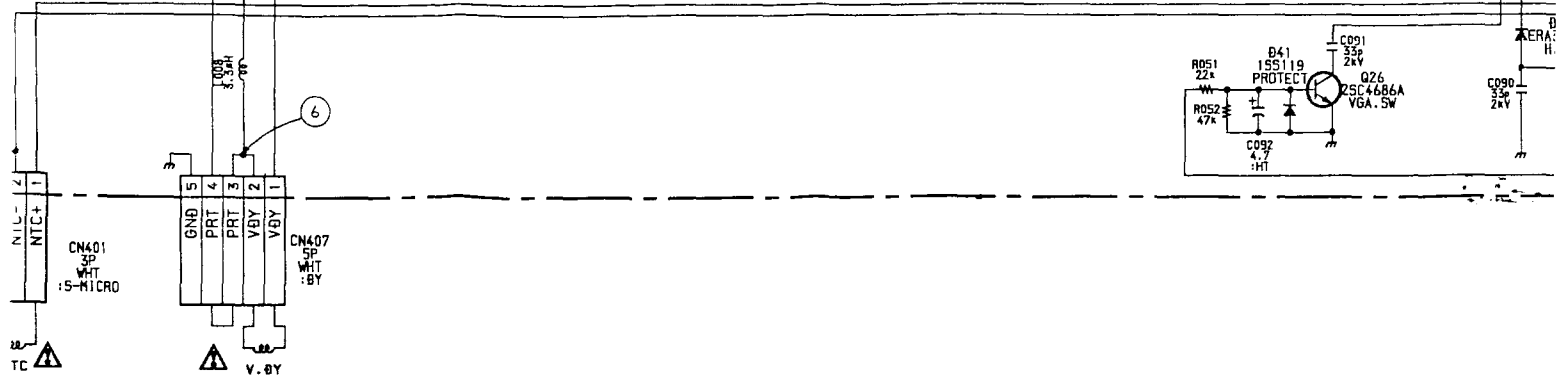
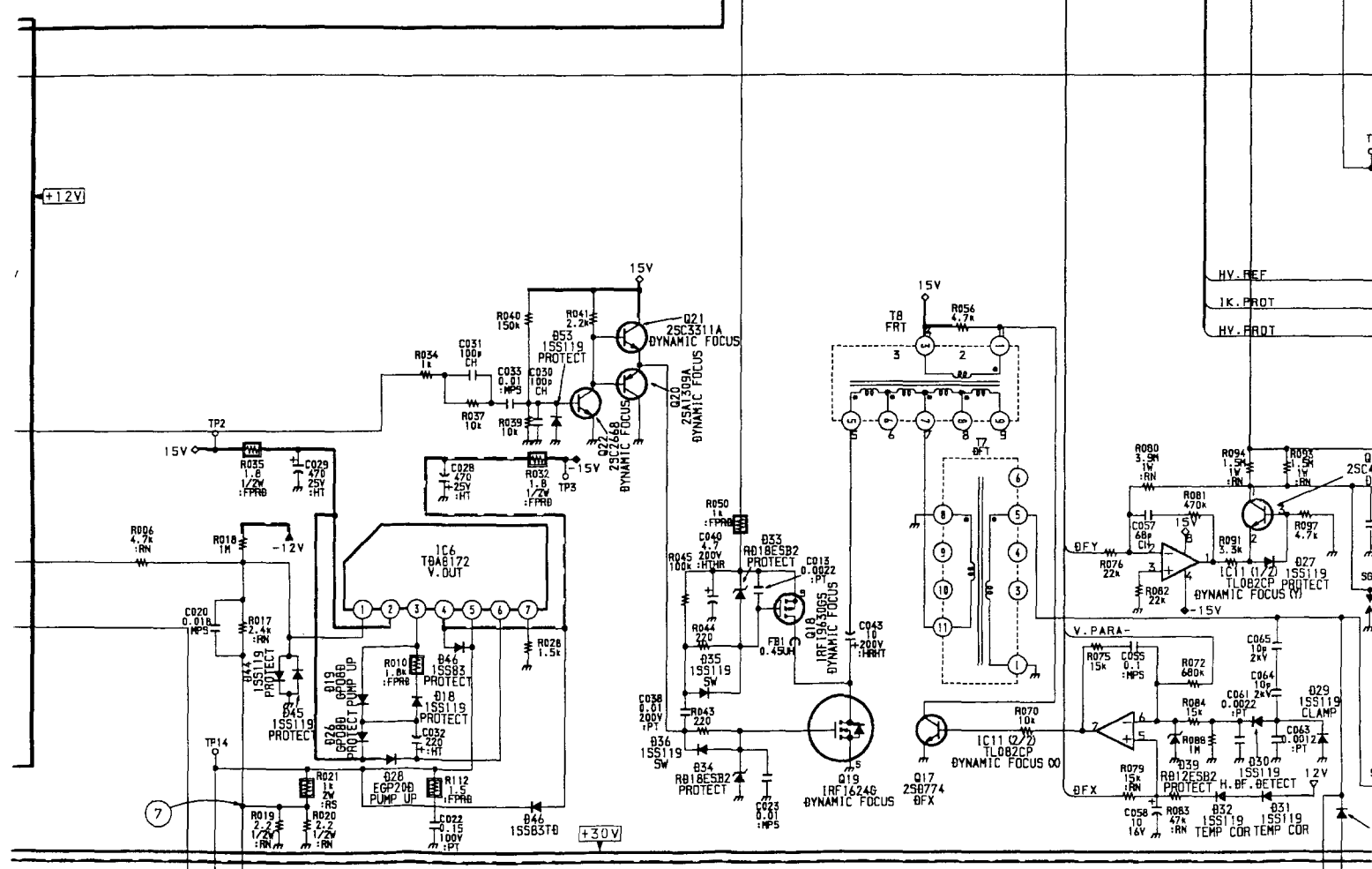
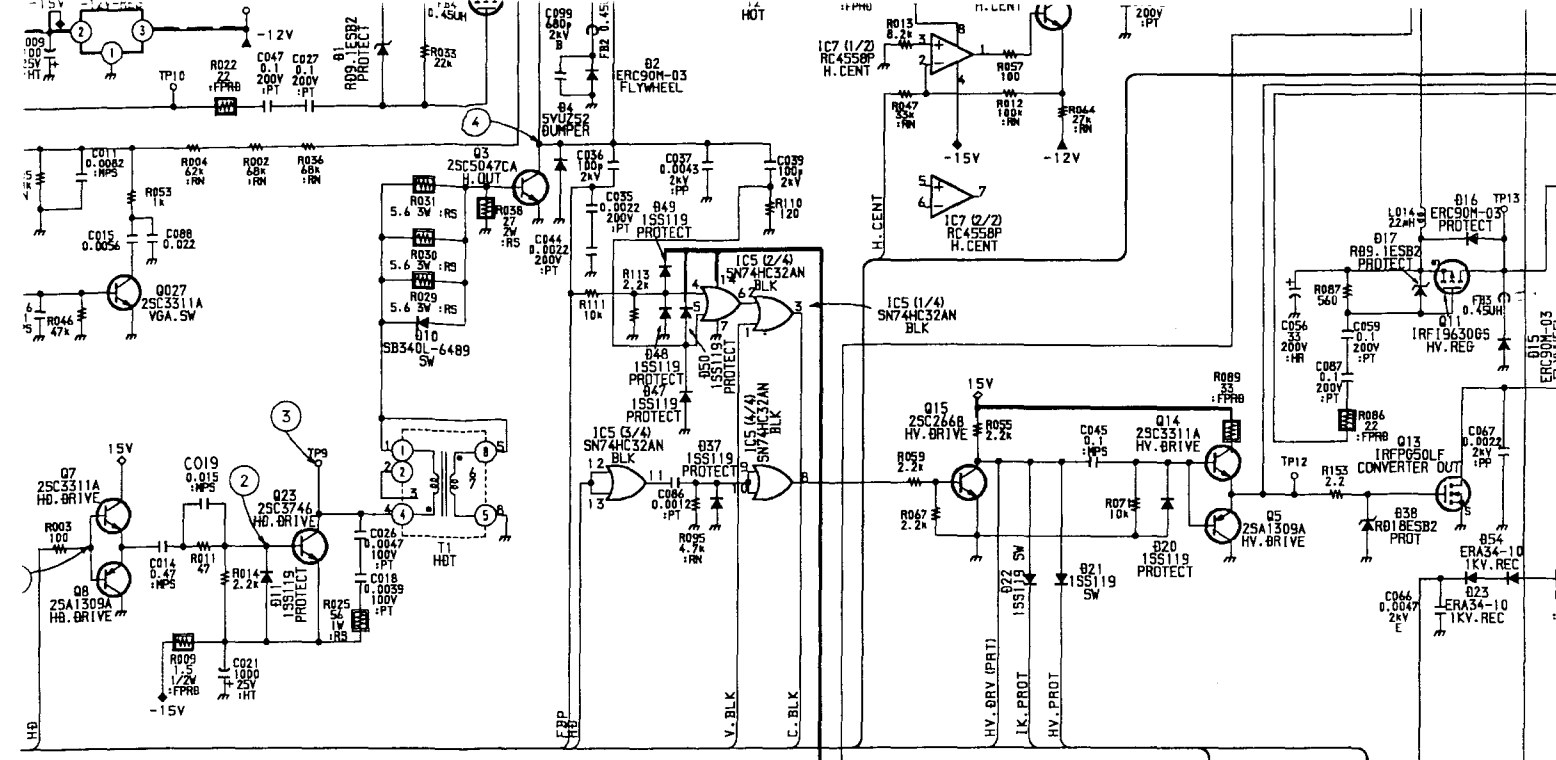
2.6
2.5
-3.9
34.9
-4.4
182.3
41.9
183.3
0
45.9
48.2
9.5
42.2
9.5
15.1
9.5
0.2
10.3
-0.9
111.8
-0.7
0.8
0
-0.2
0
0.2
12.3
0
13.7
13.3
13.3
0.7
13.7
-15.2
-0.2
-15.2
44.7
45.9
43.9
0.7



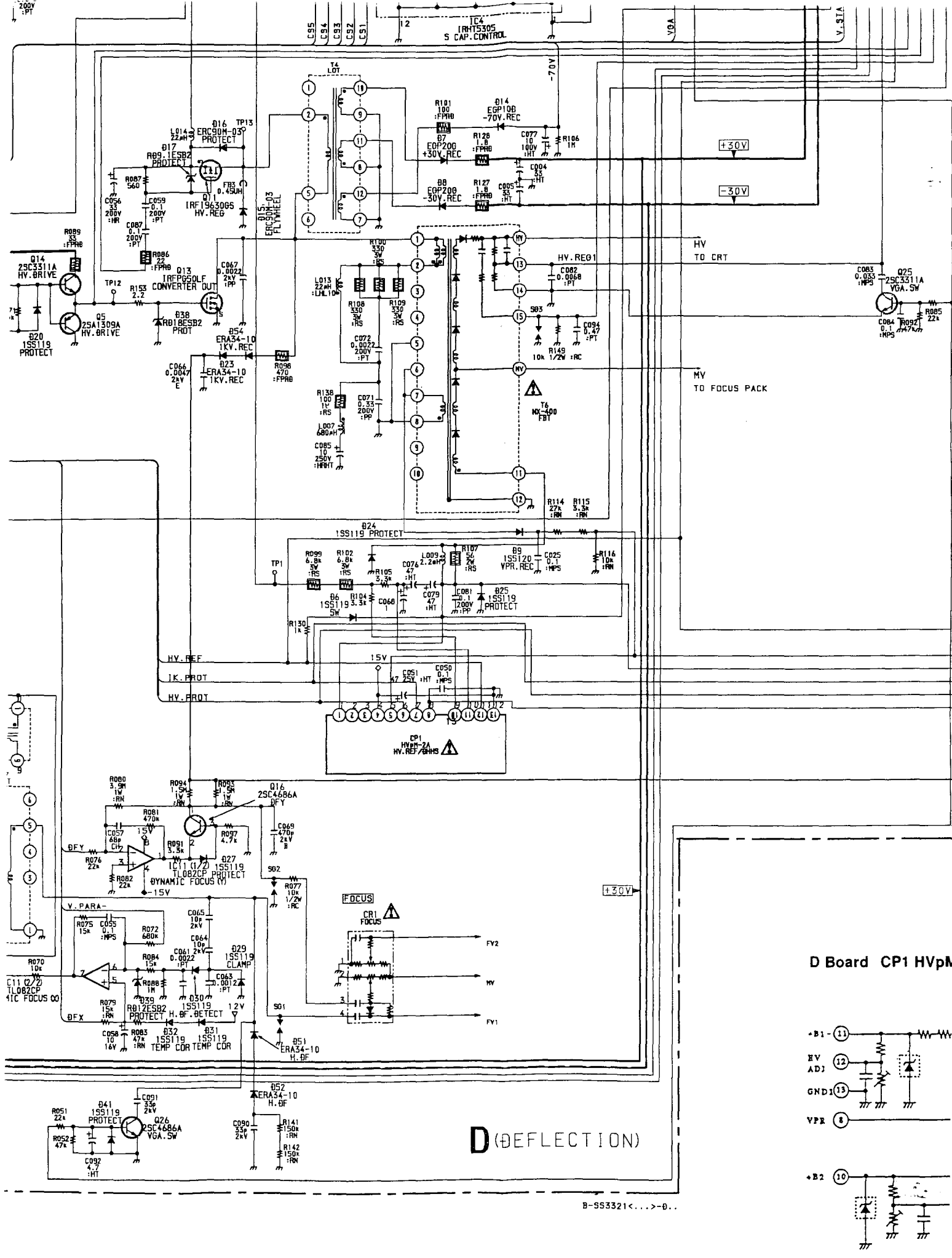
**VOLTAGE LIST**  
● L BOARD

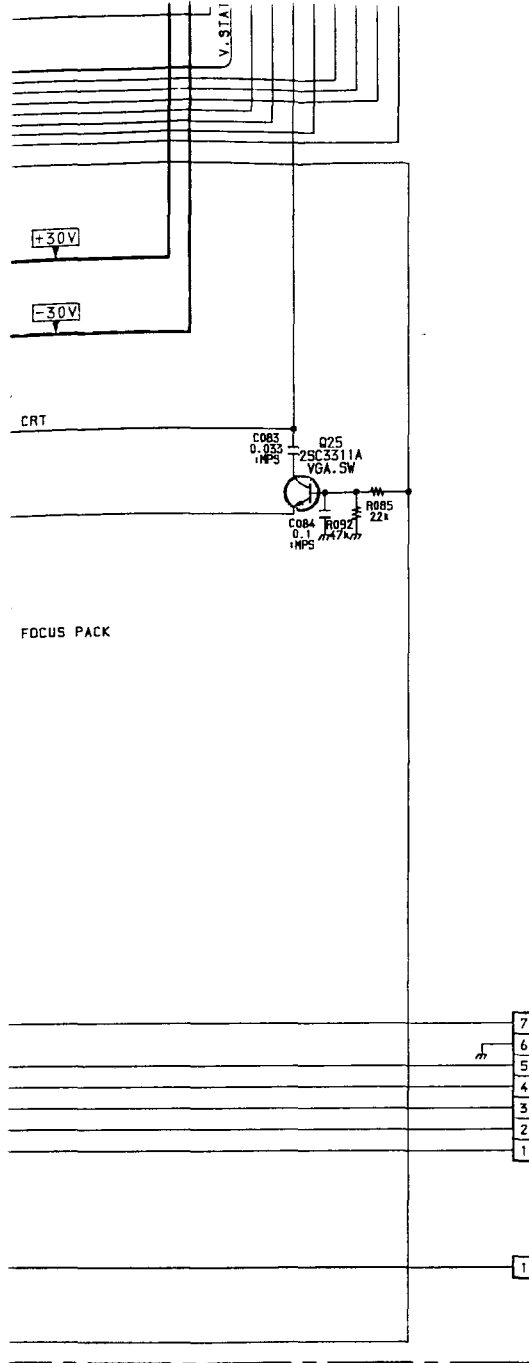
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC701	1	0	IC704	1	0
	2	0		2	0
	4	0		4	0
IC702	1	0.2	Q701	B	-0.5
	2	0.2		C	0.2
	4	0.3			
IC703	1	0			
	2	0			
	4	-29.1			
	5	-30.4			
	6	30.8			
	7	0			
	10	15.5			
	11	31.1			
	12	-2.4			
	13	-31.0			
	15	-0.4			







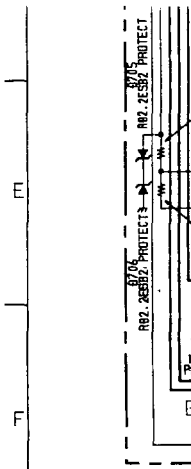




**VOLTAGE LIST  
● D BOARD**

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC4	2	5.2	Q8	B	2.6
	3	0		Q9	E
	4	5.2	B		-3.9
	5	0	C		34.9
	6	5.2	E	-4.4	
	7	0	Q11	G	182.3
	8	5.2		D	41.9
	9	0		S	183.3
	10	5.2	Q12	B	0
	11	0		C	45.9
	IC5	1	0.2	E	48.2
2		0.4	Q13	G	9.5
3		0.5		D	42.2
4		0	Q14	B	9.5
5		0.2		C	15.1
6		0.4		E	9.5
7		0.7	Q15	B	0.2
8		0.8		C	10.3
9		0.8	Q16	B	-0.9
10		0.8		C	111.8
11		2.7	E	-0.7	
12		2.6	Q17	B	0.8
13		2.6		C	0
14		5.1	Q18	G	-0.2
IC6	1	0		D	0
	2	14.7		S	0.2
	3	-14.7	Q19	G	12.3
	4	-15		D	0
	5	0.3	Q20	B	13.7
	6	14.3		E	13.3
	7	0	Q21	B	13.3
	IC7	1		-3.9	E
2		0	Q22	B	0.7
3		3		C	13.7
4		-15.5	Q23	B	-15.2
8		15.3		C	-0.2
E		183.4		E	-15.2
Q2		G	182.2	Q24	B
	D	33.9	C		45.9
	S	183.4	E		43.9
Q3	B	-0.9	Q25	B	0.7
	C	*		C	0
	E	43.9		E	0
Q4	B	45.9	Q26	B	0.7
	C	47.5		C	0
	E	45.8		E	0
Q5	B	9.5	Q27	B	0.7
	E	9.5		C	0
Q6	B	45.9	Q28	B	0.8
	C	44.7		C	0.5
	E	45.9			
Q7	B	2.6			
	E2.5				

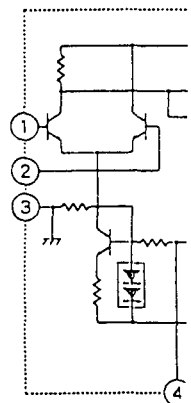
- CN405  
7P  
WHT-L  
:S-MICRO
- 7 HV. ADJ
  - 6 GND
  - 5 PRT
  - 4 ABL
  - 3 1K. PROT
  - 2 HV. PROT
  - 1 YPR
- CN406  
1P  
WHT  
:MINI
- 1 1KV
- TO A BOARD  
CN104



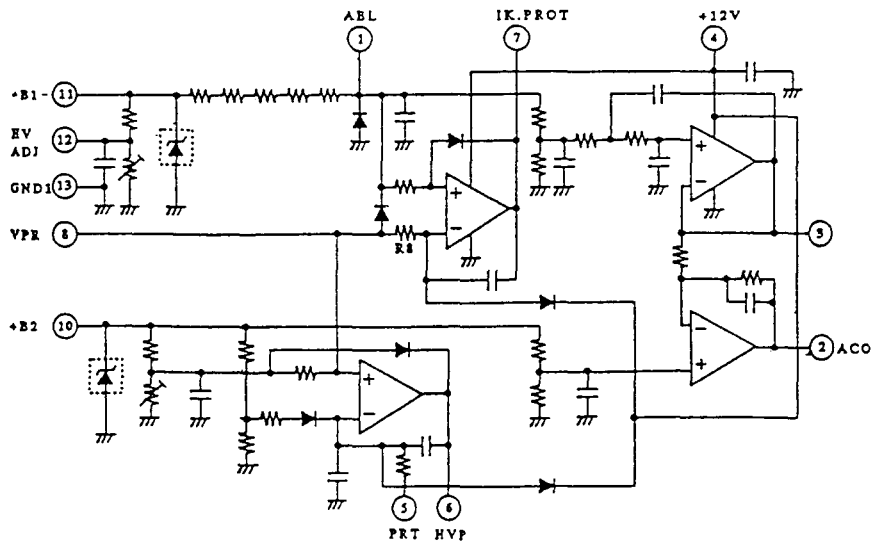
**VOLTAGE LIST  
● L BOARD**

Ref.	Pin No.	Voltage [V]
IC701	1	
	2	
	4	
IC702	1	
	2	
	4	
IC703	1	
	2	
	4	
	5	
	6	
	7	
	10	
	11	
	12	
	13	
	15	

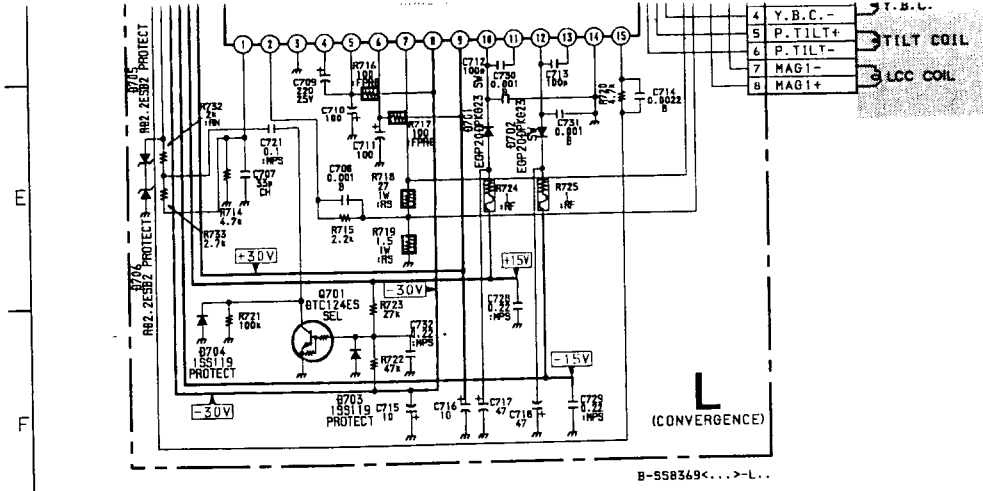
**L Board IC70**



**D Board CP1 HVPM2**



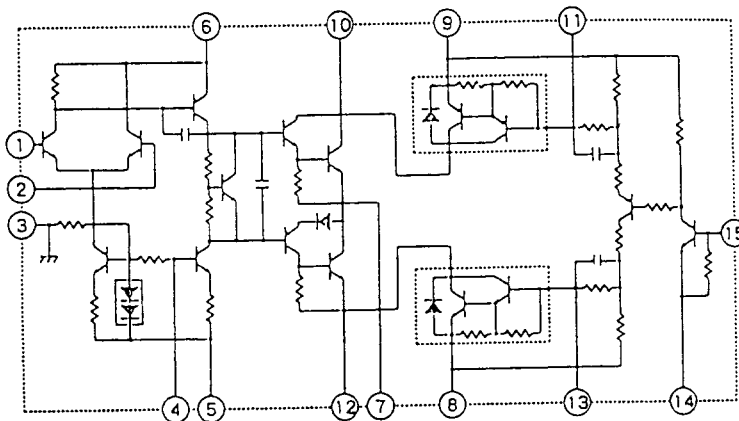
oltage [V]
2.6
2.5
-3.9
34.9
-4.4
182.3
41.9
183.3
0
45.9
48.2
9.5
42.2
9.5
15.1
9.5
0.2
10.3
-0.9
111.8
-0.7
0.8
0
-0.2
0
0.2
12.3
0
13.7
13.3
13.3
13.3
0.7
13.7
-15.2
-0.2
-15.2
44.7
45.9
43.9
0.7
0
0.7
0
0
0.7
0
0.8
0.5



**VOLTAGE LIST**  
● L BOARD

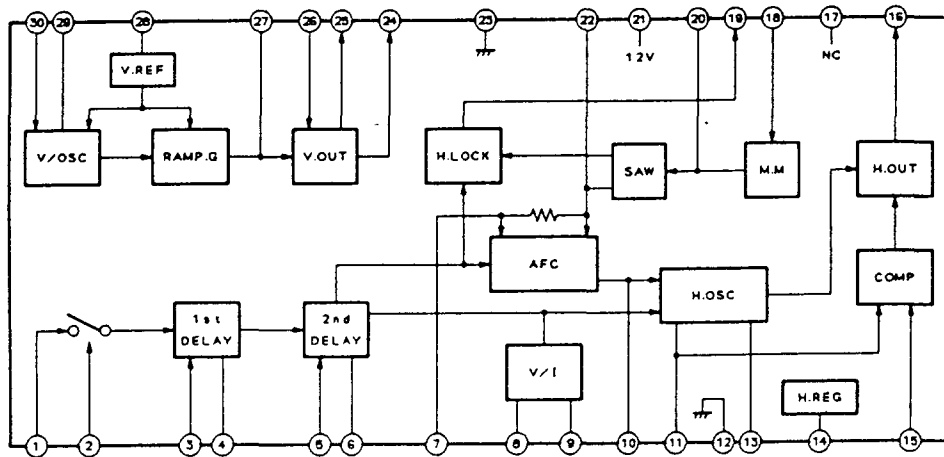
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC701	1	0	IC704	1	0
	2	0		2	0
	4	0		4	0
IC702	1	0.2	Q701	B	-0.5
	2	0.2		C	0.2
	4	0.3			
IC703	1	0			
	2	0			
	4	-29.1			
	5	-30.4			
	6	30.8			
	7	0			
	10	15.5			
	11	31.1			
	12	-2.4			
	13	-31.0			
	15	-0.4			

