

**SONY**<sup>®</sup>

TRINITRON<sup>®</sup> COLOR VIDEO MONITOR

**BVM-D20F1A**

CHASSIS NO. SCC-P31D-A

**BVM-D20F1E**

CHASSIS NO. SCC-G10E-A

**BVM-D20F1U**

CHASSIS NO. SCC-G09B-A

**BVM-D24E1WA**

CHASSIS NO. SCC-P31E-A

**BVM-D24E1WE**

CHASSIS NO. SCC-G10F-A

**BVM-D24E1WU**

CHASSIS NO. SCC-G09C-A



***Multiformat***

MAINTENANCE MANUAL

1st Edition

Serial No. 2000001 and Higher (ALL MODELS)

## **⚠ WARNING**

This manual is intended for qualified service personnel only.

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

## **⚠ WARNUNG**

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegebenen Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

## **⚠ AVERTISSEMENT**

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

### **WARNING!!**

**AN INSULATED TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.**

### **SAFETY-RELATED COMPONENT WARNING !!**

**COMPONENTS IDENTIFIED BY A ⚠ MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO 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 TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.**

### **ATTENTION!!**

**AFIN D'ÉVITER TOUT RISQUE D'ÉLECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ÊTRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.**

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

**LES COMPOSANTS IDENTIFIÉS PAR UNE MAPQUE ⚠ 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 PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.**

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**Section 1**  
**Operating Instructions**

This section is extracted from  
operation manual.

**SONY**

TRINITRON® COLOR VIDEO MONITOR

**BVM-D20F1U/D20F1E/D20F1A**

**BVM-D24E1WU/D24E1WE/D24E1WA**



***Multiformat***

OPERATION MANUAL English

1st Edition

Serial No. 2000001 and Higher

**WARNING**

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

**AVERTISSEMENT**

Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

Afin d'éviter tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.

**WARNING**

Um Feuergefahr und die Gefahr eines elektrischen Schlagens zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur einem Fachmann.

**ADVERTENCIA**

Para evitar incendios o el riesgo de electrocución, no exponga la unidad a la lluvia ni a la humedad.

Para evitar descargas eléctricas, no abra la unidad. En caso de avería, solicite los servicios de personal cualificado.

**ATTENZIONE**

Per evitare incendi o cortocircuiti, l'apparecchio non deve essere esposto alla pioggia o all'umidità.

Per evitare scosse elettriche, non aprite l'apparecchio. Per le riparazioni rivolgetevi solo a personale qualificato.

**CAUTION:**

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

**ATTENTION**

Il y a un risque d'explosion si la pile est mal insérée. Remplacer la pile uniquement par une pile de même type ou de type équivalent recommandé par le fabricant. Jeter les piles usées conformément aux instructions du fabricant.

**VORSICHT:**

Es besteht Explosionsgefahr, wenn die Batterie inkorrekt eingelegt wird. Es darf nur eine identische oder eine vom Hersteller empfohlene Batterie des gleichen Typs eingesetzt werden. Entladene Batterien sind nach den Anweisungen des Herstellers zu entsorgen.

**PRECAUCION**

Peligro de explosión en caso de haberse instalado incorrectamente la batería. Cambie sólo por una del mismo tipo o especificaciones equivalentes, de entre las recomendadas por el fabricante. Las baterías viejas se deben eliminar siguiendo las instrucciones del fabricante.

**ATTENZIONE:**

Pericolo di esplosione se la pila viene sostituita scorrettamente. Sostituirla solo con un'altra uguale o di un tipo equivalente consigliato dal fabbricante. Gettare via le pile usate secondo le istruzioni del fabbricante.

**Note**

The socket-outlet should be installed near the equipment and be easily accessible.

**Remarque**

La prise doit être près de l'appareil et facile d'accès.

**Hinweis**

Zur Trennung vom Netz ist der Netzstecker aus der Steckdose zu ziehen, welche sich in der Nähe des Gerätes befinden muß und leicht zugänglich sein soll.

**Nota**

La toma mural debe estar instalada cerca del equipo y debe accederse a ésta con facilidad.

**Nota**

La presa di corrente deve essere situata vicino all'apparecchio e deve essere facilmente accessibile.

Apparaten ma kun tilkoples jordat stikkontakt

Apparaten må kun tilkoples jordat stikkontakt

WARNING: THIS WARNING IS APPLICABLE FOR USA ONLY.

If used in USA, use the UL LISTED power cord specified below. DO NOT USE ANY OTHER POWER CORD.

Plug Cap	Parallel blade with ground pin (NEMA 5-15P Configuration)
Cord Length	Type SVT, three 16 or 18 AWG wires Less than 2.5 m (8 ft 3 in)
Rating	Minimum 10 A, 125 V

Using this unit at a voltage other than 120V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

**For the customers in USA (BVM-D20F1U, BVM-D24E1WU)**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

**For the customers in Canada (BVM-D20F1U, BVM-D24E1WU)**

This Class A digital apparatus complies with Canadian ICES-003.

**Pour les utilisateurs au Canada (BVM-D20F1U, BVM-D24E1WU)**

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

The socket-outlet should be installed near the equipment and be easily accessible.

**For the customers in Europe (BVM-D20F1E/D20F1A, BVM-D24E1WE/D24E1WA)**

This product with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60950: Product Safety
- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environment(s): E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors) and E4 (controlled EMC environment, ex. TV studio).

**Pour les clients européens (BVM-D20F1E/D20F1A, BVM-D24E1WE/D24E1WA)**

Ce produit portant la marque CE est conforme à la fois à la Directive sur la compatibilité électromagnétique (EMC) (89/336/CEE) et à la Directive sur les basses tensions (73/23/CEE) émises par la Commission de la Communauté européenne.

La conformité à ces directives implique la conformité aux normes européennes suivantes:

- EN60950: Sécurité des produits
- EN55103-1: Interférences électromagnétiques (émission)
- EN55103-2: Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans les environnements électromagnétiques suivants: E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4 (environnement EMC contrôlé ex. studio de télévision).

**Für Kunden in Europa (BVM-D20F1E/D20F1A, BVM-D24E1WE/D24E1WA)**

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt sowohl die EMV-Direktive (89/336/EEC) als auch die Direktive Niederspannung (73/23/EEC) der EG-Kommission. Die Erfüllung dieser Direktiven bedeutet Konformität für die folgenden Europäischen Normen:

- EN60950: Produktsicherheit
- EN55103-1: Elektromagnetische Interferenz (Emission)
- EN55103-2: Elektromagnetische Empfindlichkeit (Immunität)

Dieses Produkt ist für den Einsatz unter folgenden elektromagnetischen Bedingungen ausgelegt: E1 (Wohnbereich), E2 (kommerzieller und in beschränktem Maße industrieller Bereich), E3 (Stadtgebiet im Freien) und E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio)



**Voor de klanten in Nederland**

Bij dit produkt zijn batterijen geleverd.  
Wanneer deze leeg zijn, moet u ze niet  
weggooien maar inleveren als KCA.

- Dit apparaat bevat een Li-ion batterij voor memory back-up.
- De batterij voor memory back-up is vastgesoldeerd op de BC printplaat BAT1.
- Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat bij einde levensduur afdankt.
- Gooi de batterij niet weg, maar lever hem in als KCA.

**Note**

Be sure to use the supplied power cord for this monitor, or this monitor may not conform with the FCC Rules or EEC Directive 89/336/EEC.

**Remarque**

Utiliser le cordon d'alimentation fourni pour ce moniteur, sinon il pourrait ne pas être conforme aux règles FCC ou à la directive CEE 89/336/EEC.

**Hinweis**

Dieser Monitor darf ausschließlich mit dem mitgelieferten Netzkabel betrieben werden, weil anderenfalls der Monitor nicht mehr die FCC-Vorschriften oder die EG-Richtlinie 89/336/EWG erfüllt.

**Nota**

Utilice sin falta el cable eléctrico que viene con este monitor; de lo contrario el monitor puede no cumplir con los reglamentos de la FCC o de la directiva 89/336/EEC de la Comunidad Europea.

**Nota**

Assicurarsi di usare il cavo di alimentazione in dotazione per questo monitor, altrimenti il monitor può non essere conforme alle norme FCC o alla Direttiva CEE/89/336.

**For the customers in United Kingdom (BVM-D20F1E/D20F1A, BVM-D24E1WE/D24E1WA)****WARNING****THIS APPARATUS MUST BE EARTHED****IMPORTANT**

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows: The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  $\perp$  or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Ensure that your equipment is connected correctly - if you are in any doubt consult a qualified electrician.

**ATTENTION - When the product is installed in a rack:****a) Elevated operating ambient temperature**

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacture's maximum rated ambient temperature (T<sub>mra</sub>: 0°C to 35°C (32°F to 95°F)).

**b) Reduced air flow**

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

**c) Mechanical loading**

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

**d) Circuit overloading**

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

**e) Reliable earthing**

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

**f) Gap keeping**

Upper and lower gap of rack-mounted equipment should be kept 44 mm (1 3/4 inches).

**Achtung - bei Installation des Geräts in einem Gestell:****a) Erhöhte Umgebungstemperatur bei Betrieb**

Wird das Gerät in einem geschlossenen Gestell oder einem Gestell mit mehreren anderen Geräten installiert, kann die Umgebungstemperatur um das Gestell höher sein als die normale Umgebungstemperatur im Raum. Achten Sie daher bitte besonders darauf, das Gerät in einer Umgebung zu installieren, in der die Temperatur nicht über die vom Hersteller angegebene Umgebungstemperatur von 0 bis 35 °C (32 °F bis 95 °F) ansteigt (T<sub>mra</sub>).

**b) Reduzierte Belüftung**

Das Gerät muß so im Gestell installiert werden, daß eine Belüftung gewährleistet ist, die für den sicheren Betrieb des Geräts erforderlich ist.

**c) Mechanische Belastung**

Das Gerät muß so im Gestell installiert werden, daß nicht durch eine ungleichmäßige mechanische Belastung Unfallgefahr entsteht.

**d) Überlastung der Stromkreise**

Der Anschluß des Geräts an das Versorgungsnetz erfordert sorgfältige Planung. Bitte beachten Sie insbesondere die Auswirkungen, die eine Überlastung der Stromkreise im Hinblick auf den Überspannungsschutz und die physischen Komponenten des Versorgungsnetzes haben kann. Beachten Sie in diesem Zusammenhang unbedingt die Angaben auf dem Typenschild am Gerät.

**e) Zuverlässige Erdung**

Geräte, die in einem Gestell installiert werden, benötigen eine zuverlässige Erdung. Achten Sie insbesondere auf Anschlüsse an das Versorgungsnetz, die nicht direkt an einen Abzweigstromkreis, sondern indirekt, zum Beispiel über Verlängerungskabel, erfolgen.

**f) Erforderliche Abstände**

Halten Sie zur Ober- und Unterseite eines in einem Gestell installierten Geräts einen Abstand von 44 mm (1 3/4 inches) ein.

**ATTENTION - When the product is installed in a rack:**

- a) Elevated operating ambient temperature**  
If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacture's maximum rated ambient temperature (T<sub>mra</sub>: 0°C to 35°C (32°F to 95°F)).
- b) Reduced air flow**  
Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- c) Mechanical loading**  
Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- d) Circuit overloading**  
Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- e) Reliable earthing**  
Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).
- f) Gap keeping**  
Upper and lower gap of rack-mounted equipment should be kept 44 mm (1 3/4 inches).

**Achtung - bei Installation des Geräts in einem Gestell:**

- a) Erhöhte Umgebungstemperatur bei Betrieb**  
Wird das Gerät in einem geschlossenen Gestell oder einem Gestell mit mehreren anderen Geräten installiert, kann die Umgebungstemperatur um das Gestell höher sein als die normale Umgebungstemperatur im Raum. Achten Sie daher bitte besonders darauf, das Gerät in einer Umgebung zu installieren, in der die Temperatur nicht über die vom Hersteller angegebene Umgebungstemperatur von 0 bis 35 °C (32 °F bis 95 °F) ansteigt (T<sub>mra</sub>).
- b) Reduzierte Belüftung**  
Das Gerät muß so im Gestell installiert werden, daß eine Belüftung gewährleistet ist, die für den sicheren Betrieb des Geräts erforderlich ist.
- c) Mechanische Belastung**  
Das Gerät muß so im Gestell installiert werden, daß nicht durch eine ungleichmäßige mechanische Belastung Unfallgefahr entsteht.
- d) Überlastung der Stromkreise**  
Der Anschluß des Geräts an das Versorgungsnetz erfordert sorgfältige Planung. Bitte beachten Sie insbesondere die Auswirkungen, die eine Überlastung der Stromkreise im Hinblick auf den Überspannungsschutz und die physischen Komponenten des Versorgungsnetzes haben kann. Beachten Sie in diesem Zusammenhang unbedingt die Angaben auf dem Typenschild am Gerät.
- e) Zuverlässige Erdung**  
Geräte, die in einem Gestell installiert werden, benötigen eine zuverlässige Erdung. Achten Sie insbesondere auf Anschlüsse an das Versorgungsnetz, die nicht direkt an einen Abzweigstromkreis, sondern indirekt, zum Beispiel über Verlängerungskabel, erfolgen.
- f) Erforderliche Abstände**  
Halten Sie zur Ober- und Unterseite eines in einem Gestell installierten Geräts einen Abstand von 44 mm (1 3/4 inches) ein.

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## Chapter 3 Appendix

## Precautions

**On safety**

- Operate the unit only with a power source as specified in “Specifications” section.
- The nameplate indicating operating voltage, power consumption, etc., is located at the rear.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Do not drop or place heavy objects on the power cord. If the power cord is damaged, turn off the power immediately. It is dangerous to use the unit with a damaged power cord.
- Unplug the unit from the wall outlet if it is not to be used for several days or more.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

**On installation**

- Allow adequate air circulation to prevent internal heat build-up.  
Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

**On cleaning**

To keep the unit looking brand-new, periodically clean it with a mild detergent solution. Never use strong solvents such as thinner or benzine, or abrasive cleansers since they will damage the cabinet. As a safety precaution, unplug the unit before cleaning it.

**On repacking**

Do not throw away the carton and packing materials. They make an ideal container which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

If you have any questions about this unit, contact your authorized Sony dealer.

**On rack mounting**

When the monitor is mounted on a rack, the temperature around the monitor may rise due to heat generated from other equipment and reduced air circulation, causing damage to the monitor. To prevent this, keep ventilation holes, install a ventilation fan or take other effective countermeasures so that the temperature around the monitor is within the specified range: operating temperature of 0 to 35 °C (32 to 95°F), optimum temperature of 20 to 30°C (68 to 86°F).

**On magnetism**

- Do not place the unit near any objects or pieces of equipment which generate magnetism, such as magnets, speakers, electric clocks, toys using magnets, health appliances, etc. Magnetism will cause picture bounce, oscillations or picture discoloration.
- Also, the picture may become fuzzy or the colors may not reproduce correctly due to earth magnetism. This depends on direction that the unit is installed. This is not equipment failure. In such a case, simply degauss the unit.

**On the CRT**

- Dust accumulates on the CRT easily. Clean the CRT when necessary with a soft cloth.  
The surface of the CRT is easily scratched; therefore, do not rub or touch the surface of the CRT unnecessarily since this may result in a scratched picture tube.
- If you touch the surface of the CRT, you may feel a weak electrical shock. This is simply static electricity that is generated on the surface of the CRT. It will not affect the human body.

**On displaying the 4:3 signal (BVM-D20F1U/D20F1E/D20F1A only)**

The 16:9 mask has been attached to the BVM-D20F1U/D20F1E/D20F1A at the factory. If the 16:9 button is pressed to change to the 4:3 aspect mode in this condition, the upper and lower portions of the image is hidden by the mask. To display the 4:3 image, replace the 16:9 mask with the supplied 4:3 mask.

For details, see “Installation of the 4:3 Mask” on page 21.

## Overview

The BVM-D20F1U/D20F1E/D20F1A are 20-inch<sup>1)</sup> Trinitron<sup>®2)</sup> Color Video Monitors. The BVM-D24E1WU/D24E1WE/D24E1WA are 24-inch<sup>1)</sup> Trinitron<sup>®2)</sup> Color Video Monitors. They are suitable for television stations or video production houses, where precise image reproduction is required.

### Features

#### Multiformat

The monitor supports the principal formats (480I/480P/720P/1080I) for the digital broadcasts, NTSC and PAL color systems, and a wide variety of signals<sup>3)</sup> whose horizontal frequency is between 15 kHz and 45 kHz.

#### High resolution picture tube

The HR Trinitron picture tube produces a clear, high resolution image.

Model	Aperture grille pitch	Resolution at the center of the picture
BVM-D20F1U/ D20F1E/D20F1A	0.3 mm	900 TV lines (4:3) 700 TV lines (16:9)
BVM-D24E1WU/ D24E1WE/ D24E1WA	0.25-0.28 mm	1000 TV lines (4:3, 16:9)

#### Separate control unit

Using a separate control unit reduces the space needed for the equipment.

The monitor is controlled by a separate control unit, such as an optional BKM-10R/11R Monitor Control Unit or by daisy chain connections. The BVM-D20F1U/D20F1E/D20F1A can be connected to the BKM-10R via an optional BKM-32H Monitor Control Unit Attachment Kit; the BVM-D24E1WU/D24E1WE/D24E1WA via a BKM-34H.

#### Controlling monitor groups

Up to 32 monitors can be controlled from one control unit by the RS-485 serial remote connections. You can control individual monitors or monitor groups simply by entering monitor address or group numbers. You can also execute the same operation on all connected monitors, or put all connected monitors into the same setup and adjustment state.

- 1) 20-inch and 24-inch refer to the CRT size of the monitor. For effective picture size, see "Specifications" on page 61.
- 2) Trinitron<sup>®</sup> is a registered trademark of Sony Corporation.
- 3) For details on the signal format, see "Available Signal Formats" on page 63.

#### Setup and adjustment with the Monitor Memory Card

You can use an optional BKM-12Y Monitor Memory Card to save and load monitor setup and adjustment data via the BKM-10R/11R Monitor Control Unit. If your system includes more than one monitor, you can use the monitor memory cards to exchange data between monitors. This makes it easy to put all monitors in your system into the same setup and adjustment state.

#### Auto chroma/phase and white balance functions

The chroma and phase of the decoder are automatically adjusted with the auto chroma and phase function and the color temperature is automatically adjusted with the auto white balance function by using the BKM-14L Auto Setup Probe, etc.

#### Safe area display

The safe area display function equipped as standard displays the important image area.

#### Expandable input capability

The monitor is equipped with one channel of YPbPr/GBR input connectors at the factory. The input connector configuration can be easily modified by simply inserting the optional decoder adaptor or the input expansion adaptor into the input option slot at the rear of the monitor. Up to four adaptors can be installed.

#### Stable color temperature

The internal beam current feedback circuit maintains a constant color temperature over long periods of time.

#### Blue-only mode convenient for monitoring noise

All three CRT cathodes can be driven with a blue signal, producing a monochrome display. This mode is convenient for chroma and phase adjustment, and for monitoring VTR noise.

#### Matrix selection

The ITU-601, ITU-709 and SMPTE-240M matrix modes can be selected for individual input signals.

#### Beam landing correction circuit (BVM-D24E1WU/D24E1WE/D24E1WA only)

The beam landing shift caused by the change in CRT luminance and temperature, and that caused by the earth's magnetism can be adjusted manually, or automatically using the optional BKM-14L auto setup probe.

#### Digital uniformity circuit (BVM-D24E1WU/D24E1WE/D24E1WA only)

Uniform white can be reproduced on every point of the screen, even in the peripheral area, thanks to the built-in digital uniformity circuit. The uniformity can be adjusted to match the installation conditions of the monitor. Automatic adjustment is also possible using the optional BKM-14L auto setup probe.

#### Other features

- The monitor's various functions and operating conditions can be set with on-screen menus.
- Compatible with the ISR (Interactive Status Reporting) system.
- Has both RS-485 serial remote and relay contact parallel remote control connectors.
- Built-in test signal generator for crosshatch, 100% white signal, 20% gray signal, gray scale, and PLUGE (Picture Line Up Generating Equipment).
- Built-in Caption Vision decoder.
- Pulse cross function for simultaneous checking of the horizontal and vertical synchronization signals.
- Auto and manual degaussing.
- Built-in CRT protection circuit.
- The monitor may be mounted in an EIA-standard 19-inch rack, using an optional BKM-30E20 Rack Mount Kit (BVM-D20F1U/D20F1E/D20F1A only).
- The appearance of the monitor can be changed to 16:9 or 4:3 display by the replacement of a mask (BVM-D20F1U/D20F1E/D20F1A only).

## Options

### For external control

#### BKM-10R Monitor Control Unit BKM-11R Monitor Control Unit

A controller, allowing you to control multiple monitors from one control unit.

#### BKM-12Y Monitor Memory Card

Memory cards which can be read and written by the BKM-10R/11R.

#### BKM-14L Auto Setup Probe

A probe, allowing the automatic adjustment of this monitor's color temperature. For the BVM-D24E1WU/D24E1WE/D24E1WA, the probe is also used for white uniformity adjustment.

### For installation

#### BKM-30E20 Rack Mount Kit

Rack mount kit for mounting the BVM-D20F1U/D20F1E/D20F1A in an EIA standard 19-inch rack.

#### BKM-32H Monitor Control Unit Attachment Kit

Assembly kit for attaching a BKM-10R Monitor Control Unit to the BVM-D20F1U/D20F1E/D20F1A.

#### BKM-34H Monitor Control Unit Attachment Kit

Assembly kit for attaching a BKM-10R Monitor Control Unit to the BVM-D24E1WU/D24E1WE/D24E1WA.

## Overview

### Decoder and input expansion adaptors

The input connector panel is configured by sliding the optional decoder adaptor or input expansion adaptor into the input option slot at the rear of the monitor. Up to four adaptors can be installed to the monitor. The input signal type for each connector of the adaptor is set with the INPUT CONFIGURATION menu, in accordance with the configuration of the connector panel.

#### Note

When installing the adaptor, be sure to perform the necessary input signal setup with the INPUT CONFIGURATION menu. If the setup is not performed, the adaptors may not function correctly.

For information about the INPUT CONFIGURATION menu, see “[C1] Setting the Input Configuration (SET UP 1) — INPUT CONFIGURATION Menu” on page 35.

#### BKM-20D SDI 4:2:2 Decoder Adaptor

Includes decoders for serial digital component signals (525/625). Input/output connectors for three serial digital channels (component inputs only) and three analog channels.

#### BKM-21D SDI Multi Decoder Adaptor

Includes decoders for serial digital signals (525/625 component and NTSC/PAL composite) and analog composite signals (NTSC and PAL). Input/output connectors for three serial digital channels and three analog channels are equipped.

#### BKM-22X SDI Input Expansion Adaptor

Increases the number of input/output channels. Includes input/output connectors for three serial digital channels and three analog channels.

#### BKM-24N NTSC Decoder Adaptor

Includes decoders for analog composite NTSC signals and input/output connectors for six analog channels.

#### BKM-25P PAL Decoder Adaptor

Includes decoders for analog composite PAL signals and input/output connectors for six analog channels.

#### BKM-26M PAL-M Decoder Adaptor

Includes decoders for analog composite PAL-M signals and input/output connectors for six analog channels.

#### BKM-27T Tri-Standard Decoder Adaptor

Includes decoders for analog composite NTSC, PAL, and SECAM signals and input/output connectors for six analog channels.

#### BKM-28X Analog Input Expansion Adaptor

Increases the number of input/output channels. Includes input/output connectors for six analog channels.

#### BKM-41HD HD SDI Input Adaptor (one HD SDI channel)

Includes a decoder for HD serial digital signals and input/output connectors for a serial digital signal channel and an analog signal channel.

#### BKM-42HD HD SDI Input Adaptor (two HD SDI channels)

Includes a decoder for HD serial digital signals and input/output connectors for two serial digital signal channels and an analog signal channel.

#### Notes

- The BKM-41HD and BKM-42HD use two input option slots.
- The signal from the MONITOR OUT connector of the BKM-41HD/42HD does not satisfy the ON-LINE signal specifications.

#### BKM-48X HD Analog Input Expansion Adaptor

Increases the number of input/output channels. Includes input/output connectors for six analog channels. For each input/output connector, either floating or ground can be selected by using the switch inside the board.

## Connector Panel Configuration

The unit comes standard with connectors for one channel of Y/Pb/Pr or GBR. By adding the optional decoder adaptor or input expansion adaptors, the input/output connector panel can be assembled in a wide variety of configurations. The signals that each of the adaptors' connectors supports are given in the table below. The type of signal to be applied to each input/output connector is set with the INPUT CONFIGURATION menu.

#### Notes

- One BKM-22X can be attached simultaneously with the BKM-20D or BKM-21D.
- The BKM-20D, BKM-21D and BKM-22X can not provide proper active-through outputs if a signal whose format is not selected in the INPUT CONFIGURATION menu is input. (If AUTO is selected, input a signal which has the same format with the signal monitored last.)

For information about the INPUT CONFIGURATION menu, see “[C1] Setting the Input Configuration (SET UP 1) — INPUT CONFIGURATION Menu” on page 35.

### Priority of the decoder adaptors

When multiple decoder adaptors for NTSC or PAL format are installed, their priority is as in the following table.

**Example:** To monitor the composite NTSC signal when the BKM-24N and BKM-27T are installed, the input composite NTSC signal is always decoded by the BKM-24N.