**L Board IC703 STK390-120**

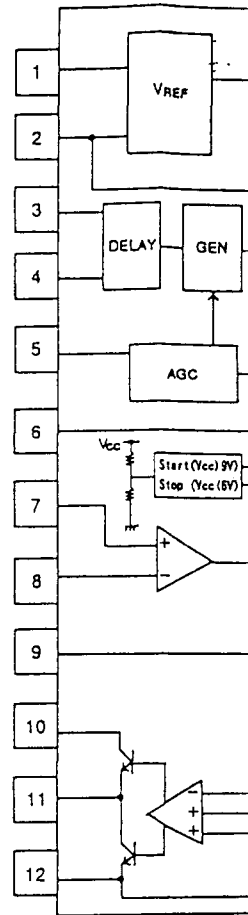


(2) Schematic Diagram of DA Board

DA Board IC115 CXA1543M



DA Board IC116 CXA

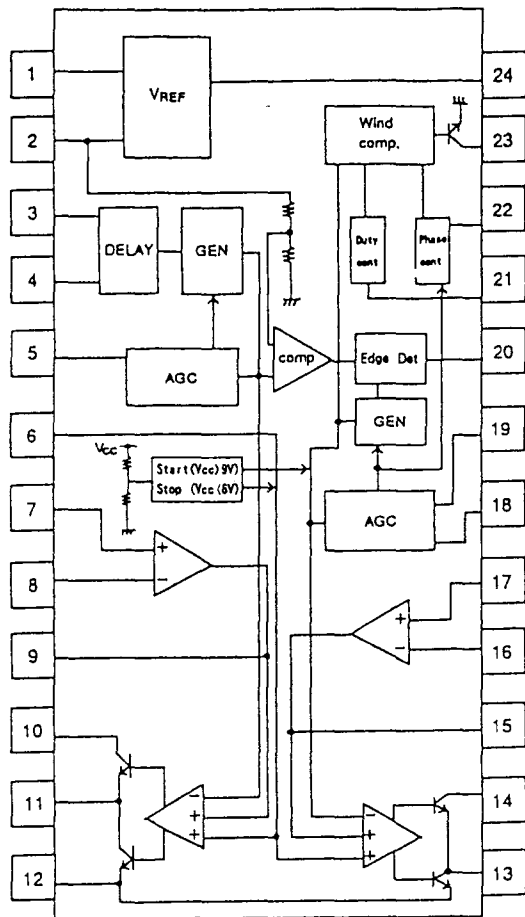


VOLTAGE LIST

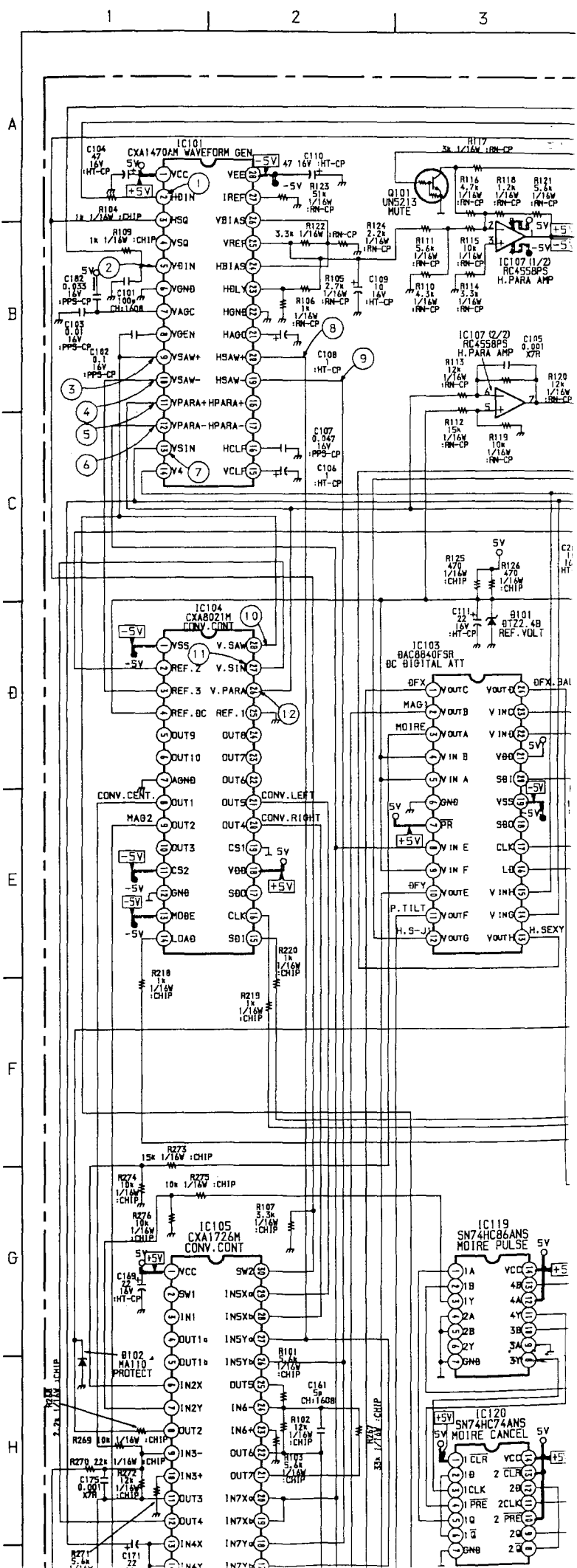
● DA BOARD

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]			
IC101	2	2.5	IC104	2	1.6	IC110	2	5.2	IC113	1	05	IC117	1	0.2			
	3	2.2		3	0		3	5.1		3	0		2	0.2			
	5	0.2		4	2.8		5	5.2		7	*		3	11.6			
	7	1.2		8	0		6	5.1		8	5.2		4	11.6			
	8	0		9	0.7		8	0		IC114	2		0	5	0.8		
	9	0		14	0		9	0			3		5.3	6	0.8		
	10	0		15	5.2		11	5.2			5		0.2	8	2.1		
	11	0.8		16	5.2		12	5.2			6		0	9	2.1		
	12	-0.7		20	0		IC111	1			2.9		7	5	10	11.7	
	13	0		21	0			2			2.4		9	2.1	11	11.2	
	14	-0.5		26	0.8			3			5.3		10	5.1	12	10.4	
	15	1		27	0.6			4			5.3		11	5.1	13	0	
	16	0.9		28	0	5		5.3			IC115		1	4.9	IC119	1	*
	19	0		IC105	6	0		7				5.3	2	0		2	2.6
	20	0			7	1.4		9				0.8	3	5.3		3	*
	21	1.9			8	0		10	0			4	0.9	8		0.4	
	23	0.8			9	0		11	5.2			5	0.9	10		-0.1	
	24	1.1			10	0		12	2.5			6	8.5	11	5.1		
	25	2.7			11	0.5		13	0.2			7	4.9	5	2.7		
	26	1.1			12	0.6		14	0.2	8		0	6	*			
	27	2.6			13	0	16	5.2	9	1.2		8	2.6				
	IC102	2			0.8	14	0	17	5.2	10		6.8	9	2.6			
		3			-0.7	17	0	18	5.2	11		6.1	11	0.2			
		4			3.2	18	0	19	0.2	13		8.7	12	2.6			
		5			-0.2	19	-0.7	20	5.2	15		8.9	IC120	2	*		
		8		0	20	-0.7	21	3.8	16	2.5		3		0.4			
		9		1.4	21	0.4	22	5.2	18	0.8		4		5.1			
10		-0.2		22	-0.1	23	0	19	5	5	2.7						
14		0	23	0	25	5.2	20	7.6	6	*							
15		5.2	24	0	26	5.2	21	5.2	8	2.6							
16		5.2	25	0	27	5.2	22	5.2	9	2.6							
19		-5	26	0	28	5.2	24	0	10	0.2							
20		-0.2	27	0	29	5.2	25	0.2	11	2.6							
21	0	28	0	30	5.2	26	0.2	IC121	2	2.5							
22	1.1	29	0	32	5.2	27	1.9		3	5.1							
23	0.3	30	3.2	33	5.2	28	*		4	*							
24	0	IC106	1	-1.5	34	0	29		6.3	5	*						
25	-0.5		2	-0.5	35	4.7	30		6.2	6	0						
26	0.8		3	-0.5	36	4.6	IC116	2	5.2	IC122	1	-0.6					
27	0		5	0	37	4.2		3	2.5		2	-0.2					
28	0		6	0	38	4.2		4	1.0		3	0					
IC303	1		-1.2	7	1.6	39		5	5		0	5	0.3				
	2		0	IC107	1	-0.7		42	5.2		6	1.7	6	0.3			
	3	0	2		0	43		5.2	7		*	6	0.3				
	4	2.8	3		0	44		5.2	8		1.6	7	0.5				
	5	2.8	5		1.2	45		0	9	3.7	IC130	1	0				
	8	-0.7	6		1.2	46		0	10	12.2		2	0.3				
	9	2.8	7		1.6	47		0	11	9		4	0				
	10	0	IC108		1	5.3		55	5.2	12	0	IC131	1	5.2			
	11	0		2	3.8	57		5.2	14	0.2	2		5.2				
	12	0		3	5.2	58		0	15	0.2	Q101	B	0				
	13	0		5	5.2	59		0	16	2.2		C	0.2				
	14	0		6	5.2	60		0.2	17	2.2		Q103	B	0.2			
15	-0.5	7		5.2	61	5.2	18	4.3	C	5							
16	0	IC109		1	5.2	62	5.2	19	4	Q104	B		0				
17	5.1		2	3.8	63	3.0	20	0.5	C		5.2						
20	5.2		3	5.2	64	5.2	21	4.2	Q105		B	5.2					
22	2.8		5	5.2	IC112	1	0	22			4.2	C	5.2				
23	2.8		6	5.2		2	1.1	23		0							
24	2.8					3	1.1										

DA Board IC116 CXA1544M



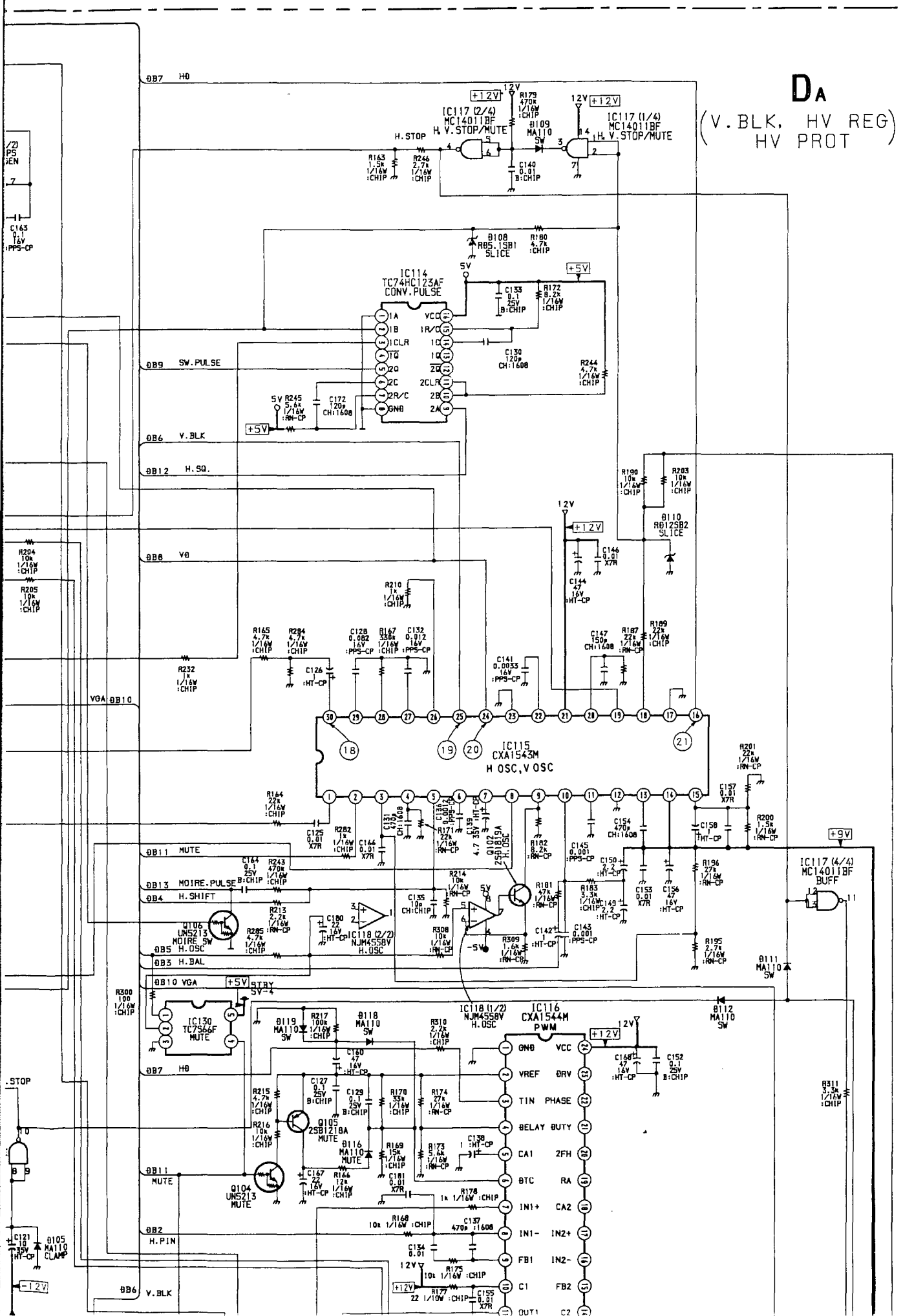
Voltage [V]
0.2
0.2
11.6
11.6
0.8
0.8
2.1
2.1
11.7
11.2
10.4
0
*
2.6
*
0.4
-0.1
5.1
0.3
*
0.4
5.1
2.7
*
2.6
2.6
0.2
2.6
2.5
5.1
*
*
0
4.8
*
5.1
0
4.7
-0.6
-0.2
0
0.3
0.3
0.5
0
0.3
0
5.2
5.2
0
0.2
0.2
5
0
5.2







**DA**  
(V. BLK, HV REG)  
HV PROT



7  
C143  
10k  
PPS-CP

R204  
10k  
1/16W  
:CHIP

R205  
10k  
1/16W  
:CHIP

R232  
10k  
1/16W  
:CHIP

R300  
100  
1/16W  
:CHIP

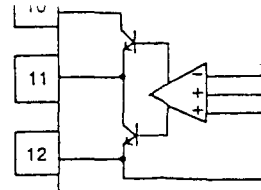
STOP  
C121  
10  
10V  
HT-CP

C121  
10  
10V  
HT-CP

R311  
3.3k  
1/16W  
:CHIP

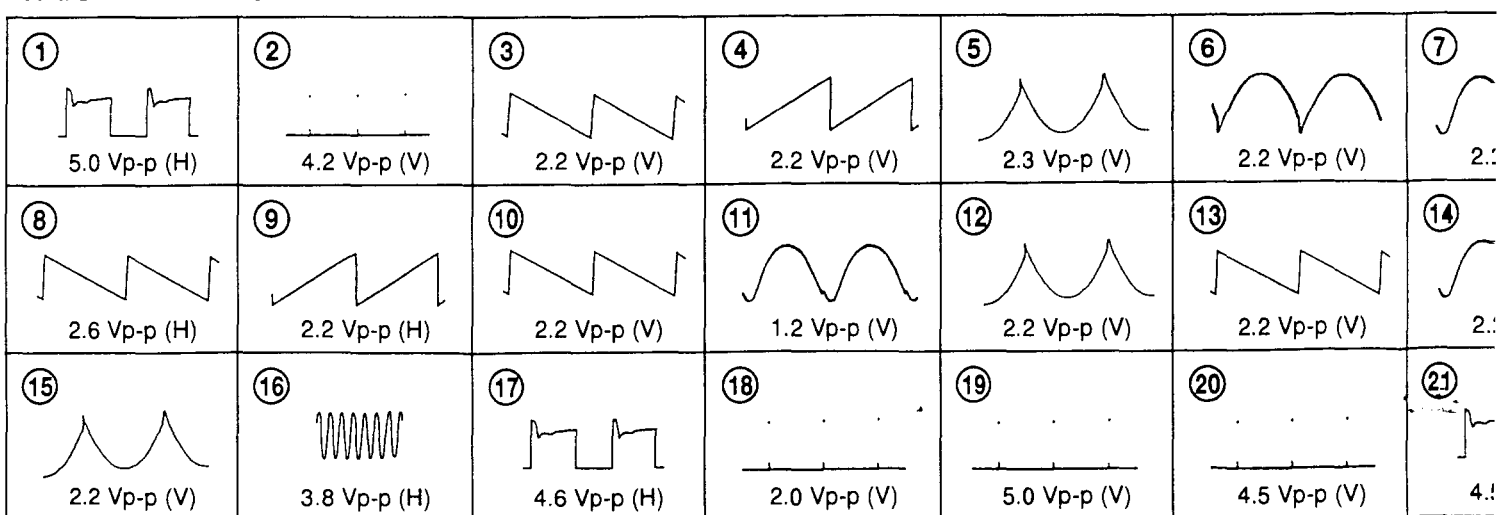


	7	1.2		8	0		6	5.1		8	5.2		4	11.6
	8	0		9	0.7		8	0		5	0		5	0.8
	9	0		14	0		9	0	IC114	2	0		6	0.8
	10	0		15	5.2		11	5.2		3	5.3		8	2.1
	11	0.8		16	5.2		12	5.2		5	0.2		9	2.1
	12	-0.7		20	0					6	0		10	11.7
	13	0		21	0	IC111	1	2.9		7	5		11	11.2
	14	-0.5		26	0.8		2	2.4		9	2.1		12	10.4
	15	1		27	0.6		3	5.3		10	5.1		13	0
	16	0.9		28	0		4	5.3		11	5.1			
	19	0					5	5.3		14	0	IC119	1	*
	20	0	IC105	6	0		7	5.3		15	4		2	2.6
	21	1.9		7	1.4		9	0.8					3	*
	23	0.8		8	0		10	0	IC115	1	4.9		8	0.4
	24	1.1		9	0		11	5.2		2	0		10	-0.1
	25	2.7		10	0		12	2.5		3	0.9		11	5.1
	26	1.1		11	0.5		13	0.2		4	7		13	0.3
	27	2.6		12	0.6		14	0.2		5	0.9			
				13	0		16	5.2		6	8.5	IC120	2	*
IC102	2	0.8		14	0		17	5.2		7	4.9		3	0.4
	3	-0.7		17	0		18	5.2		8	0		4	5.1
	4	3.2		18	0		19	0.2		9	1.2		5	2.7
	5	-0.2		19	-0.7		20	5.2		10	6.8		6	*
	8	0		20	-0.7		21	3.8		11	6.1		8	2.6
	9	1.4		21	0.4		22	5.2		13	8.7		9	2.6
	10	-0.2		22	-0.1		23	0		15	8.9		11	0.2
	14	0		23	0		25	5.2		16	2.5		12	2.6
	15	5.2		24	0		26	5.2		18	0.8	IC121	2	2.5
	16	5.2		25	0		27	5.2		19	5		3	5.1
	19	-5		26	0		28	5.2		20	7.6		4	*
	20	-0.2		27	0		29	5.2		22	5.2		5	*
	21	0		28	0		30	5.2		24	0		6	0
	22	1.1		29	0		32	5.2		25	0.2		7	4.8
	23	0.3		30	3.2		33	5.2		16	0.2		10	*
	24	0					34	0		27	1.9		11	5.1
	25	-0.5	IC106	1	-1.5		35	4.7		28	*		14	0
	26	0.8		2	-0.5		36	4.6		29	6.3		15	4.7
	27	0		3	-0.5		37	4.2		30	6.2			
	28	0		5	0		38	4.2						
				6	0		39	5	IC116	2	5.2	IC122	1	-0.6
IC303	1	-1.2		7	1.6		42	5.2		3	2.5		2	-0.2
	2	0					43	5.2		4	1.0		3	0
	3	0	IC107	1	-0.7		44	5.2		5	0		5	0.3
	4	2.8		2	0		45	0		6	1.7		6	0.3
	5	2.8		3	0		46	0		7	*		7	0.5
	8	-0.7		5	1.2		47	0		8	1.6	IC130	1	0
	9	2.8		6	1.2		55	5.2		9	3.7		2	0.3
	10	0		7	1.6		57	5.2		10	12.2		4	0
	11	0					58	0		11	9			
	12	0	IC108	1	5.3		59	0		12	0	IC131	1	5.2
	13	0		2	3.8		60	0.2		14	0.2		2	5.2
	14	0		3	5.2		61	5.2		15	0.2			
	15	-0.5		5	5.2		62	5.2		16	2.2	Q101	B	0
	16	0		6	5.2		63	3.0		17	2.2		C	0.2
	17	5.1		7	5.2		64	5.2		18	4.3			
	20	5.2	IC109	1	5.2	IC112	1	0		19	4	Q103	B	0.2
	22	2.8		2	3.8		2	1.1		20	0.5		C	5
	23	2.8		3	5.2		3	1.1		21	4.2	Q104	B	0
	24	2.8		5	5.2		5	0		22	4.2		C	5.2
				6	5.2		6	0		23	0		E	0
				7	5.2		7	1.2				Q105	B	5.2
													C	1.7
													E	0
												Q106	B	5.2
													C	0



For Service Manuals  
**MAURITRON SERVICES**  
 8 Cherry Tree Road, Chinnor  
 Oxfordshire, OX9 4QY.  
 Tel (01844) 351694  
 Fax (01844) 352554  
 email:- mauritron@dial.pipex.com

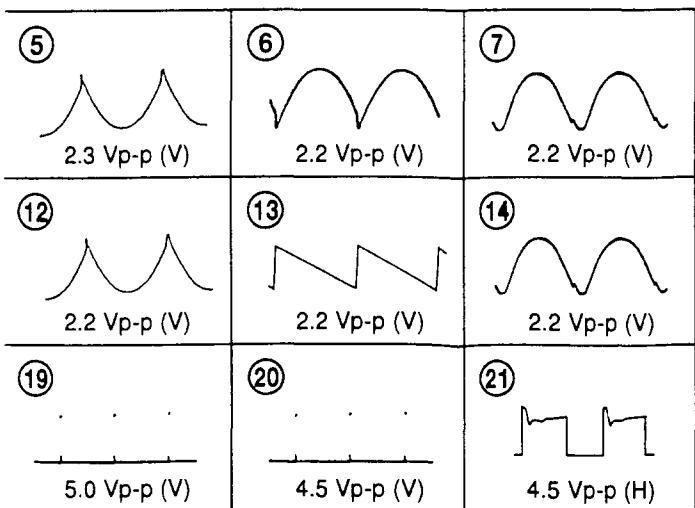
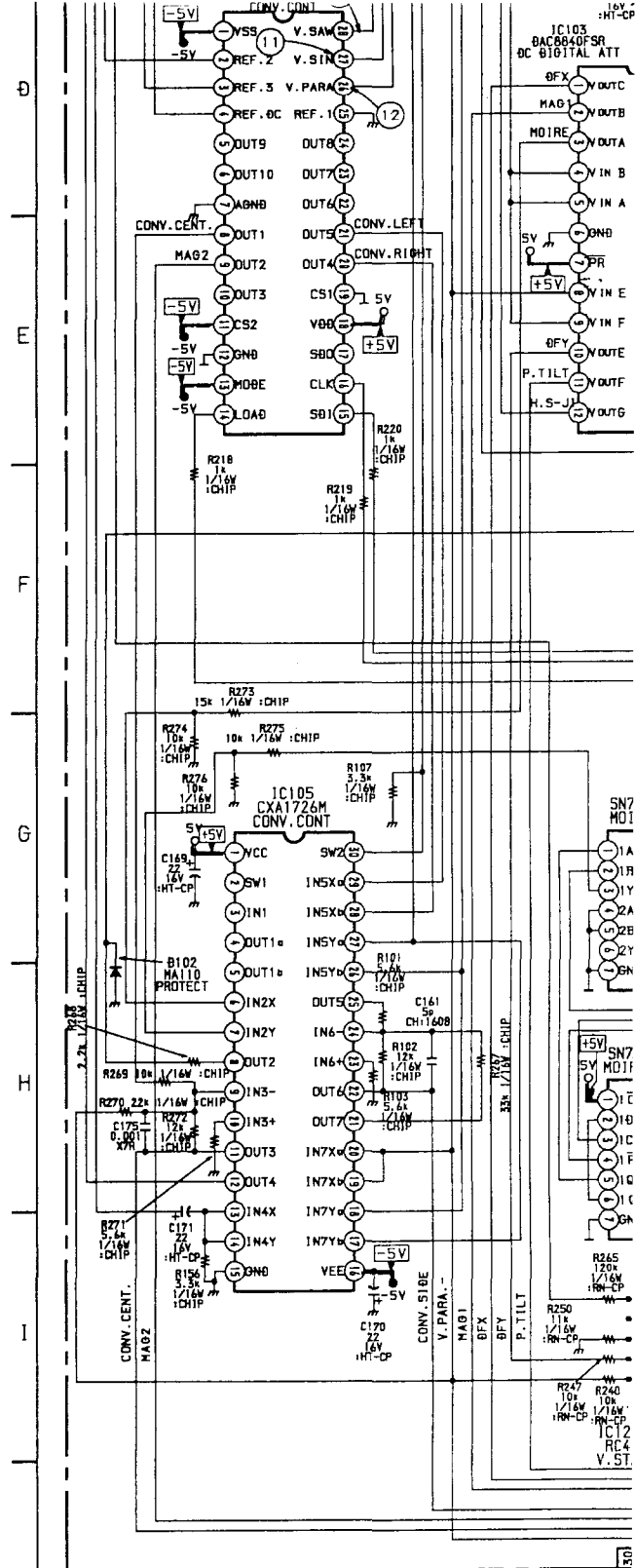
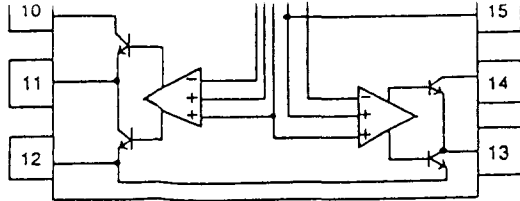
**DA BOARD WAVEFORMS**



Schematic diagrams  
 ← **D** **L** boards

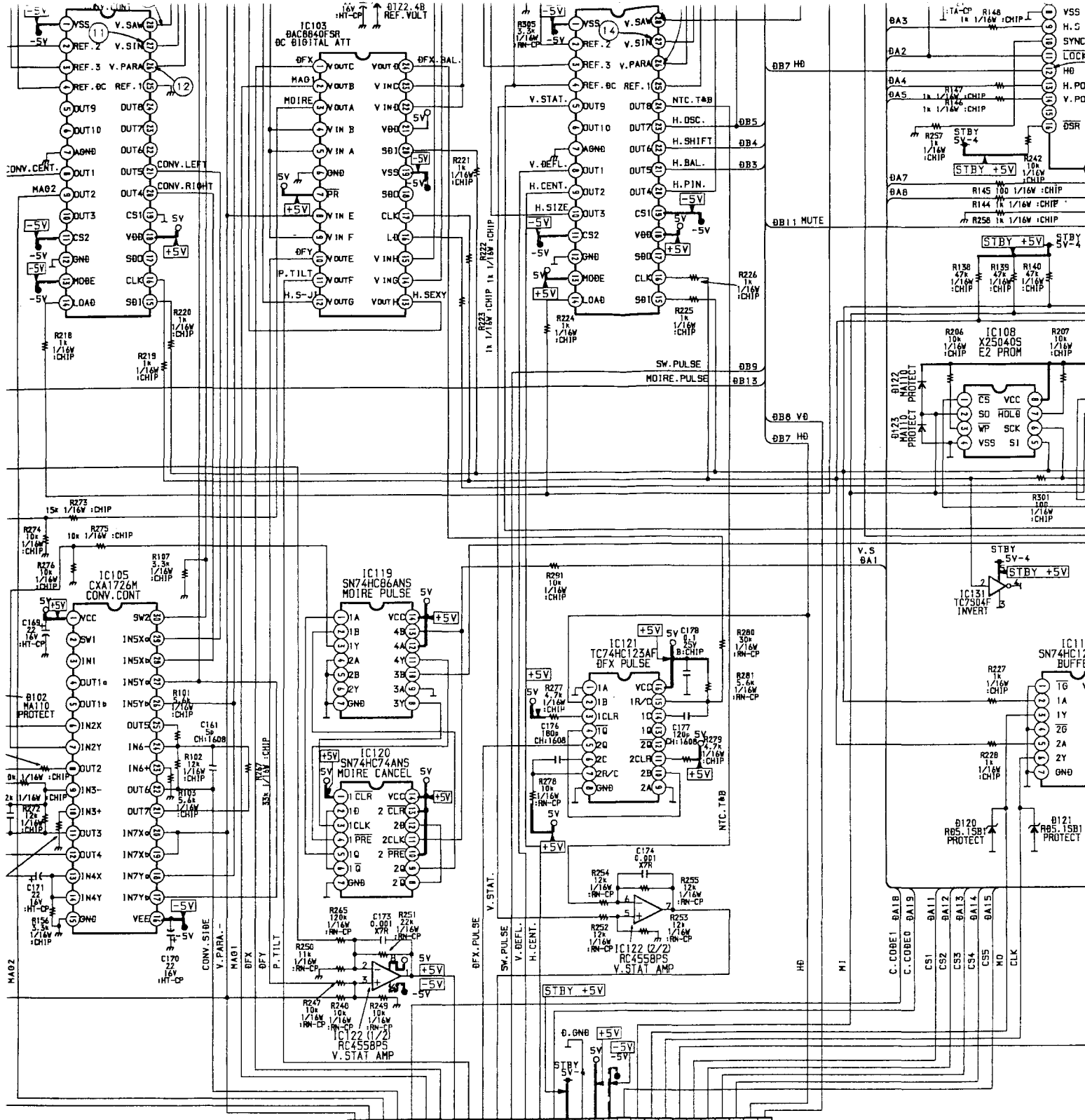
Schematic diagram  
**DA** board →

	4	11.6
	5	0.8
	6	0.8
	8	2.1
	9	2.1
	10	11.7
	11	11.2
	12	10.4
	13	0
IC119	1	*
	2	2.6
	3	*
	8	0.4
	10	-0.1
	11	5.1
	13	0.3
IC120	2	*
	3	0.4
	4	5.1
	5	2.7
	6	*
	8	2.6
	9	2.6
	11	0.2
	12	2.6
IC121	2	2.5
	3	5.1
	4	*
	5	*
	6	0
	7	4.8
	10	*
	11	5.1
	14	0
	15	4.7
IC122	1	-0.6
	2	-0.2
	3	0
	5	0.3
	6	0.3
	7	0.5
IC130	1	0
	2	0.3
	4	0
IC131	1	5.2
	2	5.2
Q101	B	0
	C	0.2
Q103	B	0.2
	C	5
Q104	B	0
	C	5.2
Q105	B	5.2
	C	1.7
	E	0
Q106	B	5.2
	C	0



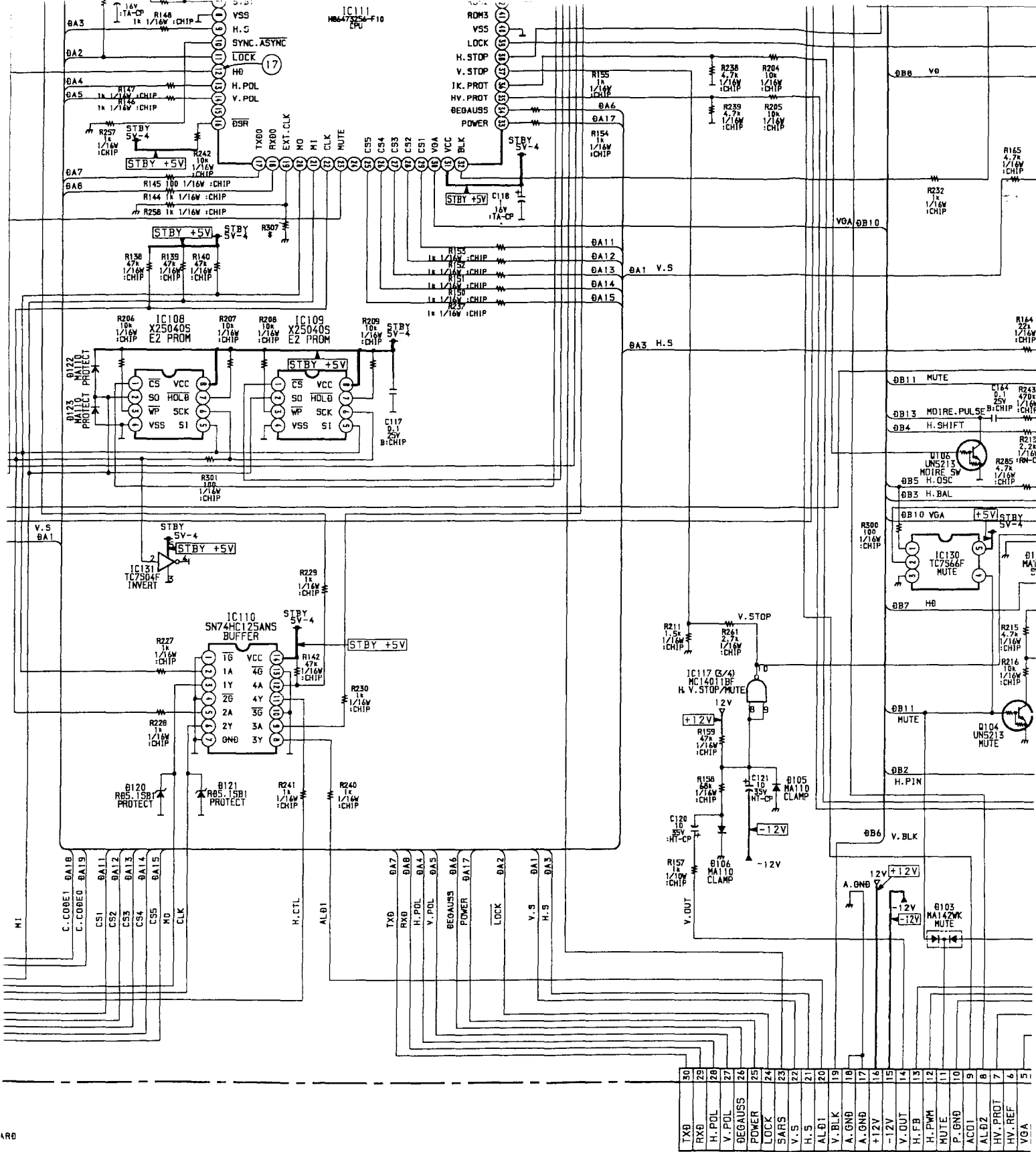
Schematic diagram

DA board →

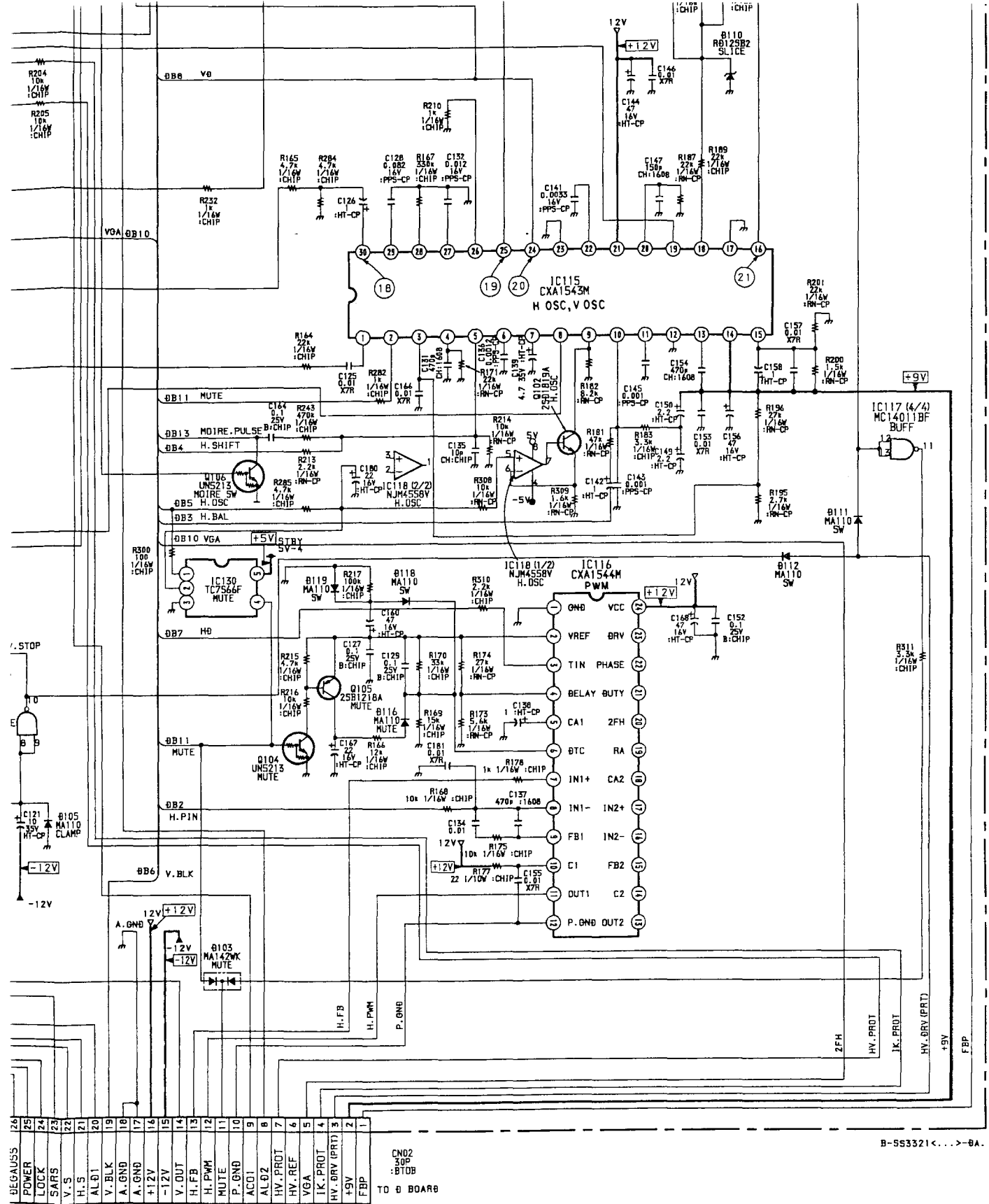


V. PARA.	30
CONV. CENT.	29
MAG2	28
CONV. S10	27
C. COBE1	26
MAG1	25
BFX	24
BFX	23
P. TILT	22
BFX.PULSE	21
V. STAT.	20
SW. PULSE	19
V. BEFL.	18
H. CENT.	17
C. COBE0	16
STBY	15
D. GND	14
+5V	13
-5V	12
CS5	11
MT	10
MO	9
CLK	8
H. CTL	7
CS1	6
CS2	5
CS3	4
CS4	3
HD	2
VB	1

CN01  
:BTDB  
TO Ø BOARD



30	TXD
29	RXD
28	H.POL
27	V.POL
26	BEGAUSS
25	POWER
24	LOCK
23	SARS
22	V.S
21	H.S
20	AL-B1
19	V.BLK
18	A.GND
17	A.GND
16	+12V
15	-12V
14	V.OUT
13	H.FB
12	H.PWM
11	MUTE
10	P.GND
9	ACOI
8	AL-B2
7	HV.PROT
6	HV.REF
5	VCA



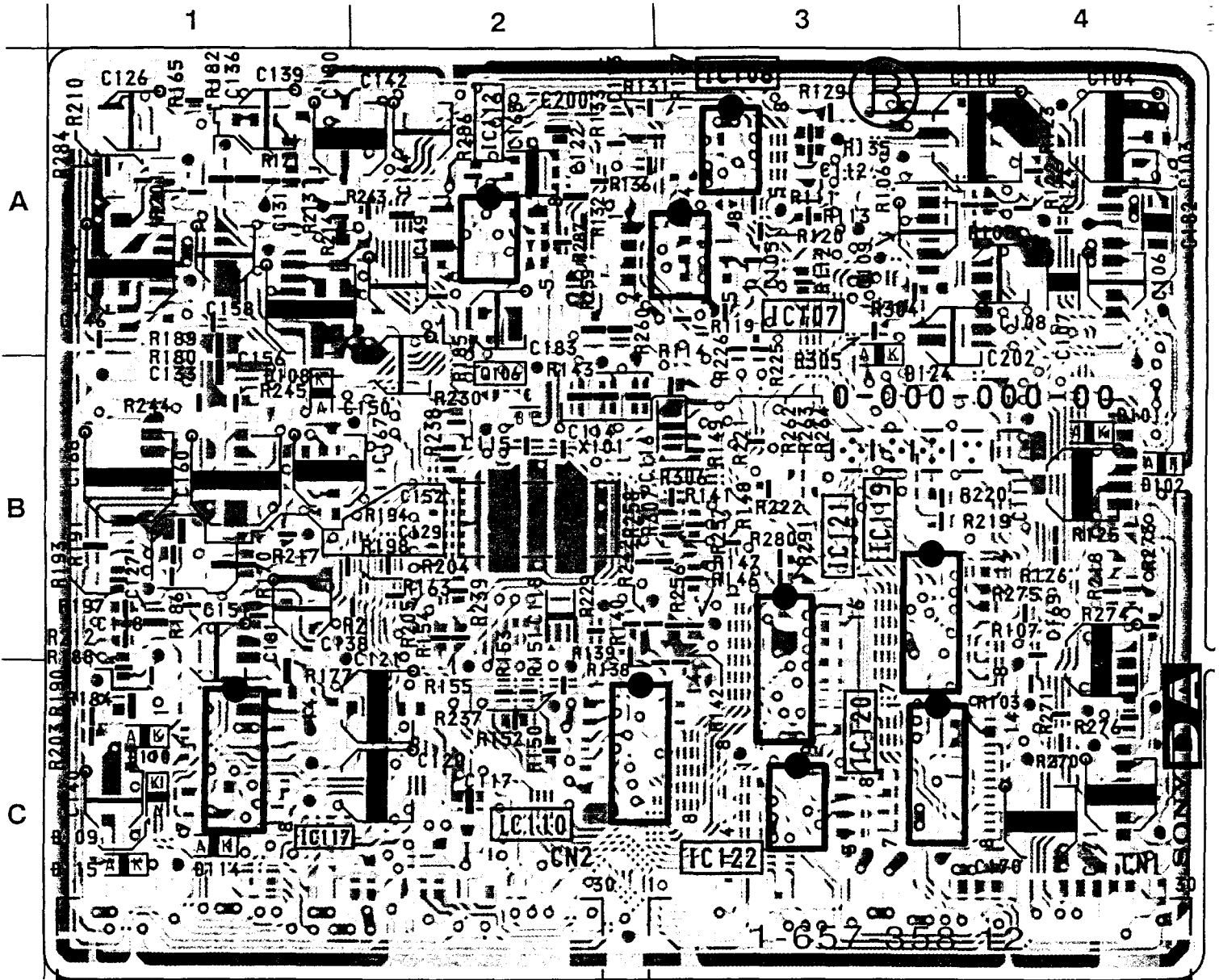
B-553321<...>-8A.

26	BEGAUSS
25	POWER
24	LOCK
23	SARS
22	V.S
21	H.S
20	AL.01
19	V.BLK
18	A.GND
17	A.GND
16	+12V
15	-12V
14	V.OUT
13	H.FB
12	H.PWM
11	MUTE
10	P.GND
9	AC01
8	AL.02
7	HV. PROT
6	HV. REF
5	VGA
4	1K. PROT
3	HV. DRV (FRT)
2	+9V
1	FBP

TO 0 BOARD

**DA** [V. BLK, HV REG, HV PROT]

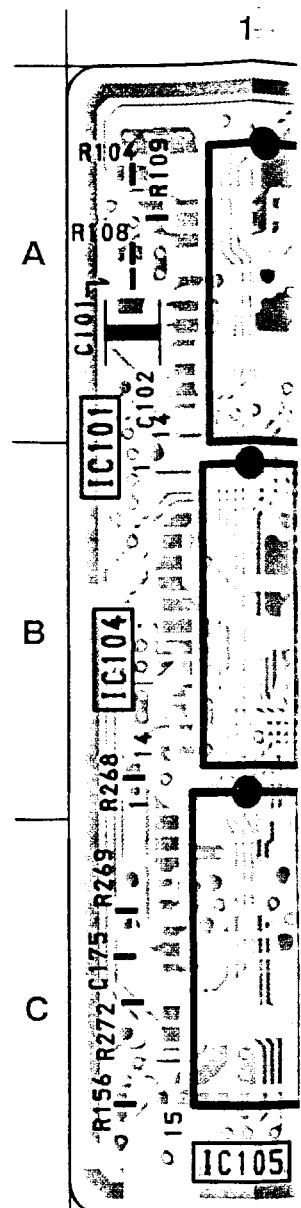
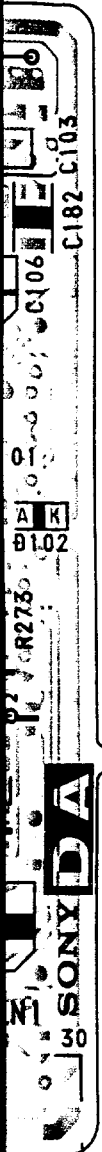
— DA Board (Conductor Side) —



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

● DA BOARD

IC		Q104	B-3
(Conductor Side)	(Component Side)	Q105	B-3
IC101	A-1	Q106	B-2
IC102	A-2	Q107	A-3
IC103	B-2	<b>DIODE</b>	
IC104	B-4	(Conductor Side)	(Component Side)
IC105	C-1	D101	B-4
IC106	A-3	D102	B-4
IC107	A-3	D105	C-4
IC108	C-3	D106	C-4
IC109	C-3	D108	B-1
IC110	C-2	D109	C-1
IC111	B-2	D110	C-1
IC112	A-2	D111	C-4
IC113	A-2	D112	C-3
IC114	B-4	D116	B-3
IC115	A-4	D118	B-3
IC116	B-4	D119	B-3
IC117	C-1	D120	C-2
IC119	B-3	D121	C-2
IC120	C-3	D122	C-3
IC121	B-3	D123	C-3
IC122	C-3	D124	B-3
IC130	A-3	<b>TRANSISTOR</b>	
IC131	C-3	<b>CRYSTAL</b>	
(Conductor Side)	(Component Side)	(Conductor Side)	(Component Side)
Q101	A-2	X101	B-2
Q103	A-3		



• : Pattern from the  
 • : Pattern of the r







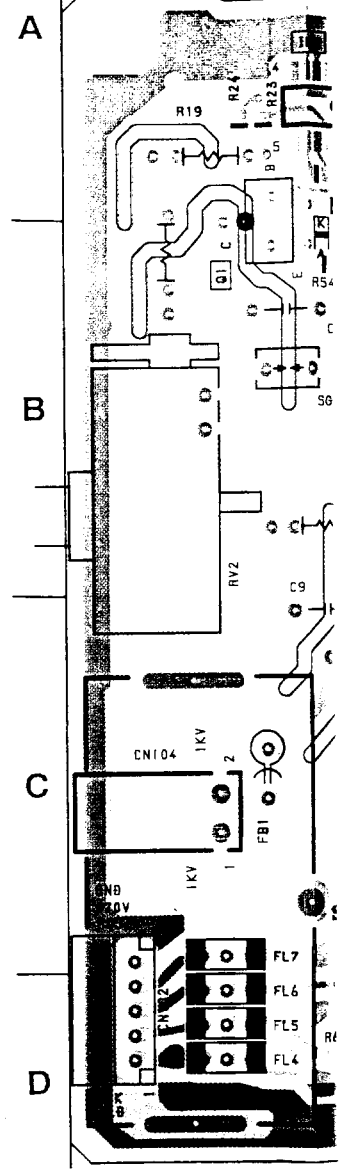
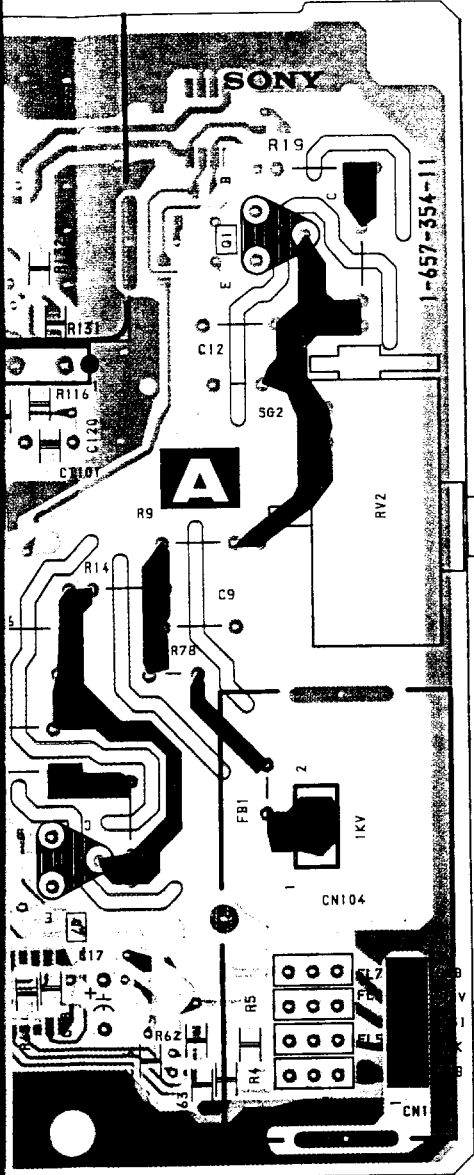
4

5

1

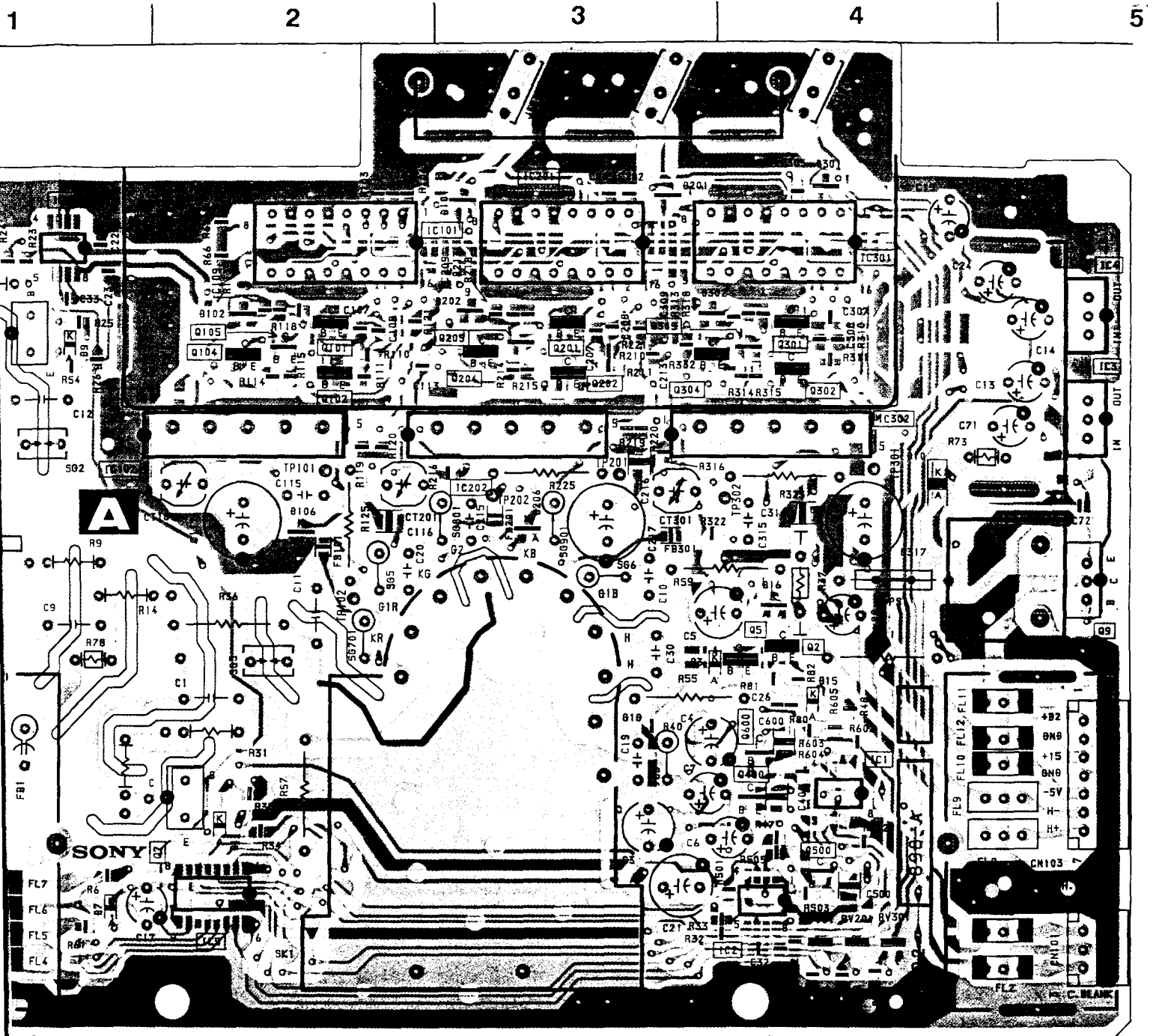
● A BOARD

IC		Q300	A-1	
(Conductor Side)	(Component Side)	Q301		B-4
IC1	C-4	Q302		B-4
IC2	D-4	Q303	B-2	
IC3	B-1	Q304		B-3
IC4	A-1	Q305		B-3
IC5		Q400		C-4
IC9	A-1	Q500		C-4
IC101	A-3	Q600		C-4
IC102	B-4			
IC201	A-3	DIODE		
IC202	B-3			
IC301	A-2			
IC302	B-2			
TRANSISTOR		(Conductor Side)	(Component Side)	
Q1	B-4	D1		C-2
Q2		D3		C-3
Q5		D4	C-2	
Q7	D-4	D5	C-2	
Q9	B-1	D6	C-2	
Q100	A-3	D7		D-1
Q101		D9		B-1
Q102		D10		B-4
Q103	B-4	D12	B-1	
Q104		D13	B-1	
Q105		D15		C-4
Q200	A-2	D16		B-4
Q201		D101		A-3
Q202		D102	A-2	
Q203	B-3	D105	B-3	
Q204		D106		B-2
Q205		D201		A-3
		D202		A-3
		D205	B-2	
		D206		B-3
		D301		A-4
		D302		A-3
		D305	B-2	
		D306	B-2	



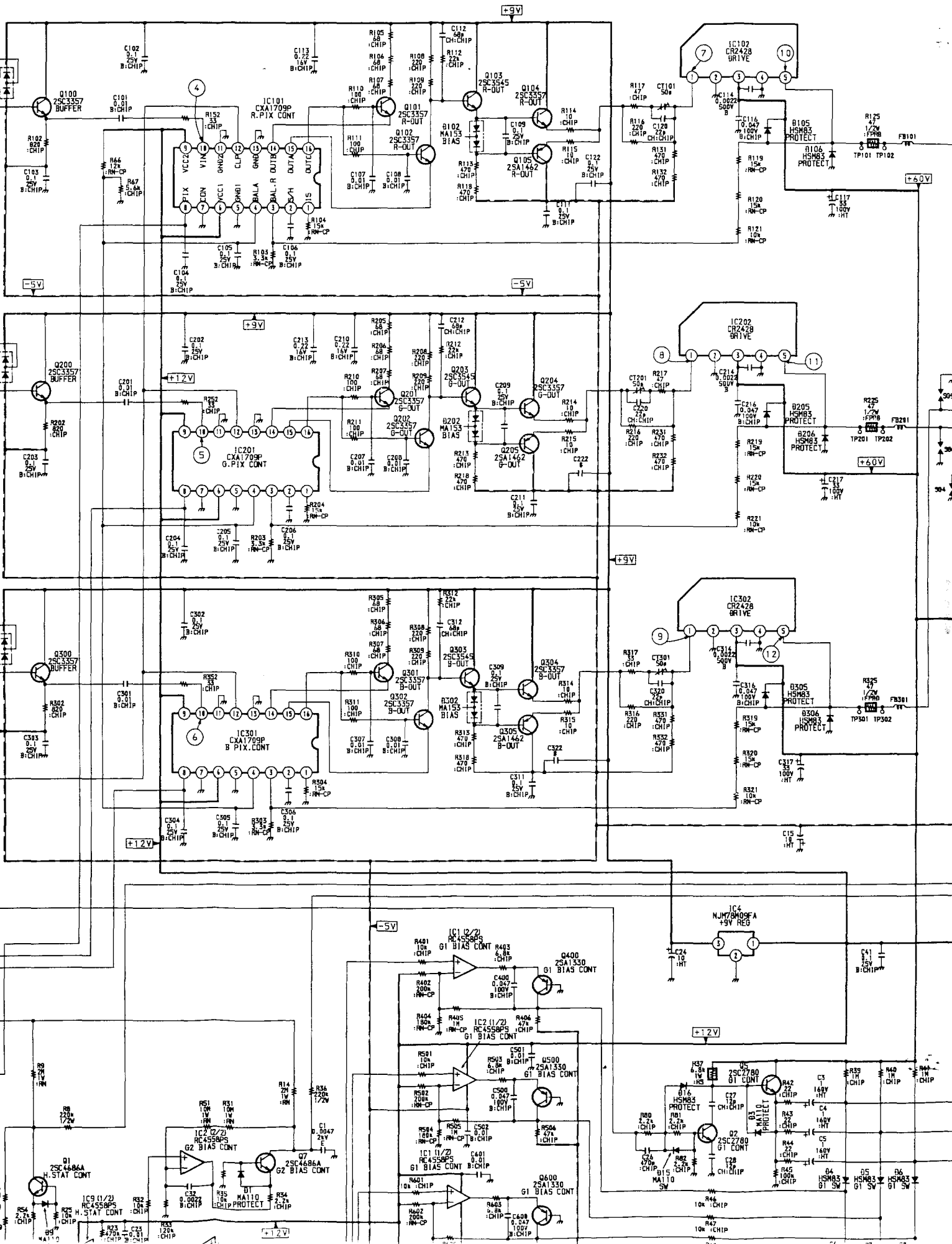
• : Pattern from the side  
 • : Pattern of the rear side

rd (Component Side) —



from the side which enables seeing the rear side.