Input signal and its format	Decoder adaptor			
	BKM-24N	BKM-25P	BKM-27T	BKM-21D
Composite signal	NTSC	1	3	2
	PAL	1	3	2
YC signal	NTSC	1	2	
	PAL	1	2	

Signal format		Adaptor name		
		BKM-41HD HD SDI Input Adaptor	BKM-42HD HD SDI Input Adaptor	BKM-48X <sup>1)</sup> HD Analog Expansion Adaptor
Serial digital input	Component 525/625			
	Composite NTSC			
	Composite PAL			
	HD SDI	⊙	⊙	
Analog input	Composite NTSC			○
	Composite PAL			○
	Composite PAL-M			○
	Composite SECAM			○
	YPsPz 525/625	⊙	⊙	⊙
	GBR 525/625	⊙	⊙	⊙
	Y/C NTSC			○
	Y/C PAL			○
	Y/C PAL-M			○
	YPsPz/GBR 1080/48i	⊙	⊙	⊙
YPsPz/GBR 1080/50i	⊙	⊙	⊙	
YPsPz/GBR 575/50P	⊙	⊙	⊙	
YPsPz/GBR 480/60P	⊙	⊙	⊙	
YPsPz/GBR 1035/60i	⊙	⊙	⊙	
YPsPz/GBR 1080/60i	⊙	⊙	⊙	
YPsPz/GBR 720/60P	⊙	⊙	⊙	
Number of digital inputs		1	2	—
Number of analog input		1	1	6

- ⊙ Signal can be reproduced with this adaptor.
- Signal can be reproduced when using this adaptor together with an adaptor marked with ⊙.

1) Equipped with floating/non-floating ground mode selected for hum reduction.

(continued)

Overview

Adaptor name		BKM-20D SDI 4:2:2 Decoder Adaptor	BKM-21D SDI Multi Decoder Adaptor	BKM-22X SDI Input Expansion Adaptor	BKM-24N NTSC Decoder Adaptor	BKM-25P PAL Decoder Adaptor	BKM-26M PAL-M Decoder Adaptor	BKM-27T Tri- Standard Decoder Adaptor	BKM-28X Analog Input Expansion Adaptor
Serial digital input	Component 525/625	⊙	⊙	○					
	Composite NTSC	○	⊙	○					
	Composite PAL	○	⊙	○					
	HD SDI								
Analog input	Composite NTSC	○	⊙	○	⊙	○	○	⊙	○
	Composite PAL	○	⊙	○	○	⊙	○	⊙	○
	Composite PAL-M	○	○	○	○	○	⊙	○	○
	Composite SECAM	○	○	○	○	○	○	⊙	○
	YPaP <sub>R</sub> 525/625	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	GBR 525/625	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Y/C NTSC				⊙	○	○	⊙	○
	Y/C PAL				○	⊙	○	⊙	○
	Y/C PAL-M				○	○	⊙	○	○
	YPaP <sub>R</sub> /GBR 1080/48I								
	YPaP <sub>R</sub> /GBR 1080/50I								
	YPaP <sub>R</sub> /GBR 575/50P								
	YPaP <sub>R</sub> /GBR 480/60P								
	YPaP <sub>R</sub> /GBR 1035/60I								
	YPaP <sub>R</sub> /GBR 1080/60I								
	YPaP <sub>R</sub> /GBR 720/60P								
Number of digital inputs	3	3	3	-	-	-	-	-	
Number of analog input	3	3	3	6	6	6	6	6	

⊙ Signal can be reproduced with this adaptor.  
○ Signal can be reproduced when using this adaptor together with an adaptor marked with ⊙.

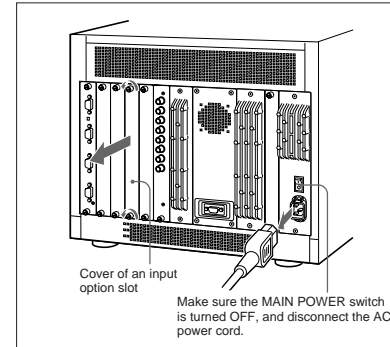
Installing a Decoder Adaptor

Each decoder adaptor can be installed in any input option slot.

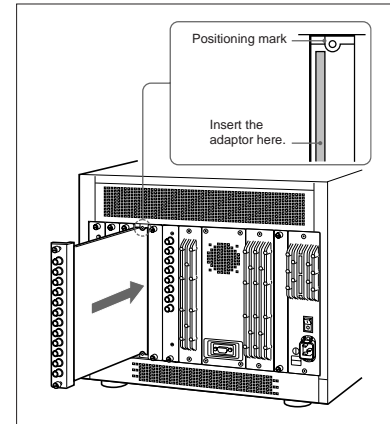
Note

Turn off the main power of the monitor and disconnect the AC power cord before installing or removing adaptors.

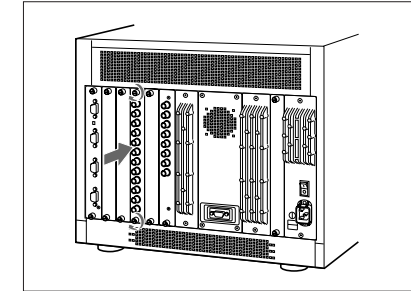
- 1 Remove the cover of an input option slot on the rear panel of the monitor.



- 2 Insert the adaptor under the positioning mark on the top of the slot (on the left of the screw hole).



- 3 Push the adaptor in until it is firmly seated in the connector inside the monitor, then tighten the two screws to secure the adaptor.



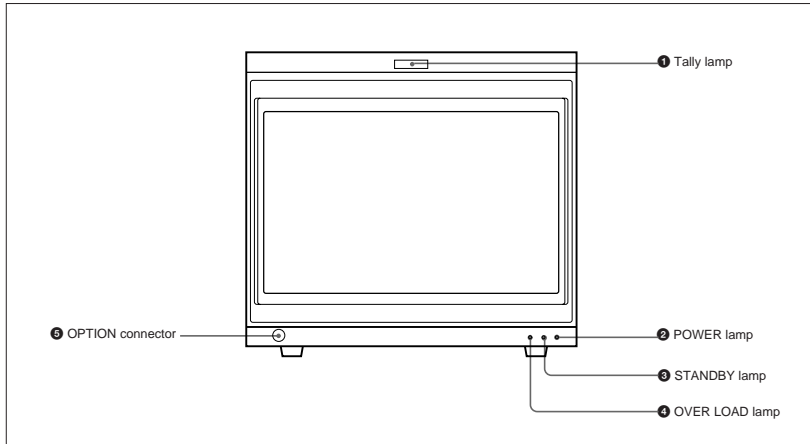
Note

Install the BKM-20D/21D SDI Decoder Adaptor after all other installations have been completed. If you insert another decoder adaptor or an analog input output connectors board or put a cover plate in the input option slot to the right of the BKM-20D/21D previously installed, the springs on the side of the BKM-20D/21D may be damaged or detached. To avoid this, remove the BKM-20D/21D temporarily while carrying out the other installations, then reinstall it last of all.

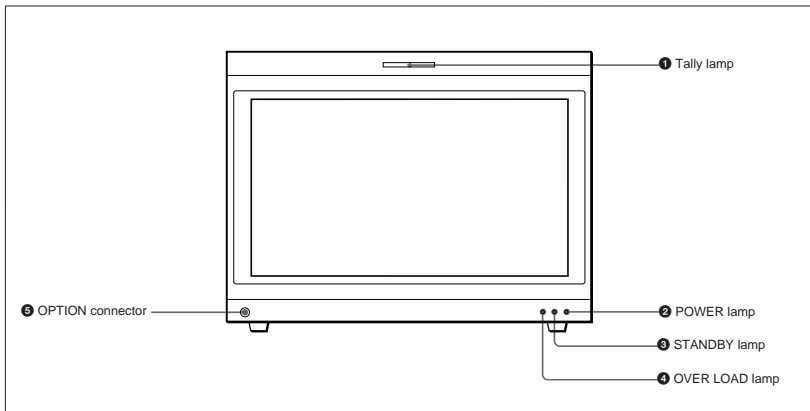
## Location and Function of Parts

### Front Panel

#### BVM-D20F1U/D20F1E/D20F1A



#### BVM-D24E1WU/D24E1WE/D24E1WA



#### 1 Tally lamp

With factory settings, the tally lamp lights when pins No. 8 and No. 9 of the REMOTE 2 connector on the rear panel are shorted. By changing the setting in the REMOTE menu, different pins on the remote connector can be used to control the tally lamp.

For information about the REMOTE menu, see "[C2] Assigning the Remote Control Functions (SET UP 2) — REMOTE Menu" on page 40.

#### 2 POWER lamp

Lights when the monitor is put into operation mode from standby mode (see STANDBY lamp 3) by pressing the POWER switch of the BKM-10R/11R.

#### Note

When the STANDBY lamp 3 is blinking, the monitor cannot be put into operation mode (internal data initialization is taking place). Wait until the STANDBY lamp 3 is steadily lit.

#### 3 STANDBY lamp

Lights when the monitor is in standby mode. The monitor will be in standby mode under the following conditions:

- The MAIN POWER switch (on the rear panel) is turned on (the STANDBY lamp will blink for a few moments after the switch is turned on, then will light).
- The monitor is changed from operation mode to standby mode by external control.

#### 4 OVER LOAD lamp

Lights to warn of CRT overload. When the OVER LOAD lamp is lit, use the unit with the contrast or brightness reduced.

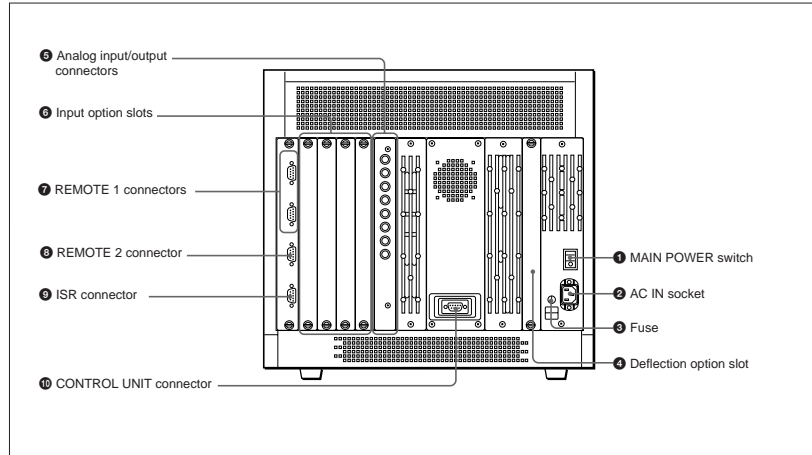
#### 5 OPTION connector

Used to connect the BKM-11R Monitor Control Unit or a auto setup probe (BKM-14L, etc).

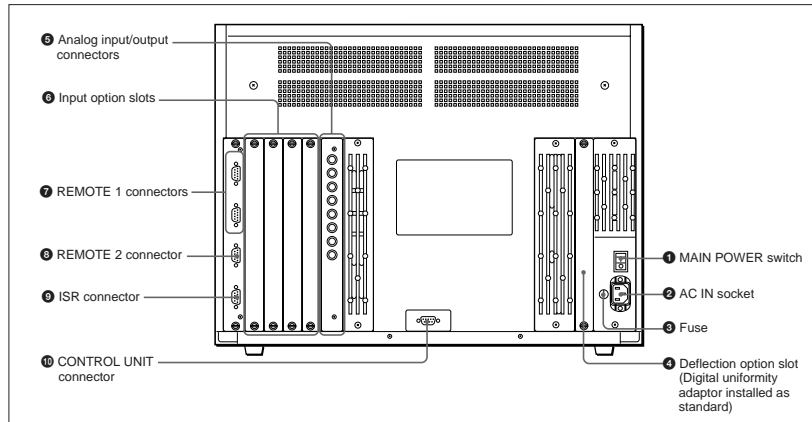
Location and Function of Parts

Rear Panel

BVM-D20F1U/D20F1E/D20F1A



BVM-D24E1WU/D24E1WE/D24E1WA



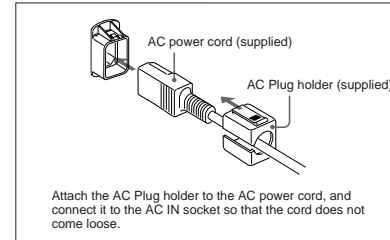
1 MAIN POWER switch

When turned on, the monitor enters operation mode. By setting in the SYSTEM CONFIGURATION menu, the monitor can also be set to enter standby mode when the MAIN POWER switch is turned on.

For information about the SYSTEM CONFIGURATION menu, see " [C4] Setting the Channel Selection Method, Power-Up Conditions and Decoder (SET UP 4) — SYSTEM CONFIGURATION Menu" on page 44.

2 AC IN socket (3-pin)

Connects the monitor to an AC power source, via the supplied AC power cord.



3 Fuse

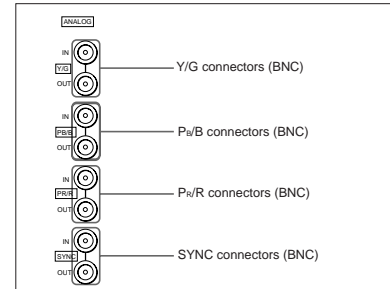
Use a T4AH fuse.

4 Deflection option slot

For the BVM-D24E1WU/D24E1WE/D24E1WA, the digital uniformity adaptor has been installed at the factory.

For the BVM-D20F1U/D20F1E/D20F1A, this slot is provided for future use.

5 Analog input/output connectors



GBR signals, component signals (Y/P<sub>b</sub>/P<sub>r</sub>), or composite sync signals can be fed in the IN connectors. The type of signal applied to each connector is set with the INPUT CONFIGURATION menu. The OUT connectors are used for loop-through output of the input signal. When not using loop-through, connect a 75-ohm terminator (not supplied) to the OUT connectors.

For information about the INPUT CONFIGURATION menu, see " [C1] Setting the Input Configuration (SET UP 1) — INPUT CONFIGURATION Menu" on page 35.

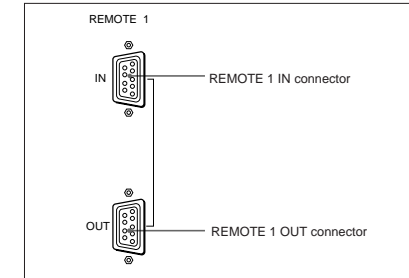
6 Input option slots

The monitor may be fitted with optional decoder adaptors.

Note

The BKM-41HD and BKM-42HD use two input option slots.

7 REMOTE 1 connectors (female, D-sub 9-pin)



These are RS-485 serial interface connectors, used for connecting two or more BVM-Dxx, BVM-xxE/F/G and HDM-xxE series monitors.

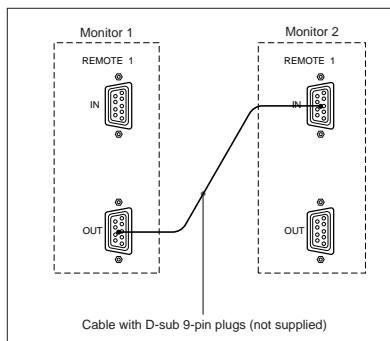
The IN and OUT connectors form a loop-through connection.

Connect two monitors using a cable with D-sub 9-pin plugs such as an RCC-5G (not supplied) as shown in the figure on the next page.

(continued)

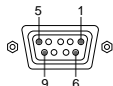


## Location and Function of Parts



### 9 REMOTE 2 connector (female, D-sub 9-pin)

Forms a parallel switch and controls the monitor externally. The pin assignment and factory setting function assigned to each pin are given below.



Pin number	Function
1	Set input signal channel 1 (numeric keypad function)
2	Set input signal channel 2 (numeric keypad function)
3	Select sync signal (SYNC button function)
4	Set the screen to monochrome, or set for automatic switching based on the input signal (MONO MODE button function)
5	Safe area on/off (SAFE AREA button function)
6, 7	Not connected
8	Tally lamp on/off
9	Ground

All pin function assignments can be changed with the REMOTE menu.

For information about the REMOTE menu, see “[C2](#) Assigning the Remote Control Functions (SET UP 2) — REMOTE Menu” on page 40.

To switch each function between on and off or between enable and disable, change pin connections in the following way.

**ON or enabled:** Short each pin and pin 9 together.

**OFF or disabled:** Leave each pin open.

### 9 ISR (Interactive Status Reporting) connector (female, D-sub 9-pin)

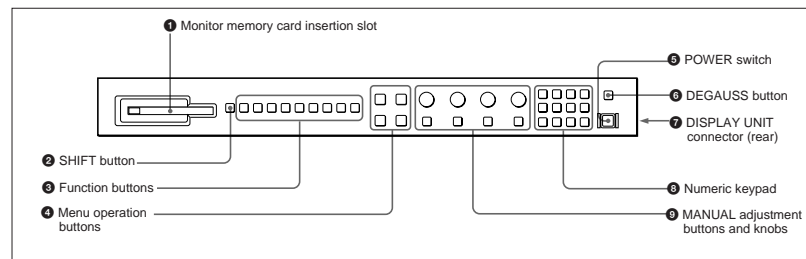
Connect to the ISR system.

### 10 CONTROL UNIT connector (female, D-sub 9-pin)

Connects the BKM-10R Monitor Control Unit using a cable with D-sub 9-pin plugs such as an RCC-5G/10G/30G (not supplied) or the cable supplied with the BKM-32H/34H Monitor Control Unit Attachment Kit.

## BKM-10R Monitor Control Unit (Optional)

This manual explains the location and function of parts and controls of the optional BKM-10R Monitor Control Unit. The explanation applies to the optional BKM-11R Monitor Control Unit.



### 1 Monitor memory card insertion slot

Insert the BKM-12Y Monitor Memory Card (optional).

For inserting/ejecting the monitor memory card, see page 20.

### 2 SHIFT button

Press to select one of the two functions designated to the function buttons **3**.

Each time the SHIFT button is pressed, the LED turns on (SHIFT ON: lit in amber) and off (SHIFT OFF).

**SHIFT OFF:** The functions indicated above the function buttons can be used (the LED of the function button lits in green).

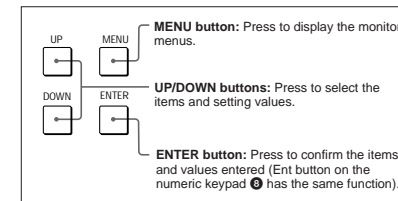
**SHIFT ON:** The functions indicated below the function buttons can be used (the LED of the function button lits in amber).

### 3 Function buttons

Change the operation conditions for the monitor. Each time the button is pressed, the LED turns on and turns off, and the operation conditions are changed. Each button has two functions. Select one of the two functions by pressing the SHIFT button **2**. When the SHIFT button is set to ON, the LED lights in amber, and when the SHIFT button is set to OFF, the LED of each button lights in green.

For the functions of the function buttons in case of SHIFT OFF and SHIFT ON, see pages 17 and 18.

### 4 Menu operation buttons



For more information about menu operation, see “Basic Menu Operations” on page 22.

### 5 POWER switch

Press to turn on/off the monitor. By setting with the ADDRESS menu, it is possible to turn on/off the power of the specified monitors only, or of all monitors at the same time.

For information about the ADDRESS menu, see “Selecting the Monitor to Control — ADDRESS Menu” on page 59.

### 6 DEGAUSS button

Press to degauss the CRT (every time the monitor is turned on, the CRT is degaussed automatically). To degauss again, wait for more than five minutes.

(continued)

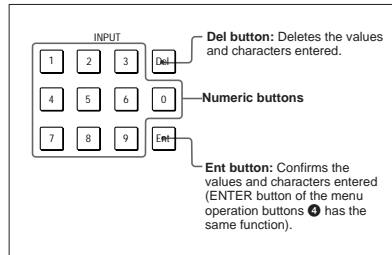
## Location and Function of Parts

### 7 DISPLAY UNIT connector (rear)

Connect to the CONTROL UNIT connector of the monitor, using an optional RCC-5G/10G/30G cable or the cable supplied with the BKM-32H or BKM-34H Monitor Control Unit Attachment Kit. The power is supplied from the monitor and the control signal is sent and received via this connector.

### 8 Numeric keypad

Use to designate the channel number for the input signal to be monitored, or to enter the setting values with the menus.

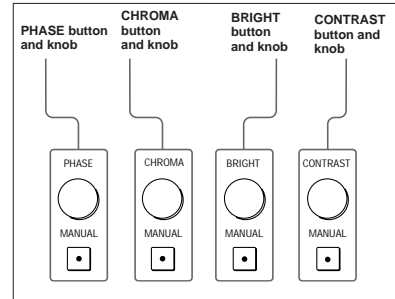


### Channel number entry method

When selecting a channel number from 1 to 9, press one-digit channel number on the numeric keypad. When selecting a channel number from 10 to 99, press 0 button, then press the two-digit channel number.

### 9 MANUAL adjustment buttons and knobs

Each press of one of these buttons turns the button's green LED on or off. When the corresponding button is on (lit), it is possible to manually adjust the contrast, brightness, chroma and phase by turning the corresponding knobs. The PHASE knob is also used to enter the setting values with the menus. It is possible to set the preset value for each adjusting item with the CONTROL PRESET ADJ menu.

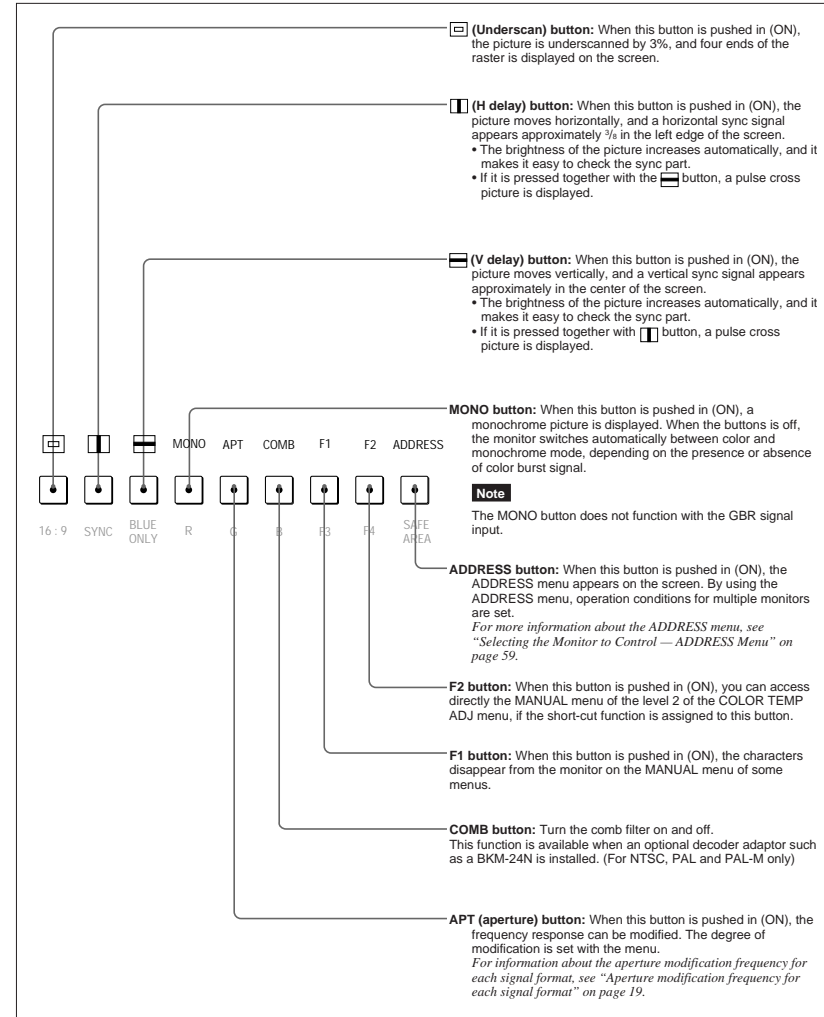


For information about the CONTROL PRESET ADJ menu, see "A Preset Adjustment of the Picture Level Control Knobs — CONTROL PRESET ADJ menu" on page 28.

### Notes

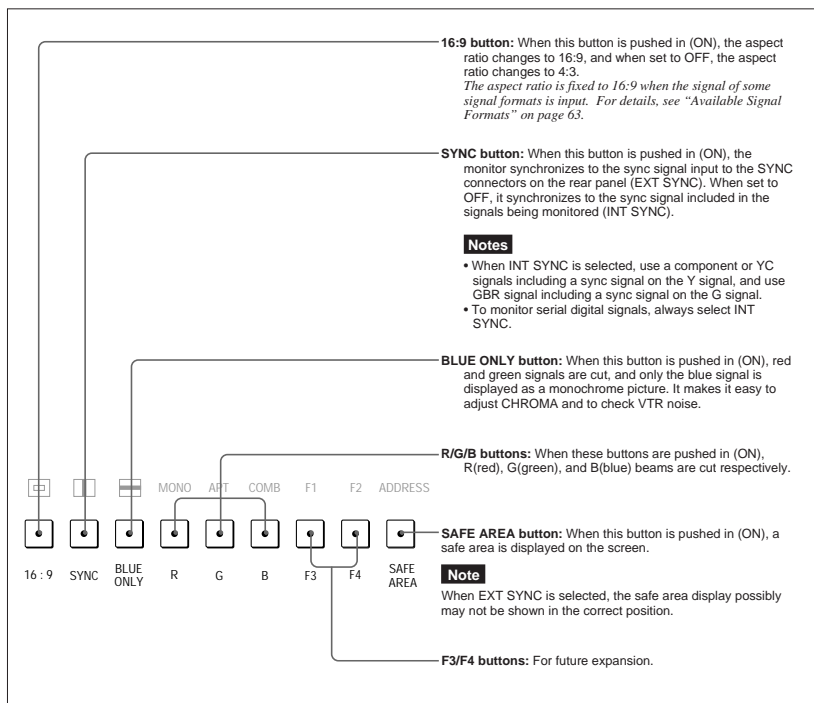
- The signal phase cannot be adjusted when using the composite SECAM, composite PAL D, component or SDI (component or composite serial digital interface) format.
- The phase and chroma cannot be adjusted when using GBR signals.