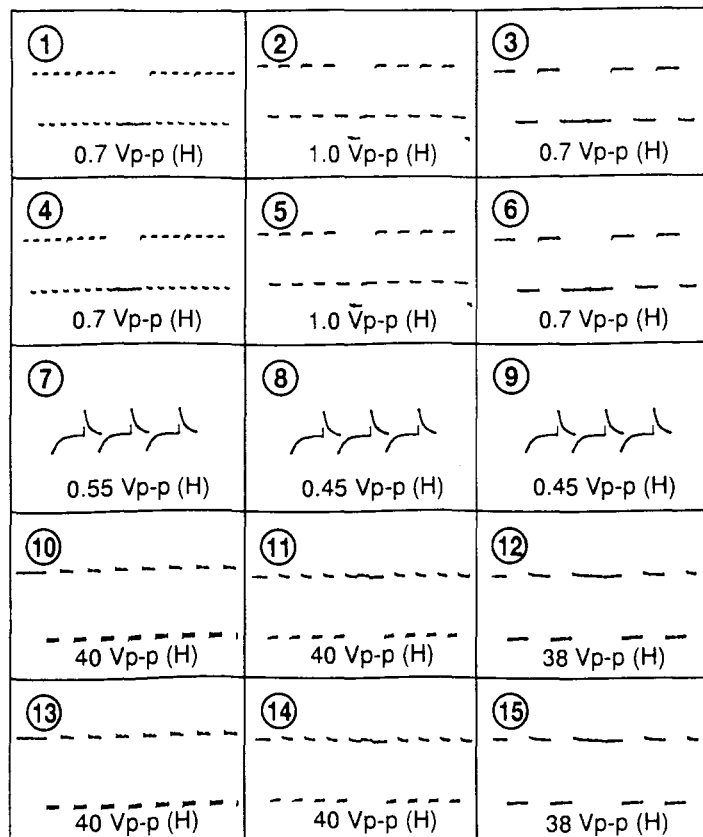


# VOLTAGE LIST

## ● A BOARD

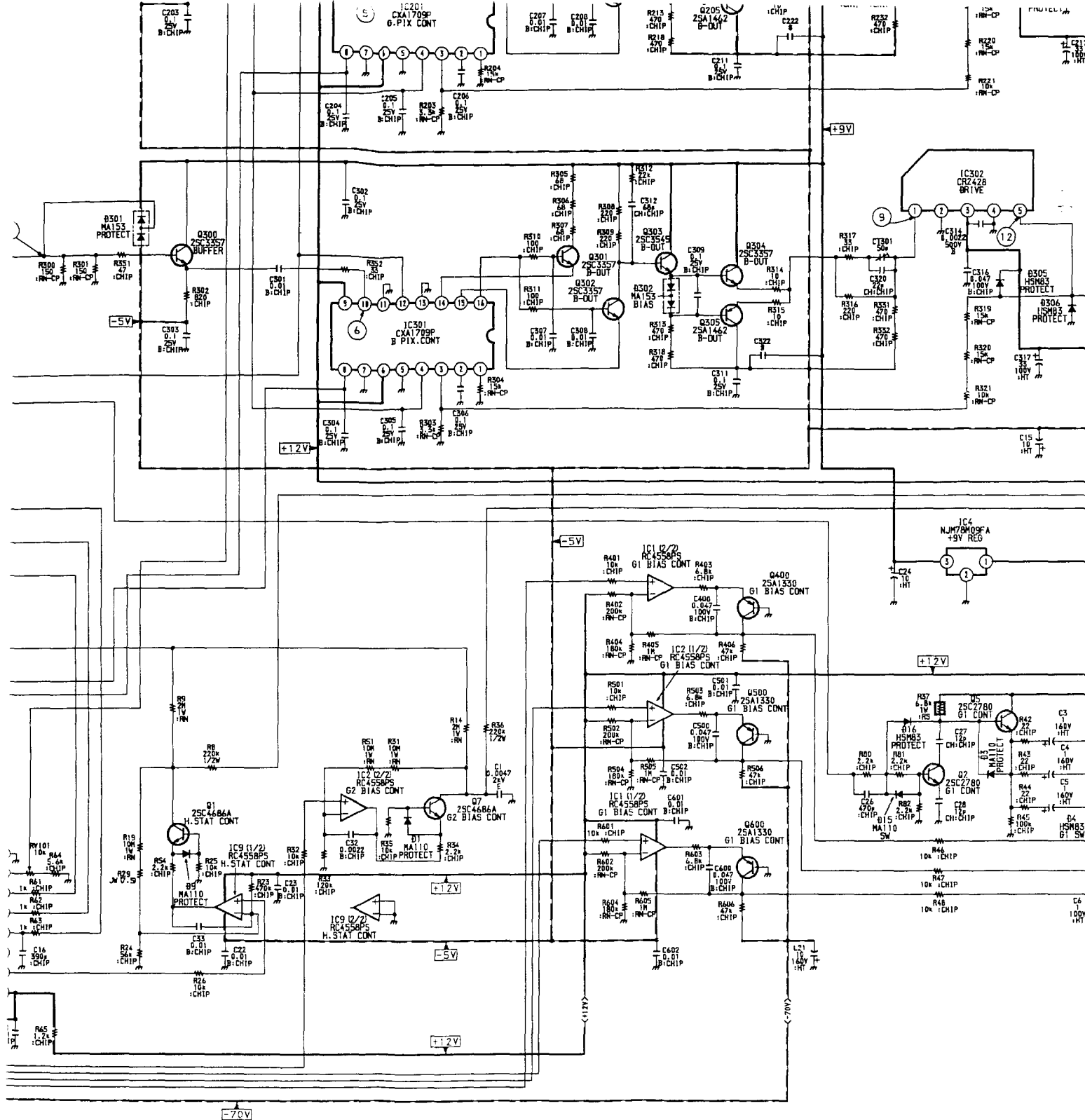
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC1	1	*	IC102	1	1.7	Q7	B	0	Q205	B	*	
	2	*		5	35.2		C	290		E	*	
	3	*	IC201	1	3.2	Q9	B	62.5	Q300	B	0.4	
	4	*		2	6.8		E	-0.6		E	-0.4	
	5	*		3	3.2	Q100	B	0.4	Q301	B	*	
	6	*		4	4		E	-0.5		C	*	
	7	*		8	3.2	Q101	B	*	Q302	B	*	
	8	*		10	3.9		C	*		E	*	
IC2	1	*		12	0.5	Q102	B	*	Q303	B	*	
	2	*		14	2		C	*		E	*	
	3	*	15	2	Q201	B	*	Q600	C	*		
	5	*	16	2.7		E	*		E	*		
	6	*	IC202	1	1.7	Q103	B	4.4	Q304	B	*	
	7	*		5	36.6		E	3.7		E	*	
	IC5	2	*	IC301	1	3.3	Q104	B	*	Q305	B	*
3		*	2		6.8	E		*	E		*	
4		*	3		3.2	Q105	B	*	Q400	C	*	
5		*	4		4		E	*		E	*	
6		*	8		3	Q200	B	0.3	Q500	C	*	
7		*	10		3.9		E	-0.5		E	*	
10		*	12		0.5	Q201	B	*	Q600	C	*	
11		*	14		1.9		E	*		E	*	
12		*	15	2	Q202	B	*	Q600	C	*		
13		*	16	2.7		E	*		E	*		
IC9		5	*	IC302	1	1.7	Q203	B	4.4	Q600	C	*
		6	*		5	36.4		E	3.7		E	*
		7	*	Q1	B	0	Q204	B	*	Q600	C	*
IC101		1	3.2	C	254	E		*	E		*	
		2	6.9	Q2	B	*	Q203	B	4.4	Q600	C	*
	3	3.1	C		*	E		3.7	E		*	
	4	4	Q5	B	*	Q204	B	*	Q600	C	*	
	8	3.4		C	*		E	*		E	*	
	10	4	E	*	Q5	B	*	Q600	C	*		
	12	0.5	C	*		E	*		E	*		
	14	1.9	E	*		E	*		E	*		
	15	2										
16	2.7											

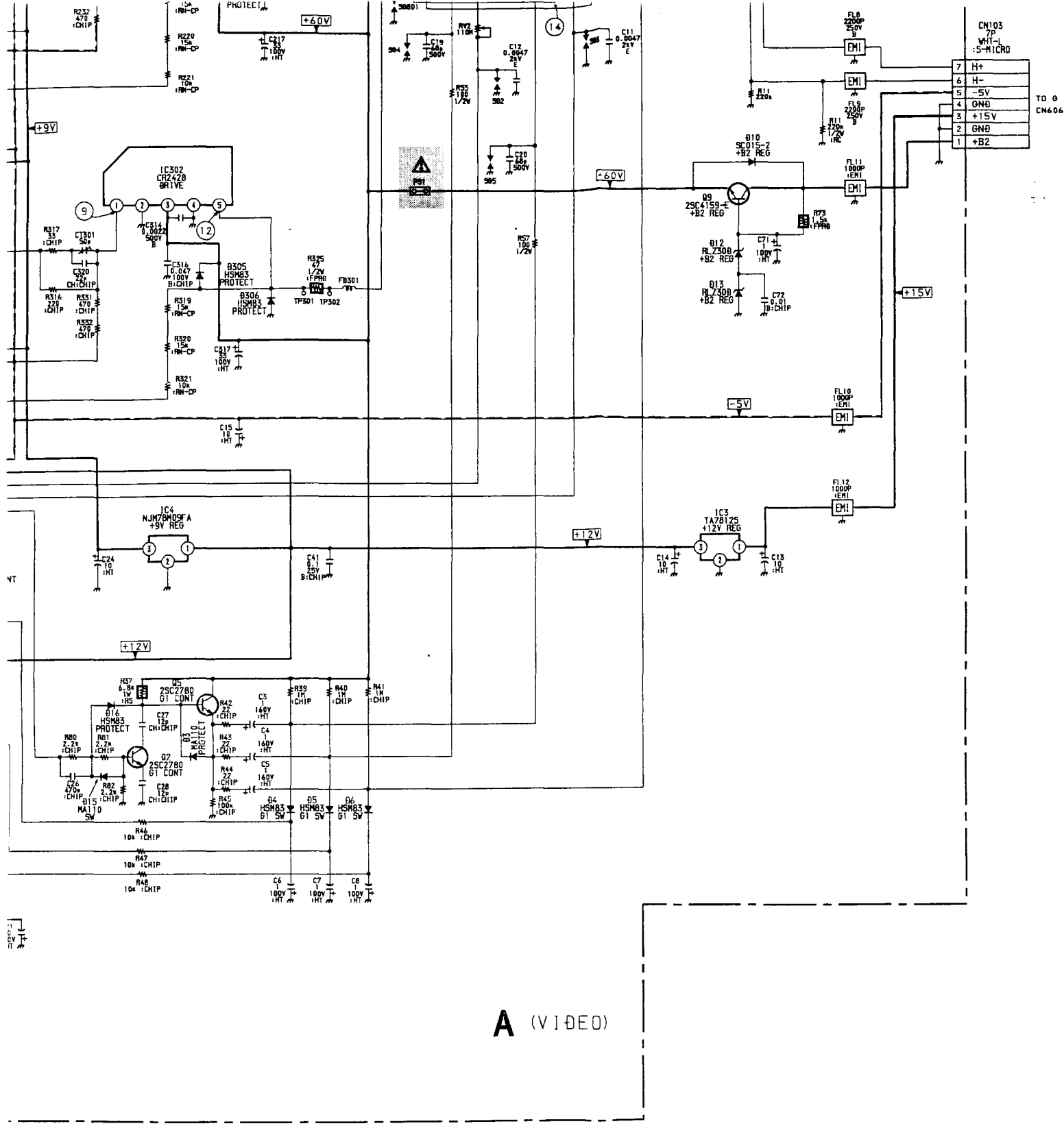
## A BOARD WAVEFORMS





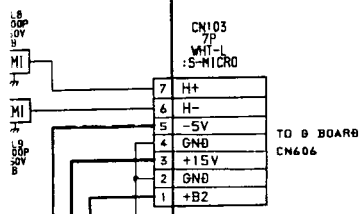






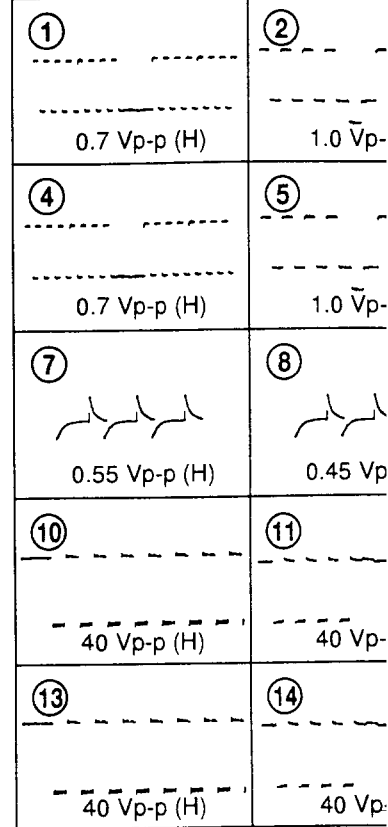
A (VIDEO)

B-998369<...>-A.



2	0.5	Q2	B
3	3.1		C
4	4		
8	3.4	Q5	B
10	4		C
12	0.5		E
14	1.9		
15	2		
16	2.7		

**A BOARD WAVEFORMS**



2	6.9	Q2	B	*	Q203	B	4.4
3	3.1		C	*		E	3.7
4	4						
8	3.4	Q5	B	*	Q204	B	*
10	4		C	*		E	*
12	0.5		E	*			
14	1.9						
15	2						
16	2.7						

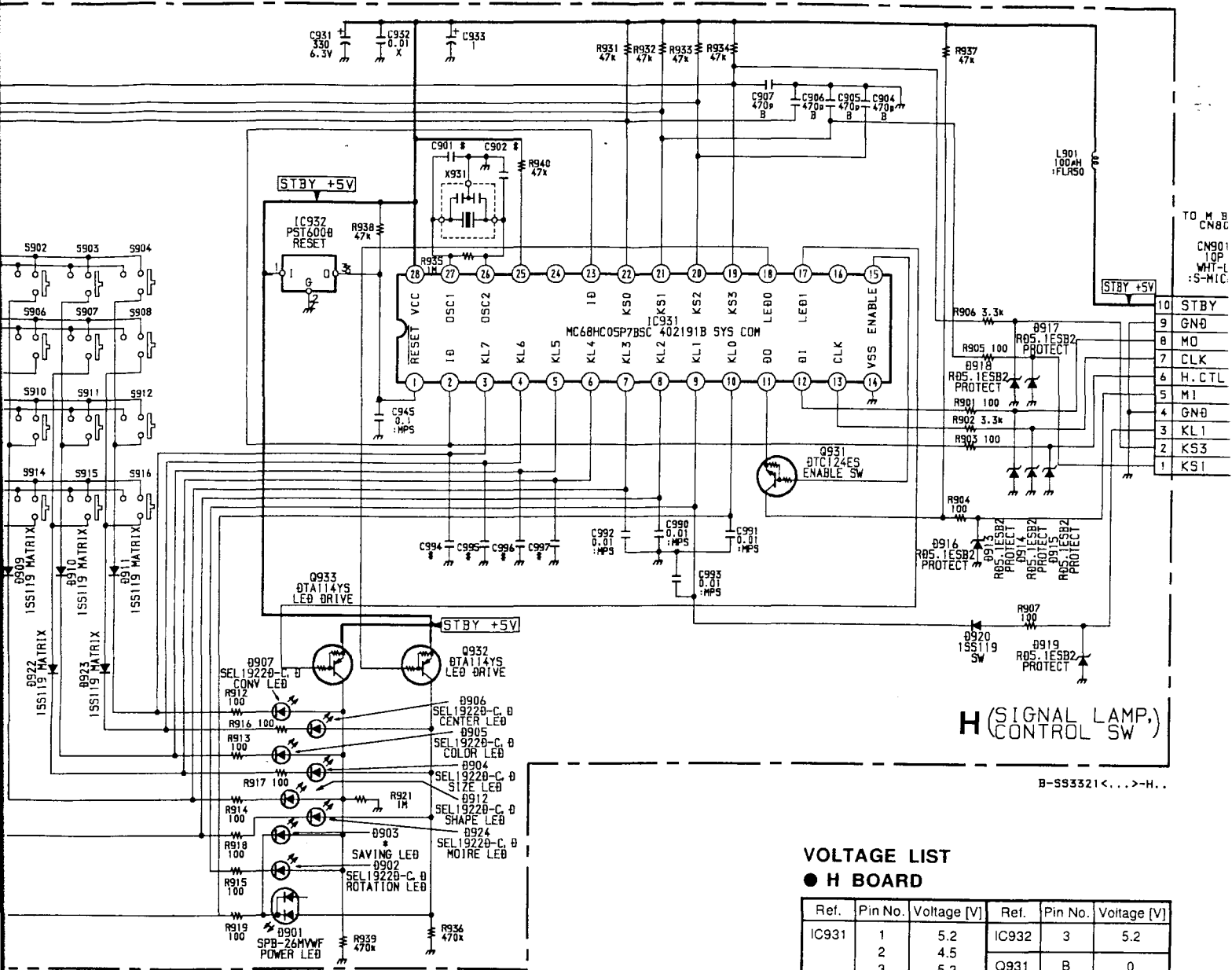
### A BOARD WAVEFORMS

①  0.7 Vp-p (H)	②  1.0 Vp-p (H)	③  0.7 Vp-p (H)
④  0.7 Vp-p (H)	⑤  1.0 Vp-p (H)	⑥  0.7 Vp-p (H)
⑦  0.55 Vp-p (H)	⑧  0.45 Vp-p (H)	⑨  0.45 Vp-p (H)
⑩  40 Vp-p (H)	⑪  40 Vp-p (H)	⑫  38 Vp-p (H)
⑬  40 Vp-p (H)	⑭  40 Vp-p (H)	⑮  38 Vp-p (H)

For Service Manuals  
**MAURITRON SERVICES**  
 8 Cherry Tree Road, Chinnor  
 Oxfordshire, OX9 4QY.  
 Tel (01844) 351694  
 Fax (01844) 352554  
 email:- mauritron@dial.pipex.com





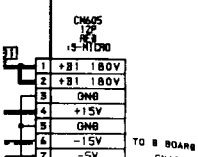


**H (SIGNAL LAMP) CONTROL SW**

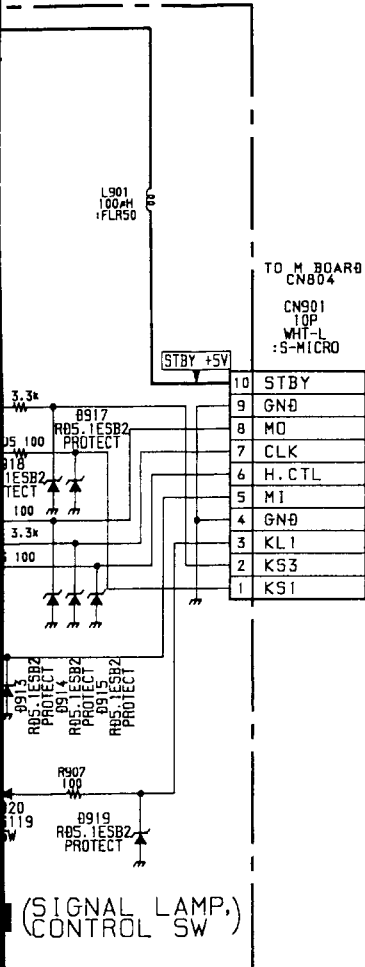
B-553321<...>-H..

**VOLTAGE LIST**  
● H BOARD

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC931	1	5.2	IC932	3	5.2	
	2	4.5		Q931	B	0
	3	5.2			C	3.7
	4	5.2			E	5.2
	6	5.2			Q932	B
	7	5.2	C	2.5		
	8	5.2	Q933	B		2.8
	9	5.2		C		2.6
	10	3.3				
	11	5.5				
	12	4.9				
	13	4.9				
	15	0				
	16	5.2				
17	2.8					
18	2.8					
19	3.8					
20	5.2					
21	3.8					
22	5.2					
23	4.6					
25	5.2					
26	2.5					
27	2.7					



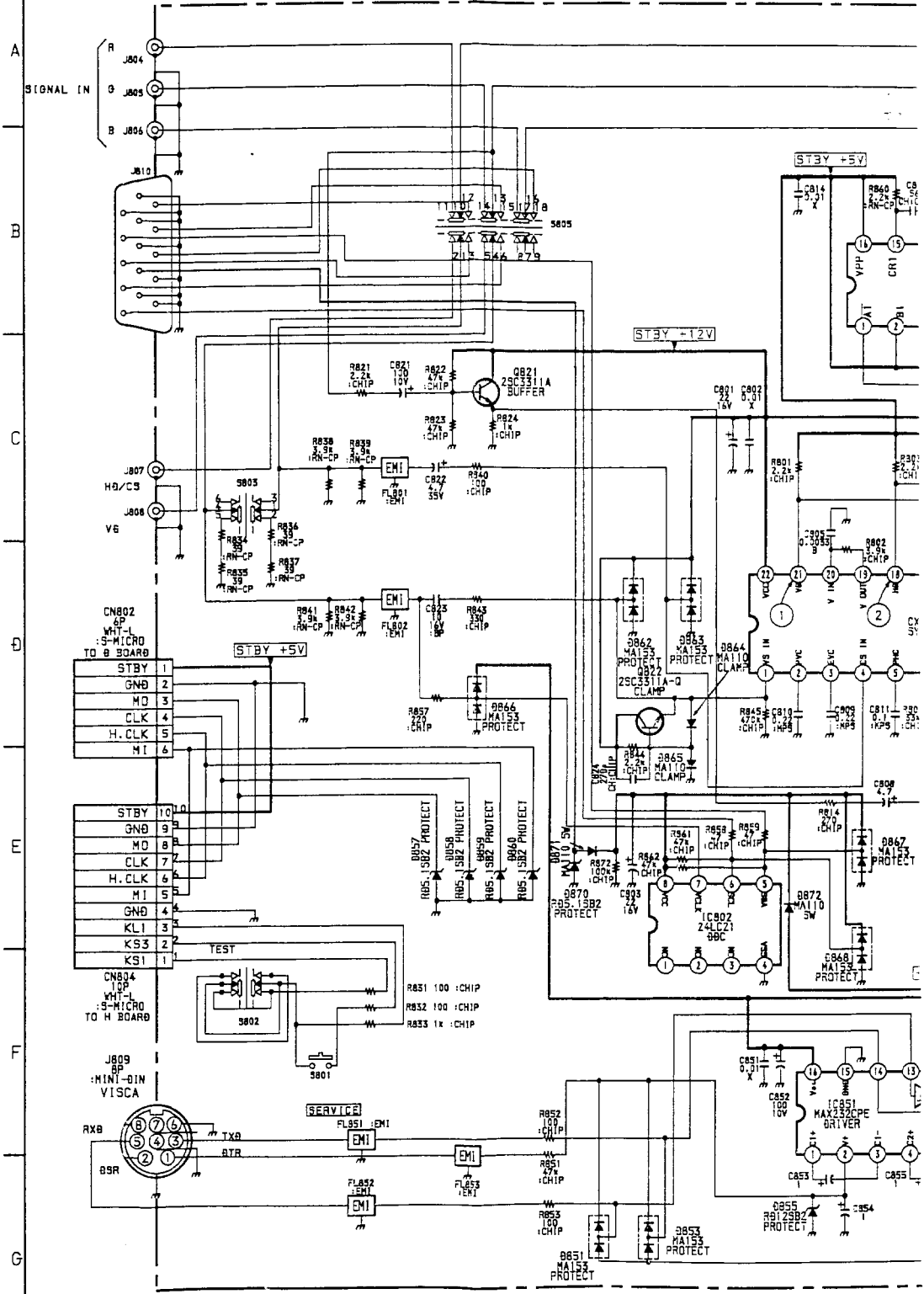




(SIGNAL LAMP) CONTROL SW

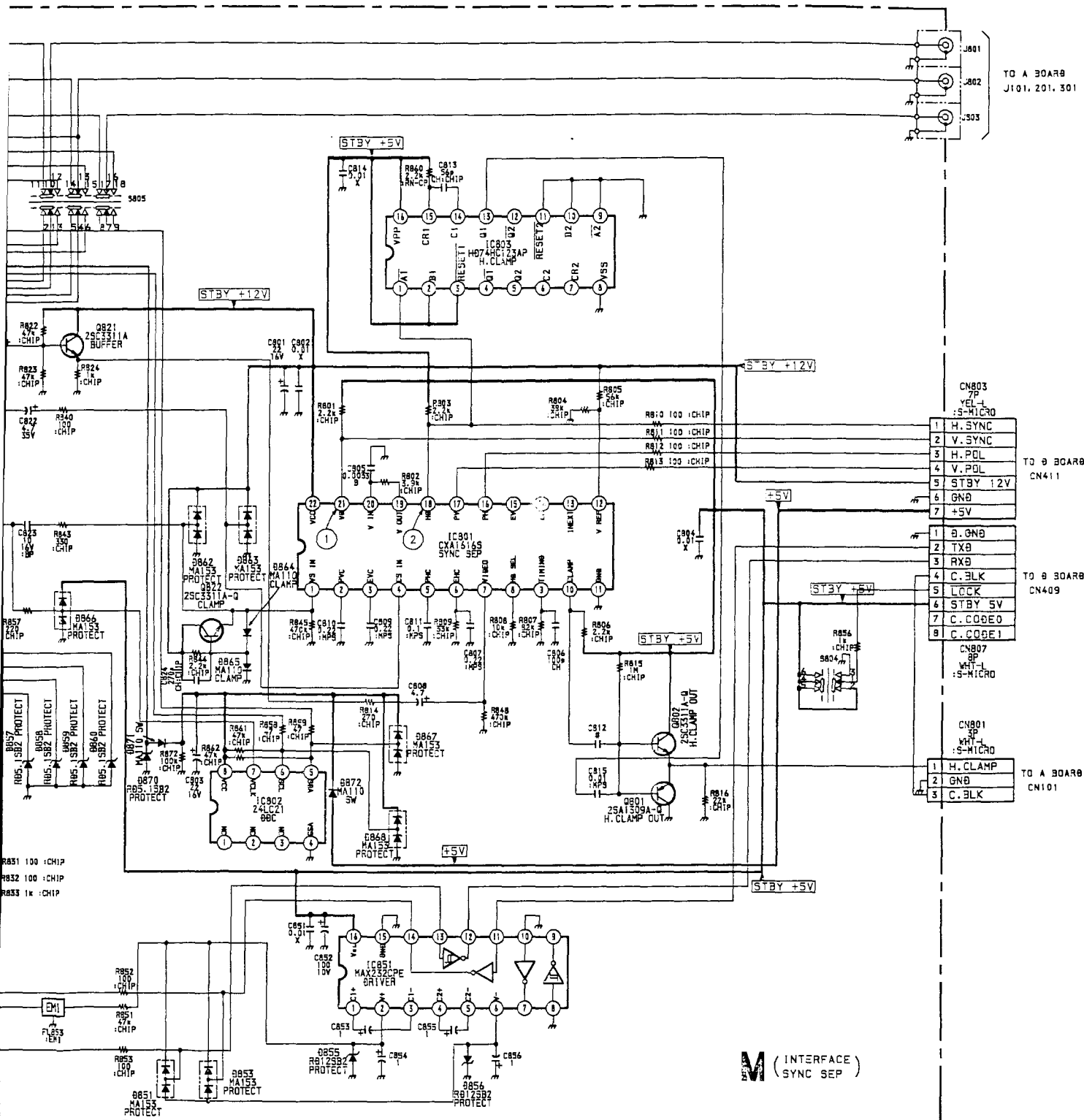
B-993321<...>-H..