### Function buttons in SHIFT OFF mode (LEDs of function buttons in green)



## Location and Function of Parts

### Function buttons in SHIFT ON mode (LEDs of function buttons in amber)



### Aperture modification frequency for each signal format

Signal format	Serial digital input		Analog input		
	SDI	HD SDI	Composite (Y/C)	Component (YPbPr)	GBR
575/50I	5 MHz		5 MHz	5 MHz*	*
480/60I	5 MHz		5 MHz	5 MHz*	*
1080/48I		25 MHz**		25 MHz	25 MHz
1080/50I		25 MHz**		25 MHz	25 MHz
575/50P				25 MHz	25 MHz
480/60P				25 MHz	25 MHz
1035/60I		25 MHz		25 MHz	25 MHz
1080/60I		25 MHz		25 MHz	25 MHz
720/60P		25 MHz***		25 MHz	25 MHz

An empty frame in the table means that the signal cannot be input or the aperture modification can not operate for that signal even if it is input.

\* The aperture modification frequency is 25 MHz when the signal is input via the analog input/output connectors (equipped as standard).

\*\* As the BKM-41HD and BKM-42HD were manufactured before the BVM-D20F1U/D20F1E/D20F1A and BVM-D24E1WU/D24E1WE/D24E1WA were on sale, they cannot receive the HD SDI signal of the 1080/48I or 1080/50I format. To receive the 1080/48I or 1080/50I format signal, consult your authorized Sony dealer.

\*\*\* The HD SDI signal of the 720/60P format cannot be received with some BKM-41HD or BKM-42HD. Consult your authorized Sony dealer.

## Location and Function of Parts

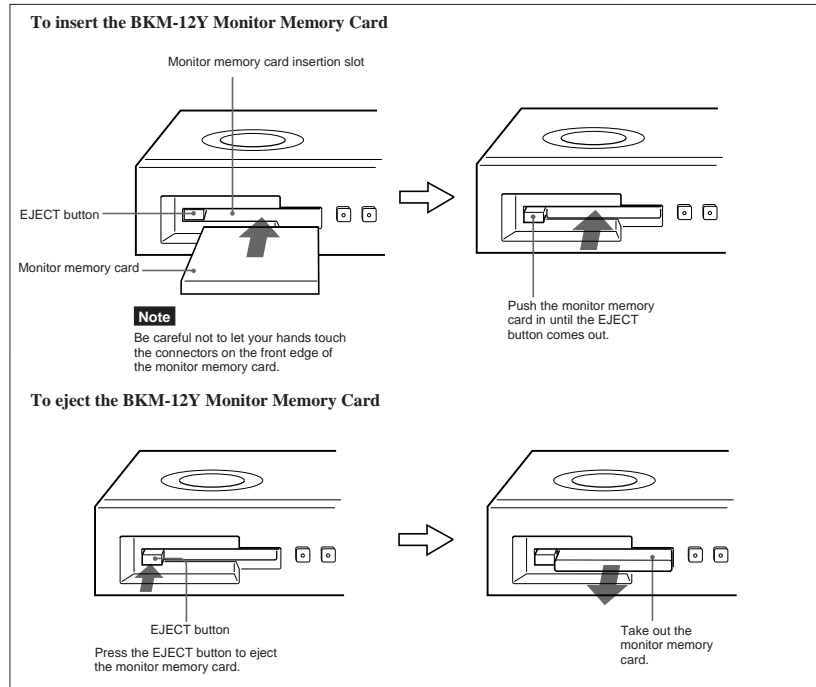
### Inserting/ejecting the BKM-12Y Memory Monitor Card

Proceed as illustrated to insert and eject an optional BKM-12Y Monitor Memory Card.

For information about operations on monitor memory card data, see "[D] Monitor Memory Card Data Operations — MEMORY CARD menu" on page 56.

**Note**

Do not eject the monitor memory card while data is being saved or loaded.

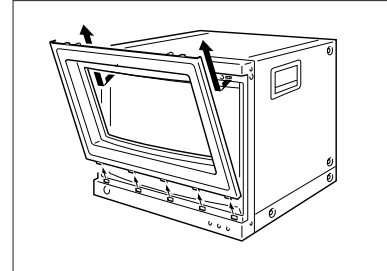


## Installation of the 4:3 Mask (BVM-D20F1U/D20F1E/D20F1A only)

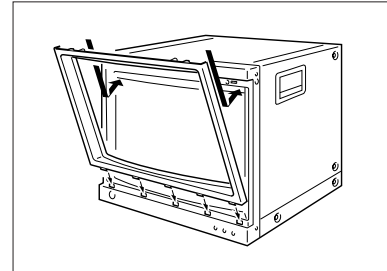
When the BVM-D20F1U/D20F1E/D20F1A aspect ratio is switched from 16:9 to 4:3, replace the 16:9 mask with the supplied 4:3 mask.

### Installing the 4:3 mask

- 1 Remove the 16:9 mask by pulling the top side out and then lifting up from the bottom side.



- 2 Install the 4:3 mask (supplied) by inserting the bottom side and then pressing the top side in.



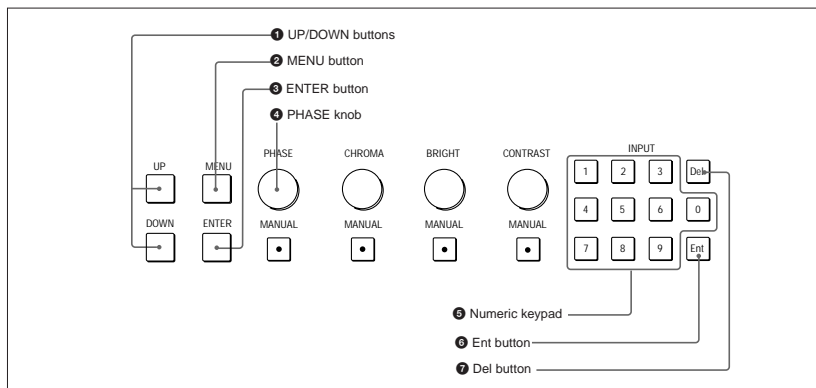
### Replacing the 16:9 mask

Remove the 4:3 mask and replace the 16:9 mask using the same procedures as those for installing the 4:3 mask.

# Basic Menu Operations

## Menu Operation Buttons

The menus are operated using the menu operation buttons on the BKM-10R Monitor Control Unit (optional). The operations are the same for the BKM-11R (optional).



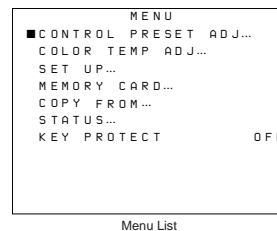
The functions of the menu operation buttons are described below.

Button	Function
1 UP button	Moves the cursor upward. In setting mode, increases the setting and adjustment values.
2 DOWN button	Moves the cursor downward. In setting mode, decreases the setting and adjustment values.
3 MENU button	Displays the menus. Goes back to the menu of the upper level (on the Main Menu, goes back to the normal picture).
4 ENTER button/ 5 Ent button	Executes the items selected and settings.
6 PHASE knob	By turning this knob clockwise, the cursor moves upward. In setting mode, increases the setting and adjustment values (has the same function as UP button). By turning this knob counterclockwise, the cursor moves downward. In setting mode, decreases the setting and adjustment values (has the same function as DOWN button).
7 Numeric keypad	Enters the numerical values.
8 Del button	Deletes the values and characters entered.

## Displaying the Menus

Press the MENU button.

The menu list is displayed on the screen.



When you select one item on the main menu, the level 1 menu corresponding to the selected item on the main menu appears.

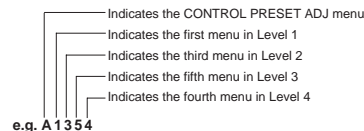
For information about the items on the main menu, see "Menu Structure" on page 27.

**Note**

Menu settings displayed in blue cannot be changed.

### About menu numbers

For purposes of explanation in this manual, each menu is preceded by menu numbers. The alphabet determines the classification of Menus on the Menu List (Main Menu), and the numbers determine the level and the order. These menu numbers are not shown on the screen.



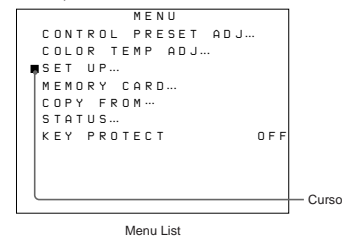
**Note**

Only the menus which require explanation are preceded by menu numbers. Thus, the menu number is counted without menus which do not require explanation.

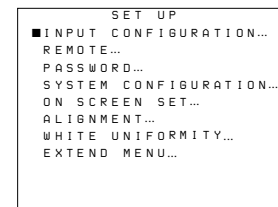
## Menu Operation

Follow the steps described below to display the menu and perform the adjustment or setup you wish.

- 1 Press the MENU button 2. The Menu List is displayed.
- 2 Using the UP/DOWN buttons 1 or PHASE knob 4, move the cursor to the desired item. (Example: select the SET UP menu by pressing the DOWN button.)



- 3 Press the ENTER button 3 or Ent button 5. The Level 1 of the selected menu is displayed.



(continued)

## Basic Menu Operations

- 4** Repeat steps **2** and **3** until the desired menu is displayed.  
 For more information about setting and adjustments, see below.

[↓] indicates that the menu continues onto next page.  
 [↑] indicates that the menu is continued from previous page.  
 Selects from various options.  
 Indicates that this item has sub-list. Thus, you can go to the lower level.  
 Enters numerical values.

### To abort menu operation

Press the MENU button. The menu of the upper level is displayed.  
 The setting or adjustment being performed is canceled, and data loading or saving is aborted.

### If “NG” or “ERROR” appears during menu operation

Press the MENU button to return to the menu in use.

## Choosing one of two or more selections

### Selecting in yellow text

- 1** Using the UP/DOWN buttons or PHASE knob, move the cursor to the desired item and press the ENTER or Ent button.  
 The selected item is displayed in yellow text and set to setting mode.

- 2** Using the UP/DOWN buttons or PHASE knob, change the setting.  
**3** Press the ENTER or Ent button.  
 The setting is confirmed (The item is displayed in white text again).

### Selecting from the setting list

- 1** Using the UP/DOWN buttons or PHASE knob, move the cursor to the desired item in the setting list.

- 2** Press the ENTER or Ent button.  
 The display returns to the menu of the upper level, and the selected setting is executed.

## Entering a numerical value

- 1** Using the UP/DOWN buttons or PHASE knob, move the cursor to the desired item and press the ENTER or Ent button.  
 The selected item is displayed in yellow text and set to setting mode.

- 2** Set the value in one of the following three ways:  
 • Enter the value directly using the numeric keypad and press the ENTER or Ent button  
 • Select the value using the UP/DOWN buttons  
 • Select the value using the PHASE knob  
**3** Press the ENTER or Ent button.  
 The setting is confirmed (The item is displayed in white text again).

## Entering characters

- 1** Display the setting menu and set the cursor to NEW NAME using the UP/DOWN buttons or PHASE knob.

- 2** Press the ENTER or Ent button.  
 “?” is displayed in yellow. The “?” indicates the position where character input is possible.

- 3** Select the character you wish to enter using the UP/DOWN buttons or PHASE knob.  
 When you press the UP button, or turn the PHASE knob clockwise, the characters and symbols appear in the order shown below.

A B .....Y Z 0 1 .....8 9 ( , )  
 : ; . - + / & (space) ?

If you press the UP/DOWN button or turn the PHASE knob counterclockwise, the characters and symbols appear in the reverse order described above.

- 4** Press the ENTER or Ent button.  
 The selected character is entered.

- 5** Repeat steps **3** and **4** until all the characters are entered, then press the ENTER or Ent button.  
 The selected characters are confirmed, and the display returns to the menu of the previous level.

### To correct the entered character

Press the Del button on the numeric keypad. The character on the left side of the “?” (in yellow) is deleted.

## Basic Menu Operations

### ADDRESS Menu

In addition to the menus displayed on the menu list, the ADDRESS menu is provided. This ADDRESS menu is used to select the monitor or the monitor group by assigning the address number or group address number, so that when several monitors are connected together via serial remote ports, the control panel can select which monitor to control.

To display or exit the ADDRESS menu, press the ADDRESS button. The method of choosing menu items and changing settings is the same as with the other menus.

For information about the ADDRESS menu, see “Selecting the Monitor to Control—ADDRESS Menu” on page 59.

## Menu Structure

Menus consist of two to six levels. The Main Menu displayed on the Menu List and Level 1 are shown below.

Detailed information on the levels of menus is described at the top of explanation of each menu.

Main Menu	Level 1	Functions
CONTROL PRESET ADJ [A]	<ul style="list-style-type: none"> <li>PRESET [A1]</li> <li>CH SET [A1]</li> </ul>	Sets the preset values for the input signal contrast, brightness, chroma, and phase. (page 28)
COLOR TEMP ADJ [B]	<ul style="list-style-type: none"> <li>STD [B1]</li> <li>COL1 [B2]</li> <li>COL2 [B3]</li> <li>CH SET [B4]</li> </ul>	Sets the color temperature. (page 30)
SET UP [C]	<ul style="list-style-type: none"> <li>INPUT CONFIGURATION [C1]</li> <li>REMOTE [C2]</li> <li>PASSWORD [C3]</li> <li>SYSTEM CONFIGURATION [C4]</li> <li>ON SCREEN SET [C5]</li> <li>ALIGNMENT [C6]</li> <li>WHITE UNIFORMITY [C7]</li> <li>EXTEND MENU [C8]</li> </ul>	<p>A menu group for performing monitor setup, consisting of the following.</p> <ul style="list-style-type: none"> <li>INPUT CONFIGURATION [C1] Sets the input channel. (page 35)</li> <li>REMOTE [C2] Sets the remote control functionality. (page 40)</li> <li>PASSWORD [C3] Sets passwords for menus. (page 42)</li> <li>SYSTEM CONFIGURATION [C4] Sets the input channel selection method, power-up conditions and decoder. (page 44)</li> <li>ON SCREEN SET [C5] Sets data about the screen display. (page 46)</li> <li>ALIGNMENT [C6] Adjusts the screen convergence, and geometry. (page 48)</li> <li>WHITE UNIFORMITY [C7] Adjusts the beam landing and color uniformity of the CRT (BVM-D24E1WU/D24E1WE/D24E1WA only). (page 50)</li> <li>EXTEND MENU [C8] Loads the factory default data for the board installed. (page 54)</li> </ul>
MEMORY CARD [D]	<ul style="list-style-type: none"> <li>SAVE [D1]</li> <li>LOAD [D2]</li> <li>DELETE [D3]</li> <li>FORMAT [D4]</li> </ul>	Operates on data in the memory card. (page 56)
COPY FROM [E]	MONITOR ADDRESS [E1]	Copies set-up data from other connected monitors. (page 57)
STATUS [F]	<ul style="list-style-type: none"> <li>STATUS (1/3) [F1]</li> <li>STATUS (2/3) [F2]</li> <li>STATUS (3/3) [F3]</li> </ul>	Displays the information about the monitor or options installed in the monitor. (page 58)
KEY PROTECT [G]		When set to ON, function buttons on the control unit (with the exception of menu operation buttons) will be disabled. When set to OFF, key protection is removed.

## A Preset Adjustment of the Picture Level Control Knobs — CONTROL PRESET ADJ Menu

### Overview

The preliminary adjustments of contrast, brightness, chroma and phase are carried out with the CONTROL PRESET ADJ menu, to set the preset values to the knobs for the above-mentioned adjustments. Preset values can be set either commonly to all channels or separately for individual channels.

Preset values can be set in the following ways:

- **Adjustment with the MANUAL knobs (MANUAL menu)**
- **Automatic adjustment (AUTO menu)**  
An external color bar signal is necessary.

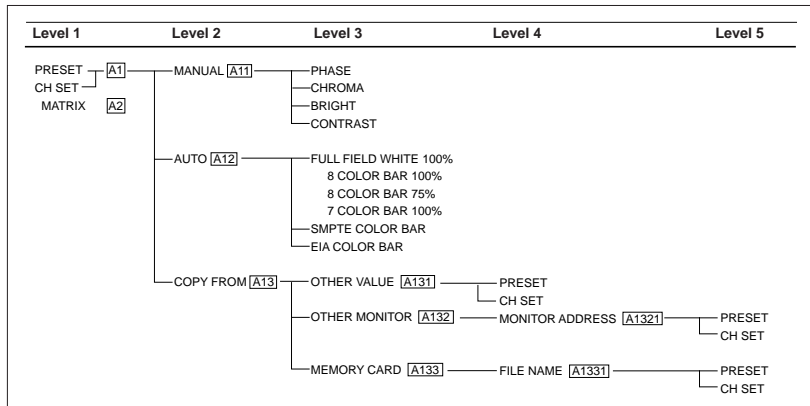
#### • Copying data (COPY FROM menu)

Copying data from other channels, common data, or other BVM-DxxE/DxxF series monitors that have been connected via the serial remote connector, or from data stored in monitor memory cards

#### Note

Data copy is impossible between monitors other than BVM-DxxE/DxxF series.

### Structure of the CONTROL PRESET ADJ Menu



### Setting Lists in the CONTROL PRESET ADJ Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*

- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [A] CONTROL PRESET ADJ menu

Select either PRESET or CH SET. ⇒ [A1]

**PRESET...** : Set common values.

**CH SET...** : Set values for each individual channel.

**MATRIX...** : Set the data area for each individual channel when CH SET is selected. ⇒ [A2]

#### [A1] PRESET menu/CH SET menu

Select the setting method.

**MANUAL...** : Set with the MANUAL knobs. ⇒ [A11]

**AUTO...** : Set by automatic adjustment. ⇒ [A12]

**COPY FROM...** : Copy data from elsewhere. ⇒ [A13]

#### [A2] MATRIX menu

Select the data area for the YP<sub>B</sub>P<sub>R</sub> (SMPTE/EBU-N10), SDI 4:2:2 and HD SDI signals. The ITU 709, ITU 601 or SMPTE 240M can be selected for each signal format. The selected data area is common to all the channels.

The factory settings are as follows:

- 1080/60I: ITU 709 (default)
- 1080/50I: ITU 709 (default)
- 1080/48I: ITU 709 (default)
- 1035/60I: SMPTE 240M (default)
- 720/60P: ITU 709 (default)
- 575/50P: ITU 601 (default)
- 575/50I: ITU 601 (default)
- 480/60P: ITU 601 (default)
- 480/60I: ITU 601 (default)

#### Notes

- When PRESET is selected, the same MATRIX data as the above are used automatically.
- The ITU 601 data is used for the COMPOSITE, YC, YP<sub>B</sub>P<sub>R</sub> (BETACAM), GBR and SDI (D2) signals, regardless of the settings on the MATRIX menu.

#### [A11] MANUAL menu

Adjust values by turning the PHASE, CHROMA, BRIGHT, and/or CONTRAST knobs. After the adjustment, press the ENTER or Ent button to confirm the adjusted values.

**PHASE:** xxxx

**BRIGHT:** xxxx

**CHROMA:** xxxx

**CONTRAST:** xxxx

#### When you want to erase characters from the screen while adjusting manually

Press the [F1] button. The characters disappear. To display characters, press the [F1] button again.

#### To reset the setting to the default

Press the corresponding MANUAL button. The adjusted value is reset to 1000 (default).

#### [A12] AUTO menu

Select the color bar signal to be used for automatic adjustment. ⇒ Adjustment is carried out.

**8COLOR BAR 100%:** 100% full-field 8-color bar (white, yellow, cyan, green, magenta, red, blue and black)

**8COLOR BAR 75%:** 75% full-field 8-color bar (with 100% white signal, effective for 15K signal only)

**7COLOR BAR 100%:** 100% full-field 7-color bar (white, yellow, cyan, green, magenta, red and blue) (with 100% white signal, not selectable for 15K signal)

**SMPTE COLOR BAR:** SMPTE standard color bar (effective for 15K signal only)

**EIA COLOR BAR:** EIA standard color bar (effective for 15K signal only)

#### Note

When you execute the AUTO menu, SYNC button should be set to OFF (INT SYNC).

EXT SYNC will cause an error abortion of auto adjustment procedure.

#### [A13] COPY FROM menu

Select the source to be copied from.

**OTHER VALUE...** : Copy data from another channel or common data. ⇒ [A131]

**OTHER MONITOR...** : Copy data from another monitor. ⇒ [A132]

**MEMORY CARD...** : Copy data from a memory card. ⇒ [A133]

#### [A131] OTHER VALUE menu

Choose either PRESET or CH SET.

⇒ Copy is carried out.

**PRESET:** Copy common data.

**CH SET:** Copy data set for another channel. Input the number of the channel from which the data will be copied.

#### [A132] OTHER MONITOR menu

Input the address of the monitor from which the data will be copied. ⇒ [A1321]

**MONITOR ADDRESS:** Input the address number.

#### [A1321] MONITOR ADDRESS menu

Choose either PRESET or CH SET.

⇒ Copy is carried out.

**PRESET:** Copy common data.

**CH SET:** Copy data set for another channel. Input the number of the channel from which the data will be copied.

#### [A133] MEMORY CARD menu

Select the file name. ⇒ [A1331]

**FILE NAME:** Select the file name.

#### [A1331] FILE NAME menu

Choose either PRESET or CH SET.

⇒ Copy is carried out.

**PRESET:** Copy common data.

**CH SET:** Copy data set for another channel. Input the number of the channel from which the data will be copied.



# B Adjusting the Color Temperature — COLOR TEMP ADJ Menu

## Overview

The color temperature is adjusted with the COLOR TEMP ADJ menu. The color temperature can be set either commonly to all channels (STD, COL1 and COL2 menus) or individually for each channel (CH SET menu). Use the factory setting value or the adjusted value as an original value to shorten the adjustment time.

Color temperature adjustment can be made in the following four ways:

- **Knob adjustment (MANUAL menu)**  
You can adjust the color temperature with the bias and gain knobs.

- **Automatic adjustment using a probe (PROBE menu)**  
You can use the following probes for automatic adjustment of color temperature. Except for the Sony BKM-14L, a cable is required to connect the color analyzer to the monitor.

Manufacturer	Probe Model Name
SONY	BKM-14L (no cable required)
GRASEBY	SLS 9400
MINOLTA	CA-100
PHILIPS	PM 5639
THOMA	TF6

For more information about the cable specification required and about the connection, see "Connection Cable Specifications for Color Temperature Probes" on page 66.

- **Copying other data (COPY FROM menu)**  
You can copy data from other channels, common data, or other BVM-DxxE/DxxF series monitors that have been connected via the serial remote connector, or from data stored in monitor memory cards.

**Note**

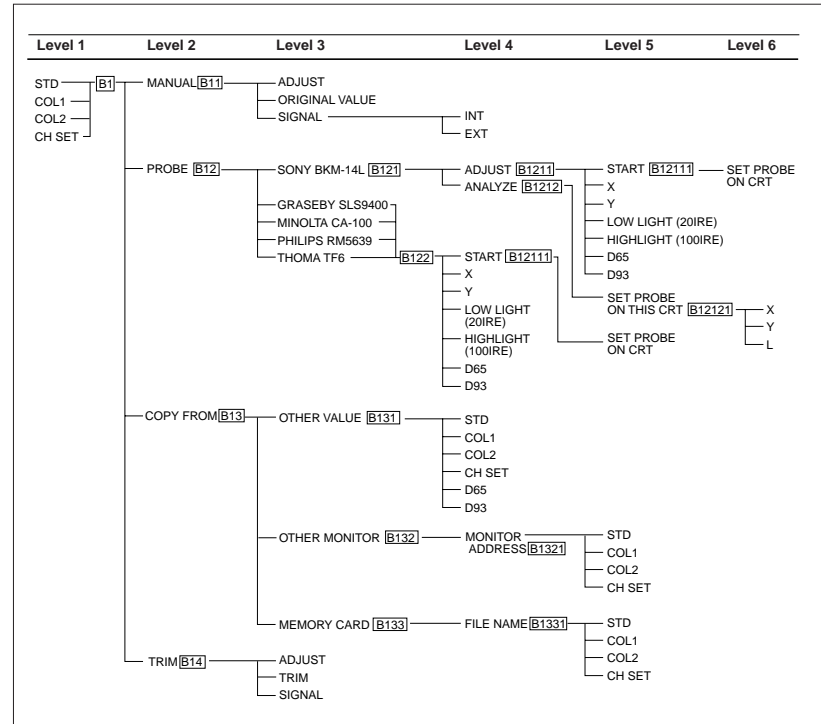
Data copy is impossible between monitors other than BVM-DxxE/DxxF series.

- **Fine adjustment after the color temperature adjustment (TRIM menu)**  
You can perform fine adjustment of the gain and bias and add the data to the original adjustment data.

### Before adjusting the color temperature

We recommend that you perform the automatic adjustment using the AUTO menu [A12] of the CONTROL PRESET ADJ menu before adjusting the color temperature.

## Structure of the COLOR TEMP ADJ Menu



## B Adjusting the Color Temperature — COLOR TEMP ADJ Menu

### Setting Lists in the COLOR TEMP ADJ Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### B COLOR TEMP ADJ menu

Select STD, COL 1, COL2, or CH SET. ⇒ [B1]

**STD:** Use common data (factory setting: D65).

**COL1:** Use common data (factory setting: D93).

**COL2:** Use common data (factory setting: D65).

**CH SET:** Use data for each individual channel (factory setting: D65). Use the numeric keypad to select the desired channel.

#### B1 STD/COL1/COL2/CH SET menu

Select the adjustment method.

**MANUAL... :** Set with the MANUAL knob. ⇒ [B11]

**PROBE... :** Set using a probe. ⇒ [B12]

**COPY FROM... :** Copy data from elsewhere.  
⇒ [B13]

**TRIM... :** Perform fine adjustments after setting the color temperature. ⇒ [B14]

#### B11 MANUAL menu

Select the adjustment method.

**ADJUST... :** Adjust the gain and bias. To shift between gain adjustment and bias adjustment, press UP/DOWN buttons. Use appropriate knobs in each adjustment as described below. After the adjustment, press the ENTER or Ent button to confirm the adjusted values.

**RED:** CONTRAST KNOB (Adjust the R gain or bias with the CONTRAST knob.)

**GREEN:** BRIGHT KNOB (Adjust the G gain or bias with the BRIGHT knob.)

**BLUE:** CHROMA KNOB (Adjust the B gain or bias with the CHROMA knob.)

**LUMINANCE:** PHASE KNOB (Adjust luminance with the PHASE knob.)

#### To reset RED/GREEN/BLUE to the value before adjustment

When you are adjusting the gain or bias using the MANUAL adjustment knobs, you can reset the setting to the one before adjustment by pressing the corresponding MANUAL button.

To reset all of settings at the same time, press the PHASE button.

#### Note

You cannot reset the setting after you press the ENTER or Ent button.

**ORIGINAL VALUE... :** Set the initial value.

**STD:** Use common data (factory setting: D65).

**COL1:** Use common data (factory setting: D93).

**COL2:** Use common data (factory setting: D65).

**CH SET:** Use data for a particular channel (factory setting: D65).

**SIGNAL:** Select the white signal to be used for adjustment.

**INT:** Use an internal signal. Simultaneously with the adjustment of the gain and bias, the 100 IRE and 20 IRE signals are automatically switched.

**EXT:** Use an external input signal. When adjusting the gain and bias, input the proper signal.

#### To access the MANUAL menu directly

When the [F2] button is assigned as the short-cut key to the MANUAL menu, you can directly access the MANUAL menu that corresponds to the color temperature setting (STD/COL1/COL2/CH SET) set to the image on the screen.

*For details of how to assign the short-cut key, see " [C4] Setting the Channel Selection Method, Power-Up Conditions and Decoder (SET UP 4) — SYSTEM CONFIGURATION Menu" on page 44.*

#### B12 PROBE menu

Select the probe for color temperature adjustment.

**SONY BKM-14L...:** Use the BKM-14L.  
⇒ [B121]

**GRASEBY SLS 9400...:** Use the SLS 9400.  
⇒ [B122]

**MINOLTA CA-100...:** Use the CA-100. ⇒ [B121]

**PHILIPS PM 5639...:** Use the PM 5639. ⇒ [B122]

**THOMA TF6...:** Use the TF6. ⇒ [B122]

- If you cannot execute an ADJUST or ANALYZE menu operation when using the Sony BKM-14L probe, try again after disconnecting and reconnecting the probe.
- When using the Thoma TF6 probe, set the TF6 PRINT menu to off.

#### B121 SONY BKM-14L menu

Select the BKM-14L operation.

**ADJUST... :** Perform automatic color temperature adjustment. ⇒ [B1211]

**ANALYZE:** Display readout values on the screen.  
⇒ [B1212]

#### B1211 ADJUST menu

To start adjustment, proceed as follows.

When you use the previously adjusted values for adjustment, you can make start adjustment by selecting START without performing step (1) and step (2).

(1) Select either D65 or D93.

Rather than selecting D65 or D93, you may instead enter the values of the CIE 1931 color system x and y coordinates.

(2) Enter values for LOW LIGHT and HIGH LIGHT.

(3) Select START.

**START:** Start adjustment. ⇒ [B12111]

**X:** Enter the x coordinate.

**Y:** Enter the y coordinate.

**LOW LIGHT (20IRE):** Enter the luminance (cd/m<sup>2</sup>) for low light.

**HIGH LIGHT (100IRE):** Enter the luminance (cd/m<sup>2</sup>) for high light.

**D65:** Use D65 setting.

**D93:** Use D93 setting.

#### B12111 START menu

The following message appears. Perform operation according to the message to start adjustment.

#### SET PROBE ON CRT PRESS ENTER

Adjustment starts when the probe is placed against the center of the screen and the ENTER or Ent button is pressed.

#### B1212 ANALYZE menu

The following message appears. Perform operation according to the message to enable the BKM-14L to read the color system and luminance value.

#### SET PROBE ON THIS CRT PRESS ENTER

Attach the BKM-14L on the center of the CRT and press the ENTER or Ent button. ⇒ [B12121]  
Once the BKM-14L has carried out calibration, the BKM-14L can start analyze the monitor's performance.

#### B12121 SET PROBE ON THIS CRT menu

Display the color system and luminance readout values from the BKM-14L system at the bottom of the CRT.  
**X:** xxxx: Display the x coordinate of the color system.  
**Y:** xxxx: Display the y coordinate of the color system.  
**L:** xxxx: Display the luminance value.

#### B1222 GRASEBY/MINOLTA/PHILIPS/THOMA menu

The forth and lower levels of [B122] are the same as those of the fifth and lower levels of [B1211]. Refer to [B1211] and [B12111].

#### B13 COPY FROM menu

Select the source to be copied from.

**OTHER VALUE... :** Copy data from another channel or from common data. ⇒ [B131]

**OTHER MONITOR... :** Copy data from a BVM-DxxxE/DxxxF series monitor. ⇒ [B132]

**MEMORY CARD... :** Copy data from a monitor memory card. ⇒ [B133]

#### B131 OTHER VALUE menu

Select STD, COL1, COL2, or CH SET. ⇒ Copy is carried out.

**STD:** Copy common data (factory setting: D65).

**COL1:** Copy common data (factory setting: D93).

**COL2:** Copy common data (factory setting: D65).

**CH SET:** Copy data from a particular channel (factory setting: D65). Enter the number of the channel from which the data will be copied.

**D65:** Copy the color temperature of D65.

**D93:** Copy the color temperature of D93.

#### B132 OTHER MONITOR menu

Specify the address number of the monitor.

**MONITOR ADDRESS:** Input the address number of the monitor from which the data will be copied.  
⇒ [B1321]

## B Adjusting the Color Temperature — COLOR TEMP ADJ Menu

### [B132] MONITOR ADDRESS menu

Select STD, COL1, COL2, or CH SET. ⇒ Copy is carried out.

**STD:** Copy common data.

**COL1:** Copy common data.

**COL2:** Copy common data.

**CH SET:** Copy data from a particular channel. Enter the number of the channel from which the data will be copied.

### [B133] MEMORY CARD menu

Select the file name. ⇒ [B133]

**FILE NAME:** Select the file name.

### [B133] FILE NAME menu

Select STD, COL1, COL2, or CH SET of the memory card data. ⇒ Copy is carried out.

**STD:** Copy common data.

**COL1:** Copy common data.

**COL2:** Copy common data.

**CH SET:** Copy data from a particular channel. Enter the number of the channel from which the data will be copied.

### [B14] TRIM menu

Finely adjust the gain and bias by selecting ADJUST.

**ADJUST:** Adjust the gain and bias. To shift between gain adjustment and bias adjustment, press UP/DOWN buttons. Use appropriate knobs in each adjustment as described below. After the adjustment, press the ENTER or Ent button to confirm the adjusted values.

**RED:** CONTRAST KNOB (Adjust the R gain or bias with the CONTRAST knob.)

**GREEN:** BRIGHT KNOB (Adjust the G gain or bias with the BRIGHT knob.)

**BLUE:** CHROMA KNOB (Adjust the B gain or bias with the CHROMA knob.)

**LUMINANCE:** PHASE KNOB (Adjust luminance with the PHASE knob.)

#### To reset RED/GREEN/BLUE to the value before adjustment

When you are adjusting the gain or bias, you can reset the setting to the one before adjustment by pressing the corresponding MANUAL button.

To reset all of settings at the same time, press the PHASE button.

**TRIM:** Select whether to add the fine adjustment to the original setting (gain and bias set in MANUAL menu [B11]).

**APPLY:** Adds the fine adjustment to the original setting.

When APPLY is selected, “XX/TRIM” (XX: the selected color temperature among STD, COL 1 or COL 2) appears on the left top on the COLOR TEMP ADJ menu.

**NOT APPLY:** Reset the setting to the original setting (gain and bias set in MANUAL menu [B11]).

**SIGNAL:** Select the white signal to be used for adjustment.

**INT:** Use an internal signal. Simultaneously with the adjustment of the gain and bias, the 100 IRE and 20 IRE signals are automatically switched.

**EXT:** Use an external input signal. When adjusting the gain and bias, input the proper signal.

#### Note

Even if NOT APPLY of the TRIM item is selected, pressing the ENTER or Ent button to confirm the adjusted values results in that APPLY will be selected.

## C1 Setting the Input Configuration (SET UP 1) — INPUT CONFIGURATION Menu

### Overview

Data pertaining to the input signals are set with the INPUT CONFIGURATION menu.

When a channel number (1 to 90) is entered with the numeric keypad, it is then possible to set which input connector on the rear panel will be assigned to that channel number, and select the type of signal that will be connected.

The following data can be set with the INPUT CONFIGURATION menu.

- Assigning the signal **FORMAT**
- Assigning the **SLOT NO**
- Assigning the **INPUT NO (input connector number)**
- Selecting the **YC SEP (separation) filter**
- Selecting the **SYNC MODE**
- Selecting the **SCREEN MODE**
- Selecting the **SAFE AREA DISPLAY**
- Setting the **SAVE AREA MODE**
- Activating/deactivating the **APERTURE adjustment**
- Assigning the **APERTURE VALUE**
- Turning on/off the **FILTER operation for monochrome display**
- Assigning **CHANNEL NAME**
- Selecting the picture **CONTROL settings**
- Setting the **COLOR TEMP (temperature)**
- Adjusting **H PHASE**
- Assigning the number of active scanning lines of **1125/60I SYSTEM**
- **COPYing FROM other data**

#### Note

Data copy is impossible between monitors other than BVM-DxxE/DxxF series.

#### Channels 91 to 99 assignment

The channel numbers from 91 to 99 are assigned to internal signals.

- 091:** PLUGE signal (Picture Line Up Generating Equipment)
- 092:** 20% gray signal
- 093:** 100% white signal
- 094:** five-step gray scale signal
- 095:** cross hatch signal
- 096:** cross hatch signal
- 097:** dot signal
- 098:** cross hatch signal
- 099:** 0% black signal

### Assigning slot and connector numbers

Set which input connector on which slot will be assigned to the current channel. The slots are numbered from the left, as seen when facing the rear panel, with the REMOTE connectors slot being number 1, the input option slots numbers 2 to 5, and the analog input connectors slot being number 6. The connectors for each slot are numbered 1 to 6 (from the top).

### Assigning the signal type and format

The signal type and format which can be assigned to each channel number vary, depending on what adaptors (not supplied) are installed in the rear panel.

#### To assign serial digital signals

Serial digital signals can be assigned to the serial digital input connectors on the BKM-20D/21D/22X/41HD/42HD adaptors.

You need to install one of the BKM-20D (for component signals only), BKM-21D, BKM-41HD or BKM-42HD adaptors with a serial digital signal decoder to the rear panel of the monitor.

#### To assign analog composite signals

Analog composite signals can be assigned to any analog input connectors on the BKM-20D/21D/22X or any input connectors on the BKM-24N/25P/26M/27T/28X/48X.

You need to install one of the following decoder adaptors.

**To assign NTSC signals:** BKM-21D/24N/27T

**To assign PAL signals:** BKM-21D/25P/27T

**To assign PAL-M signals:** BKM-26M

**To assign SECAM signals:** BKM-27T

#### To assign Y/C signals

Y/C signals can be assigned to any input connectors on the BKM-24N/25P/26M/27T/28X/48X.

You need to install one of the following decoder adaptors.

**To assign NTSC signals:** BKM-24N/27T

**To assign PAL signals:** BKM-25P/27T

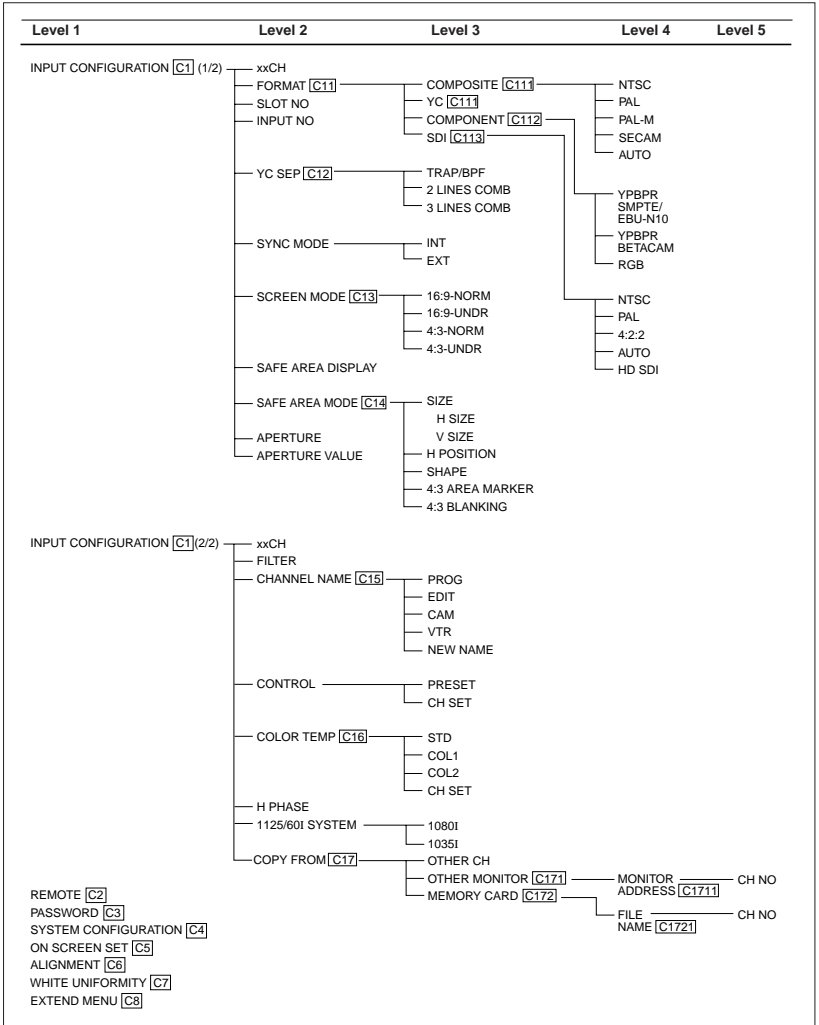
**To assign PAL-M signals:** BKM-26M

#### To assign analog component or RGB signals

Analog component and RGB signals can be assigned to any input connectors except the serial digital signal input connectors on the BKM-20D/21D/22X/41HD/42HD.

**C1 Setting the Input Configuration (SET UP 1) — INPUT CONFIGURATION Menu**

**Structure of the INPUT CONFIGURATION Menu**



**Setting Lists in the INPUT CONFIGURATION Menu**

This section explains the setting lists displayed in the menu.

**How to read the setting lists**

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

**[C1] INPUT CONFIGURATION menu (1/2)**

Set input signal data for each channel.

**xxCH:** Current channel is indicated. To change the channel, enter a channel number with the numeric keypad. The settings below will be stored as information about the signal to be connected to this channel.

**FORMAT...** : Select the input signal type. ⇒ [C11]

**SLOT NO:** Enter the slot number.

**INPUT NO:** Enter the input connector number.

**YC SEP...** : Select Y/C separation filter. ⇒ [C12]

**SYNC MODE:** Select the sync signal.

**INT:** Use an internal sync signal.

**EXT:** Use an external sync signal.

**SCREEN MODE...** : Select the scan size. ⇒ [C13]

**SAFE AREA DISPLAY:** Choose whether or not to display the safe area (OFF or ON).  
⇒ [C14]

**MODE...** : Select the display mode for safe area.  
⇒ [C14]

**APERTURE:** Choose whether to use aperture adjustment or not (OFF or ON).

**APERTURE VALUE:** Enter the aperture adjustment value (0 to 200).

**[C1] INPUT CONFIGURATION menu (2/2)**

Set input signal data for each channel.

**xxCH:** Current channel is indicated. To change the channel, enter a channel number with the numeric keypad. The settings below will be stored as information about the signal to be connected to this channel.

**FILTER...** : Switch the filter operation (OFF or ON) when the monochrome display is selected.

**CHANNEL NAME...** : Give the channel a name.  
⇒ [C15]

**CONTROL:** Use if either PRESET or CH SET values are used for the CONTRAST/BRIGHT/CHROMA/PHASE settings.

**PRESET:** Use values common to all channels.

**CH SET:** Use individual values for each channel.

**COLOR TEMP...** : Set the color temperature.  
⇒ [C16]

**H PHASE:** Set the horizontal picture position (−128 to +127).

**1125/60I SYSTEM:** Select the number of active scanning lines per frame. When the HD SDI signal is input, the number of active scanning lines is selected automatically.

**1080I:** The active scanning lines are 1080 lines

**1035I:** The active scanning lines are 1035 lines.

**COPY FROM...** : Select a method for copying data from elsewhere. ⇒ [C17]

**Note**

For H PHASE data, if a value above or below the allowable range is entered, the monitor will not operate correctly.

**[C11] FORMAT menu**

Select the signal format.

**COMPOSITE...** : Analog composite signal ⇒ [C111]

**YC...** : Analog Y/C signal ⇒ [C111]

**COMPONENT...** : Analog component or RGB signal ⇒ [C112]

**SDL...** : Serial digital signal ⇒ [C113]

**Note**

If there is no input connector or decoder corresponding to a format, that format will not be selectable (the cursor will skip over that item).

**[C111] COMPOSITE menu/YC menu**

Select the format of a composite or Y/C signal.

**NTSC:** SETUP 7.5 or 0.

**PAL:** S (simple) or D (delay)

**PAL-M:** S (simple) or D (delay)

**SECAM:** (for the COMPOSITE menu only)

**AUTO:** The format of the input signal is detected and switched automatically. 1)

1) It will take a few seconds to detect the format of an input signal when AUTO is selected. It is recommended that a particular format be selected if it is determined.

(continued)

## Setting the Input Configuration (SET UP 1) — INPUT CONFIGURATION Menu

### Notes

- Even when selecting AUTO, also select NTSC (SETUP 7.5 or 0), PAL (S or D), and PAL-M (S or D).
- If there is no input connector or decoder corresponding to a format, that format will not be selectable (the cursor will skip over that entry).
- If you change the format of the channel to which the SDI signal is assigned to AUTO of the COMPOSITE menu with the BKM-21D installed, the image may not be displayed. In this case, change the signal format to NTSC or PAL once, then reset it to AUTO.
- If you change the format of the PAL-M Y/C signal to AUTO of the YC menu with the BKM-26M installed, the image may not be displayed. In this case, select PAL-M S or D.

### [C112] COMPONENT menu

Select the component signal format, or RGB.  
**YPBPR SMPTE/EBU-N10**  
**YPBPR BETACAM:** SETUP 7.5 or 0.  
**RGB**

### [C113] SDI menu

Select the format of the serial digital signal <sup>1)</sup>.  
**NTSC:** SETUP 7.5 or 0.

**PAL:** S (simple) or D (delay)

#### 4:2:2

**AUTO:** The NTSC, PAL or 4:2:2 format of the input signal is detected and switched automatically. <sup>1)</sup>

- 1) • It will take a few seconds to detect the format of an input signal when AUTO is selected. It is recommended that a particular format be selected if it is determined.
- If the serial digital signal is not properly displayed in SDI AUTO mode, re-enter the channel number.

### HD SDI

### [C12] YC SEP menu

Select a Y/C separation filter.

**TRAP/BPF:** Select TRAP/BPF filter.

**2 LINES COMB:** Select 2 LINES COMB filter.

**3 LINES COMB:** Select 3 LINES COMB filter.

### [C13] SCREEN MODE menu

Select the scan size.

**16:9-NORM:** Overscanned 16:9 aspect ratio.

**16:9-UNDR:** Underscanned 16:9 aspect ratio.

**4:3-NORM:** Overscanned 4:3 aspect ratio.

**4:3-UNDR:** Underscanned 4:3 aspect ratio.

### [C14] SAFE AREA MODE menu

Set the safe area display modes.

**SIZE:** Select the safe area mode.

**16:9-80%:** Displays a 80% safe area with 16:9 aspect ratio.

**16:9-88%:** Displays a 88% safe area with 16:9 aspect ratio.

**16:9-90%:** Displays a 90% safe area with 16:9 aspect ratio.

**16:9-93%:** Displays a 93% safe area with 16:9 aspect ratio.

**16:9-ANY SIZE:** Displays a safe area with 16:9 aspect ratio in the size determined by H SIZE and V SIZE.

**4:3-80%:** Displays a 80% safe area with 4:3 aspect ratio.

**4:3-88%:** Displays a 88% safe area with 4:3 aspect ratio.

**4:3-90%:** Displays a 90% safe area with 4:3 aspect ratio.

**4:3-ANY SIZE:** Displays a safe area with 4:3 aspect ratio in the size determined by H SIZE and V SIZE.

**H SIZE:** When 16:9-ANY SIZE or 4:3-ANY SIZE is selected, adjust the horizontal size of the safe area in 1% steps.

**V SIZE:** When 16:9-ANY SIZE or 4:3-ANY SIZE is selected, adjust the vertical size of the safe area in 1% steps.

**H POSITION:** Adjust the horizontal display position of the safe area (-32 to +32).

**SHAPE:** Select the shape of the SAFE AREA MARKER.

**SHAPE A:**



**SHAPE B:**



**4:3 AREA MARKER:** Select whether the 4:3 line is displayed in 16:9 screen or not (ON or OFF).

**4:3 BLANKING:** Select the blanking outside the 4:3 area.

**HALF:** Half blanking

**BLACK:** Blanks outside the 4:3 area.

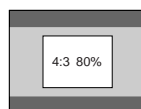
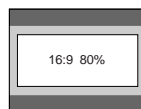
**OFF:** Do not blank.

### Note

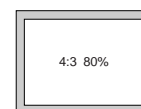
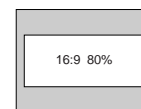
The size of the safe area for the 16:9-xx% or 4:3-xx% setting depends on the 16:9 button ON/OFF setting.

### BVM-D20F1U/D20F1E/D20F1A

With 16:9 button ON

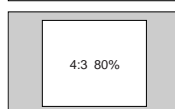
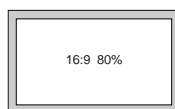


With 16:9 button OFF

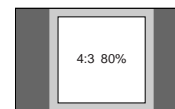
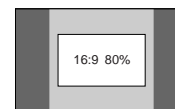


### BVM-D24E1WU/D24E1WE/D24E1WA

With 16:9 button ON



With 16:9 button OFF



### [C15] CHANNEL NAME menu

Give the channel a name. Select a preset name, or enter a new one.

**PROG:** Program signal

**EDIT:** Signal from an editor

**CAM:** Camera signal

**VTR:** Signal from a VTR

**NEW NAME:** Enter a new name. (Up to 20 characters can be entered and up to six characters from the head of the name are displayed in the INPUT CONFIGURATION menu ([C1] 2/2).)

### [C16] COLOR TEMP menu

Select STD, COL1, COL2 or CH SET.

**STD:** Use common data (factory setting: D65).

**COL1:** Use common data (factory setting: D93).

**COL2:** Use common data (factory setting: D65).

**CH SET:** Use data for each individual channel (factory setting: D65).

### [C17] COPY FROM menu

Select the source to be copied from.

**OTHER CH:** Copy data from another channel. Enter the channel number.

**OTHER MONITOR... :** Copy data from a BVM-DxxE/DxxF series monitor. ⇨ [C171]

**MEMORY CARD... :** Copy data from a memory card. ⇨ [C172]

### [C171] OTHER MONITOR menu

Enter the address number of the source monitor.

**MONITOR ADDRESS:** Enter the address number of the monitor from which to copy data. ⇨ [C1711]

### [C1711] MONITOR ADDRESS menu

Assign the channel of the selected monitor from which to copy data. ⇨ Copy is carried out.

**CH NO:** Enter the channel number.

### [C172] MEMORY CARD menu

Select the file name.

**FILE NAME:** Select the file name. ⇨ [C1721]

### [C1721] FILE NAME menu

Assign the channel of the selected file from which to copy data. ⇨ Copy is carried out.

**CH NO:** Enter the channel number.

# C2 Assigning the Remote Control Functions (SET UP 2) — REMOTE Menu

## Overview

The remote control functions are set with the REMOTE menu. With this monitor, both serial remote control (REMOTE 1) and parallel remote control (REMOTE 2) are possible.

The following settings can be made with the REMOTE menu.

- **Settings for the serial remote control (REMOTE 1) (REMOTE 1 CONFIG menu)**  
An address number (MONITOR ADDRESS) and group number (GROUP ADDRESS) can be assigned to the monitor connected to the serial REMOTE 1 connector.
- **Settings for the parallel remote control (REMOTE 2) (REMOTE 2 CONFIG menu)**  
Functions can be assigned to the pins of the REMOTE 2 connector.
- **ON/OFF setting for the parallel remote control (REMOTE 2) (REMOTE 2 menu)**

### Priority order of the remote control functions

It is possible to simultaneously use the BKM-10R/11R Monitor Control Unit, REMOTE 1, and REMOTE 2 for control, but commands from REMOTE 2 have priority. Therefore, it is impossible for the BKM-10R/11R or REMOTE 1 to change items set by REMOTE 2. There is no priority order between commands from REMOTE 1 and the BKM-10R/11R control panel.