Ref.	Pin No.	Voltage [V]
IC932	3	5.2
Q931	B	0
	C	3.7
	E	5.2
Q932	B	2.8
	C	2.5
Q933	B	2.8
	C	2.6



VOLTAGE LIST  
● M BOARD

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]		
IC801	1	0.4	IC851	1	7		
	2	3.5		2	10		
	3	4.4		3	2		
	4	4.2		4	5		
	5	3.6		5	-		
	6	2.9		6	-		
	7	4.7		11	5		
	8	0.3		12	5		
	9	10.4		13	-		
	10	0.3		14	-		
	12	4.9		Q801	B	0	
	14	0.2			E	0	
	16	0.2			Q802	B	0
	17	0.2				E	0
	18	0.7					
	19	2.7					

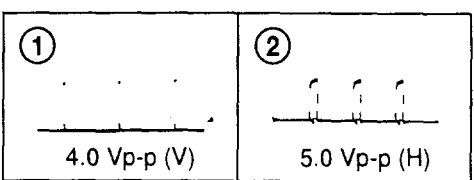


VOLTAGE LIST

● M BOARD

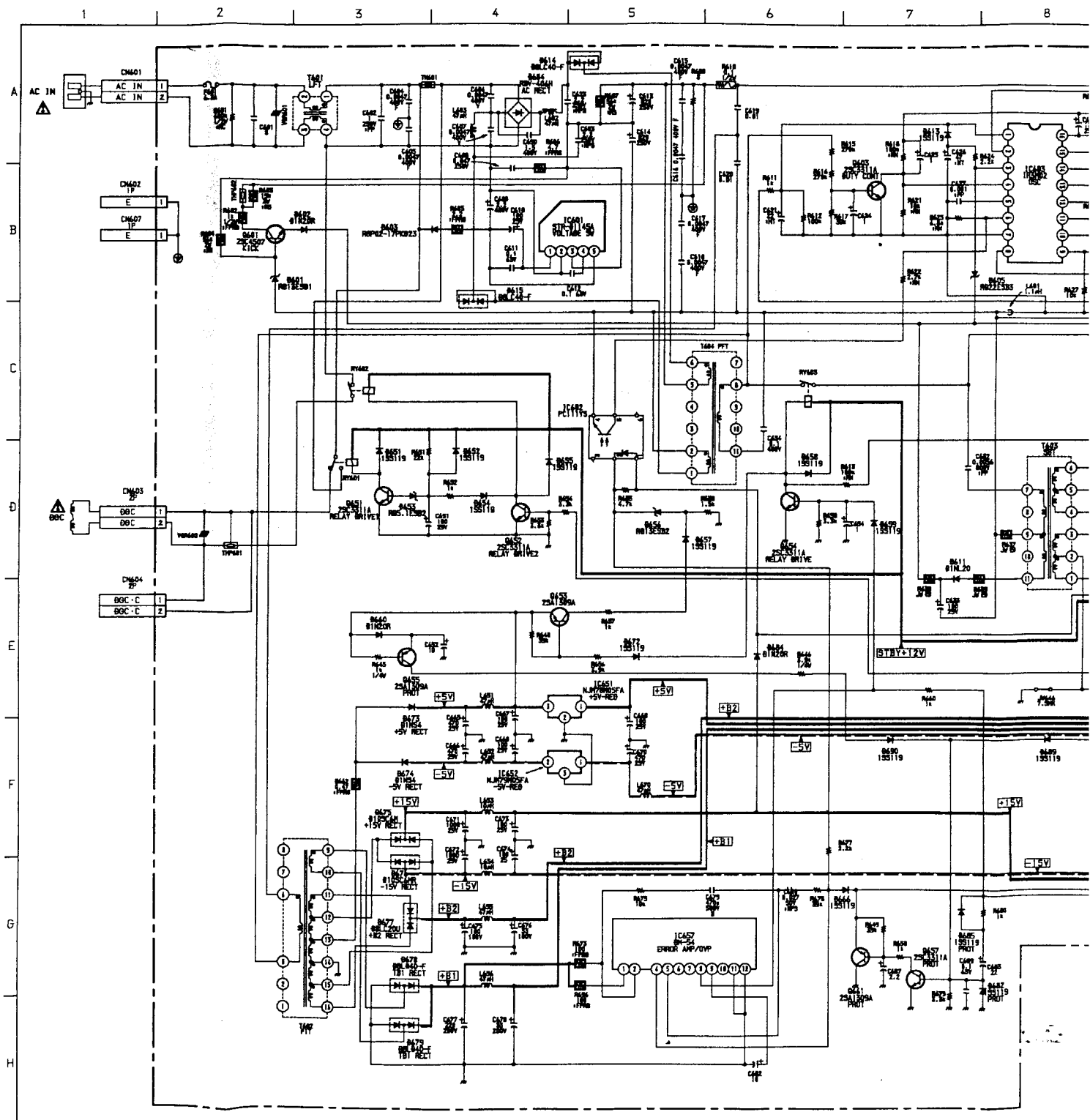
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC801	1	0.4	IC851	1	7.6	
	2	3.5		2	10.1	
	3	4.4		3	2.5	
	4	4.2		4	5.3	
	5	3.6		5	-4.7	
	6	2.9		6	-9.8	
	7	4.7		11	5.2	
	8	0.3		12	5.2	
	9	10.4		13	0	
	10	0.3		14	-9.9	
	12	4.9				
	14	0.2		Q801	B	0.9
	16	0.2			E	0.4
	17	0.2				
18	0.7	Q802	B	0.9		
19	0.7		E	0.4		

M BOARD WAVEFORMS



VOLTAGE LIST  
● DB BOARD

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC101	1	9.3	IC103	1	1.8	Q104	B	10.3	
	2	9.3		2	0.2		C	15.1	
	3	9.3		3	0.2		E	19.9	
	5	9.3		5	-4.3	Q105	B	10.3	
	6	9.3		6	0.2		E	19.9	
	7	9.7		7	14.3	Q106	B	10.3	
	IC102	2		6.1	Q102		B	0	Q106
3		11.6	C	9.3			E	10.9	
5		1.0	Q103	B	9.5				
6		10.3		E	9.0				
9		11.6							
10		1.0							
11		8.9							
14	11.4								



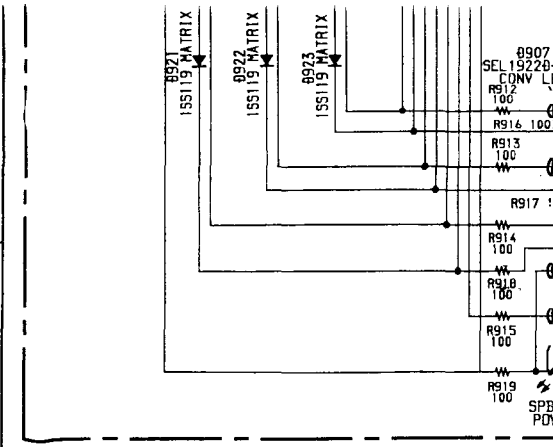
Schematic diagram

← **A** board

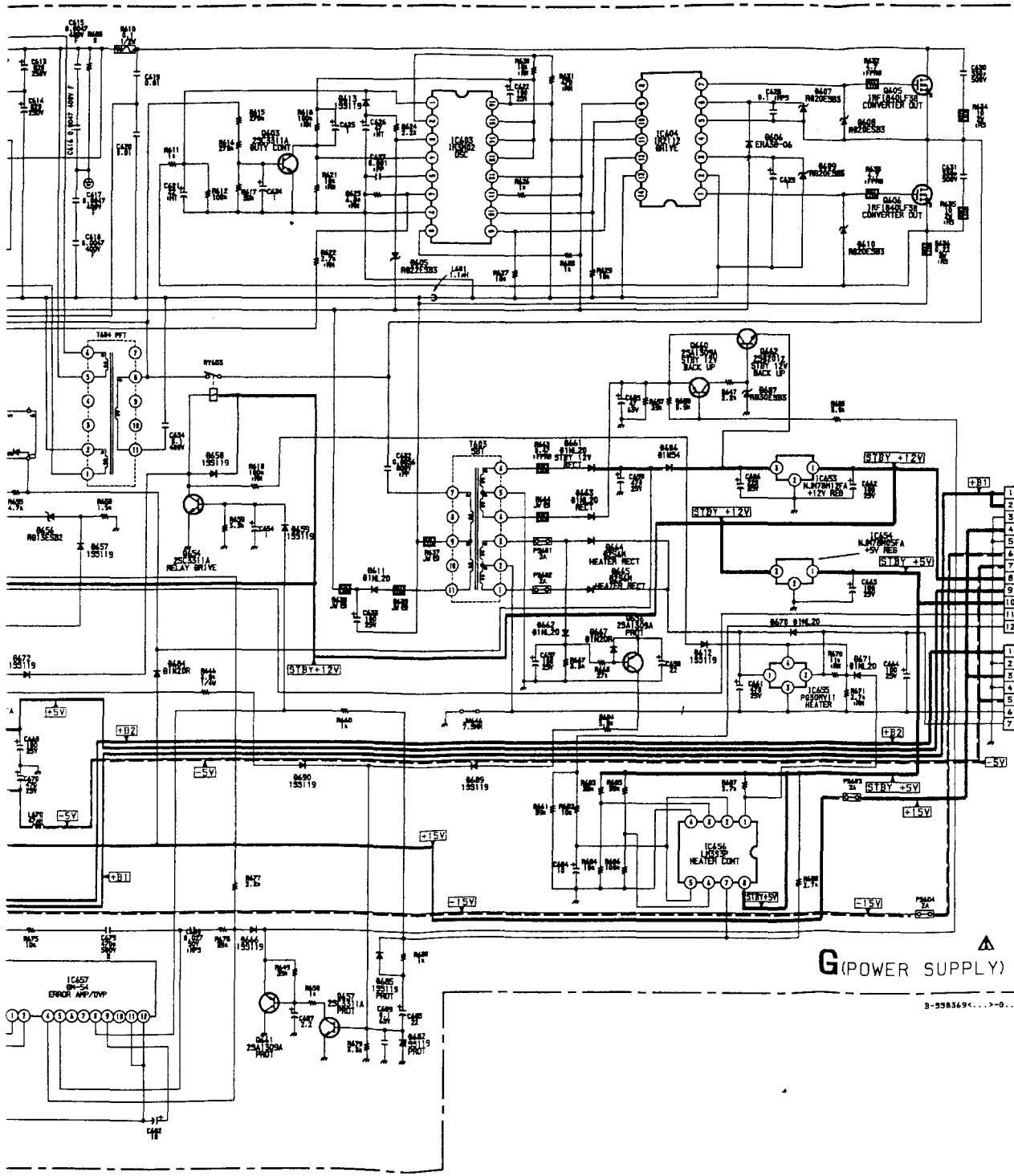
Schematic diagrams

**DB G H M** boards →

Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
1	1.8	Q104	B	10.3
2	0.2		C	15.1
3	0.2		E	19.9
5	-4.3			
6	0.2	Q105	B	10.3
7	14.3		E	19.9
0	0	Q106	B	10.3
6	9.3		C	6.1
0			E	10.9
3	9.5	Q103	B	
6	9.0		E	
0				
6				
0				
9				
4				



5 6 7 8 9 10 11 12

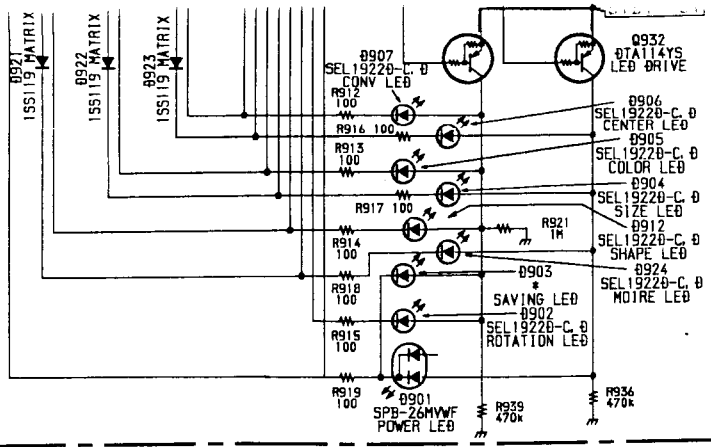


- TO B BOARD CN403
- |    |          |
|----|----------|
| 1  | +B1 180V |
| 2  | +B1 180V |
| 3  | GND      |
| 4  | +15V     |
| 5  | GND      |
| 6  | -15V     |
| 7  | -5V      |
| 8  | STBY 12V |
| 9  | +5V      |
| 10 | STBY 5V  |
| 11 | GND      |
| 12 | P. SW    |
- TO A BOARD CN103
- |   |         |
|---|---------|
| 1 | +B2 64V |
| 2 | GND     |
| 3 | +15V    |
| 4 | GND     |
| 5 | -5V     |
| 6 | H1-     |
| 7 | H2+     |

G (POWER SUPPLY)

Schematic diagrams  
 DB G H M boards →

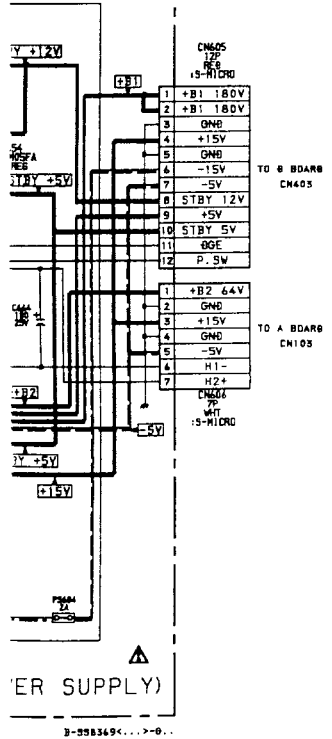
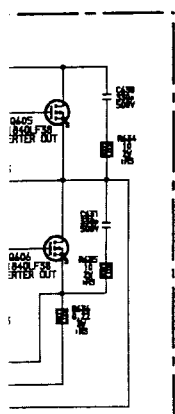
B-553321<...



**VOLTAGE LIST**  
● H BOARD

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC931	1	5.2	IC932	3	5.2	
	2	4.5		Q931	B	5.2
	3	5.2			C	5.2
	4	5.2	E		5.2	
	6	5.2	Q932	B	2.7	
	7	5.2		C	2.7	
	8	5.2		Q933	B	2.7
	9	5.2	C		2.7	
	10	3.3				
	11	5.5				
	12	4.9				
	13	4.9				
	15	0				
	16	5.2				
	17	2.8				
18	2.8					
19	3.8					
20	5.2					
21	3.8					
22	5.2					
23	4.6					
25	5.2					
26	2.5					
27	2.7					

11 12



**VOLTAGE LIST**  
● G BOARD

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC601	1	9.1	IC604	1	-31.2	IC657	1	183.4	Q652	B	0
	2	120.2		2	-37.5		2	183.4		C	12.6
	3	120.0		3	-22.4		4	12.1	Q653	B	6.7
	4	119.8		5	120.0		5	2.6		C	7.4
	5	1.7		6	135.0		6	0		E	7.4
IC602	1	14.7	7	126.5	8	1.4	Q654	B	0.8		
	2	13.7	9	-22.3	9	0.3		C	0.2		
	4	-37.6	10	-31.7	10	0	Q655	B	7.4		
	5	-34.6	11	-37.5	11	0		C	-2.9		
	IC603	1	-37.5	12	-31.4	12	0	E	7.1		
2		-37.4	13	-37.5	Q601	B	-24.5				
3		-37.5	IC651	3		7.4	C	277.0			
4		-37.6		IC652		2	-7.3	E	-22.1		
5		-35.1	IC653	3	14.4	Q603	B	-36.8			
6		-34.2		IC655	1		8.0	C	-37.6		
7		-37.5	4		1.3		E	-37.4			
8		-22.6	IC656	1	0.2	Q605	G	126.5			
9		-31.4		2	5.1		D	276.0			
10		-31.6		3	1.1		S	119.8			
11		-22.9		4	0	Q606	G	-31.1			
12		-22.3		5	5.1		D	119.8			
13		-32.1		6	3.7		S	-37.5			
14		-32.1		7	2.5	Q651	B	0.8			
15		-32.1		Q652	B		0.2	B	39.4		
16		-37.5	C		0.2	C	39.6				
					E	14.4					

0920  
155119 SW  
0919  
R05.1ESB2  
PROTECT

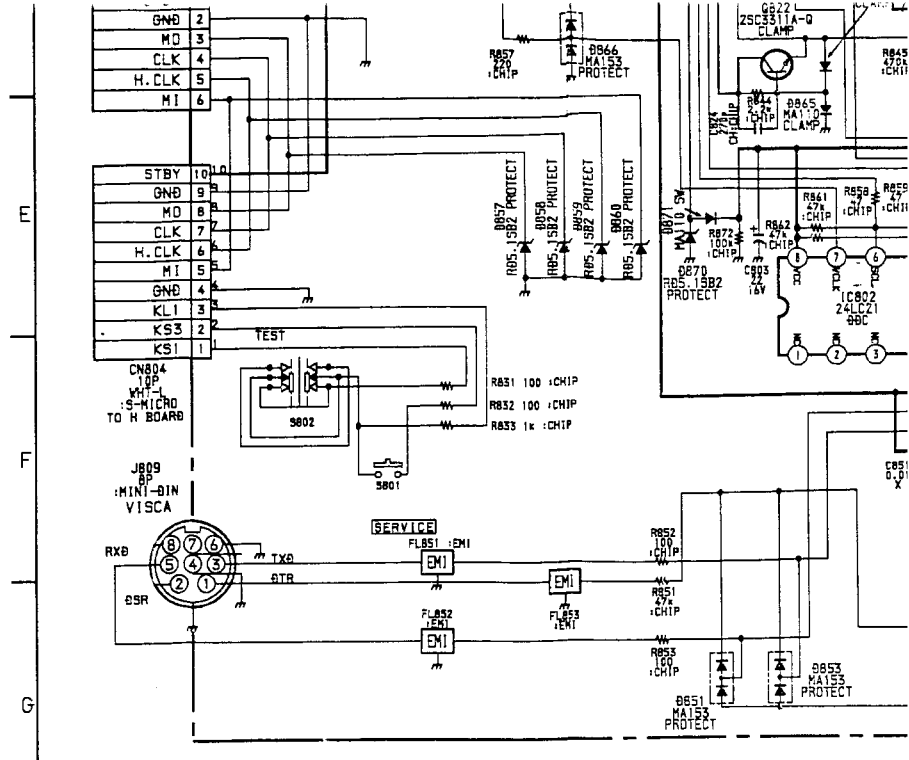
H (SIGNAL LAMP,  
CONTROL SW)

B-593321<...>-H..

LTAGE LIST  
I BOARD

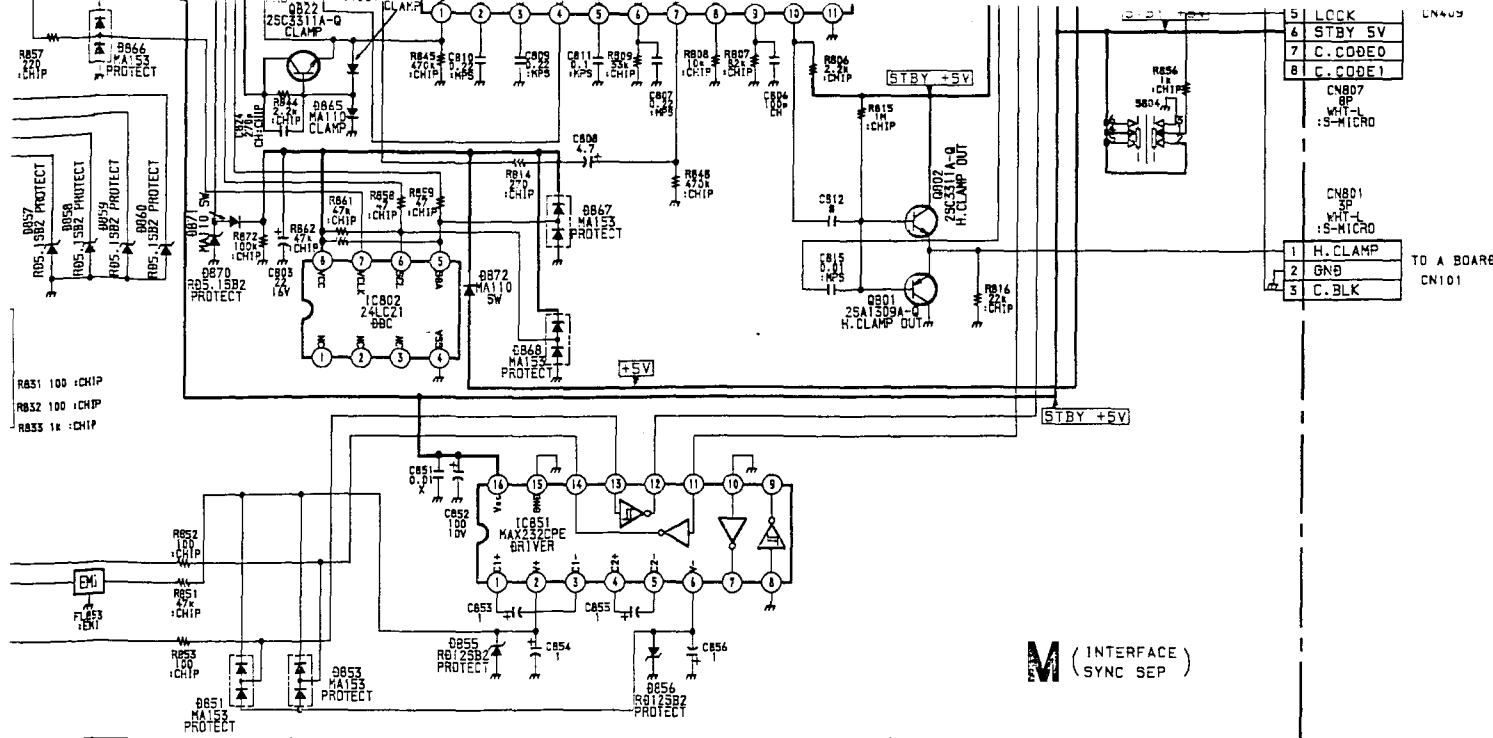
f.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
31	1	5.2	IC932	3	5.2	
	2	4.5		Q931	B	0
	3	5.2			C	3.7
	4	5.2	E		5.2	
	6	5.2	Q932	B	2.8	
	7	5.2		C	2.5	
	8	5.2		Q933	B	2.8
	9	5.2	C		2.6	
	10	3.3	J809 :MINI-BIN VISCA			
	11	5.5				
	12	4.9				
	13	4.9				
	15	0				
	16	5.2				
	17	2.8				
	18	2.8				
	19	3.8				
	20	5.2				
	21	3.8				
	22	5.2				
	23	4.6				
	25	5.2				
	26	2.5				
	27	2.7				

in No.	Voltage [V]
B	0
C	12.6
B	6.7
C	7.4
E	7.4
B	0.8
C	0.2
B	7.4
C	-2.9
E	7.1
B	7.8
C	-0.8
E	7.6
B	0
C	39.4
B	39.0
C	2.3
E	39.6
B	39.4
E	39.4
B	2.1
C	39.6
E	14.4



VOLTAGE LIST  
● M BOARD

Ref.	Pin No.	Voltage [V]	
IC801	1	0.4	
	2	3.5	
	3	4.4	
	4	4.2	
	5	3.6	
	6	2.9	
	7	4.7	
	8	0.3	
	9	10.4	
	10	0.3	
	12	4.9	
	14	0.2	
	16	0.2	
	17	0.2	
	18	0.7	
	19	2.7	
	20	2.7	
	21	0.2	
	IC803	1	0.8
		13	0.2
		14	0
15		5.2	



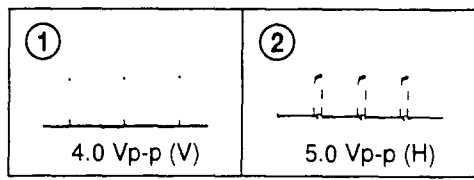
B-553321<...>-M..

**VOLTAGE LIST**

● M BOARD

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC801	1	0.4	IC851	1	7.6	
	2	3.5		2	10.1	
	3	4.4		3	2.5	
	4	4.2		4	5.3	
	5	3.6		5	-4.7	
	6	2.9		6	-9.8	
	7	4.7		11	5.2	
	8	0.3		12	5.2	
	9	10.4		13	0	
	10	0.3		14	-9.9	
	12	4.9		Q801	B	0.9
	14	0.2			E	0.4
	16	0.2			Q802	B
	17	0.2		E		0.4
	18	0.7	Q821	B		5.5
	19	2.7		E	4.8	
	20	2.7		Q822	B	0.8
	21	0.2	E		0.4	
	IC803	1	0.8			
		13	0.2			
		14	0			
15		5.2				

**M BOARD WAVEFORMS**



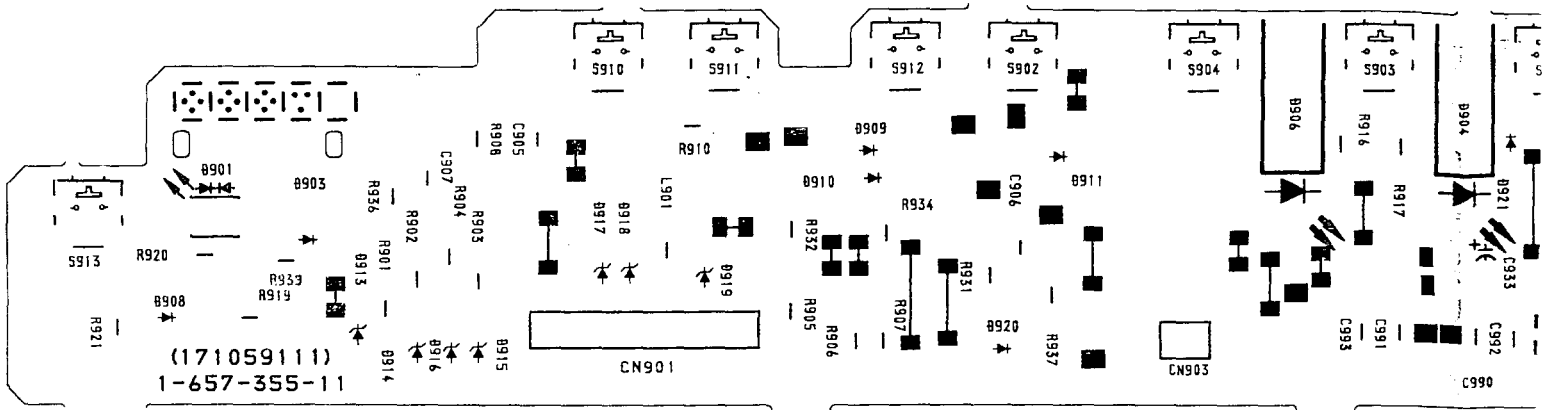


[SIGNAL LAMP]

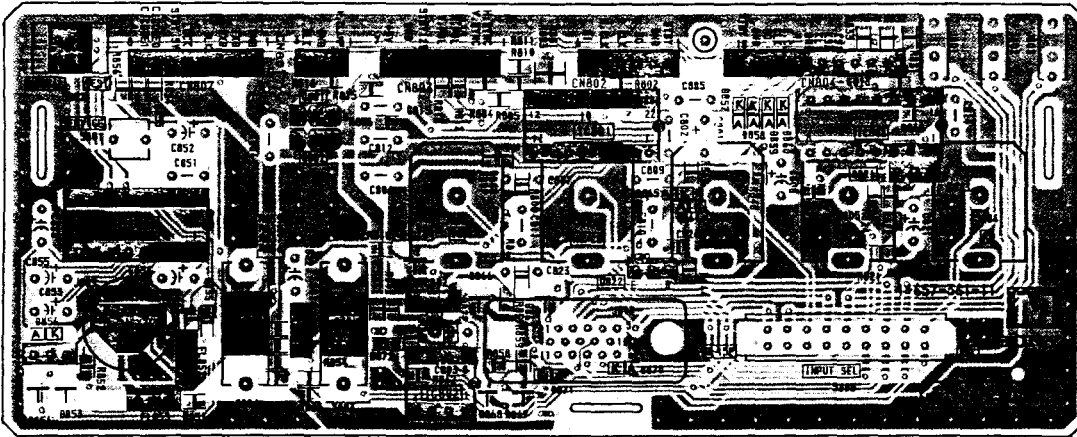


[INTERFACE SYNC SEP]

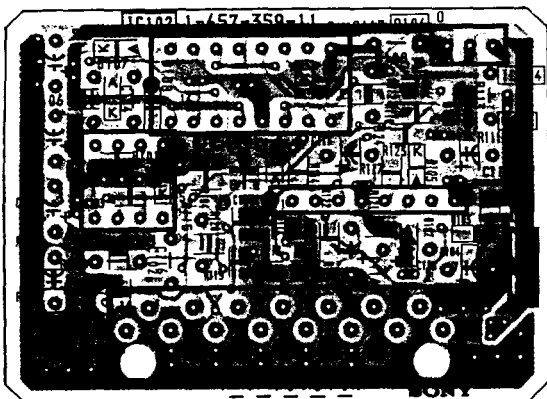
— H Board —



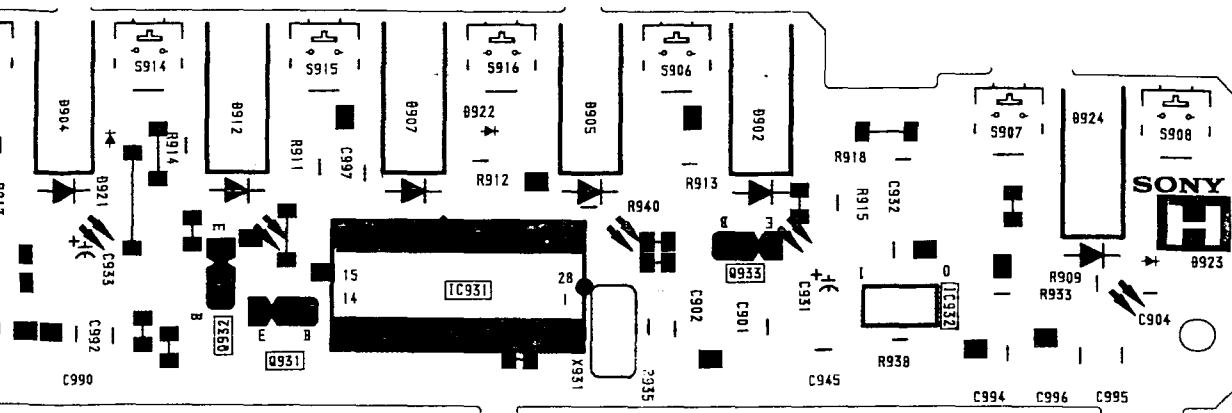
— M Board (Conductor Side) —



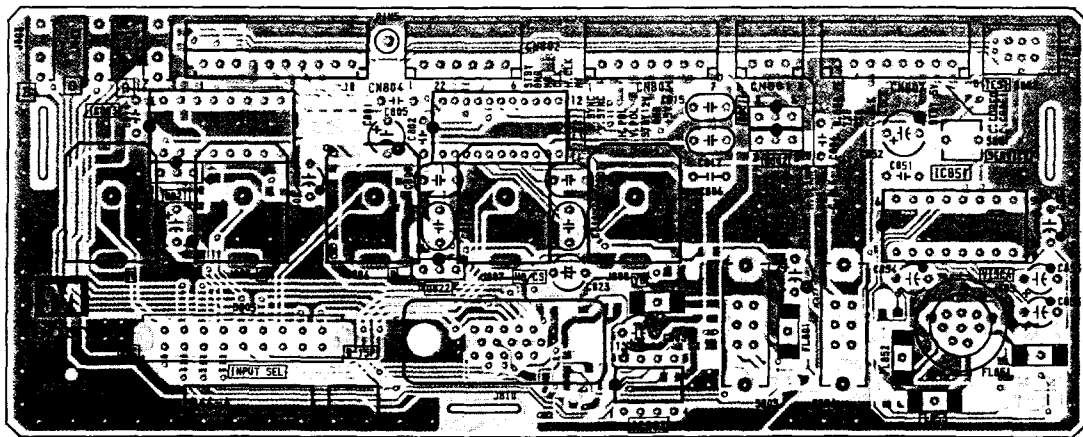
— DB Board (Conductor Side) —



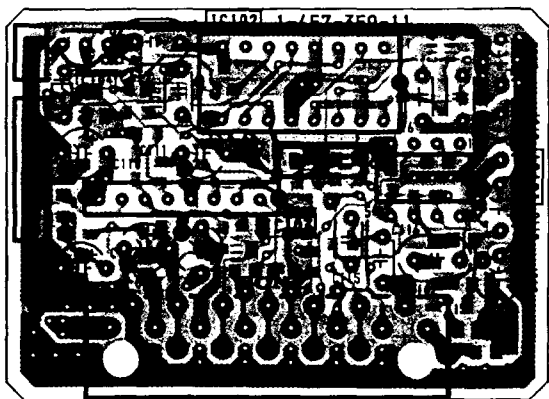




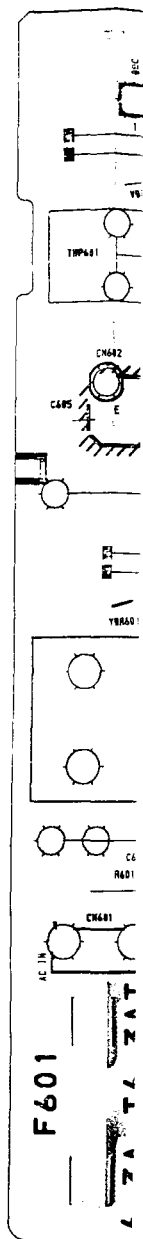
— M Board (Component Side) —



— DB Board (Component Side) —

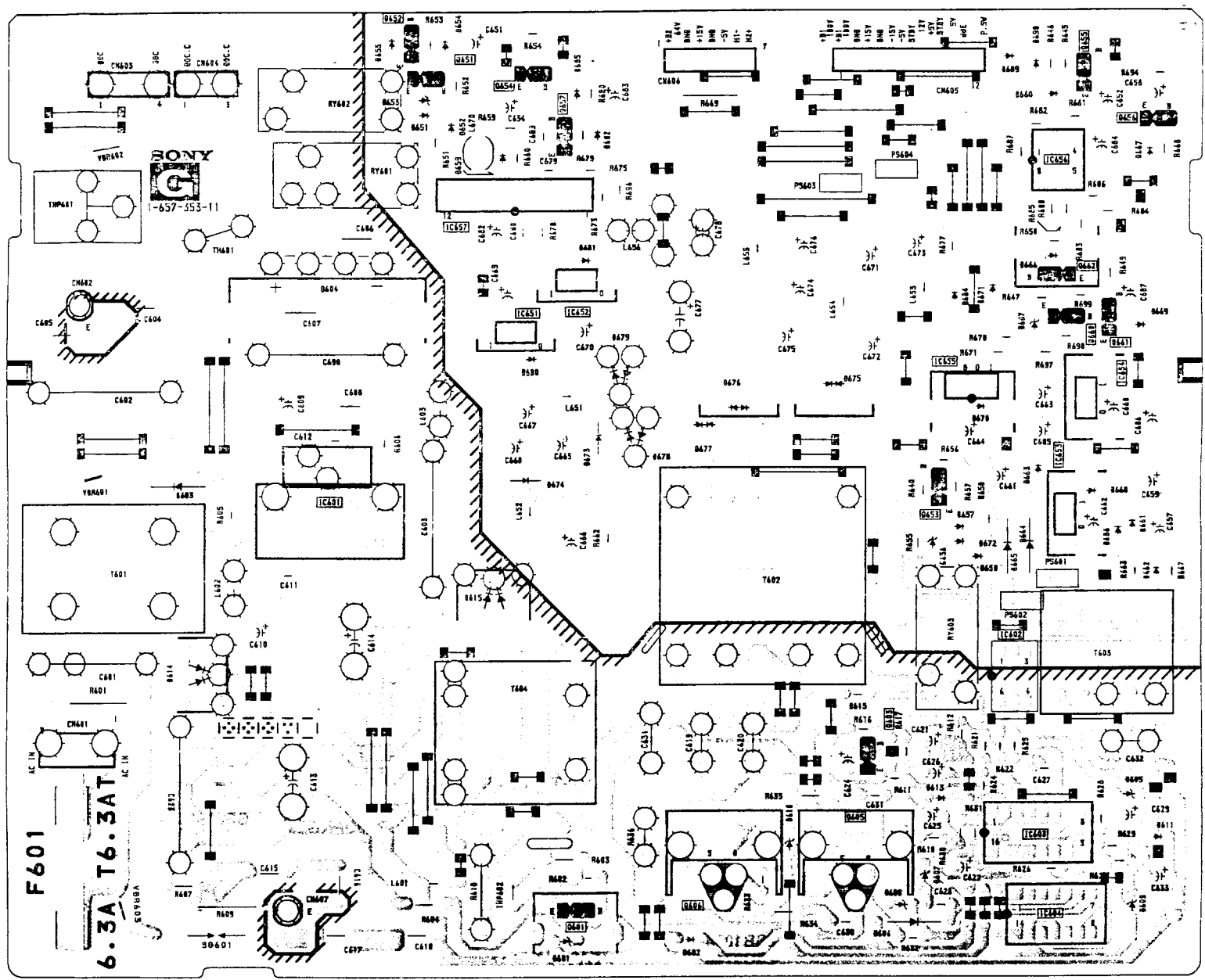


- : Pattern from the side which enables seeing.
- : Pattern of the rear side.





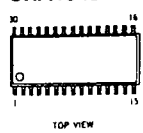
- G Board -



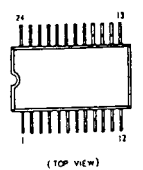
# GDM-20SHT

## 5-5. SEMICONDUCTORS

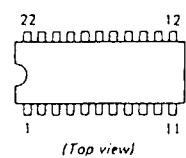
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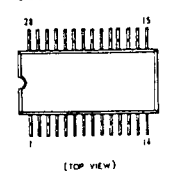
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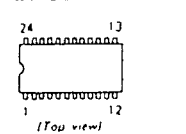
CXA1616S



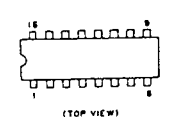
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CXA8021M-T6



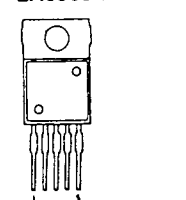
DAC8840FS



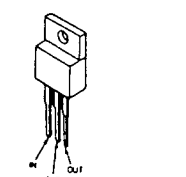
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IR3M02A  
M62353FP  
MAX232N  
TC4528BPHB



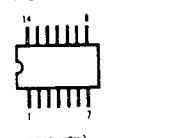
LA6500-FA



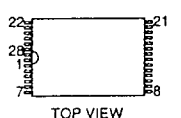
LM7812CT  
NJM78L12A  
NJM78M05FA  
NJM78M09FA  
NJM78M12FA  
TA7812S



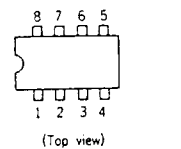
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TC74HC86AF



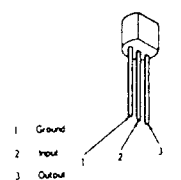
MC68HC05P7BSC402191B



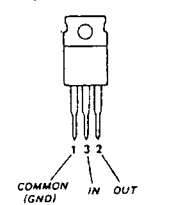
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NJM4558V-TE2  
TL082ACP  
UPC358C  
UPC393C  
UPC4558C  
X25040SI



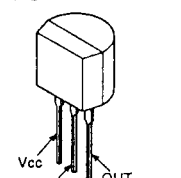
NJM79L12A



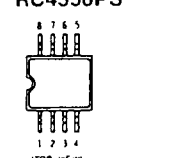
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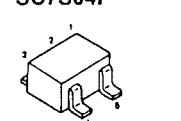
PST600D-T



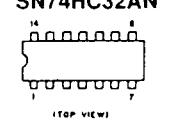
RC4558PS



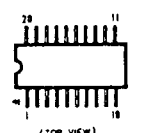
SC7S04F



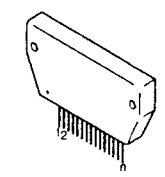
SN74HC32AN



SN74HC74ANS

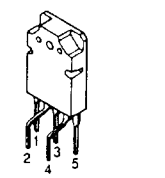


STK-390120  
STK390-120

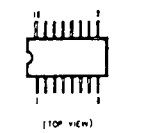


MARKING SIDE VIEW

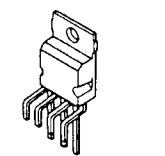
STR-81145A



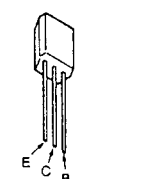
TC74HC123AF



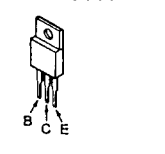
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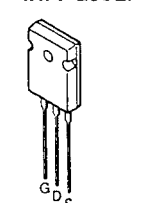
2SC2668-Y  
DTA114YS  
DTC124ES



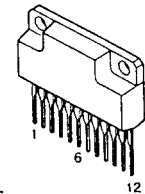
2SB1094-LK  
2SC3746  
2SC4159-E  
2SC4507  
2SC4686A  
(LB SONY)  
2SD2012  
IFF19630GS  
IRF19630G



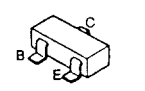
IRFPG50LF



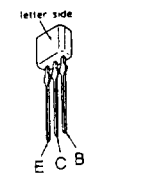
IRHT5305



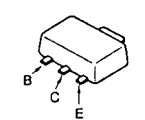
2SA1162-G  
2SA1330-O6  
2SA1462-Y33  
2SB1218A-QRS  
2SC1623-L5L6  
2SC3545-T43  
2SC4116-YG  
UN5213



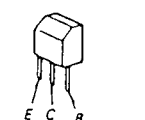
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2SC2785-HFE



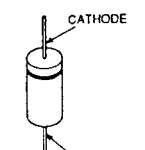
2SC2780-NK  
2SC2954



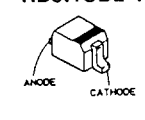
2SD774-34



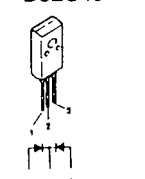
DTZ-TT11-2.4B



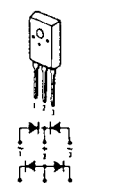
DTZ5.1C  
MA110  
RD12SB2  
RD5.1SB2-T2



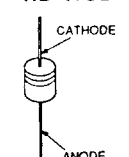
D10SC6M  
D8LC40



D10SC6MR  
D8LC20U



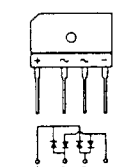
1SS119  
1SS120  
D1N20R  
D1NS4  
ERA38-06  
RD12ES-B2  
RD13ES-B1  
RD13ES-B2  
RD15ES-B2  
RD18ES-B2  
RD2.2ES-B2  
RD20ES-B2  
RD22ES-B3  
RD30ES-B2  
RD5.1ES-B2  
RD5.1SB1-T1



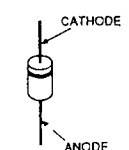
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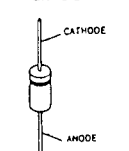
D4SB60L



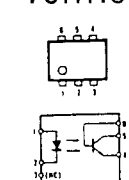
EGP10D  
EGP20DPKG23  
ERA91-02



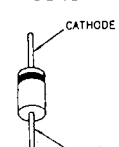
1SS83  
GP08D



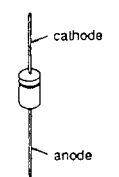
PC111YS



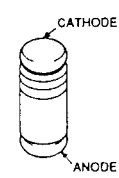
RGP02-17  
RGP02-17EL-6433  
B340



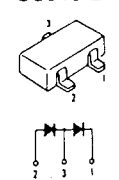
RGP02-20EL-6394  
S2LA20F



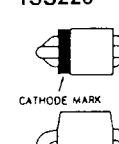
RLZ30D-TE11



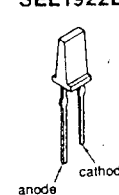
SC015-2



1SS226



SEL1922D-C



## SECTION 6 EXPLODED VIEWS

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

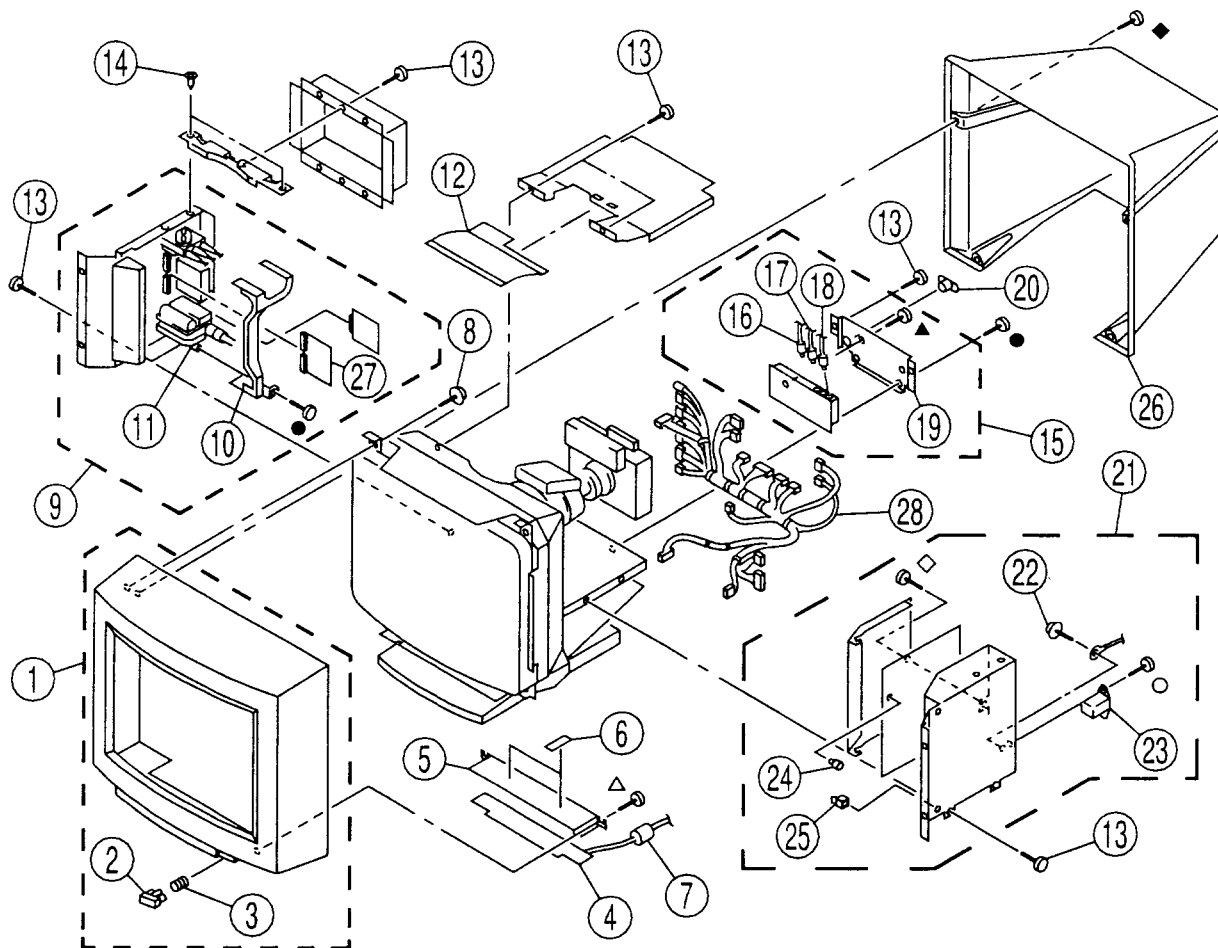
NOTE:

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par un trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

### 6-1. CHASSIS

- |                |            |                |            |
|----------------|------------|----------------|------------|
| ● 7-685-648-79 | +BVTP 3X12 | ○ 7-685-246-14 | +KPT 3X8   |
| ◆ 7-685-663-14 | +BVTP 4X16 | ◇ 7-682-560-04 | +BVTP M4X6 |
| ▲ 7-682-548-04 | +BVTP M3X8 | △ 7-685-161-01 | +P 4X12    |



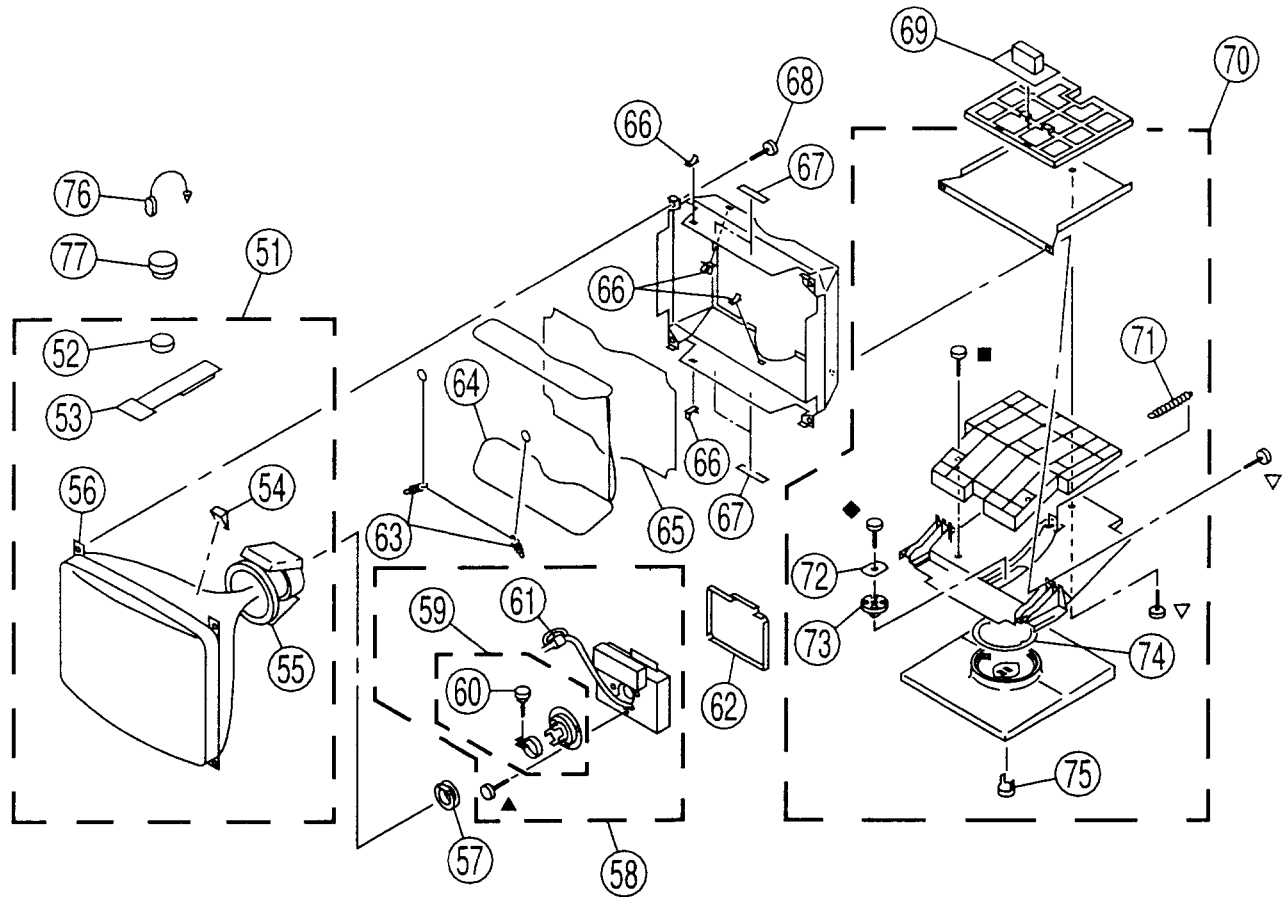
REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4032-773-1	BEZEL ASSY	2, 3	16	$\Delta$ 1-575-135-61	CABLE COAXIAL (R)	
2	4-041-622-61	POWER, BUTTON		17	$\Delta$ 1-575-135-51	CABLE COAXIAL (G)	
3	3-571-801-01	SPRING, COMPRESSION		18	$\Delta$ 1-575-135-41	CABLE COAXIAL (B)	
4	8-933-123-00	H BOARD		19	X-4032-777-1	PANEL ASSY, CONNECTOR	
5	*4-049-207-01	BOX, CONTROL		20	4-038-522-01	CAP (VISCA)	
6	*9-911-844-99	CUSHION		21	$\Delta$ 8-933-122-00	POWER BLOCK ASSY	22-25
7	1-543-798-11	FILTER, CLAMP (FERRITE CORE)		22	4-389-025-01	SCREW (M4X8) (EXT TOOTH WASHER)	
8	4-365-808-01	SCREW (5), TAPPING		23	$\Delta$ 1-540-157-11	INLET, AC (JP WITH NOISE FILTER)	
9	8-933-120-00	DEFLECTION MCB ASSY (D BOARD)	10	24	*4-386-173-01	SPACER	
10	4-041-043-05	HOLDER, HV CABLE		25	*3-696-440-11	HOLDER (B), PC BOARD	
11	$\Delta$ 1-453-154-22	TRANSFORMER ASSY, FLYBACK		26	X-4032-772-1	CABINET ASSY	
12	*4-049-742-01	COVER, ANODE CAP		27	8-933-121-00	DA Mount	
13	4-381-962-11	SCREW (M4X8), TAPPING, (+) (BV)		28	1-900-211-98	Main Harness	
14	4-040-985-01	RIVET, PUSH					
15	A-1429-504-A	PANEL ASSY, CONNECTOR	16-19				

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par un tramé et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