### About monitor address and group numbers

The BKM-10R/11R Monitor Control Units are able to control up to 32 monitors connected via serial remote connector (using the REMOTE 1 connector). By giving each monitor a monitor address and group number, it is possible to control just a specific monitor or monitor group.

With the REMOTE 1 CONFIG menu, each monitor can be set with a monitor address and group number, between 1 and 99.

The ADDRESS menu is used to select a particular monitor or group by entering a monitor number or group number.

*For information about the ADDRESS menu, see "Selecting the Monitor to Control — ADDRESS Menu" on page 59.*

**Note**

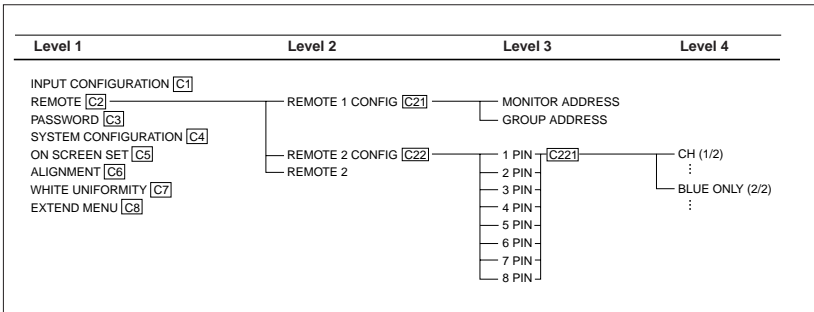
The address number must differ from one monitor to another. If two or more monitors have the same address number, an operation error occurs.

### In the case of temporary freezing controls during serial remote control.

When buttons such as UP/DOWN and ENTER are repeatedly pushed (in quick succession), the buttons may stop functioning.

In the case, turning the CHROMA or PHASE knobs will restore function.

## Structure of the REMOTE Menu



## Setting Lists of the REMOTE Menu

This section explains the setting lists displayed in the menu.

### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

### [C2] REMOTE menu

Select the type of remote control.  
**REMOTE 1 CONFIG...** : Set the address and group number of the monitor controlled via the REMOTE 1 (serial remote control) connector. ⇒ [C21]

**REMOTE 2 CONFIG...** : Set the pin assignments for the REMOTE 2 (parallel remote control) connector. ⇒ [C22]

**REMOTE 2:** Select whether parallel remote control will be used or not (ON or OFF).

### [C21] REMOTE 1 CONFIG menu

Select the monitor address and group number.  
**MONITOR ADDRESS:** Enter an address number.  
**GROUP ADDRESS:** Enter a group number.

### [C22] REMOTE 2 CONFIG menu

Select the REMOTE 2 connector pins for which you want to change the function. The factory settings for each pin are given below. ⇒ [C221]

- 1 PIN:** CH01
- 2 PIN:** CH02
- 3 PIN:** EXT SYNC
- 4 PIN:** MONO
- 5 PIN:** SAFE AREA
- 6 PIN:** unused
- 7 PIN:** unused
- 8 PIN:** TALLY

### [C221] 1-8 PIN menu (1/2)

- Assign a function to the selected pin.
- CH:** Select a channel number. Enter the desired channel number with the numeric keypad.
- : Set to unused.
- UNDER SCAN:** Set underscan on or off.
- 16:9:** Set a 16:9 aspect ratio on or off.
- H DELAY:** Set the horizontal sync display on or off.
- V DELAY:** Set the vertical sync display on or off.
- EXT SYNC:** Set the synchronization to external sync signals enabled or disabled.
- COMB:** Set the comb filter on or off.
- APERTURE:** Set the correction of frequency characteristics enabled or disabled.
- MONO:** Set monochrome display on or off.

### [C221] 1-8 PIN menu (2/2)

- Assign a function to the selected pin.
- BLUE ONLY:** Set the blue signal pictures display (monochrome) on or off.
- R OFF:** Set cutting red beams enabled or disabled.
- G OFF:** Set cutting green beams enabled or disabled.
- B OFF:** Set cutting blue beams enabled or disabled.
- SAFE AREA ON:** Set the safe area display on or off.
- CAPTION VISION:** Set Caption Vision on or off.
- TALLY ON:** Set tally signals on or off.
- DEGAUSS ON:** Set degaussing on or off.
- POWER OFF:** Set the monitor power on or off.

*For the pin assignment, see "REMOTE 2 connector" in the Location and Function of Parts on page 14.*

# C3 Setting the Password (SET UP 3) — PASSWORD Menu

## Overview

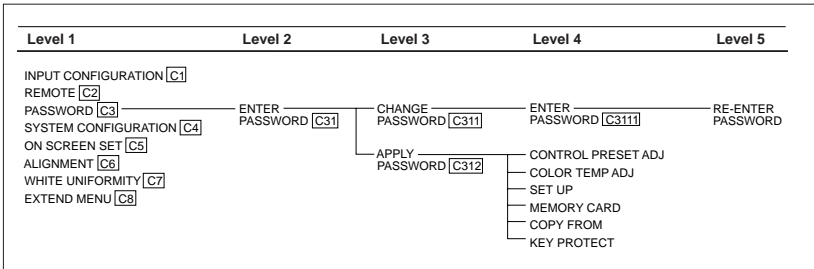
A four-digit password can be specified and applied to desired menu options to prohibit the menu settings from being changed without permission. With the PASSWORD menu, you can change the password (CHANGE PASSWORD menu) and apply the password to a desired menu item (APPLY PASSWORD menu). A password is always assigned to the PASSWORD menu (factory setting: 9999).

### Use of the password

The message “ENTER PASSWORD” is displayed when an attempt is made to select a menu item for which the password has been applied. Then, enter the password using the numeric keypad.

**If the password is not entered correctly**  
If an incorrect password is entered, the display returns to the menu of the previous level.

## Structure of the PASSWORD Menu



## Setting Lists of the PASSWORD Menu

This section explains the setting lists displayed in the menu.

### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see “About menu numbers” on page 23.*

- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

### C3 PASSWORD menu

Enter the password for the PASSWORD menu.  
**ENTER PASSWORD:** Enter the password (factory setting: 9999). ⇒ [C31]

### C31 ENTER PASSWORD menu

Choose what action to perform with the password.  
**CHANGE PASSWORD...** : Change the password.  
⇒ [C311]

**APPLY PASSWORD...** : Assign the password to a menu item. ⇒ [C312]

### C311 CHANGE PASSWORD menu

Change the password.  
**ENTER PASSWORD...** : Enter a new password.  
⇒ [C3111]

### C3111 ENTER PASSWORD menu

Create a new password.  
**RE-ENTER PASSWORD**  
Enter the new password again and press the ENTER button. ⇒ The password is registered. To change it, press the MENU button. ⇒ Return to [C31].

### C312 APPLY PASSWORD menu

Choose whether or not to apply the password to each menu.  
**CONTROL PRESET ADJ:** Select YES or NO.  
**COLOR TEMP ADJ:** Select YES or NO.  
**SET UP:** Select YES or NO.  
**MEMORY CARD:** Select YES or NO.  
**COPY FROM:** Select YES or NO.  
**KEY PROTECT:** Select YES or NO.

# C4 Setting the Channel Selection Method, Power-Up Conditions and Decoder (SET UP 4) — SYSTEM CONFIGURATION Menu

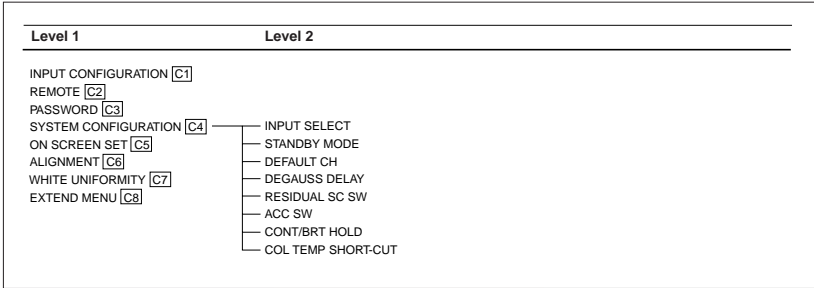
## Overview

The SYSTEM CONFIGURATION menu is used for the following settings:

- **Channel number entry method (INPUT SELECT menu)**  
This menu sets the way in which the numeric keypad can be used to enter channel numbers.
- **Power-up condition (STANDBY MODE menu)**  
This menu sets the condition of the monitor when the MAIN POWER switch on the rear panel is switched on.
- **Power-up input channel (DEFAULT CH menu)**  
This menu sets the power-up input channel.
- **Time from power-up until degauss (DEGAUSS DELAY menu)**  
If several monitors are turned on at the same time and all start degaussing at the same time, there will be a very large current draw on the power supply for a few moments. To prevent this, the delay time between power-up and degaussing can be set for each monitor independently.

- **Residual subcarrier detection (RESIDUAL SC SW menu)** (when using the BKM-24N/25P)  
It is possible to detect residual subcarrier signals from phase change by setting the decoder adaptor's residual subcarrier switch on.
- **Auto color control (ACC SW menu)** (when using the BKM-27T)  
Selects if the ACC (Auto Color Control) circuit is activated or deactivated.
- **Setting of the contrast and brightness after adjusting the white balance (CONT/BRT HOLD menu)**  
Selects if the adjusted contrast and brightness are retained or they are reset to the center values.
- **Assigning shortcut to the COLOR TEMP ADJ menu to the [F2] key (COL TEMP SHORT-CUT menu)**  
Assigns the shortcut to the MANUAL menu of the COLOR TEMP ADJ menu to the [F2] key. This allows you to jump directly to the MANUAL menu corresponding to the color temperature set to the currently displayed image (STD/COL 1/COL 2/CH SET).

## Structure of the SYSTEM CONFIGURATION Menu



## Setting Lists of the SYSTEM CONFIGURATION Menu

This section explains the setting lists displayed in the menu.

### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

### [C4] SYSTEM CONFIGURATION menu

Set each of the following items.

- INPUT SELECT:** Select the channel number selection method (DIRECT or 10KEY).  
(In the explanation below, x and y represent any digit between 0 and 9.)  
**DIRECT mode:** When selecting a number from 1 to 9, press the x button to display channel x. When selecting a number from 10 to 99, press the 0, x, and y buttons to display channel xy (a two-digit channel number). This mode is selected at the shipping.  
**10KEY mode:** When the x button is pressed followed by the ENTER or Ent button, the monitor displays channel x. When the x buttons is pressed, followed by the y and ENTER (Ent) buttons, the monitor displays channel xy (a two-digit channel number).  
When multiple monitors are connected by a serial remote connection, this setting will be common to all the monitors. It is not possible to change the setting for individual monitors.
- STANDBY MODE:** Select the power-up condition when the MAIN POWER switch is turned on (OFF or ON).  
**ON:** Standby mode  
**OFF:** Operation mode

- DEFAULT CH:** Select the power-up input channel (LAST or CH xx).  
**LAST:** Set the channel to the channel that was selected at the time the power was last turned off.  
**CH xx:** Set the channel to a specific channel number.
- DEGAUSS DELAY:** Set the time between power-up and the beginning of degaussing. Enter the desired time (in seconds).
- RESIDUAL SC SW:** Set the residual switch (OFF or ON).  
**ACC SW:** Set the ACC switch (OFF or ON).  
**CONT/BRT HOLD:** Select the contrast and brightness settings to the center or adjusted value after adjusting the white balance or auto adjustment of CONTROL PRESET ADJ (OFF or ON).  
**ON:** The contrast and brightness are set to the value before adjusting.  
**OFF:** The contrast and brightness are set to the center value (1000) after adjusting.
- COL TEMP SHORT-CUT:** Assign the shortcut function to the MANUAL menu of the COLOR TEMP ADJ menu to [F2] key (OFF or ON).  
**ON:** Assigns the shortcut to the MANUAL menu of the COLOR TEMP ADJ menu.  
**OFF:** Does not assign the shortcut to the MANUAL menu of the COLOR TEMP ADJ menu.



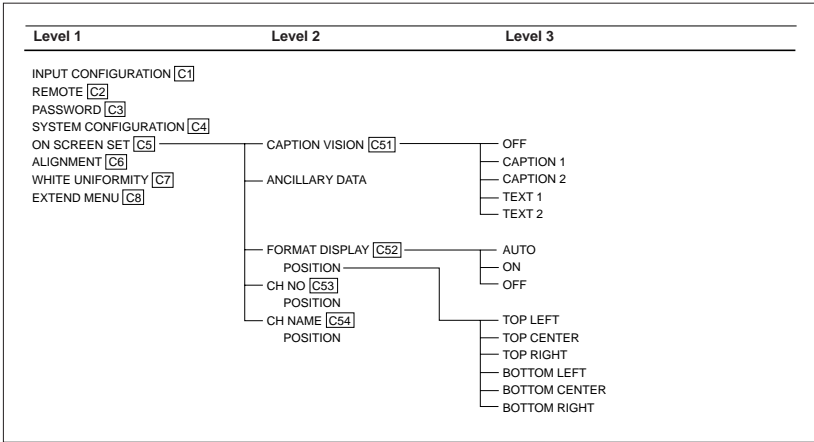
# C5 Setting the Screen Display (SET UP 5) — ON SCREEN SET Menu

## Overview

The ON SCREEN SET menu is used to select the type of information that will be displayed on the screen and how that information will be displayed. The types of information that can be set are as follows:

- **Caption vision (CAPTION VISION menu)**
- **SDI signal ancillary data blanking (ANCILLARY DATA menu)** (when the SDI signal is displayed)
- **Display mode and position of the signal format (FORMAT DISPLAY and POSITION menus)**
- **Display mode and position of the channel number (CH NO and POSITION menus)**
- **Display mode and position of the channel name (CH NAME and POSITION menus)**

## Structure of the ON SCREEN SET Menu



## Setting Lists of the ON SCREEN SET Menu

This section explains the setting lists displayed in the menu.

### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

### [C5] ON SCREEN SET menu

Select items to be displayed on the screen.

**CAPTION VISION...** : Select the caption display mode. ⇒ [C51]

**ANCILLARY DATA**: Select whether or not to display the ancillary data in the serial digital signal (OFF or ON).

**FORMAT DISPLAY**: Select the display mode of the signal format. ⇒ [C52]

**FORMAT DISPLAY POSITION**: Select the display position for the signal format. ⇒ [C52]

**CH NO** : Select the display mode of the channel number. ⇒ [C53]

**CH NO POSITION** : Select the display position for the channel number. ⇒ [C53]

**CH NAME** : Select the display mode of the channel name. ⇒ [C54]

**CH NAME POSITION** : Select the display position for the channel name. ⇒ [C54]

### [C51] CAPTION VISION menu

Select the caption display mode.

**OFF**: Not displayed

**CAPTION 1**: Displayed in CAPTION 1 mode.

**CAPTION 2**: Displayed in CAPTION 2 mode.

**TEXT 1**: Displayed in TEXT 1 mode.

**TEXT 2**: Displayed in TEXT 2 mode.

### [C52] FORMAT DISPLAY and POSITION menus

#### FORMAT DISPLAY menu

Select the display mode of the signal format.

**AUTO**: Disappears after displayed for a while.

**ON**: Displayed.

**OFF**: Not displayed.

One of the following signal formats is displayed on the screen.

1035/60I, 1080/60I, 1080/50I, 1080/48I, 480/60P, 480/60I, 575/50P, 575/50I, 720/60P, NO SYNC

#### POSITION menu

Select the display position.

**TOP LEFT, TOP CENTER, TOP RIGHT,**

**BOTTOM LEFT** (factory setting),

**BOTTOM CENTER, BOTTOM RIGHT**

### [C53] CH NO and POSITION menus

#### CH NO menu

Select the display mode of the channel number.

**AUTO**: Disappears after displayed for a while.

**ON**: Displayed

**OFF**: Not displayed.

#### POSITION menu

Select the display position.

**TOP LEFT, TOP CENTER, TOP RIGHT** (factory

setting), **BOTTOM LEFT, BOTTOM CENTER,**

**BOTTOM RIGHT**

### [C54] CH NAME and POSITION menus

#### CH NAME menu

Select the display mode of the channel number.

**AUTO**: Disappears after displayed for a while.

**ON**: Displayed

**OFF**: Not displayed.

#### POSITION menu

Select the display position.

**TOP LEFT** (factory setting), **TOP CENTER,**

**TOP RIGHT, BOTTOM LEFT, BOTTOM**

**CENTER, BOTTOM RIGHT**

# C6 Adjusting Geometry and Convergence (SET UP 6) — ALIGNMENT Menu

## Overview

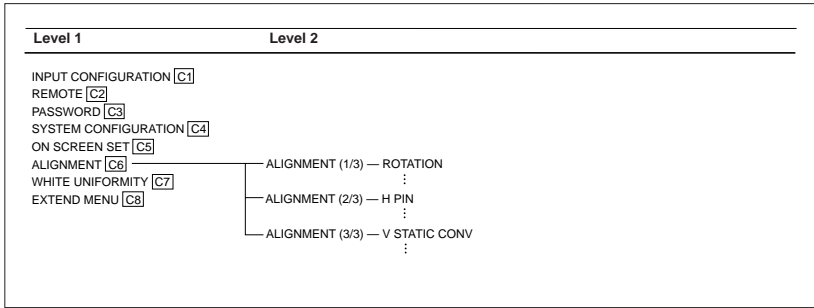
The ALIGNMENT menu is used for adjusting geometry and convergence.

**Note**  
Adjust the beam landing (C8) after the geometry and convergence adjustments have been completed.

The following adjustments can be performed with the three pages of the ALIGNMENT menu.

- Adjusting the position and size of the picture (ALIGNMENT menu (1/3))
- Adjusting the geometry of the picture (ALIGNMENT menu (2/3))
- Adjusting the convergence (ALIGNMENT menu (3/3))

## Structure of the ALIGNMENT Menu



## Setting Lists of the ALIGNMENT Menu

This section explains the setting lists displayed in the menu.

### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.

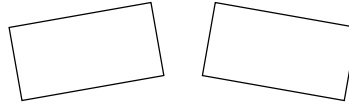
For more information about the menu number, see "About menu numbers" on page 23.

- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

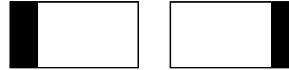
### C6 ALIGNMENT menu (1/3)

Adjust the position or size of the picture with the UP and DOWN buttons or PHASE knob.

**ROTATION:** Compensates for the screen rotation which occurs when the monitor is installed facing north or south.



**H PHASE:** Adjust the horizontal picture position.



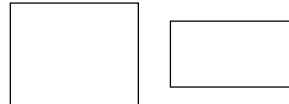
**V CENTER:** Adjust the vertical picture position.



**H SIZE:** Adjust the width of the picture.



**V SIZE:** Adjust the height of the picture.



**VITS BLK:** Adjust vertical blanking so that VITS signals are not visible in the upper part of the screen.



**SUB CONTRAST:** Adjust the center value of the contrast when the image size or signal format is changed.

### C6 ALIGNMENT menu (2/3)

Adjust the geometry of the picture with the UP and DOWN buttons or PHASE knob.

**H PIN:** Correct side pincushion distortion.



**H PIN BAL:** Correct the balance of side pincushion distortion.



**H CORNER PIN:** Correct pincushion distortion at the sides of the picture.



**H CORNER S:** Correct S pincushion distortion at the sides of the picture.



**H KEY:** Correct trapezoid distortion.



**H KEY BAL:** Correct the balance of trapezoid distortion.



### C6 ALIGNMENT menu (3/3)

Adjust the convergence with the UP and DOWN buttons or PHASE knob.

**V STATIC CONV:** Adjust vertical static convergence on the whole screen.

**V CONV TOP:** Adjust vertical convergence at the top of the screen.

**V CONV BOT:** Adjust vertical convergence at the bottom of the screen.

**H STATIC CONV:** Adjust horizontal static convergence on the whole screen.

## C7 Adjusting Beam Landing and Digital Uniformity (SET UP 7) — WHITE UNIFORMITY Menu (BVM-D24E1WU/D24E1WE/D24E1WA only)

### Overview

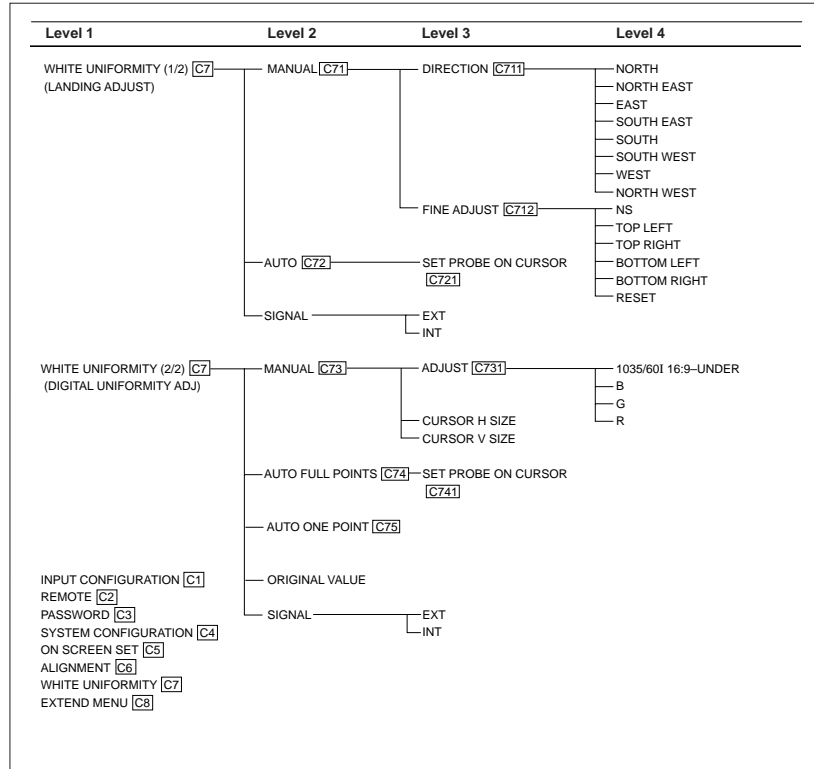
The following two adjustments can be performed using the WHITE UNIFORMITY menu, by making the white in the picture as uniform as possible.

- Correcting the shift of beam landing caused by the earth's magnetism (LANDING ADJUST menu)
- Adjusting the color unevenness of the CRT (DIGITAL UNIFORMITY menu)

#### Note

Perform the digital uniformity adjustment after the beam landing adjustment has been completed.

### Structure of the WHITE UNIFORMITY Menu



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### Setting Lists of the WHITE UNIFORMITY Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [C7] WHITE UNIFORMITY menu (1/2)

Adjust the shift of beam landing which occurs due to the earth's magnetism (LANDING ADJUST menu). Select the method of adjustment in this menu.

**MANUAL...** : Adjust with the MANUAL knobs.  
⇒ [C71]

**AUTO...** : Automatically adjust using the Sony BKM-14L Auto Setup Probe. ⇒ [C72]

**SIGNAL**: Select the white signal to be used for adjustment.

**EXT**: Use an external input signal. When adjusting the gain, input the appropriate signal.  
**INT**: Use an internal white signal.

#### [C7] WHITE UNIFORMITY menu (2/2)

Adjust the color unevenness of the CRT (DIGITAL UNIFORMITY ADJ menu). Select the method of adjustment in this menu.

**MANUAL...** : Adjust with the MANUAL knobs.  
⇒ [C73]

**AUTO FULL POINTS...** : Automatically adjust the whole area of the screen in sequence using the Sony BKM-14L Auto Setup Probe. ⇒ [C74]

**AUTO ONE POINT...** : Automatically adjust the selected adjustment point of the screen only using the Sony BKM-14L Auto Setup Probe. ⇒ [C75]

**ORIGINAL VALUE**: Set the initial value.  
Select the signal format from 1035/60I, 1080/60I, 1080/50I, 1080/48I, 480/60P, 480/60I, 575/50P, 570/50I and 720/60P, and the screen size from 16:9-NORM, 16:9-UNDR, 4:3-NORM and 4:3-UNDR.

#### Note

4:3-NORM and 4:3-UNDR can be combined with 480/60P, 480/60I, 575/50P and 570/50I only.

**SIGNAL**: Select the white signal to be used for adjustment.

**EXT**: Use an external input signal. When adjusting the gain, input the appropriate signal.

**INT**: Use an internal white signal.

#### [C71] MANUAL menu

Select the rough or fine adjustment of beam landing. First perform the rough adjustment, then proceed to the fine adjustment.

**DIRECTION** : Adjust the beam landing shift approximately by selecting the direction in which the monitor is facing. ⇒ [C711]

**FINE ADJUST** : Adjust the beam landing shift finely at each adjustment point on the screen. ⇒ [C712]

#### [C711] DIRECTION menu

Display the white signal and select the direction using the UP/DOWN buttons or PHASE knob where the white is most uniform on the screen.

**NORTH, NORTH EAST, EAST, SOUTH EAST, SOUTH, SOUTH WEST, WEST or NORTH WEST**

#### [C712] FINE ADJUST menu

Display the white signal, select the adjustment point on the screen, and adjust the white at the selected point as uniformly as possible using the UP/DOWN buttons or PHASE knob.

**NS**: Correct the beam landing shift at the top center and bottom center of the screen simultaneously.

**TOP LEFT**: Correct the beam landing shift at the top left of the screen.

**TOP RIGHT**: Correct the beam landing shift at the top right of the screen.

**BOTTOM LEFT**: Correct the beam landing shift at the bottom left of the screen.

**BOTTOM RIGHT**: Correct the beam landing shift at the bottom right of the screen.

**RESET**: Reset the beam landing data at all the five points above to the center simultaneously.

#### When you want to erase characters from the screen while adjusting manually

Press the [F1] button. The characters disappear. To display characters, press the [F1] button again.