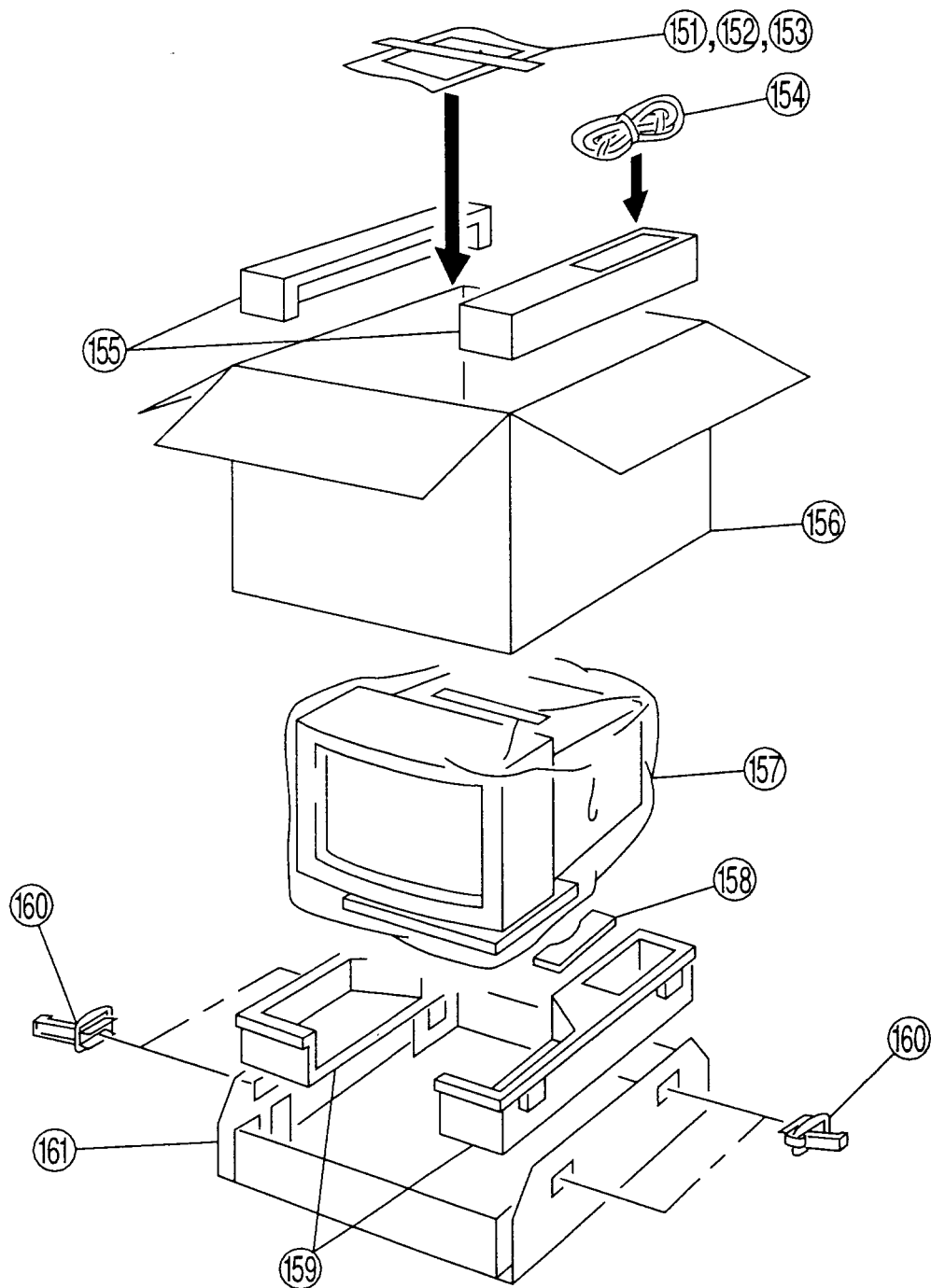
6-2. PICTURE TUBE

- ▲ 7-682-548-04 +BVTP M3X8
- 7-685-663-79 +BVTP 4X16
- ▽ 7-682-563-04 +BVTP M4X12
- ◆ 7-685-663-14 +BVTP 4X16



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
51	A-1020-756-A	CRT COMPLETE ASSY	52-56	66	*4-395-824-01	HOLDER, DEGAUSSING COIL	
52	1-452-032-00	MAGNET, DISC		67	*9-911-844-99	CUSHION	
54	4-040-897-01	SPACER, DY		68	4-381-962-11	SCREW (M4X8), TAPPING, (+) (BV)	
55	$\Delta$ 8-451-465-11	DEFLECTION YOKE Y26SHLM		69	8-933-124-00	CONVERGENCE ADJ MCB ASSY (L BOARD)	
56	$\Delta$ 8-736-369-90	PICTURE TUBE 20SH6 (SD-231)		70	X-4032-774-1	STAND (B) ASSY	71-75
57	1-452-729-11	NECK ASSEMBLY (NA3011)		71	4-042-282-01	SPRING, TENSION	
58	8-933-119-00	A BLOCK ASSY	59-61	72	*4-043-646-01	HOLDER, STAND	
58	X-403-058-41	PERMALLOY ASSY, CORRECTION	60	73	4-041-623-01	STOPPER (A)	
59	X-4029-794-1	RETAINER ASSY, VIDEO		74	*4-041-625-01	RING, TILT SWIVEL	
60	4-041-627-01	SCREW (M4X20), HEXAGON HEAD		75	4-041-621-01	STOPPER (B)	
61	1-543-798-11	FILTER, CLAMP (FERRITE CORE)		76	4-308-870-00	CLIP, LEAD WIRE	
62	*4-041-027-01	COVER, VIDEO SHIELD		77	1-452-094-00	MAGNET ROTA TABLE DISK; 15MMØ	
63	4-369-318-00	SPRING, TENSION					
64	1-411-471-11	COIL, DEMAGNETIZATION					
65	1-411-472-11	COIL, LANDING CORRECTION					

6-3. PACKING MATERIALS



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
151	*1-543-830-11	CLAMP, SLEEVE FERRITE		161	*4-038-264-01	TRAY	
152	1-775-508-11	CABLE ASSY (15P DSUB CONNECTOR)					
153	3-800-117-11	MANUAL, INSTRUCTION					
154	Δ 1-765-581-11	CORD SET, POWER SUPPLY 10A/250V					
155	*4-041-498-01	CUSHION (UPPER) (ASSY)					
156	*4-049-760-01	INDIVIDUAL CARTON					
157	*4-368-079-01	BAG, POLYETHYLENE					
158	*4-041-505-01	PAD					
159	*4-041-499-01	CUSHION (LOWER) (ASSY)					
160	*4-396-077-01	JOINT					

**MEMO**

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A series of horizontal dotted lines for writing.

## SECTION 7

### ELECTRICAL PARTS LIST

A

## NOTE:

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par un trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

The components identified by  $\Delta$  in this manual have been carefully selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

## RESISTORS

All resistors are in ohms  
F : nonflammable

Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
		VIDEO AMP, MCB ASSY (A BOARD)					
		.....					
		(BOARD PART NO. 1-657-354-11)					
	1-543-298-11	BEAD, FERRITE					
	4-382-854-11	SCREW (M3X10), P, SW (+)					
		<u>CAPACITOR</u>					
C1	1-162-114-00	CERAMIC	0.0047MF 2K	C104	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C3	1-107-939-11	ELECT	1MF 20% 160V	C105	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C4	1-107-939-11	ELECT	1MF 20% 160V	C106	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C5	1-107-939-11	ELECT	1MF 20% 160V	C107	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C6	1-107-925-11	ELECT	1MF 20% 100V	C108	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C7	1-107-925-11	ELECT	1MF 20% 100V	C109	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C8	1-107-925-11	ELECT	1MF 20% 100V	C111	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C9	1-162-114-00	CERAMIC	0.0047MF 2KV	C112	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C10	1-102-989-00	CERAMIC	68PF 5% 500V	C113	1-164-489-11	CERAMIC CHIP 0.22MF	10% 16V
C11	1-162-114-00	CERAMIC	0.0047MF 2KV	C114	1-101-821-00	CERAMIC 0.0022MF	500V
C12	1-162-114-00	CERAMIC	0.0047MF 2KV	C116	1-163-831-00	CERAMIC CHIP 0.047MF	10% 100V
C13	1-107-929-11	ELECT	10MF 20% 50V	C117	1-107-931-11	ELECT 33MF	20% 100V
C14	1-107-929-11	ELECT	10MF 20% 50V	C120	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C15	1-107-929-11	ELECT	10MF 20% 50V	C122	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C16	1-163-131-00	CERAMIC CHIP	390PF 5% 50V	C201	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C17	1-107-929-11	ELECT	10MF 20% 50V	C202	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C18	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C203	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C19	1-102-989-00	CERAMIC	68PF 5% 500V	C204	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C20	1-102-989-00	CERAMIC	68PF 5% 500V	C205	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C21	1-107-943-11	ELECT	10MF 20% 160V	C206	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C22	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C207	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C23	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C208	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C24	1-107-929-11	ELECT	10MF 20% 50V	C209	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C26	1-163-133-00	CERAMIC CHIP	470PF 5% 50V	C210	1-164-489-11	CERAMIC CHIP 0.22MF	10% 16V
C27	1-163-229-11	CERAMIC CHIP	12PF 5% 50V	C211	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C28	1-163-229-11	CERAMIC CHIP	12PF 5% 50V	C212	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C30	1-102-244-00	CERAMIC	220PF 10% 500V	C213	1-164-489-11	CERAMIC CHIP 0.22MF	10% 16V
C32	1-164-161-11	CERAMIC CHIP	0.0022MF 10% 50V	C214	1-101-821-00	CERAMIC 0.0022MF	500V
C33	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C216	1-163-831-00	CERAMIC CHIP 0.047MF	10% 100V
C41	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V	C217	1-107-931-11	ELECT 33MF	20% 100V
C71	1-107-925-11	ELECT	1MF 20% 100V	C220	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C72	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C301	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C101	1-164-232-11	CERAMIC CHIP	0.01MF 10% 50V	C302	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C102	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V	C303	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C103	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V	C304	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C305	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C306	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C307	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
				C308	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
				C309	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C311	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C312	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
				C314	1-101-821-00	CERAMIC 0.0022MF	500V







REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
Q204	8-729-129-54	TRANSISTOR 2SC2954		R69	1-216-067-00	METAL GLAZE 5.6K	5% 1/10W
Q205	8-729-112-65	TRANSISTOR 2SA1462-Y33		R73	1-249-419-11	CARBON 1.5K	5% 1/4W F
Q300	8-729-129-54	TRANSISTOR 2SC2954		R78	1-249-417-11	CARBON 1K	5% 1/4W F
Q301	8-729-129-54	TRANSISTOR 2SC2954		R80	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
Q302	8-729-129-54	TRANSISTOR 2SC2954		R81	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
Q303	8-729-107-31	TRANSISTOR 2SC3545-T43		R82	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
Q304	8-729-129-54	TRANSISTOR 2SC2954		R100	1-216-631-11	METAL CHIP 150	0.50%1/10W
Q305	8-729-112-65	TRANSISTOR 2SA1462-Y33		R101	1-216-631-11	METAL CHIP 150	0.50%1/10W
Q400	8-729-105-08	TRANSISTOR 2SA1330-O6		R102	1-216-047-00	METAL GLAZE 820	5% 1/10W
Q500	8-729-105-08	TRANSISTOR 2SA1330-O6		R103	1-216-663-11	METAL CHIP 3.3K	0.50%1/10W
Q600	8-729-105-08	TRANSISTOR 2SA1330-O6		R104	1-208-810-11	METAL CHIP 15K	0.50%1/10W
				R105	1-216-021-00	METAL GLAZE 68	5% 1/10W
				R106	1-216-021-00	METAL GLAZE 68	5% 1/10W
				R107	1-216-021-00	METAL GLAZE 68	5% 1/10W
				R108	1-216-033-00	METAL GLAZE 220	5% 1/10W
				R109	1-216-033-00	METAL GLAZE 220	5% 1/10W
				R110	1-216-025-91	METAL GLAZE 100	5% 1/10W
				R111	1-216-025-91	METAL GLAZE 100	5% 1/10W
				R112	1-216-081-00	METAL GLAZE 22K	5% 1/10W
				R113	1-216-041-00	METAL GLAZE 470	5% 1/10W
				R114	1-216-001-00	METAL GLAZE 10	5% 1/10W
				R115	1-216-001-00	METAL GLAZE 10	5% 1/10W
				R116	1-216-033-00	METAL GLAZE 220	5% 1/10W
				R117	1-216-017-00	METAL GLAZE 47	5% 1/10W
				R118	1-216-041-00	METAL GLAZE 470	5% 1/10W
				R119	1-208-810-11	METAL CHIP 15K	0.50%1/10W
				R120	1-208-810-11	METAL CHIP 15K	0.50%1/10W
				R121	1-208-806-11	METAL CHIP 10K	0.50%1/10W
				R125	1-247-735-11	CARBON 47	5% 1/2W F
				R131	1-216-041-00	METAL GLAZE 470	5% 1/10W
				R132	1-216-041-00	METAL GLAZE 470	5% 1/10W
				R151	1-216-017-00	METAL GLAZE 47	5% 1/10W
				R152	1-216-013-00	METAL GLAZE 33	5% 1/10W
				R200	1-216-631-11	METAL CHIP 150	0.50%1/10W
				R201	1-216-631-11	METAL CHIP 150	0.50%1/10W
				R202	1-216-047-00	METAL GLAZE 820	5% 1/10W
				R203	1-216-663-11	METAL CHIP 3.3K	0.50%1/10W
				R204	1-208-810-11	METAL CHIP 15K	0.50%1/10W
				R205	1-216-021-00	METAL GLAZE 68	5% 1/10W
				R206	1-216-021-00	METAL GLAZE 68	5% 1/10W
				R207	1-216-021-00	METAL GLAZE 68	5% 1/10W
				R208	1-216-033-00	METAL GLAZE 220	5% 1/10W
				R209	1-216-033-00	METAL GLAZE 220	5% 1/10W
				R210	1-216-025-91	METAL GLAZE 100	5% 1/10W
				R211	1-216-025-91	METAL GLAZE 100	5% 1/10W
				R212	1-216-081-00	METAL GLAZE 22K	5% 1/10W
				R213	1-216-041-00	METAL GLAZE 470	5% 1/10W
				R214	1-216-001-00	METAL GLAZE 10	5% 1/10W
				R215	1-216-001-00	METAL GLAZE 10	5% 1/10W
				R216	1-216-033-00	METAL GLAZE 220	5% 1/10W
				R217	1-216-017-00	METAL GLAZE 47	5% 1/10W
				R218	1-216-041-00	METAL GLAZE 470	5% 1/10W
				R219	1-208-810-11	METAL CHIP 15K	0.50%1/10W
				R220	1-208-810-11	METAL CHIP 15K	0.50%1/10W
				R221	1-208-806-11	METAL CHIP 10K	0.50%1/10W
				R225	1-247-735-11	CARBON 47	5% 1/2W F
R1	1-216-049-91	METAL GLAZE 1K	5% 1/10W				
R4	1-216-097-91	METAL GLAZE 100K	5% 1/10W				
R5	1-216-097-91	METAL GLAZE 100K	5% 1/10W				
R6	1-216-097-91	METAL GLAZE 100K	5% 1/10W				
R8	1-214-921-00	CARBON 220K	5% 1/2W				
R9	1-208-610-11	METAL OXIDE 2M	5% 1W				
R11	1-202-842-11	SOLID 220K	20% 1/2W				
R14	1-208-610-11	METAL OXIDE 2M	5% 1W				
R19	1-208-612-11	METAL OXIDE 10M	5% 1W				
R23	1-216-113-00	METAL GLAZE 470K	5% 1/10W				
R24	1-216-091-00	METAL GLAZE 56K	5% 1/10W				
R25	1-216-073-00	METAL GLAZE 10K	5% 1/10W				
R26	1-216-073-00	METAL GLAZE 10K	5% 1/10W				
R31	1-208-612-11	METAL OXIDE 10M	5% 1W				
R32	1-216-073-00	METAL GLAZE 10K	5% 1/10W				
R33	1-216-091-00	METAL GLAZE 56K	5% 1/10W				
R34	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W				
R35	1-216-073-00	METAL GLAZE 10K	5% 1/10W				
R36	1-214-921-00	CARBON 220K	5% 1/2W				
R37	1-215-874-11	METAL OXIDE 6.8K	5% 1W F				
R39	1-216-121-00	METAL GLAZE 1M	5% 1/10W				
R40	1-216-121-00	METAL GLAZE 1M	5% 1/10W				
R41	1-216-121-00	METAL GLAZE 1M	5% 1/10W				
R42	1-216-009-00	METAL GLAZE 22	5% 1/10W				
R43	1-216-009-00	METAL GLAZE 22	5% 1/10W				
R44	1-216-009-00	METAL GLAZE 22	5% 1/10W				
R45	1-216-097-91	METAL GLAZE 100K	5% 1/10W				
R46	1-216-073-00	METAL GLAZE 10K	5% 1/10W				
R47	1-216-073-00	METAL GLAZE 10K	5% 1/10W				
R48	1-216-073-00	METAL GLAZE 10K	5% 1/10W				
R54	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W				
R55	1-247-739-11	CARBON 100	5% 1/2W				
R57	1-247-739-11	CARBON 100	5% 1/2W				
R59	1-247-739-11	CARBON 100	5% 1/2W				
R61	1-216-049-91	METAL GLAZE 1K	5% 1/10W				
R62	1-216-049-91	METAL GLAZE 1K	5% 1/10W				
R63	1-216-049-91	METAL GLAZE 1K	5% 1/10W				
R64	1-216-067-00	METAL GLAZE 5.6K	5% 1/10W				
R65	1-216-051-00	METAL GLAZE 1.2K	5% 1/10W				
R66	1-216-677-11	METAL CHIP 12K	0.50%1/10W				
R67	1-208-800-11	METAL CHIP 5.6K	0.50%1/10W				
R68	1-216-067-00	METAL GLAZE 5.6K	5% 1/10W				



Les composants identifiés par un tramé et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
R231	1-216-041-00	METAL GLAZE 470	5% 1/10W
R232	1-216-041-00	METAL GLAZE 470	5% 1/10W
R251	1-216-017-00	METAL GLAZE 47	5% 1/10W
R252	1-216-013-00	METAL GLAZE 33	5% 1/10W
R300	1-216-631-11	METAL CHIP 150	0.50%1/10W
R301	1-216-631-11	METAL CHIP 150	0.50%1/10W
R302	1-216-047-00	METAL GLAZE 820	5% 1/10W
R303	1-216-663-11	METAL CHIP 3.3K	0.50%1/10W
R304	1-208-810-11	METAL CHIP 15K	0.50%1/10W
R305	1-216-021-00	METAL GLAZE 68	5% 1/10W
R306	1-216-021-00	METAL GLAZE 68	5% 1/10W
R307	1-216-021-00	METAL GLAZE 68	5% 1/10W
R308	1-216-033-00	METAL GLAZE 220	5% 1/10W
R309	1-216-033-00	METAL GLAZE 220	5% 1/10W
R310	1-216-025-91	METAL GLAZE 100	5% 1/10W
R311	1-216-025-91	METAL GLAZE 100	5% 1/10W
R312	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R313	1-216-041-00	METAL GLAZE 470	5% 1/10W
R314	1-216-001-00	METAL GLAZE 10	5% 1/10W
R315	1-216-001-00	METAL GLAZE 10	5% 1/10W
R316	1-216-033-00	METAL GLAZE 220	5% 1/10W
R317	1-216-013-00	METAL GLAZE 33	5% 1/10W
R318	1-216-041-00	METAL GLAZE 470	5% 1/10W
R319	1-208-810-11	METAL CHIP 15K	0.50%1/10W
R320	1-208-810-11	METAL CHIP 15K	0.50%1/10W
R321	1-208-806-11	METAL CHIP 10K	0.50%1/10W
R325	1-247-735-11	CARBON 47	5% 1/2W F
R331	1-216-041-00	METAL GLAZE 470	5% 1/10W
R332	1-216-041-00	METAL GLAZE 470	5% 1/10W
R351	1-216-017-00	METAL GLAZE 47	5% 1/10W
R352	1-216-013-00	METAL GLAZE 33	5% 1/10W
R401	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R402	1-218-759-11	METAL CHIP 200K	0.50%1/10W
R403	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W
R404	1-218-758-11	METAL CHIP 180K	0.50%1/10W
R405	1-208-854-11	METAL CHIP 1M	0.50%1/10W
R406	1-216-089-00	METAL GLAZE 47K	5% 1/10W
R501	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R502	1-218-759-11	METAL CHIP 200K	0.50%1/10W
R503	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W
R504	1-218-758-11	METAL CHIP 180K	0.50%1/10W
R505	1-208-854-11	METAL CHIP 1M	0.50%1/10W
R506	1-216-089-00	METAL GLAZE 47K	5% 1/10W
R601	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R602	1-218-759-11	METAL CHIP 200K	0.50%1/10W
R603	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W
R604	1-218-758-11	METAL CHIP 180K	0.50%1/10W
R605	1-208-854-11	METAL CHIP 1M	0.50%1/10W
R606	1-216-089-00	METAL GLAZE 47K	5% 1/10W
<u>VARIABLE RESISTOR</u>			
RV2	1-223-410-11	RES, ADJ, METAL FILM 110M	
RV101	1-238-090-11	RES, ADJ CERMET 10K	
RV201	1-238-090-11	RES, ADJ CERMET 10K	
RV301	1-238-090-11	RES, ADJ CERMET 10K	

REF.NO.	PART NO.	DESCRIPTION	REMARK
<u>SPARK GAP</u>			
SG2	1-519-422-11	GAP, SPARK	
SG3	1-519-422-11	GAP, SPARK	
SG4	1-519-504-11	GAP, DISCHARGE	
SG5	1-519-504-11	GAP, DISCHARGE	
SG6	1-519-504-11	GAP, DISCHARGE	
SG701	1-519-504-11	GAP, DISCHARGE	
SG801	1-519-504-11	GAP, DISCHARGE	
SG901	1-519-504-11	GAP, DISCHARGE	
<u>SOCKET</u>			
SK1	$\Delta$ 1-251-116-11	SOCKET, CRT	
*****			
CONNECTOR PANEL (M BOARD) ***** (BOARD PART NO. 1-657-361-11)			
<u>CAPACITOR</u>			
C801	1-124-234-00	ELECT 22MF	20% 16V
C802	1-161-051-00	CERAMIC 0.01MF	10% 50V
C803	1-124-234-00	ELECT 22MF	20% 16V
C804	1-161-051-00	CERAMIC 0.01MF	10% 50V
C805	1-102-123-00	CERAMIC 0.0033MF	10% 50V
C806	1-102-973-00	CERAMIC 100PF	5% 50V
C807	1-136-169-00	FILM 0.22MF	5% 50V
C808	1-126-163-11	ELECT 4.7MF	20% 50V
C809	1-136-169-00	FILM 0.22MF	5% 50V
C810	1-136-169-00	FILM 0.22MF	5% 50V
C811	1-136-165-00	FILM 0.1MF	5% 50V
C813	1-163-245-11	CERAMIC CHIP 56PF	5% 50V
C814	1-161-051-00	CERAMIC 0.01MF	10% 50V
C815	1-136-153-00	FILM 0.01MF	5% 50V
C821	1-124-584-00	ELECT 100MF	20% 10V
C822	1-126-163-11	ELECT 4.7MF	20% 35V
C823	1-126-320-11	ELECT 10MF	20% 16V
C824	1-163-127-00	CERAMIC CHIP 270PF	5% 50V
C851	1-161-051-00	CERAMIC 0.01MF	10% 50V
C852	1-124-584-00	ELECT 100MF	20% 10V
C853	1-126-160-11	ELECT 1MF	20% 50V
C854	1-126-160-11	ELECT 1MF	20% 50V
C855	1-126-160-11	ELECT 1MF	20% 50V
C856	1-126-160-11	ELECT 1MF	20% 50V
<u>CONNECTOR</u>			
CN801*	1-564-518-11	PLUG, CONNECTOR 3P	
CN802*	1-564-521-11	PLUG, CONNECTOR 6P	
CN803*	1-564-522-11	PLUG, CONNECTOR 7P	
CN804*	1-564-525-11	PLUG, CONNECTOR 10P	
CN807	1-564-523-11	PLUG, CONNECTOR 8P	



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<u>DIODE</u>				<u>RESISTOR</u>			
D851	8-719-800-76	DIODE 1SS226		R801	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
D853	8-719-800-76	DIODE 1SS226		R802	1-216-063-00	METAL GLAZE 3.9K	5% 1/10W
D855	8-719-158-49	DIODE RD12SB2		R803	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
D856	8-719-158-49	DIODE RD12SB2		R804	1-216-689-11	METAL GLAZE 39K	5% 1/10W
D857	8-719-159-12	DIODE RD5.1SB2-T2		R805	1-216-091-00	METAL GLAZE 56K	5% 1/10W
D858	8-719-159-12	DIODE RD5.1SB2-T2		R806	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
D859	8-719-159-12	DIODE RD5.1SB2-T2		R807	1-216-095-00	METAL GLAZE 82K	5% 1/10W
D860	8-719-159-12	DIODE RD5.1SB2-T2		R808	1-216-073-00	METAL GLAZE 10K	5% 1/10W
D862	8-719-800-76	DIODE 1SS226		R809	1-216-085-00	METAL GLAZE 33K	5% 1/10W
D863	8-719-800-76	DIODE 1SS226		R810	1-216-025-91	METAL GLAZE 100	5% 1/10W
D864	8-719-404-46	DIODE MA110		R811	1-216-025-91	METAL GLAZE 100	5% 1/10W
D865	8-719-404-46	DIODE MA110		R812	1-216-025-91	METAL GLAZE 100	5% 1/10W
D866	8-719-800-76	DIODE 1SS226		R813	1-216-025-91	METAL GLAZE 100	5% 1/10W
D867	8-719-800-76	DIODE 1SS226		R814	1-216-035-00	METAL GLAZE 270	5% 1/10W
D868	8-719-800-76	DIODE 1SS226		R815	1-216-121-00	METAL GLAZE 1M	5% 1/10W
D870	8-719-159-12	DIODE RD5.1SB2-T2		R816	1-216-081-00	METAL GLAZE 22K	5% 1/10W
D871	8-719-404-46	DIODE MA110		R821	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
D872	8-719-404-46	DIODE MA110		R822	1-216-089-00	METAL GLAZE 47K	5% 1/10W
<u>FILTER</u>				R823	1-216-089-00	METAL GLAZE 47K	5% 1/10W
FL801	1-236-058-21	ENCAPSULATED COMPONENT		R824	1-216-049-91	METAL GLAZE 1K	5% 1/10W
FL802	1-236-058-21	ENCAPSULATED COMPONENT		R831	1-216-025-91	METAL GLAZE 100	5% 1/10W
FL851	1-236-058-21	ENCAPSULATED COMPONENT		R832	1-216-025-91	METAL GLAZE 100	5% 1/10W
FL852	1-236-058-21	ENCAPSULATED COMPONENT		R833	1-216-049-91	METAL GLAZE 1K	5% 1/10W
FL853	1-236-058-21	ENCAPSULATED COMPONENT		R834	1-216-617-11	METAL CHIP 39	0.50%1/10W
<u>IC</u>				R835	1-216-617-11	METAL CHIP 39	0.50%1/10W
IC801	8-752-057-43	IC CXA1616S		R836	1-216-617-11	METAL CHIP 39	0.50%1/10W
IC802	8-759-338-37	IC 24LC211/P		R837	1-216-617-11	METAL CHIP 39	0.50%1/10W
IC803	8-759-054-26	IC HD74HC123AP		R838	1-216-665-11	METAL CHIP 3.9K	0.50%1/10W
IC851	8-759-065-85	IC MAX232N		R839	1-216-665-11	METAL CHIP 3.9K	0.50%1/10W
<u>JACK</u>				R840	1-216-025-91	METAL GLAZE 100	5% 1/10W
J801	*1-568-547-11	JACK, MINIATUER PIN		R841	1-216-665-11	METAL CHIP 3.9K	0.50%1/10W
J802	*1-568-547-11	JACK, MINIATUER PIN		R842	1-216-665-11	METAL CHIP 3.9K	0.50%1/10W
J803	*1-568-547-11	JACK, MINIATUER PIN		R843	1-216-037-00	METAL GLAZE 330	5% 1/10W
J804	1-562-227-31	RECEPTACLE, BNC		R844	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
J805	1-562-227-31	RECEPTACLE, BNC		R845	1-216-113-00	METAL GLAZE 470K	5% 1/10W
J806	1-562-227-31	RECEPTACLE, BNC		R848	1-216-113-00	METAL GLAZE 470K	5% 1/10W
J807	1-562-227-31	RECEPTACLE, BNC		R851	1-216-089-00	METAL GLAZE 47K	5% 1/10W
J808	1-562-227-31	RECEPTACLE, BNC		R852	1-216-025-91	METAL GLAZE 100	5% 1/10W
J809	1-750-628-11	SOCKET, DIN 8P		R853	1-216-025-91	METAL GLAZE 100	5% 1/10W
J810	1-750-002-11	CONNECTOR, D SUB 15P		R856	1-216-049-91	METAL GLAZE 1K	5% 1/10W
<u>TRANSISTOR</u>				R857	1-216-033-00	METAL GLAZE 220	5% 1/10W
Q801	8-729-119-76	TRANSISTOR 2SA1175-HFE		R858	1-216-017-00	METAL GLAZE 47	5% 1/10W
Q802	8-729-119-78	TRANSISTOR 2SC2785-HFE		R859	1-216-017-00	METAL GLAZE 47	5% 1/10W
Q821	8-729-119-78	TRANSISTOR 2SC2785-HFE		R860	1-216-659-11	METAL CHIP 2.2K	0.50%1/10W
Q822	8-729-119-78	TRANSISTOR 2SC2785-HFE		R861	1-216-089-00	METAL GLAZE 47K	5% 1/10W
<u>SWITCH</u>				R862	1-216-089-00	METAL GLAZE 47K	5% 1/10W
S801	1-692-623-11	SWITCH, TACTIL		R872	1-216-097-91	METAL GLAZE 100K	5% 1/10W
S802	1-570-845-11	SWITCH, SLIDE		<u>SWITCH</u>			
S803	1-570-145-11	SWITCH, SLIDE		S801	1-692-623-11	SWITCH, TACTIL	
S804	1-570-145-11	SWITCH, SLIDE		S802	1-570-845-11	SWITCH, SLIDE	
S805	1-554-949-21	SWITCH, SLIDE		S803	1-570-145-11	SWITCH, SLIDE	
				S804	1-570-145-11	SWITCH, SLIDE	
				S805	1-554-949-21	SWITCH, SLIDE	