#### [C72] AUTO menu

Before entering the AUTO menu, connect the BKM-14L to the OPTION connector.

The following message appears. ⇒ [C721]

SET PROBE ON CURSOR

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## C7 Adjusting Beam Landing and Digital Uniformity (SET UP 7) — WHITE UNIFORMITY Menu

### C721 SET PROBE ON CURSOR

To perform adjustment, operate the BKM-14L as follows:

- Place the BKM-14L to the cursor displayed on the bottom left of the screen. ⇒ The adjustment starts. "IN PROGRESS" appears during adjustment, and the cursor is displayed at the next adjustment point when the adjustment is completed.
- Move the BKM-14L to the cursor. ⇒ The next adjustment is performed.

In the same way, adjust each adjustment point guided by the cursor. When the adjustment of all the points is completed, the screen automatically returns to the WHITE UNIFORMITY menu (1/2) (C7).

#### To cancel the adjustment

Press the MENU button. The adjusted data is cleared and the screen returns to the WHITE UNIFORMITY menu (1/2) (C7).

#### If the BKM-14L is not placed to the cursor

The following message appears, and the cursor moves to the right and left alternately on the screen.

**DO YOU WISH TO ABORT?  
LEFT CURSOR: ABORT  
RIGHT CURSOR: CONTINUE**

To abort, place the BKM-14L to the cursor when it is displayed on the left. ⇒ Returns to C7.

To continue, place the BKM-14L to the cursor when it is displayed on the right. ⇒ Returns to C721.

### C73 MANUAL menu

Adjust the gain of R, G and B with the MANUAL knobs.

The signal format and screen size for the adjustment are displayed on the top of the screen.

**ADJUST.. :** Adjust the gain. ⇒ C731 (It may take some time to change to the next menu.)

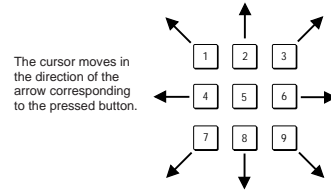
Use appropriate knobs and buttons in each adjustment as described below.

**RED: CONTRAST KNOB:** Adjust the R gain with the CONTRAST knob.

**GREEN: BRIGHT KNOB:** Adjust the G gain with the BRIGHT knob.

**BLUE: CHROMA KNOB:** Adjust the B gain with the CHROMA knob.

**CURSOR POSITION: 10KEY:** Move the cursor using the numeric keypad (except the 5 button) as illustrated below. Turn on/off the cursor using the 5 button.



**CURSOR H SIZE:** Specify the horizontal size of the cursor (1 to 4).

**CURSOR V SIZE:** Specify the vertical size of the cursor (1 to 4).

### C731 ADJUST menu

Adjust the gain at the cursor position using the CONTRAST (RED), BRIGHT (GREEN) and CHROMA (BLUE) knobs. Move the cursor using the numeric keypad.

#### To reset RED/GREEN/BLUE to the value before adjustment

When you are adjusting the gain using the MANUAL adjustment knobs, you can reset the setting to the one before adjustment by pressing the corresponding MANUAL button.

#### To cancel the adjustment

Press the MENU button. The adjusted data is cleared and the screen returns to C73. (It may take some time to change to the previous menu.)

#### When you want to erase characters from the screen while adjusting manually

Press the [F1] button. The characters disappear. To display characters, press the [F1] button again.

### C74 AUTO FULL POINTS menu

Before entering the AUTO FULL POINTS menu, connect the BKM-14L to the OPTION connector. The following message appears. ⇒ C741 (It may take some time to change to the next menu.)

#### SET PROBE ON CURSOR

### C741 SET PROBE ON CURSOR

To perform adjustment, operate the BKM-14L as follows:

- Place the BKM-14L to the cursor displayed in the center of the screen. ⇒ The adjustment starts. When the adjustment is completed, the cursor is displayed at the next adjustment point.
- Move the BKM-14L to the cursor. ⇒ The next adjustment is performed.

In the same way, adjust each adjustment point guided by the cursor. When the adjustment of all the points is completed, the screen automatically returns to the WHITE UNIFORMITY menu (2/2) (C7).

#### To cancel the adjustment

Press the MENU button. The adjusted data is cleared and the screen returns to the WHITE UNIFORMITY menu (2/2) (C7). (It may take some time to change to the previous menu.)

#### If the BKM-14L is not placed to the cursor

The following message appears, and the cursor moves to the right and left alternately on the screen.

**DO YOU WISH TO ABORT?  
LEFT CURSOR: ABORT  
RIGHT CURSOR: CONTINUE**

To abort, place the BKM-14L to the cursor when it is displayed on the left. ⇒ Returns to C7.

To continue, place the BKM-14L to the cursor when it is displayed on the right. ⇒ Returns to C741.

### C75 AUTO ONE POINT menu

Before entering the AUTO ONE POINT menu, connect the BKM-14L to the OPTION connector.

The cursor flashes in the center of the screen.

Use appropriate buttons as described below.

**CURSOR POSITION: 10KEY:** Move the cursor using the numeric keypad (except the 5 button). Turn on/off the cursor using the 5 button.

**TO CANCEL: MENU KEY:** Press the MENU button to clear the adjusted data and return to the previous menu.

**TO CONFIRM: ENTER KEY:** Press the ENTER or Ent button to confirm the adjusted data.

To perform adjustment, operate the BKM-14L as follows:

- Move the cursor to the desired point using the numeric keypad (except the 5 button), and press the ENTER or Ent button. ⇒ The following message appears and the cursor returns to the center.

#### SET PROBE ON CURSOR

##### Note

If you press the ENTER or Ent button without moving the cursor, the screen returns to the WHITE UNIFORMITY menu (2/2) (C7).

- Place the BKM-14L to the cursor displayed in the center of the screen. ⇒ The adjustment of the center of the screen starts. "IN PROGRESS" appears during adjustment, and the cursor returns to the point set in step (1) when the adjustment is completed.

- Move the BKM-14L to the cursor. ⇒ The adjustment of the specified point is performed. "IN PROGRESS" appears during adjustment, and the cursor flashes when the adjustment of that point is completed.

#### To adjust another point of the screen

Move the cursor to the desired point using the numeric keypad (except the 5 button), and press the ENTER or Ent button. Then place the BKM-14L to the cursor to perform the adjustment. Repeat this procedure for each adjustment point.

#### To finish the adjustment

When the adjustment of the specified points is completed, press the ENTER or Ent button without operating the numeric keypad. The adjusted data is stored in the memory and the screen returns to the WHITE UNIFORMITY menu (2/2) (C7). (It may take some time to change to the previous menu.)

##### Note

Operating the numeric keypad before pressing the ENTER or Ent button starts the adjustment.

#### To cancel the adjustment

Press the MENU button. The adjusted data is cleared and the screen returns to the WHITE UNIFORMITY menu (2/2) (C7). (It may take some time to change to the previous menu.)

#### If the BKM-14L is not placed to the cursor

The following message appears, and the cursor moves to the right and left alternately on the screen.

**DO YOU WISH TO ABORT?  
LEFT CURSOR: ABORT  
RIGHT CURSOR: CONTINUE**

To abort, place the BKM-14L to the cursor when it is displayed on the left. ⇒ Returns to C7.

To continue, place the BKM-14L to the cursor when it is displayed on the right. ⇒ Returns to C75.

## C8 Using Extended Functions (SET UP 8) — EXTEND Menu

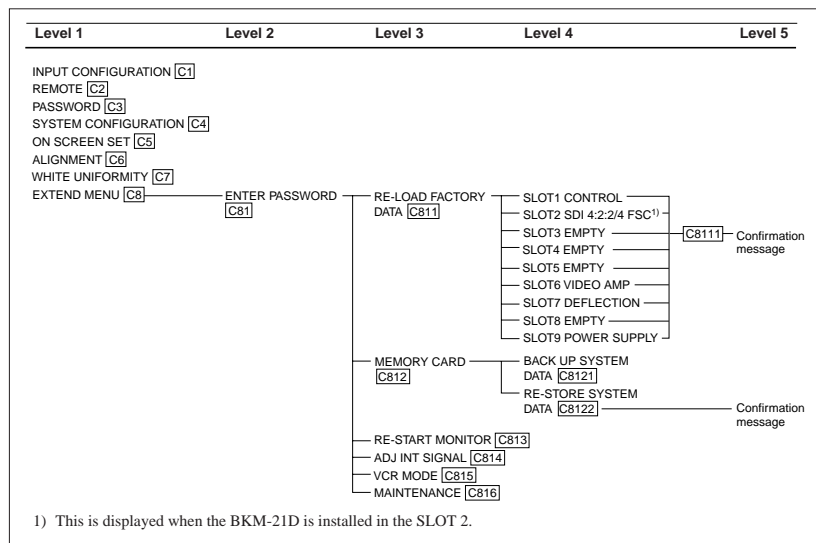
### Overview

The following six functions can be executed with the EXTEND menu.

- Loading factory default data for installed boards into memory (RE-LOAD FACTORY DATA menu)
- Writing monitor setting and adjustment data to the monitor memory card, or read setting and adjustment data from the monitor memory card (MEMORY CARD menu)

- Restarting the monitor (RE-START MONITOR menu)
- Calibrating the internal signal level (ADJ INT SIGNAL menu)
- Improving the skew of the picture from the connected VCR (VCR MODE menu)
- Displaying the menu for maintenance (MAINTENANCE menu)

### Structure of the EXTEND Menu



### Setting Lists of the EXTEND Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.

For more information about the menu number, see "About menu numbers" on page 23.

- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [C8] EXTEND menu

Enter the password (ENTER PASSWORD [C81])  
When the correct password is entered, the following item appears. Choose the function to execute.

**RE-LOAD FACTORY DATA...** : Restore factory default data for the board installed in the selected slot. ⇒ [C811]

**MEMORY CARD...** : Read and write setting and adjustment data by using the monitor memory card. ⇒ [C812]

**RE-START MONITOR:** Restart the monitor. ⇒ [C813]

**ADJ INT SIGNAL:** Automatically adjust the SETUP level and 100 IRE level of internal signals. ⇒ [C814]

**VDR MODE:** Select the mode of the connected VCR. ⇒ [C815]

**MAINTENANCE:** Display the menu for maintenance. ⇒ [C816]

#### [C811] RE-LOAD FACTORY DATA menu

Select a slot where a board is installed to reload factory default data to the board. ⇒ [C8111]

#### [C8111] RE-LOAD FACTORY DATA menu

The following message appears to confirm the data reload operation.

**DATA RESET TO  
ITS FACTORY SETTING  
AND MONITOR WILL RESTART  
ARE YOU SURE?  
OK: ENTER KEY  
CANCEL: MENU KEY**

**OK:** To continue, press the ENTER or Ent button.  
⇒ Resets the data and automatically turn the monitor off and on again.

**CANCEL:** To cancel, press the MENU button.  
⇒ Returns to the RE-LOAD FACTORY DATA menu. ([C811])

#### [C812] MEMORY CARD menu

Insert the monitor memory card into the MEMORY CARD slot and select the operation to perform.

**BACK UP SYSTEM DATA...** : Write the data to the monitor memory card. ⇒ [C8121]

**RE-STORE SYSTEM DATA...** : Read the data from the monitor memory card. ⇒ [C8122]

#### Notes

- Before using a monitor memory card, it must be formatted it with the FORMAT menu ([D4]).
- System data and MEMORY CARD data ([D]) cannot be stored on the same memory card. To store memory card data, use another memory card.

- The BKM-12Y monitor memory card has a capacity of 256 Kbytes. It can store either system data for up to 8 monitors or 38 files of memory card data.

#### [C8121] BACK UP SYSTEM DATA menu

While the system is writing the data, a "—" mark blinks at the top right of the menu. (It takes some time to save the data.)

**BACK UP SYSTEM DATA  
IN PROGRESS...SYSTEM**

#### [C8122] RE-STORE SYSTEM DATA menu

The following message appears to confirm the data restore operation.

**RE-STORE SYSTEM DATA  
ALL DATA WILL BE RESTORED  
ARE YOU SURE?**

**OK: ENTER KEY  
CANCEL: MENU KEY**

**OK:** To continue, press the ENTER or Ent button.  
⇒ Read the data from the monitor memory card and automatically turn the monitor off and on again.

**CANCEL:** To cancel, press the MENU button.  
⇒ Return to the MEMORY CARD menu ([C812]).

#### [C813] RE-START MONITOR menu

Turn the monitor off and on again automatically.

#### [C814] ADJ INT SIGNAL menu

Adjust the SETUP level and 100 IRE level of the internal white signal which is used with the COLOR TEMP ADJ menu ([B]).

#### [C815] VCR MODE menu

Improve the skew of the picture when a non-standard signal is input from the connected VCR. This menu is effective for the 480/60I or 575/50I format signals only.

**ON:** Always activates this function for the 480/60I or 575/60I format signals.

**OFF:** Deactivates this function.

#### [C816] MAINTENANCE menu

The menu for the maintenance personnel is displayed.

## D Monitor Memory Card Data Operations — MEMORY CARD Menu

### Overview

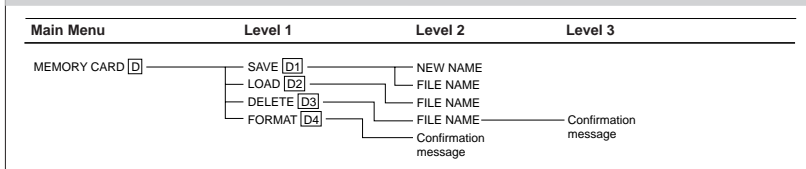
Operations on monitor memory card data are performed with the MEMORY CARD menu. The following operations are possible with the MEMORY CARD menu.

- Writing data to a monitor memory card (SAVE menu)
- Reading data from a monitor memory card (LOAD menu)
- Deleting a file in a monitor memory card (DELETE menu)
- Formatting a monitor memory card (FORMAT menu)

### Regarding the Monitor memory card

While data is being saved or loaded with the monitor memory card, the input signal can't be displayed.

### Structure of the MEMORY CARD Menu



### Setting Lists of the MENU CARD Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [D] MEMORY CARD menu

Select the operation to perform. (It takes some time to load and save the data.)

**SAVE:** Write data to a monitor memory card. ⇒ [D1]

**LOAD:** Read data from a monitor memory card.

⇒ [D2]

**DELETE:** Delete a file. ⇒ [D3]

**FORMAT:** Format a monitor memory card. ⇒ [D4]

#### [D1] SAVE menu

Select the name of the file to which to write data, or create a new file name.

**NEW NAME:** Enter a new name (max. 20 characters).

#### [D2] LOAD menu

Select the name of the file from which to read data.

#### [D3] DELETE menu

Select the name of the file to delete. The following confirmation message appears.

**DELETE THIS FILE?  
OK: ENTER KEY  
CANCEL: MENU KEY**

**OK:** To continue, press the ENTER or Ent button.

⇒ The file is deleted.

**CANCEL:** To cancel, press the MENU button.

⇒ Return to the MEMORY CARD menu [D].

#### [D4] FORMAT menu

Confirm the format operation. The following confirmation message appears. All files will be deleted at formatting.

**ALL FILES WILL BE DELETED!  
ARE YOU SURE?  
OK: ENTER KEY  
CANCEL: MENU KEY**

**OK:** To continue, press the ENTER or Ent button.

⇒ The format is performed.

**CANCEL:** To cancel, press the MENU button.

⇒ Return to the MEMORY CARD menu ([D]).

## E Monitor-to-Monitor Data Copy — COPY FROM Menu

### Overview

When multiple BVM-DxxE/DxxF series monitors are connected via their serial remote ports, data can be shared between the monitors by data copy. The data copy from one monitor to another is accomplished with the COPY menu.

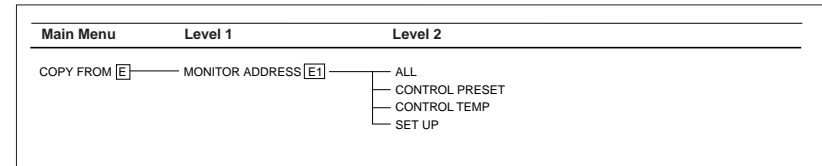
#### Note

Data copy is impossible between monitors other than BVM-DxxE/DxxF series.

First assign the MONITOR ADDRESS from which the data is to copy, then select the data from among the following:

- Copying data for all menu settings (ALL menu)
- Copying data for the CONTROL PRESET ADJ menu settings (CONTROL PRESET menu)
- Copying data for the COLOR TEMP ADJ menu settings (COLOR TEMP menu)
- Copying data for the SET UP menu settings (SET UP menu)

### Structure of the COPY FROM Menu



### Setting Lists of the COPY FROM Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [E] COPY FROM menu

Select the copy source monitor.

**MONITOR ADDRESS:** Enter the monitor address number. ⇒ [E1]

#### [E1] MONITOR ADDRESS menu

Select the data to be copied. ⇒ Copy is carried out.

**ALL:** Copy data for all menu settings.

**CONTROL PRESET:** Copy the data for the CONTROL PRESET ADJ menu settings.

**COLOR TEMP:** Copy the data for the COLOR TEMP ADJ menu settings.

**SET UP:** Copy the data for the SET UP menu settings.

## D Monitor Memory Card Data Operations — MEMORY CARD Menu

### Overview

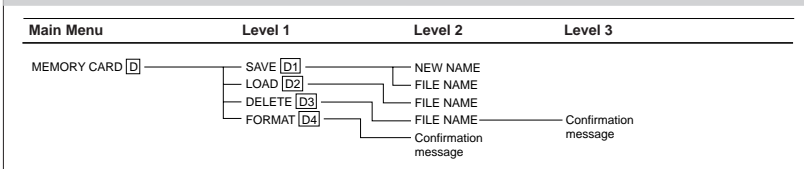
Operations on monitor memory card data are performed with the MEMORY CARD menu. The following operations are possible with the MEMORY CARD menu.

- Writing data to a monitor memory card (SAVE menu)
- Reading data from a monitor memory card (LOAD menu)
- Deleting a file in a monitor memory card (DELETE menu)
- Formatting a monitor memory card (FORMAT menu)

### In the case of temporary freezing controls during serial remote control

- When buttons such as UP/DOWN and ENTER are repeatedly pushed (in quick succession), the buttons may stop functioning.
- In the case, turning the CHROMA or PHASE knobs will restore function.

### Structure of the MEMORY CARD Menu



### Setting Lists of the MENU CARD Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [D] MEMORY CARD menu

Select the operation to perform. (It takes some time to load and save the data.)

**SAVE:** Write data to a monitor memory card. ⇒ [D1]

**LOAD:** Read data from a monitor memory card.

⇒ [D2]

**DELETE:** Delete a file. ⇒ [D3]

**FORMAT:** Format a monitor memory card. ⇒ [D4]

#### [D1] SAVE menu

Select the name of the file to which to write data, or create a new file name.

**NEW NAME:** Enter a new name (max. 20 characters).

#### [D2] LOAD menu

Select the name of the file from which to read data.

#### [D3] DELETE menu

Select the name of the file to delete. The following confirmation message appears.

**DELETE THIS FILE?  
OK: ENTER KEY  
CANCEL: MENU KEY**

**OK:** To continue, press the ENTER or Ent button.

⇒ The file is deleted.

**CANCEL:** To cancel, press the MENU button.

⇒ Return to the MEMORY CARD menu [D].

#### [D4] FORMAT menu

Confirm the format operation. The following confirmation message appears. All files will be deleted at formatting.

**ALL FILES WILL BE DELETED!  
ARE YOU SURE?  
OK: ENTER KEY  
CANCEL: MENU KEY**

**OK:** To continue, press the ENTER or Ent button.

⇒ The format is performed.

**CANCEL:** To cancel, press the MENU button.

⇒ Return to the MEMORY CARD menu ([D]).

## E Monitor-to-Monitor Data Copy — COPY FROM Menu

### Overview

When multiple BVM-DxxE/DxxF series monitors are connected via their serial remote ports, data can be shared between the monitors by data copy. The data copy from one monitor to another is accomplished with the COPY menu.

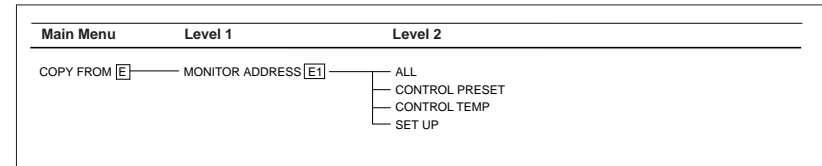
#### Note

Data copy is impossible between monitors other than BVM-DxxE/DxxF series.

First assign the MONITOR ADDRESS from which the data is to copy, then select the data from among the following:

- Copying data for all menu settings (ALL menu)
- Copying data for the CONTROL PRESET ADJ menu settings (CONTROL PRESET menu)
- Copying data for the COLOR TEMP ADJ menu settings (COLOR TEMP menu)
- Copying data for the SET UP menu settings (SET UP menu)

### Structure of the COPY FROM Menu



### Setting Lists of the COPY FROM Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.  
*For more information about the menu number, see "About menu numbers" on page 23.*
- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [E] COPY FROM menu

Select the copy source monitor.

**MONITOR ADDRESS:** Enter the monitor address number. ⇒ [E1]

#### [E1] MONITOR ADDRESS menu

Select the data to be copied. ⇒ Copy is carried out.

**ALL:** Copy data for all menu settings.

**CONTROL PRESET:** Copy the data for the CONTROL PRESET ADJ menu settings.

**COLOR TEMP:** Copy the data for the COLOR TEMP ADJ menu settings.

**SET UP:** Copy the data for the SET UP menu settings.

## F Displaying Information About the Monitor — STATUS Menu

### Overview

The STATUS menu is used to view general data about the monitor status, the current channel, etc.

The following information is displayed on the three pages of the STATUS menu.

- **Data about the current channel (STATUS menu (1/3))**
- **Data about the monitor in use (STATUS menu (2/3))**
- **Data about the circuit boards installed into the slots in the rear panel (STATUS menu (3/3))**

### Structure of the STATUS Menu

Main Menu	Level 1	Level 2	Level 3
STATUS [F]	STATUS (1/3) [F1]	CH STATUS [F11]	CH
	STATUS (2/3) [F2]	MODEL NAME	
	STATUS (3/3) [F3]	SLOT STATUS [F31]	MODEL NAME SERIAL NO

### Setting Lists of the STATUS Menu

This section explains the setting lists displayed in the menu.

#### How to read the setting lists

- For purposes of explanation, each setting list is preceded by a menu number. These numbers are not displayed on the screen.

*For more information about the menu number, see "About menu numbers" on page 23.*

- The arrow mark (⇒) refers you to another setting list that appears after you make the setting, or to an operation that is carried out as a result of the setting. When there is no arrow mark, the menu does not have any sub-list.

#### [F] STATUS menu

Select the STATUS menu 1/3, 2/3 or 3/3. ⇒ [F1]

#### [F1] STATUS menu (1/3)

Specify the channel block to be detected from channel 1 to channel 99.

#### [F11] CH STATUS menu (1/3)

Data about the current channel is displayed.

**CH:** channel number

**SL:** slot number

**IN:** input connector number

**FORMAT:** format of the input signal

**NAME:** channel name

#### [F2] STATUS menu (2/3)

Data about the monitor is displayed.

**MODEL NAME:** model name

**SERIAL NO:** serial number

**OPERATION TIME:** operation time (in hours)

**SOFTWARE VERSION:** software version

#### [F3] STATUS menu (3/3)

Data about circuit boards installed into the respective slots in the rear panel is displayed.

When the BKM-21D is installed in SLOT 2, the following is displayed. When any optional boards are not installed, EMPTY is displayed for SLOT 2 to SLOT 5.

**SLOT1: CONTROL**

**SLOT2: SDI4:2:2/4FSC**

**SLOT3: EMPTY**

**SLOT4: EMPTY**

**SLOT5: EMPTY**

**SLOT6: VIDEO AMP**

**SLOT7: DEFLECTION**

**SLOT8: EMPTY (BVM-D20F1U/D20F1E/D20F1A) or DIGITAL UNIF (BVM-D24E1WU/D24E1WE/D24E1WA)**

**SLOT9: POWER SUPPLY**

#### [F31] SLOT STATUS menu

Select the desired slot. Data about the optional board installed in the selected slot is displayed.

**MODEL NAME:** Model name of that optional board

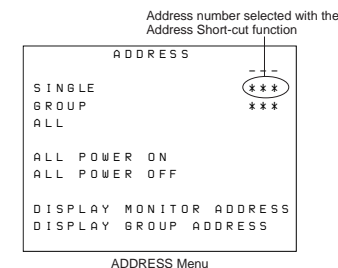
**SERIAL NO:** Serial number of that circuit board

## Selecting the Monitor to Control — ADDRESS Menu

### Overview

When multiple monitors are connected by a serial remote connection, the ADDRESS menu is used to choose whether one particular monitor or monitor group will be controlled, or whether operations are to be performed on all monitors together.

By pressing the ENTER or Ent button after selecting the item, serial remote operation becomes activated.



### Displaying the ADDRESS Menu

Press the ADDRESS button.

The ADDRESS menu is displayed on the screen.

Settings made with the menu items are as follows:

Item	Function
SINGLE	Controls only a specified monitor. Enter the monitor address number.
GROUP	Controls only a specified monitor group. Enter the group address number.
ALL	Controls all monitors.
ALL POWER ON	Turns all connected monitors on.
ALL POWER OFF	Turns all connected monitors off.
DISPLAY MONITOR ADDRESS	When this item is selected, each connected monitor displays its monitor address on its screen.
DISPLAY GROUP ADDRESS	When this item is selected, each connected monitor displays its group address on its screen.

### Notes

- To remotely control monitors connected in serial, MONITOR ADDRESS or GROUP ADDRESS of monitors should be correctly set in the REMOTE menu.

*For details of the REMOTE menu, see "[C2] Assigning the Remote Control Functions (SET UP 2) – REMOTE Menu" on page 40.*

- In GROUP mode, when the KEY PROTECT function is set to ON, the LED on the pressed function button lights, but it is deactivated. (LED of other monitors in the same group will not light.)
- In GROUP or ALL mode, the LEDs of the function buttons will not light with controlled from the menu. (LEDs light only when you press the function button.)

- In GROUP or ALL mode, LEDs of controlled monitor will light as follows.

(1) **In case of SHIFT OFF before remote control operation:** LEDs light in green when the SHIFT button is remotely set to OFF.

(2) **In case of SHIFT ON before remote control operation:** LEDs light in amber when the SHIFT button is remotely set to ON.

*For details, see "SHIFT button" on page 15.*

- In SINGLE mode, when the data is saved or loaded in or from the memory card, the error message may appear due to data communication error. In such a case, clear the remote mode, then try again. It is recommended to save or load data to or from the memory card by controlling the monitor from the BKM-10R/11R directly connected to the target monitor.



### Canceling the Remote Control Mode

To cancel the remote control mode, press the ADDRESS button.

### Exiting the ADDRESS Menu

To exit the ADDRESS menu, press the ADDRESS button or the MENU button.

### Short-cut Function in the ADDRESS Menu

When selecting the monitor, short-cut function will enable to select the target monitor without using the items in the ADDRESS menu. The operation procedure is as follows.

#### To select the monitor in the SINGLE mode

- 1 Press the ADDRESS button.
- 2 Press the address number of the target monitor. Press one digit address number on the numeric keypad when it is from 1 to 9. Press three digits address number (press 0 button and then press the two-digit address number) when it is from 10 to 99.

#### To select the monitors in the GROUP mode

- 1 Press the ADDRESS button.
- 2 Press the F1 button.
- 3 Press the group number of the target monitor. Press one digit group address number when it is from 1 to 9. Press three digits group address number (press 0 button and then press the two-digit group number) when it is from 10 to 99.

#### To select all the monitors in the ALL mode

- 1 Press the ADDRESS button.
- 2 Press the F2 button.

## Specifications

### General

System 15.625 kHz – 45 kHz (For details, see "Available Signal Formats" on page 63.)

### CRT

#### BVM-D20F1U/D20F1E/D20F1A

Super fine pitch Trinitron, 4:3 aspect ratio  
Aperture grille pitch: 0.3 mm  
90 degree deflection, 30.6 mm diameter in-line gun

Effective picture size with 16:9 aspect ratio:

386 × 218 mm (15 1/4 × 8 5/8 inches) (w/h)  
443 mm (17 1/2 inches) (diagonal size)

Effective picture size with 4:3 aspect ratio:

386 × 291 mm (15 1/4 × 11 1/2 inches) (w/h)  
482 mm (19 inches) (diagonal size)

CRT protection: EHT (extremely high tension) protection type

Warm-up time: approx. 30 minutes

Anode voltage: 27 kV with no beam current

Nominal chromaticity coordinates:

SMPTE C phosphor (BVM-D20F1U)

	x	y
R	0.630	0.340
G	0.310	0.595
B	0.155	0.070

EBU phosphor (BVM-D20F1E/D20F1A)

	x	y
R	0.640	0.330
G	0.290	0.600
B	0.150	0.060

Error: ± 0.005 or less

#### BVM-D24E1WU/D24E1WE/D24E1WA

Super fine pitch Trinitron, flat surface,  
16:9 aspect ratio

Aperture grille pitch: 0.25-0.28 mm  
90 degree deflection, 29.1 mm diameter in-line gun

Effective picture size with 16:9 aspect ratio:

482.1 × 271.2 mm (19 × 10 3/4 inches) (w/h)

553.1 mm (21 7/8 inches) (diagonal size)

Effective picture size with 4:3 aspect ratio:

361.6 × 271.2 mm (14 1/4 × 10 3/4 inches) (w/h)

452.0 mm (17 7/8 inches) (diagonal size)

CRT protection: EHT (extremely high tension) protection type

Warm-up time: approx. 30 minutes

Anode voltage: 27 kV with no beam current

Nominal chromaticity coordinates:

SMPTE C phosphor (BVM-D24E1WU)

	x	y
R	0.630	0.340
G	0.310	0.595
B	0.155	0.070

EBU phosphor (BVM-D24E1WE/D24E1WA)

	x	y
R	0.640	0.330
G	0.290	0.600
B	0.150	0.060

Error: ± 0.005 or less

Mass BVM-D20F1U/D20F1E/D20F1A:  
approx. 38 kg (83 lb 12 oz)  
BVM-D24E1WU/D24E1WE/D24E1WA:  
approx. 51 kg (112 lb 7 oz)

#### Power consumption

BVM-D20F1U/D20F1E/D20F1A: 155 W  
When an optional adaptor is installed:  
210 W

BVM-D24E1WU/D24E1WE/D24E1WA:  
150 W

When an optional adaptor is installed:  
205 W

#### Power requirements

BVM-D20F1U/D20F1E/D20F1A: 100 to 240 V AC, 2.3 to 1.0A, 50/60 Hz

BVM-D24E1WU/D24E1WE/D24E1WA:  
100 to 240 V AC, 2.1 to 0.9A, 50/60 Hz

#### Peak inrush current

(1) Power ON, current probe method:  
47 A (240 V)

(2) Hot switching inrush current,  
measured in accordance with  
European standard EN55103-1  
18 A (230 V)

## Specifications

### Input/output connectors

Video input	BNC type × 3 (with loop-through outputs) G/B/R: Composite 1.0 Vp-p or non-composite 0.7 Vp-p Y: Composite 1.0 Vp-p or non-composite 0.7 Vp-p Pb/Pr: Non-composite 0.7 Vp-p Sync: ±0.3 V±6 dB, positive/negative, tri-level sync, or 0.3 V±6 dB negative sync
Sync input	BNC type × 1 (with loop-through output) 0.3 to 8 Vp-p, positive/negative, tri-level sync signal input, or 0.3 to 8 Vp-p, negative sync signal input
Return loss	More than 40 dB (10 MHz, with 75-ohm termination)
Remote control	OPTION: Mini-DIN 8-pin × 1 CONTROL UNIT: D-sub 9-pin × 1 REMOTE 1: D-sub 9-pin × 1 (with loop-through output), RS-485 serial interface REMOTE 2: D-sub 9-pin × 1 ISR: D-sub 9-pin × 1

### Video signal

Differential gain	Less than 5% (for luminance from 0 to 100 cd/m <sup>2</sup> )
Differential phase	Less than 5° (for luminance from 0 to 100 cd/m <sup>2</sup> )
Frequency response	50 Hz to 30 MHz, +1 dB/ -3 dB
DC restoration	Back porch type Black level fluctuation: less than 1% for 10% to 90% APL input signal variation

### Synchronization

Vertical blanking time	Less than 650 μs.
Horizontal blanking time	Less than 3.77 μs. (1080/60I, 1035/60I)

### Picture performance

Normal scan	5% overscan of CRT effective screen area (±10% of CRT effective screen area)
Underscan	3% underscan of CRT effective screen area (±10% of CRT effective screen area)
Linearity	Within a central area bounded by a circle with a diameter equal to the picture height, less than 0.5% of the picture height, and outside the same area, about 1% of the picture height (1080/60I, 1035/60I)
Color temperature	D65, D93 (adjustable to other color temperatures)
Convergence error	Within a central area bounded by a circle with a diameter equal to the picture height. Less than 0.4 mm with a central area bounded by a circle and less than 0.7 mm at any other point.
Standard luminescence	100 cd/m <sup>2</sup> (at standard 1 Vp-p 100% white signal)
Raster size stability	Less than 1% of picture height (at 100 cd/m <sup>2</sup> peak luminescence, 10 to 90% APL)
Scan delay	Horizontal: Approx. 3/8 line Vertical: Approx. 1/2 field
Resolution (at screen center, 100 cd/m <sup>2</sup> luminescence)	BVM-D20F1U/D20F1E/D20F1A: 700 TV lines (16:9) 900 TV lines (4:3) BVM-D24E1WU/D24E1WE/D24E1WA: 1000 TV lines (16:9) 1000 TV lines (4:3)

### Operating conditions

Temperature	0°C to 35°C (32°F to 95°F)
Optimum temperature	20°C to 30°C (68°F to 86°F)
Humidity	0% to 90% (no condensation)
Pressure	700 hPa to 1060 hPa

### Storage and transport conditions

Temperature	-10°C to 40°C (14°F to 104°F)
Humidity	0% to 90%
Pressure	700 hPa to 1060 hPa

### Accessories supplied

AC power cord (1)
AC plug holder (1)
Fuse (1)
Tally plate (1) (BVM-D20F1U/D20F1E/D20F1A only)
4:3 mask (1) (BVM-D20F1U/D20F1E/D20F1A only)
Operation manual (1)
Quick reference (1)

### Acquired safety regulations

UL1950, CSA No.950
FCC Class A, IC Class A
DHHS, DNHW
TÜV (EN60950)
CE, C-tick

Design and specifications are subject to change without notice.

### Available Signal Formats

System	Total lines per frame	Active lines per frame	Frame rate** (Hz)	Scanning format	Aspect	Standard
575/50I (PAL*)	625	575	25	2:1 interlace	16:9/4:3	ITU 601
480/60I (NTSC*)	525	483	30	2:1 interlace	16:9/4:3	ITU 601
575/50P	625	575	50	Progressive	16:9/4:3	-
480/60P	525	483	60	Progressive	16:9/4:3	SMPTE 293M
1080/48I	1125	1080	24	2:1 interlace	16:9	-
1080/50I	1125	1080	25	2:1 interlace	16:9	SMPTE 274M
1035/60I	1125	1035	30	2:1 interlace	16:9	BTA S-001B
1080/60I	1125	1080	30	2:1 interlace	16:9	SMPTE 274M/BTA S-001B
720/60P	750	720	60	Progressive	16:9	SMPTE 296M

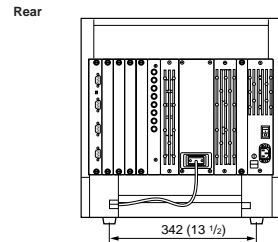
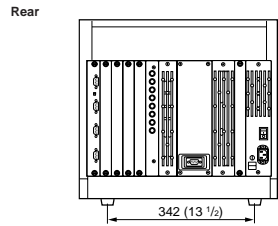
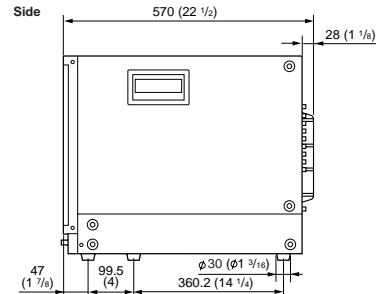
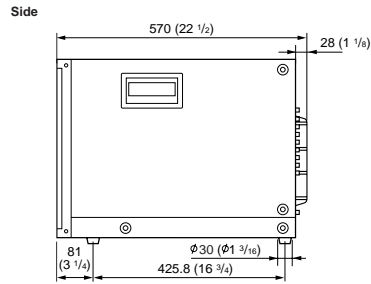
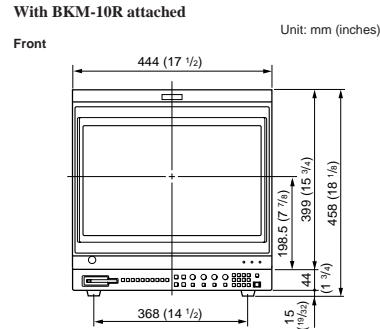
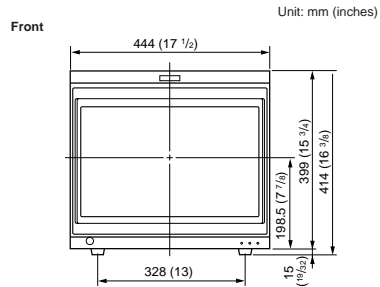
\* Available when the optional adaptor is installed.

\*\* Also compatible with 1/1.001.

Specifications

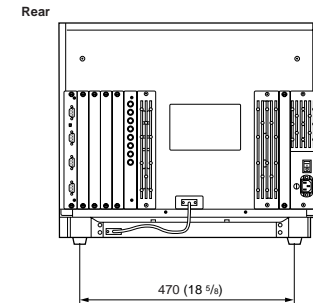
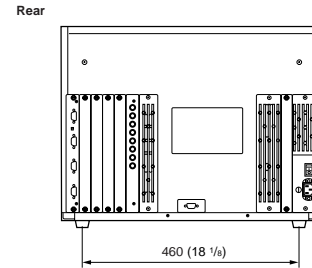
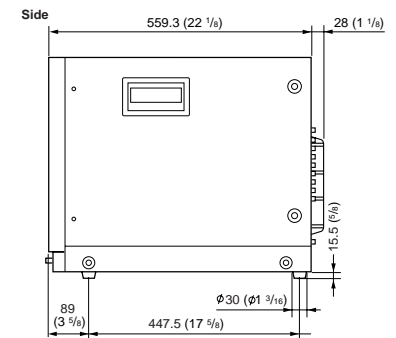
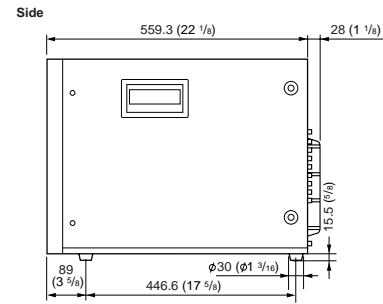
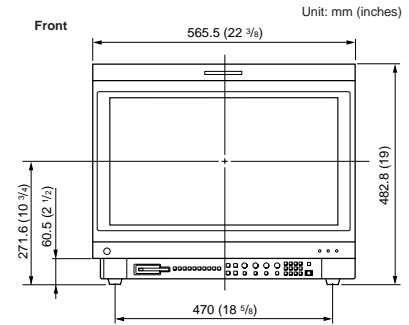
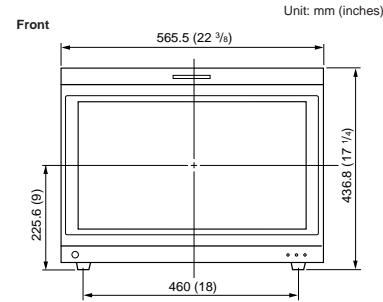
Dimensional Drawing

BVM-D20F1U/D20F1E/D20F1A



BVM-D24E1WU/D24E1WE/D24E1WA

With BKM-10R attached



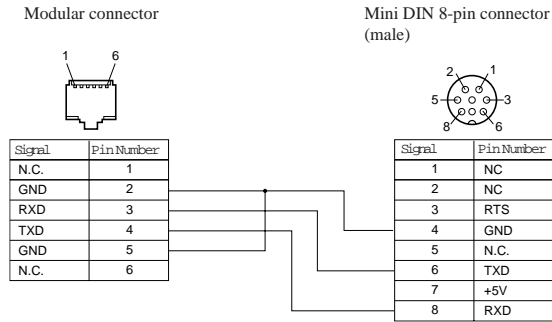
## Specifications

### Connection Cable Specifications for Color Temperature Probes

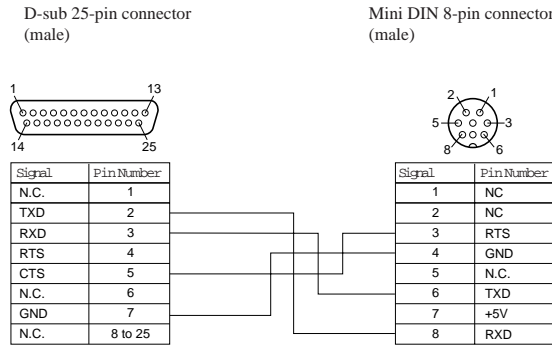
Special cables are required to connect color temperature probes other than the Sony BKM-14L to the monitor.

The following diagrams show specifications and pin assignments for the required cables.

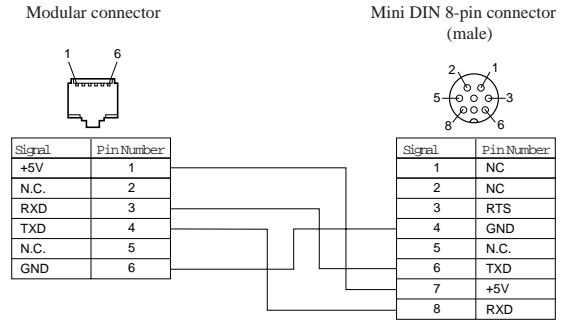
#### Connection cable for GRASEBY SLS 9400 probe



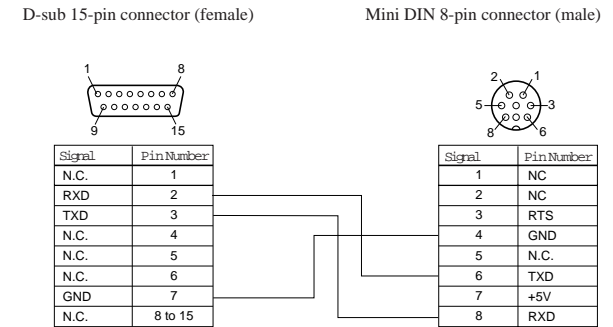
#### Connection cable for MINOLTA CA-100 probe



#### Connection cable for PHILIPS PM 5639 probe (corresponds to PHILIPS PM 5639/64 cable)



#### Connection cable for THOMA TF6 probe



# Menu Index

The menu index shows the menu items provided with this monitor in alphabetical order. For your reference, each menu item is followed by the page of this manual on which the item is explained, its menu number, and the Main Menu that the item belongs to.

Menu Item	Page	Menu number	Main menu
A ADDRESS	59	—	ADDRESS menu
ADJ INT SIGNAL	55	<a href="#">C814</a>	SET UP/EXTEND menu
ADJUST	33	<a href="#">B1211</a>	COLOR TEMP ADJ menu
	52	<a href="#">C731</a>	SET UP/WHITE UNIFORMITY menu
ALIGNMENT	49	<a href="#">C6</a>	SET UP/ALIGNMENT menu
ANALYZE	33	<a href="#">B1212</a>	COLOR TEMP ADJ menu
APPLY PASSWORD	43	<a href="#">C312</a>	SETUP/PASSWORD menu
AUTO	29	<a href="#">A12</a>	CONTROL PRESET ADJ menu
	51	<a href="#">C72</a>	SET UP/WHITE UNIFORMITY menu
AUTO FULL POINTS	52	<a href="#">C74</a>	SET UP/WHITE UNIFORMITY menu
AUTO ONE POINT	53	<a href="#">C75</a>	SET UP/WHITE UNIFORMITY menu
B BACK UP SYSTEM DATA	55	<a href="#">C8121</a>	SET UP/EXTEND menu
C CAPTION VISION	47	<a href="#">C51</a>	SET UP/ON SCREEN SET menu
CH NAME	47	<a href="#">C54</a>	SET UP/ON SCREEN SET menu
CH NAME POSITION	47	<a href="#">C54</a>	SET UP/ON SCREEN SET menu
CH NO	47	<a href="#">C53</a>	SET UP/ON SCREEN SET menu
CH NO POSITION	47	<a href="#">C53</a>	SET UP/ON SCREEN SET menu
CH SET	29	<a href="#">A1</a>	CONTROL PRESET ADJ menu
	32	<a href="#">B1</a>	COLOR TEMP ADJ menu
CH STATUS	58	<a href="#">F11</a>	STATUS menu
CHANGE PASSWORD	43	<a href="#">C311</a>	SET UP/PASSWORD menu
CHANNEL NAME	39	<a href="#">C15</a>	SET UP/INPUT CONFIGURATION menu
COL 1	32	<a href="#">B1</a>	COLOR TEMP ADJ menu
COL 2	32	<a href="#">B1</a>	COLOR TEMP ADJ menu
COLOR TEMP	39	<a href="#">C16</a>	SET UP/INPUT CONFIGURATION menu
COLOR TEMP ADJ	32	<a href="#">B1</a>	COLOR TEMP ADJ menu
COMPONENT	38	<a href="#">C112</a>	SET UP/INPUT CONFIGURATION menu
COMPOSITE	38	<a href="#">C111</a>	SET UP/INPUT CONFIGURATION menu
CONTROL PRESET ADJ	28	<a href="#">A</a>	CONTROL PRESET ADJ menu
COPY FROM	29	<a href="#">A13</a>	CONTROL PRESET ADJ menu
	33	<a href="#">B13</a>	COLOR TEMP ADJ menu
	39	<a href="#">C17</a>	SET UP/INPUT CONFIGURATION menu
	57	<a href="#">E</a>	COPY FROM menu
D DELETE	56	<a href="#">D3</a>	MEMORY CARD menu
DIGITAL UNIFORMITY ADJ	51	<a href="#">C7</a>	SET UP/WHITE UNIFORMITY menu
DIRECTION	51	<a href="#">C711</a>	SET UP/WHITE UNIFORMITY menu
E ENTER PASSWORD	43	<a href="#">C31</a>	SET UP/PASSWORD menu
	43	<a href="#">C3111</a>	SET UP/PASSWORD menu
	55	<a href="#">C81</a>	SET UP/EXTEND menu
EXTEND	55	<a href="#">C8</a>	SET UP/EXTEND menu

Menu Item	Page	Menu number	Main menu
F FILE NAME	29	<a href="#">A1331</a>	CONTROL PRESET ADJ menu
	34	<a href="#">B1331</a>	COLOR TEMP ADJ menu
	39	<a href="#">C1721</a>	SET UP/INPUT CONFIGURATION menu
FINE ADJUST	51	<a href="#">C712</a>	SET UP/WHITE UNIFORMITY menu
FORMAT	37	<a href="#">C11</a>	SET UP/INPUT CONFIGURATION me
	56	<a href="#">D4</a>	MEMORY CARD menu
FORMAT DISPLAY	47	<a href="#">C52</a>	SET UP/ON SCREEN DISPALY menu
G GRASEBY	33	<a href="#">B122</a>	COLOR TEMP ADJ menu
I INPUT CONFIGURATION	37	<a href="#">C1</a>	SET UP/INPUT CONFIGURATION menu
K KEY PROTECT	27	<a href="#">G</a>	KEY PROTECT menu
L LANDING ADJUST	51	<a href="#">C7</a>	SET UP/WHITE UNIFORMITY menu
LOAD	56	<a href="#">D2</a>	MEMORY CARD menu
M MAINTENANCE	55	<a href="#">C816</a>	SET UP/EXTEND menu
MANUAL	29	<a href="#">A11</a>	CONTROL PRESET ADJ menu
	32	<a href="#">B11</a>	COLOR TEMP ADJ menu
	51	<a href="#">C71</a>	SET UP/WHITE UNIFORMITY menu
	52	<a href="#">C73</a>	SET UP/WHITE UNIFORMITY menu
MATRIX	29	<a href="#">A2</a>	CONTROL PRESET ADJ menu
MEMORY CARD	29	<a href="#">A133</a>	CONTROL PRESET ADJ menu
	34	<a href="#">B133</a>	COLOR TEMP ADJ menu
	39	<a href="#">C172</a>	SET UP/INPUT CONFIGURATION menu
	55	<a href="#">C812</a>	SET UP/EXTEND menu
	56	<a href="#">D</a>	MEMORY CARD menu
MINOLTA	33	<a href="#">B122</a>	COLOR TEMP ADJ menu
MONITOR ADDRESS	29	<a href="#">A1321</a>	CONTROL PRESET ADJ menu
	34	<a href="#">B1321</a>	COLOR TEMP ADJ menu
	39	<a href="#">C1711</a>	SET UP/INPUT CONFIGURATION menu
	57	<a href="#">E1</a>	COPY FROM menu
O ON SCREEN SET	47	<a href="#">C5</a>	SET UP/ON SCREEN SET menu
OTHER MONITOR	29	<a href="#">A132</a>	CONTROL PRESET ADJ menu
	33	<a href="#">B132</a>	COLOR TEMP ADJ menu
	39	<a href="#">C171</a>	SET UP/INPUT CONFIGURATION menu
OTHER VALUE	29	<a href="#">A131</a>	CONTROL PRESET ADJ menu
	33	<a href="#">B131</a>	COLOR TEMP ADJ menu
P PASSWORD	43	<a href="#">C3</a>	SET UP/PASSWORD menu
PHILIPS	33	<a href="#">B122</a>	COLOR TEMP ADJ menu
PRESET	29	<a href="#">A1</a>	CONTROL PRESET ADJ menu
PROBE	32	<a href="#">B12</a>	COLOR TEMP ADJ menu
R RE-LOAD FACTORY DATA	55	<a href="#">C811</a>	SET UP/EXTEND menu
REMOTE	41	<a href="#">C2</a>	SET UP/REMOTE menu
REMOTE 1 CONFIG	41	<a href="#">C21</a>	SET UP/REMOTE menu
REMOTE 2 CONFIG	41	<a href="#">C22</a>	SET UP/REMOTE menu
RE-START MONITOR	55	<a href="#">C813</a>	SET UP/EXTEND menu
RE-STORE SYSTEM DATA	55	<a href="#">C8122</a>	SET UP/EXTEND menu

(continued)

## Menu Index

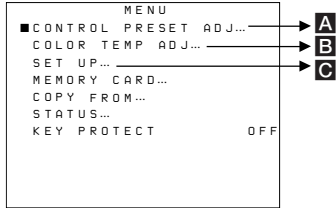
Menu Item	Page	Menu number	Main menu
S SAFE AREA MODE	38	<b>C14</b>	SET UP/INPUT CONFIGURATION menu
SAVE	56	<b>D1</b>	MEMORY CARD menu
SCREEN MODE	38	<b>C13</b>	SET UP/INPUT CONFIGURATION menu
SDI	38	<b>C113</b>	SET UP/INPUT CONFIGURATION menu
SET PROBE ON CURSOR	52	<b>C721</b>	SET UP/WHITE UNIFORMITY menu
	52	<b>C741</b>	SET UP/WHITE UNIFORMITY menu
SET PROBE ON THIS CRT	33	<b>B12121</b>	COLOR TEMP ADJ menu
SET UP	27	<b>C</b>	SET UP menu
SLOT 1 – SLOT 9	55	<b>C8111</b>	SET UP/EXTEND menu
SLOT STATUS	58	<b>F31</b>	STATUS menu
SONY BKM-14L	33	<b>B121</b>	COLOR TEMP ADJ menu
START	33	<b>B12111</b>	COLOR TEMP ADJ menu
STATUS	58	<b>F</b>	STATUS menu
	58	<b>F1</b>	STATUS menu
	58	<b>F2</b>	STATUS menu
	58	<b>F3</b>	STATUS menu
STD	32	<b>B1</b>	COLOR TEMP ADJ menu
SYSTEM CONFIGURATION	45	<b>C4</b>	SET UP/SYSTEM CONFIGURATION menu
T THOMA	33	<b>B122</b>	COLOR TEMP ADJ menu
TRIM	34	<b>B14</b>	COLOR TEMP ADJ menu
V VCR MODE	55	<b>C815</b>	SET UP/EXTEND menu
W WHITE UNIFORMITY	50	<b>C7</b>	SET UP/WHITE UNIFORMITY menu
Y YC	37	<b>C111</b>	SET UP/INPUT CONFIGURATION menu
YC SEP	38	<b>C12</b>	SET UP/INPUT CONFIGURATION menu
1 1 PIN – 8 PIN	41	<b>C221</b>	SET UP/REMOTE menu

Quick Reference

MENU

Menu List

Press the MENU button.