The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
D658	$\Delta$ 8-719-911-19	DIODE 1SS119-25		L670	$\Delta$ 1-410-671-31	INDUCTOR 47UH	
D659	$\Delta$ 8-719-911-19	DIODE 1SS119-25		<u>IC LINK</u>			
D660	$\Delta$ 8-719-510-48	DIODE D1N20R		PS601	$\Delta$ 1-532-984-11	LINK, IC 2A/90V	
D661	$\Delta$ 8-719-510-64	DIODE S2LA20F		PS602	$\Delta$ 1-532-984-11	LINK, IC 2A/90V	
D662	$\Delta$ 8-719-510-64	DIODE S2LA20F		PS603	$\Delta$ 1-532-984-11	LINK, IC 2A/90V	
D663	$\Delta$ 8-719-510-64	DIODE S2LA20F		PS604	$\Delta$ 1-532-984-11	LINK, IC 2A/90V	
D664	$\Delta$ 8-719-018-84	DIODE D2S6M		<u>TRANSISTOR</u>			
D665	$\Delta$ 8-719-018-84	DIODE D2S6M		Q601	$\Delta$ 8-729-012-00	TRANSISTOR 2SC4507	
D666	$\Delta$ 8-719-911-19	DIODE 1SS119-25		Q603	$\Delta$ 8-729-119-78	TRANSISTOR 2SC2785-HFE	
D667	$\Delta$ 8-719-510-48	DIODE D1N20R		Q605	$\Delta$ 8-729-032-54	TRANSISTOR IRFI-840LF38	
D670	$\Delta$ 8-719-510-64	DIODE S2LA20F		Q606	$\Delta$ 8-729-032-54	TRANSISTOR IRFI-840LF38	
D671	$\Delta$ 8-719-510-64	DIODE S2LA20F		Q651	$\Delta$ 8-729-119-78	TRANSISTOR 2SC2785-HFE	
D672	$\Delta$ 8-719-911-19	DIODE 1SS119-25		Q652	$\Delta$ 8-729-119-78	TRANSISTOR 2SC2785-HFE	
D673	$\Delta$ 8-719-510-02	DIODE D1NS4		Q653	$\Delta$ 8-729-119-76	TRANSISTOR 2SA1175-HFE	
D674	$\Delta$ 8-719-510-02	DIODE D1NS4		Q654	$\Delta$ 8-729-119-78	TRANSISTOR 2SC2785-HFE	
D675	$\Delta$ 8-719-510-09	DIODE D10SC6M		Q655	$\Delta$ 8-729-119-76	TRANSISTOR 2SA1175-HFE	
D676	$\Delta$ 8-719-988-31	DIODE D10SC6MR		Q656	$\Delta$ 8-729-119-76	TRANSISTOR 2SA1175-HFE	
D677	$\Delta$ 8-719-025-10	DIODE D8LC20J		Q657	$\Delta$ 8-729-119-78	TRANSISTOR 2SC2785-HFE	
D678	$\Delta$ 8-719-054-01	DIODE D8LD40-F		Q660	$\Delta$ 8-729-119-76	TRANSISTOR 2SA1175-HFE	
D679	$\Delta$ 8-719-054-01	DIODE D8LD40-F		Q661	$\Delta$ 8-729-119-76	TRANSISTOR 2SA1175-HFE	
D682	$\Delta$ 8-719-911-19	DIODE 1SS119-25		Q662	$\Delta$ 8-729-209-15	TRANSISTOR 2SD2012	
D684	$\Delta$ 8-719-510-48	DIODE D1N20R		<u>RESISTOR</u>			
D685	$\Delta$ 8-719-911-19	DIODE 1SS119-25		R601	$\Delta$ 1-202-883-11	SOLID 680K 20% 1/2W	
D686	$\Delta$ 8-719-510-02	DIODE D1NS4		R602	$\Delta$ 1-260-328-11	CARBON 1K 5% 1/2W	
D687	$\Delta$ 8-719-110-72	DIODE RD30ESB2		R603	$\Delta$ 1-215-924-00	METAL OXIDE 15K 5% 3W F	
D689	$\Delta$ 8-719-911-19	DIODE 1SS119-25		R604	$\Delta$ 1-216-467-11	METAL OXIDE 56K 5% 2W F	
D690	$\Delta$ 8-719-911-19	DIODE 1SS119-25		R605	$\Delta$ 1-249-451-11	CARBON 2.2 5% 1/4W F	
<u>FUSE</u>				R606	$\Delta$ 1-249-389-11	CARBON 4.7 5% 1/4W F	
F601	$\Delta$ 1-578-233-41	FUSE (H.B.C.)		R607	$\Delta$ 1-216-467-11	METAL OXIDE 56K 5% 2W F	
	$\Delta$ 1-533-250-11	HOLDER, FUSE (F601)		R610	$\Delta$ 1-202-933-61	FUSIBLE 0.1 10% 1/2W F	
<u>IC</u>				R611	$\Delta$ 1-249-417-11	CARBON 1K 5% 1/4W	
IC601	$\Delta$ 8-749-922-70	IC STR-81145A		R612	$\Delta$ 1-249-441-11	CARBON 100K 5% 1/4W	
IC602	$\Delta$ 8-749-923-50	PHOTO COUPLER PC111YS		R613	$\Delta$ 1-215-469-00	METAL 100K 1% 1/4W	
IC603	$\Delta$ 8-759-077-25	IC IR3M02A		R615	$\Delta$ 1-247-889-00	CARBON 270K 5% 1/4W	
IC604	$\Delta$ 8-759-185-47	IC IR2112		R616	$\Delta$ 1-247-889-00	CARBON 270K 5% 1/4W	
IC651	$\Delta$ 8-759-701-56	IC NJM78M05FA		R617	$\Delta$ 1-249-436-11	CARBON 39K 5% 1/4W	
IC652	$\Delta$ 8-759-701-65	IC NJM79M05FA		R618	$\Delta$ 1-215-469-00	METAL 100K 1% 1/4W	
IC653	$\Delta$ 8-759-929-62	IC LM7812CT		R621	$\Delta$ 1-215-451-00	METAL 18K 1% 1/4W	
IC654	$\Delta$ 8-759-701-56	IC NJM78M05FA		R622	$\Delta$ 1-215-431-00	METAL 2.7K 1% 1/4W	
IC655	$\Delta$ 8-759-098-24	IC PC30RV11		R624	$\Delta$ 1-249-421-11	CARBON 2.2K 5% 1/4W	
IC656	$\Delta$ 8-759-103-93	IC UPC393C		R625	$\Delta$ 1-215-441-00	METAL 6.8K 1% 1/4W	
IC657	$\Delta$ 8-749-011-49	IC DM-54		R626	$\Delta$ 1-249-417-11	CARBON 1K 5% 1/4W	
<u>COIL</u>				R627	$\Delta$ 1-249-429-11	CARBON 10K 5% 1/4W	
L601	$\Delta$ 1-410-397-21	FERRITE BEAD INDUCTOR 1.1UH		R628	$\Delta$ 1-249-417-11	CARBON 1K 5% 1/4W	
L651	$\Delta$ 1-412-533-21	INDUCTOR 47UH		R629	$\Delta$ 1-249-429-11	CARBON 10K 5% 1/4W	
L652	$\Delta$ 1-412-533-21	INDUCTOR 47UH		R630	$\Delta$ 1-215-445-00	METAL 10K 1% 1/4W	
L653	$\Delta$ 1-412-525-31	INDUCTOR 10UH		R631	$\Delta$ 1-215-413-00	METAL 470 1% 1/4W	
L654	$\Delta$ 1-412-525-31	INDUCTOR 10UH		R632	$\Delta$ 1-249-389-11	CARBON 4.7 5% 1/4W F	
L655	$\Delta$ 1-412-533-21	INDUCTOR 47UH		R633	$\Delta$ 1-249-389-11	CARBON 4.7 5% 1/4W F	
L656	$\Delta$ 1-412-533-21	INDUCTOR 47UH		R634	$\Delta$ 1-215-880-00	METAL OXIDE 10 5% 2W F	
				R635	$\Delta$ 1-215-880-00	METAL OXIDE 10 5% 2W F	





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REF.NO.	PART NO.	DESCRIPTION	REMARK
R636	$\Delta$ 1-216-381-11	METAL OXIDE 0.22	5% 3W F
R637	$\Delta$ 1-535-303-00	LEAD, JUMPER (5.0MM)	
R638	$\Delta$ 1-535-303-00	LEAD, JUMPER (5.0MM)	
R639	$\Delta$ 1-535-303-00	LEAD, JUMPER (5.0MM)	
R640	$\Delta$ 1-249-436-11	CARBON 39K	5% 1/4W
R645	$\Delta$ 1-249-417-11	CARBON 1K	5% 1/4W
R646	$\Delta$ 1-249-424-11	CARBON 3.9K	5% 1/4W
R647	$\Delta$ 1-249-421-11	CARBON 2.2K	5% 1/4W
R649	$\Delta$ 1-249-436-11	CARBON 39K	5% 1/4W
R650	$\Delta$ 1-249-417-11	CARBON 1K	5% 1/4W
R651	$\Delta$ 1-249-433-11	CARBON 22K	5% 1/4W
R652	$\Delta$ 1-249-417-11	CARBON 1K	5% 1/4W
R653	$\Delta$ 1-249-423-11	CARBON 3.3K	5% 1/4W
R654	$\Delta$ 1-249-423-11	CARBON 3.3K	5% 1/4W
R655	$\Delta$ 1-249-425-11	CARBON 4.7K	5% 1/4W
R656	$\Delta$ 1-249-424-11	CARBON 3.9K	5% 1/4W
R657	$\Delta$ 1-249-417-11	CARBON 1K	5% 1/4W
R658	$\Delta$ 1-249-419-11	CARBON 1.5K	5% 1/4W
R659	$\Delta$ 1-249-423-11	CARBON 3.3K	5% 1/4W
R660	$\Delta$ 1-249-417-11	CARBON 1K	5% 1/4W
R661	$\Delta$ 1-249-436-11	CARBON 39K	5% 1/4W
R662	$\Delta$ 1-249-377-11	CARBON 0.47	5% 1/4W F
R663	$\Delta$ 1-249-377-11	CARBON 0.47	5% 1/4W F
R664	$\Delta$ 1-535-303-00	LEAD, JUMPER (5.0MM)	
R667	$\Delta$ 1-249-423-11	CARBON 3.3K	5% 1/4
R668	$\Delta$ 1-249-434-11	CARBON 27K	5% 1/4W
R670	$\Delta$ 1-215-446-00	METAL 11K	1% 1/4W
R671	$\Delta$ 1-215-431-00	METAL 2.7K	1% 1/4W
R673	$\Delta$ 1-249-405-11	CARBON 100	5% 1/4W F
R675	$\Delta$ 1-249-429-11	CARBON 10K	5% 1/4W
R677	$\Delta$ 1-249-421-11	CARBON 2.2K	5% 1/4W
R678	$\Delta$ 1-249-436-11	CARBON 39K	5% 1/4W
R679	$\Delta$ 1-249-423-11	CARBON 3.3K	5% 1/4W
R680	$\Delta$ 1-249-417-11	CARBON 1K	5% 1/4W
R682	$\Delta$ 1-249-429-11	CARBON 10K	5% 1/4W
R683	$\Delta$ 1-249-436-11	CARBON 39K	5% 1/4W
R684	$\Delta$ 1-249-429-11	CARBON 10K	5% 1/4W
R685	$\Delta$ 1-249-436-11	CARBON 39K	5% 1/4W
R686	$\Delta$ 1-249-441-11	CARBON 100K	5% 1/4W
R687	$\Delta$ 1-249-422-11	CARBON 2.7K	5% 1/4W
R688	$\Delta$ 1-249-422-11	CARBON 2.7K	5% 1/4W
R694	$\Delta$ 1-249-424-11	CARBON 3.9K	5% 1/4W
R696	$\Delta$ 1-249-405-11	CARBON 100	5% 1/4W F
R697	$\Delta$ 1-249-436-11	CARBON 39K	5% 1/4W
R698	$\Delta$ 1-249-424-11	CARBON 3.9K	5% 1/4W
R699	$\Delta$ 1-249-424-11	CARBON 3.9K	5% 1/4W
<u>RELAY</u>			
RY601	$\Delta$ 1-515-669-21	RELAY	
RY602	$\Delta$ 1-515-684-31	RELAY	
RY603	$\Delta$ 1-515-684-31	RELAY	
<u>TRANSFORMER</u>			
T601	$\Delta$ 1-424-505-11	TRANSFORMER, LINE FILTER	

REF.NO.	PART NO.	DESCRIPTION	REMARK
T602	$\Delta$ 1-429-148-11	TRANSFORMER, CONVERTER (PIT)	
T603	$\Delta$ 1-423-834-11	TRANSFORMER, CONVERTER (SBT)	
T604	$\Delta$ 1-429-154-11	TRANSFORMER, CONVERTER (PFT)	
<u>THERMISTOR</u>			
TH601	$\Delta$ 1-809-260-11	THERMISTOR, POWER	
<u>THERMISTOR</u>			
THP601	$\Delta$ 1-808-059-31	THERMISTOR, POSITIVE	
THP602	$\Delta$ 1-806-449-11	THERMISTOR (POSITIVE)	
<u>VARISTOR</u>			
VDR601	$\Delta$ 1-810-271-21	VARISTOR ZNR-14DK471U	
VDR602	$\Delta$ 1-809-201-21	VARISTOR	
.....			
DEFLECTION MCB ASSY (D BOARD) .....			
(BOARD PART NO. 1-657-360-11) (INCLUDING DA, DB BOARD)			
4-040-988-01 SPRING (B), TR RETAINER			
4-040-989-01 SPRING (A), TR RETAINER			
4-040-994-01 SPRING (BB), TR RETAINER			
4-041-004-01 SPRING (C), TR RETAINER			
* 4-381-908-01 INSULATOR (B)			
7-685-646-79 SCREW (3X8), TAPPING, (+) (BV)			
4-382-854-01 SCREW (M3X8), P, SW (+)			
<u>CAPACITOR</u>			
C001	1-128-526-11	ELECT 100MF	20% 25V
C002	1-128-526-11	ELECT 100MF	20% 16V
C003	1-128-526-11	ELECT 100MF	20% 25V
C004	1-107-908-11	ELECT 33MF	20% 50V
C005	1-107-908-11	ELECT 33MF	20% 50V
C006	1-128-526-11	ELECT 100MF	20% 16V
C007	1-128-528-11	ELECT 470MF	20% 25V
C008	1-162-318-11	CERAMIC 0.001MF	10% 500V
C009	1-128-526-11	ELECT 100MF	20% 25V
C010	1-128-526-11	ELECT 100MF	20% 25V
C011	1-106-365-00	MYLAR 0.0082MF	10% 100V
C012	1-107-929-11	ELECT 10MF	20% 50V
C013	1-137-366-11	FILM 0.0022MF	5% 50V
C014	1-136-173-00	FILM 0.47MF	5% 50V
C015	1-106-361-00	MYLAR 0.0056MF	10% 100V
C016	1-136-165-00	FILM 0.1MF	5% 50V
C017	1-136-165-00	FILM 0.1MF	5% 50V
C018	1-106-357-00	MYLAR 0.0039MF	10% 100V
C019	1-136-155-00	FILM 0.015MF	5% 50V
C020	1-136-156-00	FILM 0.018MF	5% 50V
C021	1-126-105-11	ELECT 1000MF	20% 25V











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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R107	1-216-449-11	METAL OXIDE 56	5% 2W F	*****			
R108	1-215-914-11	METAL OXIDE 330	5% 3W F	DA BOARD, COMPLETE			
R110	1-249-406-11	CARBON 120	5% 1/4W	*****			
R111	1-249-429-11	CARBON 10K	5% 1/4W	(BOARD PART NO. 1-657-358-12)			
R112	1-249-383-11	CARBON 1.5	5% 1/4W F				
R113	1-249-421-11	CARBON 2.2K	5% 1/4W				
R114 $\Delta$	1-215-455-91	METAL 27K	1% 1/4W	<u>CAPACITOR</u>			
R115 $\Delta$	1-215-433-91	METAL 3.3K	1% 1/4W	C101	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
R116 $\Delta$	1-215-445-91	METAL 10K	1% 1/4W	C102	1-104-563-11	FILM CHIP 0.1MF	5% 16V
R125	1-249-437-11	CARBON 47K	5% 1/4W	C103	1-104-551-11	FILM CHIP 0.01MF	5% 16V
R126	1-249-437-11	CARBON 47K	5% 1/4W	C104	1-126-396-11	ELECT CHIP 47MF	20% 16V
R127	1-249-384-11	CARBON 1.8	5% 1/4W F	C105	1-107-439-11	CERAMIC CHIP 0.001MF	10% 50V
R128	1-249-384-11	CARBON 1.8	5% 1/4W F	C106	1-126-401-11	ELECT CHIP 1MF	20% 50V
R129	1-218-748-11	METAL CHIP 220K	0.50% 1/16W	C107	1-104-559-11	FILM CHIP 0.047MF	5% 16V
R130	1-249-417-11	CARBON 1K	5% 1/4W	C108	1-126-401-11	ELECT CHIP 1MF	20% 50V
R138	1-215-863-11	METAL OXIDE 100	5% 1W F	C109	1-126-394-11	ELECT CHIP 10MF	20% 16V
R139	1-249-417-11	CARBON 1K	5% 1/4W	C110	1-126-396-11	ELECT CHIP 47MF	20% 16V
R141	1-215-473-00	METAL 150K	1% 1/4W	C111	1-126-395-11	ELECT CHIP 22MF	20% 16V
R142	1-215-473-00	METAL 150K	1% 1/4W	C112	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
R149	1-202-830-00	SOLID 10K	20% 1/2W	C113	1-107-439-11	CERAMIC CHIP 0.001MF	10% 50V
R150	1-249-403-11	CARBON 68	5% 1/4W	C114	1-162-913-11	CERAMIC CHIP 8PF	0.5PF 50V
R151	1-249-437-11	CARBON 47K	5% 1/4W	C115	1-162-913-11	CERAMIC CHIP 8PF	0.5PF 50V
R152	1-249-433-11	CARBON 22K	5% 1/4W	C116	1-135-091-91	TANTAL. CHIP 1MF	20% 16V
R153	1-249-385-11	CARBON 2.2	5% 1/4W	C117	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
<u>RELAY</u>				C118	1-135-091-91	TANTAL. CHIP 1MF	20% 16V
RY001	1-515-669-21	RELAY		C119	1-104-563-11	FILM CHIP 0.1MF	5% 16V
<u>SPARK GAP</u>				C120	1-126-399-11	ELECT CHIP 10MF	20% 35V
SG1	1-519-422-11	GAP, SPARK		C121	1-126-399-11	ELECT CHIP 10MF	20% 35V
SG2	1-519-422-11	GAP, SPARK		C122	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
SG3	1-519-422-11	GAP, SPARK		C123	1-107-439-11	CERAMIC CHIP 0.001MF	10% 50V
<u>TRANSFORMER</u>				C124	1-104-563-11	FILM CHIP 0.1MF	5% 16V
T1	1-423-769-11	TRANSFORMER, HORIZONTAL DRIVE		C125	1-107-443-11	CERAMIC CHIP 0.01MF	10% 50V
T2	1-429-146-11	TRANSFORMER, FERRITE (HOT)		C126	1-126-401-11	ELECT CHIP 1MF	20% 50V
T4	1-429-147-11	TRANSFORMER, FERRITE (LOT)		C127	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
T6 $\Delta$	1-453-154-22	TRANSFORMER ASSY. FLYBACK		C128	1-104-562-11	FILM CHIP 0.082MF	5% 16V
T7	1-424-555-11	TRANSFORMER, FERRITE (DFT)		C129	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
T8	1-423-405-12	TRANSFORMER, FERRITE (FRT)		C130	1-162-928-11	CERAMIC CHIP 120PF	5% 50V
<u>CRISTAL</u>				C131	1-164-315-11	CERAMIC CHIP 470PF	5% 50V
X101	1-760-040-11	VIBRATOR, CRYSTAL		C132	1-104-552-11	FILM CHIP 0.012MF	5% 16V
				C133	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C134	1-107-443-11	CERAMIC CHIP 0.01MF	10% 50V
				C135	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
				C136	1-104-540-11	FILM CHIP 0.0012MF	5% 50V
				C137	1-164-315-11	CERAMIC CHIP 470PF	5% 50V
				C138	1-126-401-11	ELECT CHIP 1MF	20% 50V
				C139	1-126-398-11	ELECT CHIP 4.7MF	20% 35V
				C140	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
				C141	1-104-545-11	FILM CHIP 0.0033MF	5% 16V
				C142	1-126-401-11	ELECT CHIP 1MF	20% 50V
				C143	1-104-539-11	FILM CHIP 0.001MF	5% 50V
				C144	1-126-396-11	ELECT CHIP 47MF	20% 16V
				C145	1-109-855-11	FILM CHIP 0.001MF	2% 50V
				C146	1-107-443-11	CERAMIC CHIP 0.01MF	10% 50V
				C147	1-164-217-11	CERAMIC CHIP 150PF	5% 50V
				C149	1-126-402-11	ELECT CHIP 2.2MF	20% 50V
				C150	1-126-402-11	ELECT CHIP 2.2MF	20% 50V



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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R116	1-218-708-11	METAL CHIP 4.7K	0.50%1/16W	R172	1-216-832-11	METAL GLAZE 8.2K	5% 1/16W
R117	1-218-858-11	METAL CHIP 3K	0.50%1/16W	R173	1-218-710-11	METAL CHIP 5.6K	0.50%1/16W
R118	1-218-694-11	METAL CHIP 1.2K	0.50%1/16W	R174	1-218-881-11	METAL CHIP 27K	0.50%1/16W
R119	1-218-716-11	METAL CHIP 10K	0.50%1/16W	R175	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R120	1-218-873-11	METAL CHIP 12K	0.50%1/16W				
R121	1-218-710-11	METAL CHIP 5.6K	0.50%1/16W	R176	1-216-837-11	METAL GLAZE 22K	5% 1/16W
R122	1-218-704-11	METAL CHIP 3.3K	0.50%1/16W	R177	1-216-009-00	METAL GLAZE 22	5% 1/10W
R123	1-218-733-11	METAL CHIP 51K	0.50%1/16W	R178	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R124	1-218-700-11	METAL CHIP 2.2K	0.50%1/16W	R179	1-216-853-11	METAL GLAZE 470K	5% 1/16W
R125	1-216-817-11	METAL GLAZE 470	5% 1/16W	R180	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R126	1-216-817-11	METAL GLAZE 470	5% 1/16W	R181	1-218-732-11	METAL CHIP 47K	0.50%1/16W
R127	1-218-738-11	METAL CHIP 82K	0.50%1/16W	R182	1-216-673-11	METAL CHIP 8.2K	0.50%1/10W
R128	1-218-748-11	METAL CHIP 220K	0.50%1/16W	R183	1-216-827-11	METAL GLAZE 3.3K	5% 1/16W
R129	1-249-437-11	CARBON 47K	5% 1/4W	R185	1-216-845-11	METAL GLAZE 100K	5% 1/16W
R130	1-218-724-11	METAL CHIP 22K	0.50%1/16W	R187	1-218-724-11	METAL CHIP 22K	0.50%1/16W
R131	1-218-889-11	METAL CHIP 56K	0.50%1/16W	R189	1-216-837-11	METAL GLAZE 22K	5% 1/16W
R132	1-218-716-11	METAL CHIP 10K	0.50%1/16W	R190	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R133	1-218-717-11	METAL CHIP 11K	0.50%1/16W	R195	1-218-702-11	METAL CHIP 2.7K	0.50%1/16W
R134	1-218-873-11	METAL CHIP 12K	0.50%1/16W	R196	1-218-881-11	METAL CHIP 27K	0.50%1/16W
R135	1-218-724-11	METAL CHIP 22K	0.50%1/16W	R200	1-218-851-11	METAL CHIP 1.5K	0.50%1/16W
R136	1-218-883-11	METAL CHIP 33K	0.50%1/16W	R201	1-218-724-11	METAL CHIP 22K	0.50%1/16W
R137	1-218-724-11	METAL CHIP 22K	0.50%1/16W	R203	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R138	1-216-841-11	METAL GLAZE 47K	5% 1/16W	R204	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R139	1-216-841-11	METAL GLAZE 47K	5% 1/16W	R205	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R140	1-216-841-11	METAL GLAZE 47K	5% 1/16W	R206	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R141	1-216-833-11	METAL GLAZE 10K	5% 1/16W	R207	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R142	1-216-841-11	METAL GLAZE 47K	5% 1/16W	R208	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R143	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R209	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R144	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R210	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R145	1-216-809-11	METAL GLAZE 100	5% 1/16W	R211	1-216-823-11	METAL GLAZE 1.5K	5% 1/16W
R146	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R213	1-218-700-11	METAL CHIP 2.2K	0.50%1/16W
R147	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R214	1-218-716-11	METAL CHIP 10K	0.50%1/16W
R148	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R215	1-216-829-11	METAL GLAZE 4.7K	5% 1/16W
R149	1-216-833-11	METAL GLAZE 10K	5% 1/16W	R216	1-216-833-11	METAL GLAZE 10K	5% 1/16W
R150	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R217	1-216-845-11	METAL GLAZE 100K	5% 1/16W
R151	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R218	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R152	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R219	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R153	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R220	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R154	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R221	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R155	1-216-821-11	METAL GLAZE 1K	5% 1/16W	R222	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R156	1-216-827-11	METAL GLAZE 3.3K	5% 1/16W	R223	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R157	1-216-049-91	METAL GLAZE 1K	5% 1/10W	R224	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R158	1-216-843-11	METAL GLAZE 68K	5% 1/16W	R225	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R159	1-216-841-11	METAL GLAZE 47K	5% 1/16W	R226	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R160	1-218-738-11	METAL CHIP 82K	0.50%1/16W	R227	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R161	1-216-837-11	METAL GLAZE 22K	5% 1/16W	R228	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R162	1-216-833-11	METAL GLAZE 10K	5% 1/16W	R229	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R163	1-216-823-11	METAL GLAZE 1.5K	5% 1/16W	R230	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R164	1-216-837-11	METAL GLAZE 22K	5% 1/16W	R232	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R165	1-216-829-11	METAL GLAZE 4.7K	5% 1/16W	R233	1-218-708-11	METAL CHIP 4.7K	0.50%1/16W
R166	1-216-834-11	METAL GLAZE 12K	5% 1/16W	R234	1-218-694-11	METAL CHIP 1.2K	0.50%1/16W
R167	1-216-851-11	METAL GLAZE 330K	5% 1/16W	R235	1-218-716-11	METAL CHIP 10K	0.50%1/16W
R168	1-216-833-11	METAL GLAZE 10K	5% 1/16W	R236	1-216-851-11	METAL GLAZE 330K	5% 1/16W
R169	1-216-835-11	METAL GLAZE 15K	5% 1/16W	R237	1-216-821-11	METAL GLAZE 1K	5% 1/16W
R170	1-216-839-11	METAL GLAZE 33K	5% 1/16W	R238	1-216-829-11	METAL GLAZE 4.7K	5% 1/16W
R171	1-218-724-11	METAL CHIP 22K	0.50%1/16W	R239	1-216-829-11	METAL GLAZE 4.7K	5% 1/16W
				R240	1-216-821-11	METAL GLAZE 1K	5% 1/16W