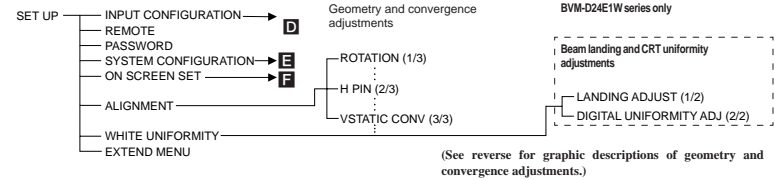
Menu Operation

- To confirm your selection/setting → Press ENTER or Ent.
- To abort menu operation → Press MENU.
- To move the cursor → Press UP/DOWN or turn PHASE.

Options in blue: Disabled  
 PRESET: Sets common data for all channels.  
 CH SET: Sets data for each individual channel.  
 F1 button: Turns on/off characters on the screen in MANUAL adjustment mode.

C SET UP

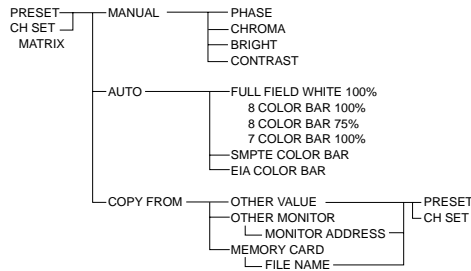
Set up menus for input channel, on screen display, decoders, etc.



(See reverse for graphic descriptions of geometry and convergence adjustments.)

A CONTROL PRESET ADJ

Contrast/brightness/chroma/phase adjustments

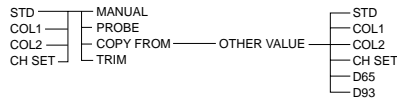


MATRIX for YPbPr signals

PRESET: Default setting is automatically selected.  
 CH SET: Selects MATRIX for each individual signal format to be applied on all channels (ITU 709, ITU 601 or SMPTE 240M)

B COLOR TEMP ADJ

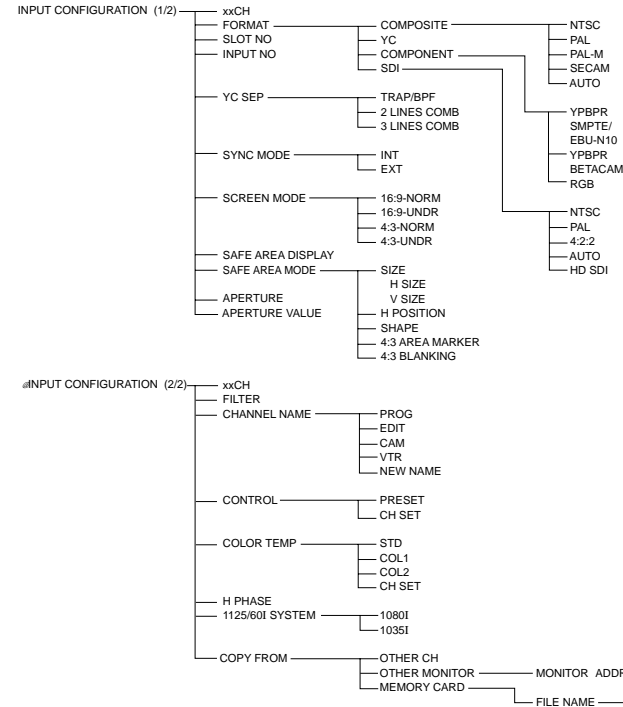
Color Temperature Adjustment



- When the short-cut for white balance menu is assigned (see E SYSTEM CONFIGURATION), press the F2 button to display the MANUAL menu.

D INPUT CONFIGURATION

Settings pertaining to the input signal



Quick Reference is shown with necessary changes.

## E SYSTEM CONFIGURATION

**Settings of the channel selection method, power-up conditions and decoder**

INPUT CONFIGURATION	INPUT SELECT	DIRECT MODE	1) Contrast and brightness settings for white balance adjustment
REMOTE	STANDBY MODE	10KEY MODE	
PASSWORD	DEFAULT CH	LAST	2) Assignment of short-cuts for white balance menu (assignment to the F2 button.)
SYSTEM CONFIGURATION	DEGAUSS DELAY	CH	
ON SCREEN SET	RESIDUAL SC SW		
ALIGNMENT	ACC SW		
WHITE UNIFORMITY	CONT/BRT HOLD	1) ON/OFF	
EXTEND MENU	COL TEMP SHORT-CUT	2) ON/OFF	

## F ON SCREEN SET

On screen display settings such as input channel number, the frequency of the current input signal, etc.

INPUT CONFIGURATION	CAPTION VISION	OFF
REMOTE	ANCILLARY DATA	CAPTION 1
PASSWORD		CAPTION 2
SYSTEM CONFIGURATION		TEXT 1
ON SCREEN SET		TEXT 2
ALIGNMENT	FORMAT DISPLAY	AUTO
WHITE UNIFORMITY	POSITION	ON
EXTEND MENU	CH NO	OFF
	POSITION	
	CH NAME	TOP LEFT
	POSITION	TOP CENTER
		TOP RIGHT
		BOTTOM LEFT
		BOTTOM CENTER
		BOTTOM RIGHT

## ADDRESS

Selects the monitor to be controlled.

```

ADDRESS      - - -
SINGLE       ***
GROUP       ***
ALL

ALL POWER ON
ALL POWER OFF

DISPLAY MONITOR ADDRESS
DISPLAY GROUP ADDRESS
    
```

## Address Short-cut Function

Selects the monitor(s) to be controlled using the buttons only.

**SINGLE mode:** Press the ADDRESS button, then input the address number of the target monitor using the numeric keypad.

**GROUP mode:** Press the ADDRESS button and F1 button, then input the group address number of the target monitor using the numeric keypad.

**ALL mode:** Press the ADDRESS button and F2 button.

## Geometry and Convergence Adjustments

The following illustrations show the geometry and convergence adjustments using the ALIGNMENT menu.

ALIGNMENT menu (1/3)

**ROTATION**

**H PIN**

**H PIN BAL**

**H CORNER PIN**

**H CORNER S**

**H KEY**

**H KEY BAL**

**V CENTER**

**H SIZE**

**V SIZE**

**VITS BLK**

## Available Signal Formats

System	Total lines per frame	Active lines per frame	Frame rate** (Hz)	Scanning format	Aspect ratio	Standard
575/50I(PAL*)	625	575	25	2:1 interlace	16:9/4:3	ITU 601
480/60I(NTSC*)	525	483	30	2:1 interlace	16:9/4:3	ITU 601
575/50P	625	575	50	Progressive	16:9/4:3	---
480/60P	525	483	60	Progressive	16:9/4:3	SMPTE 293M
1080/48I	1125	1080	24	2:1 interlace	16:9	---
1080/50I	1125	1080	25	2:1 interlace	16:9	SMPTE 274M
1035/60I	1125	1035	30	2:1 interlace	16:9	BTA S-001B
1080/60I	1125	1080	30	2:1 interlace	16:9	SMPTE 274M/BTA S-001B
720/60P	750	720	60	Progressive	16:9	SMPTE 296M

\* PAL and NTSC color systems are active when an optional decoder is attached.  
 \*\* Frame rate is also compatible with 1/1.001.



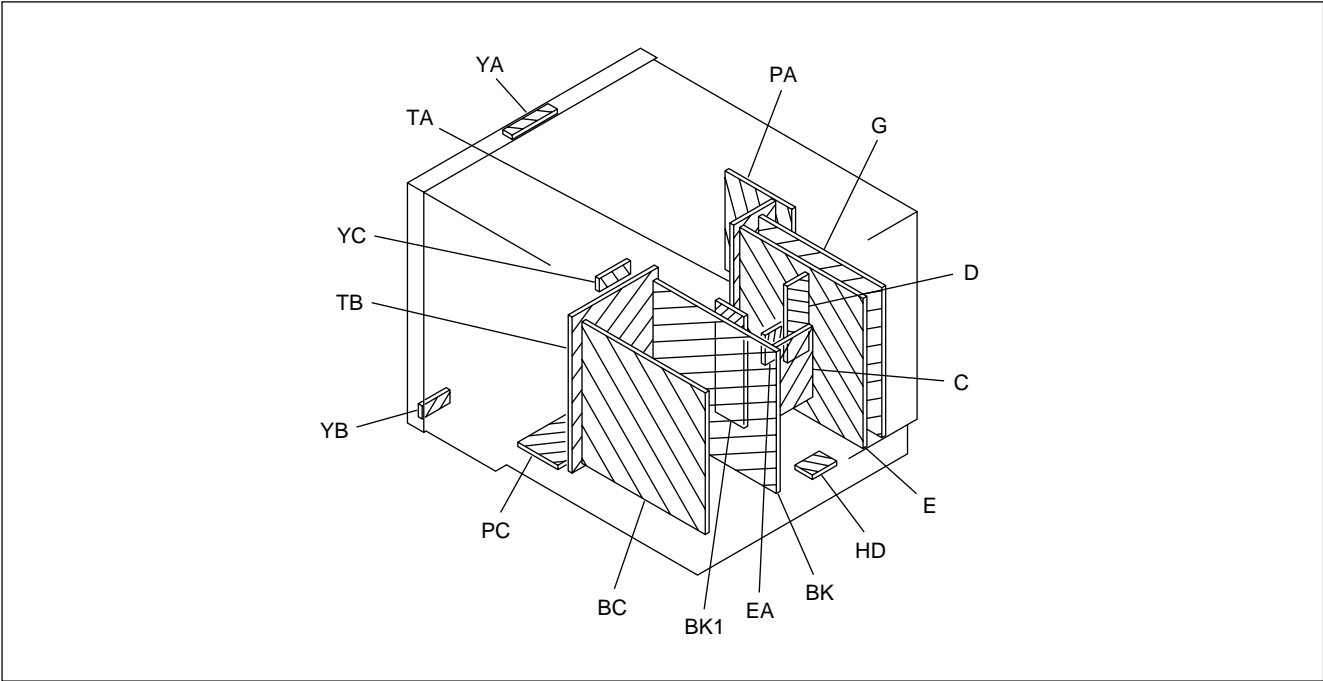


# Section 2

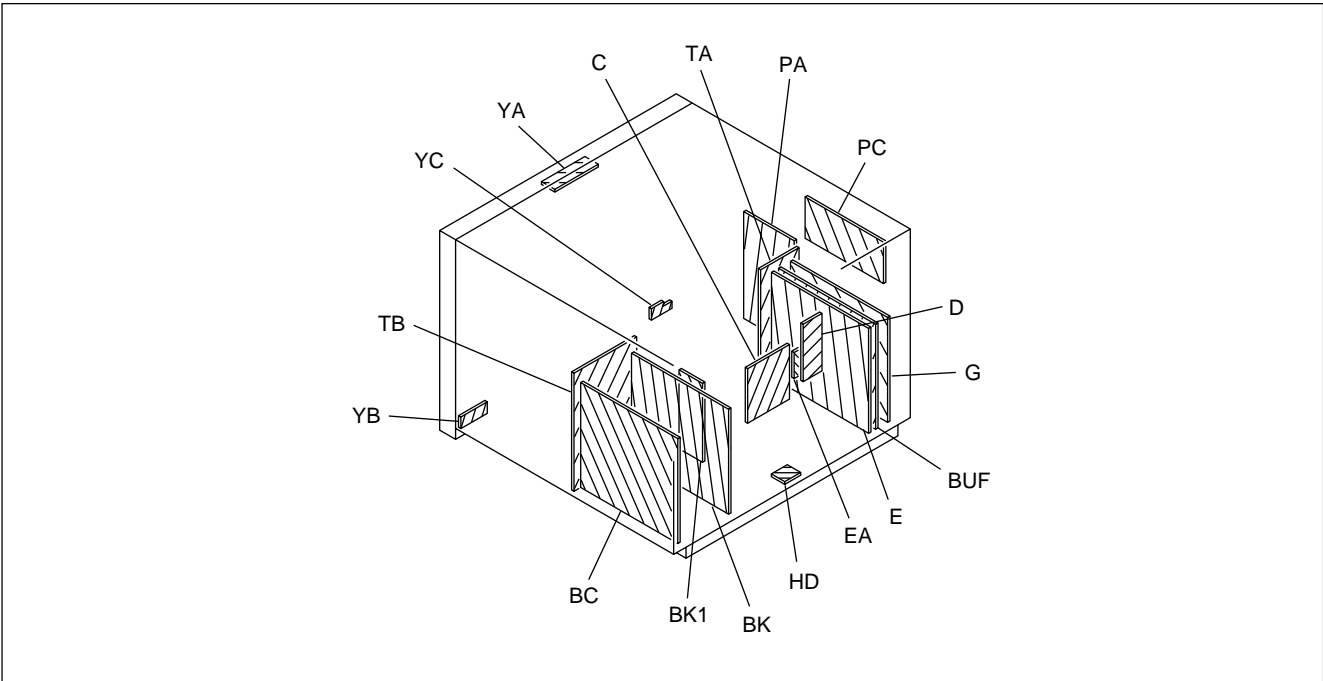
## Service Informations

### 2-1. Circuit Boards Location

#### 2-1-1. BVM-D20F1A/D20F1E/D20F1U

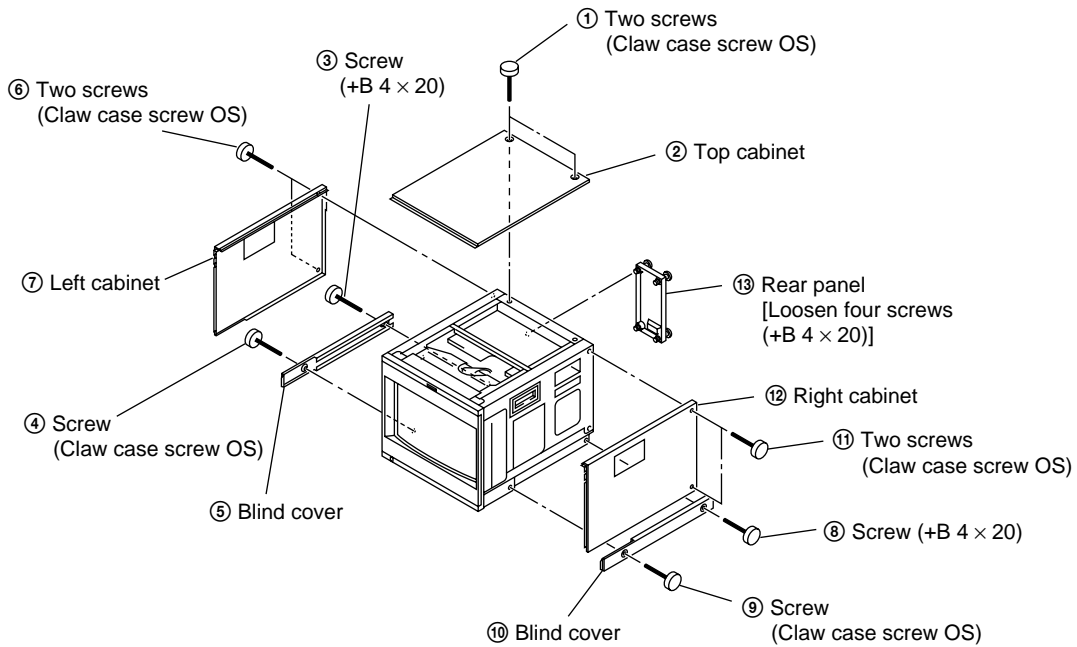


#### 2-1-2. BVM-D24E1WA/D24E1WE/D24E1WU

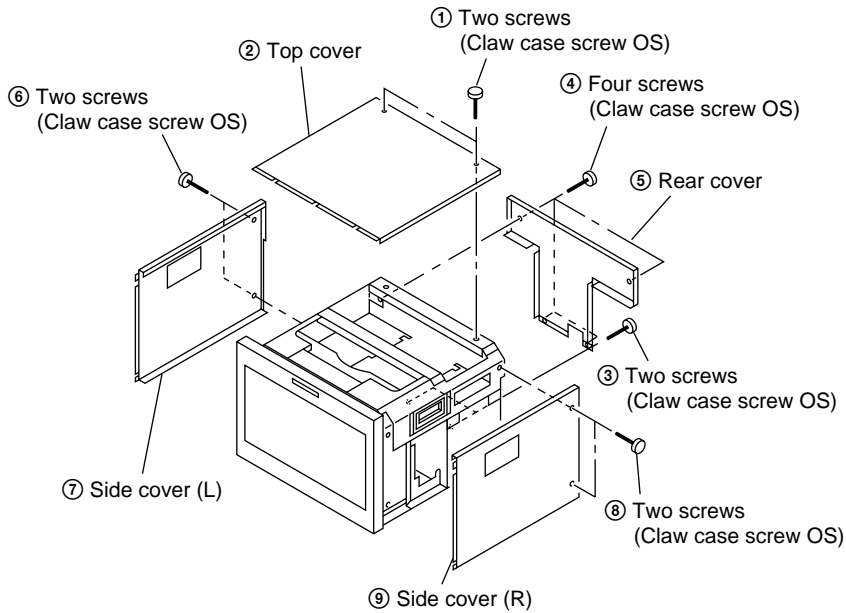


## 2-2. Disassembly

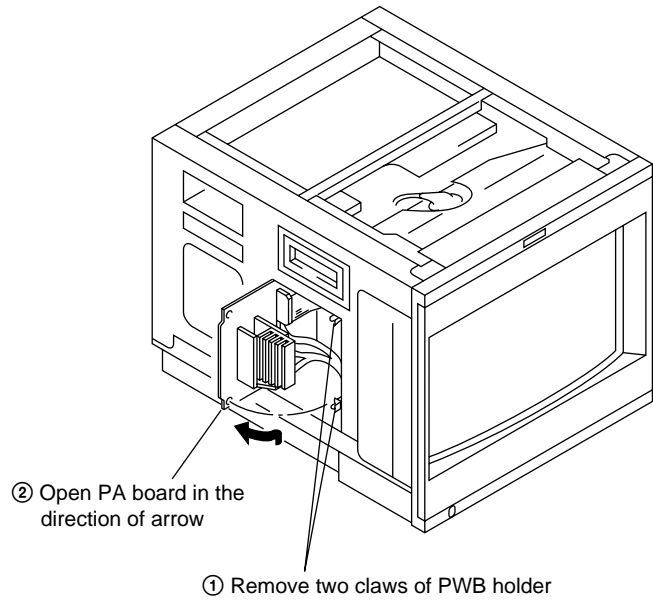
### 2-2-1-1. Cabinet Removal (20 inch)



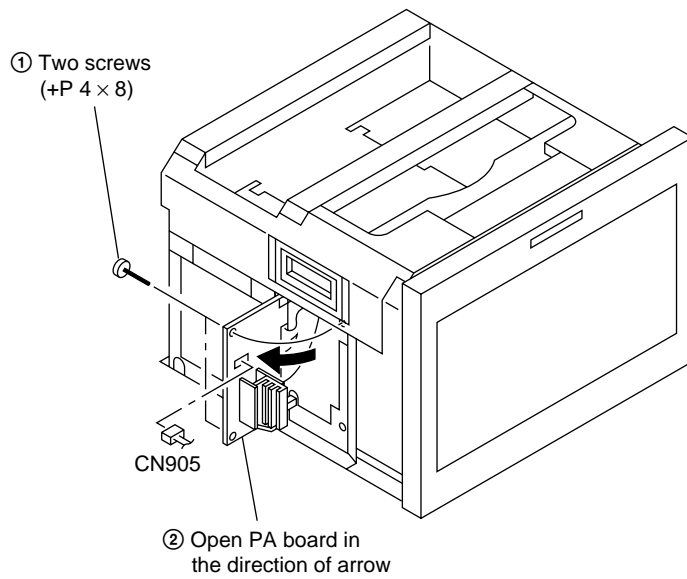
### 2-2-1-2. Cover Removal (24 inch)



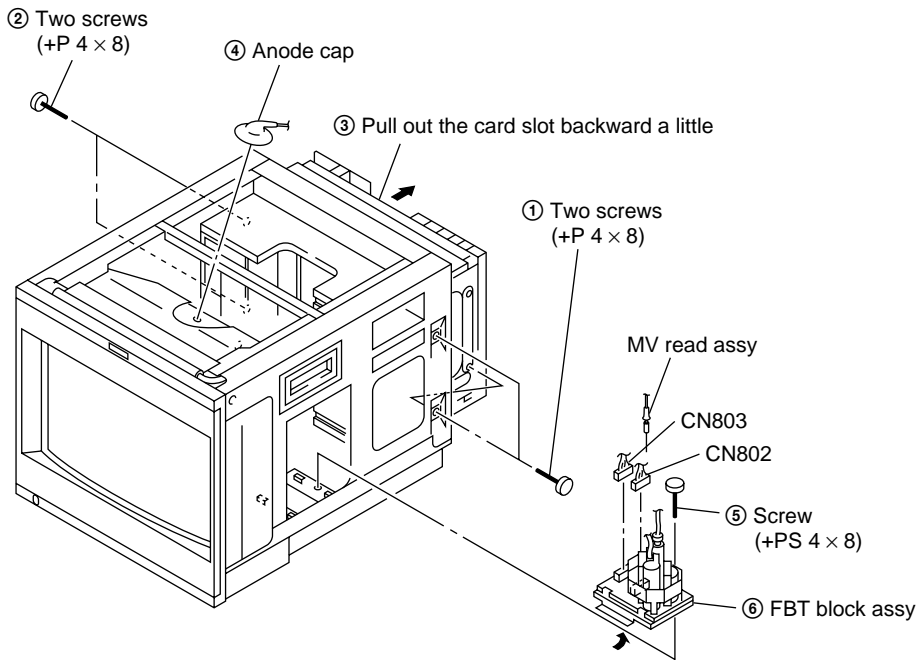
### 2-2-2-1. PA Board Open (20 inch)



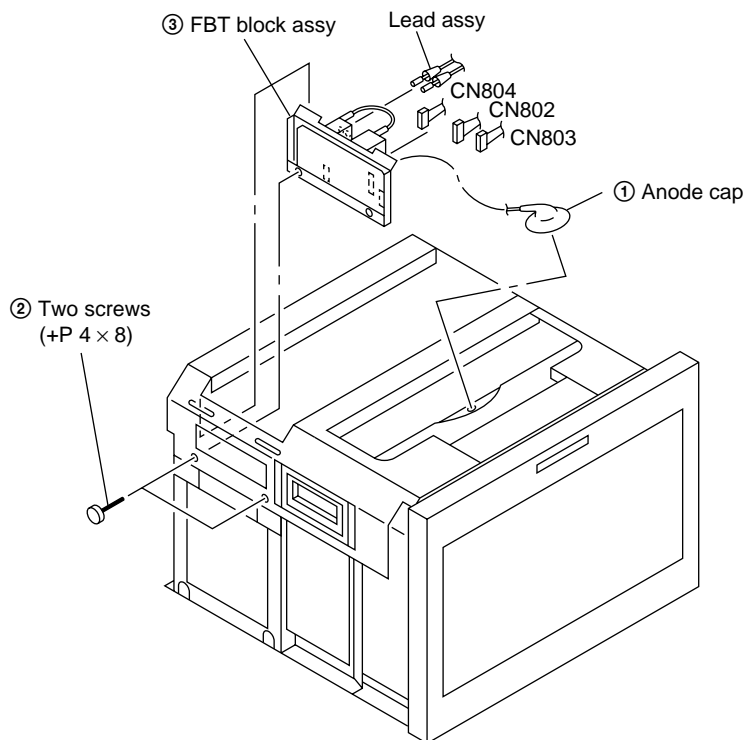
### 2-2-2-2. PA Board Open (24 inch)



### 2-2-3-1. FBT Block Assy Removal (20 inch)

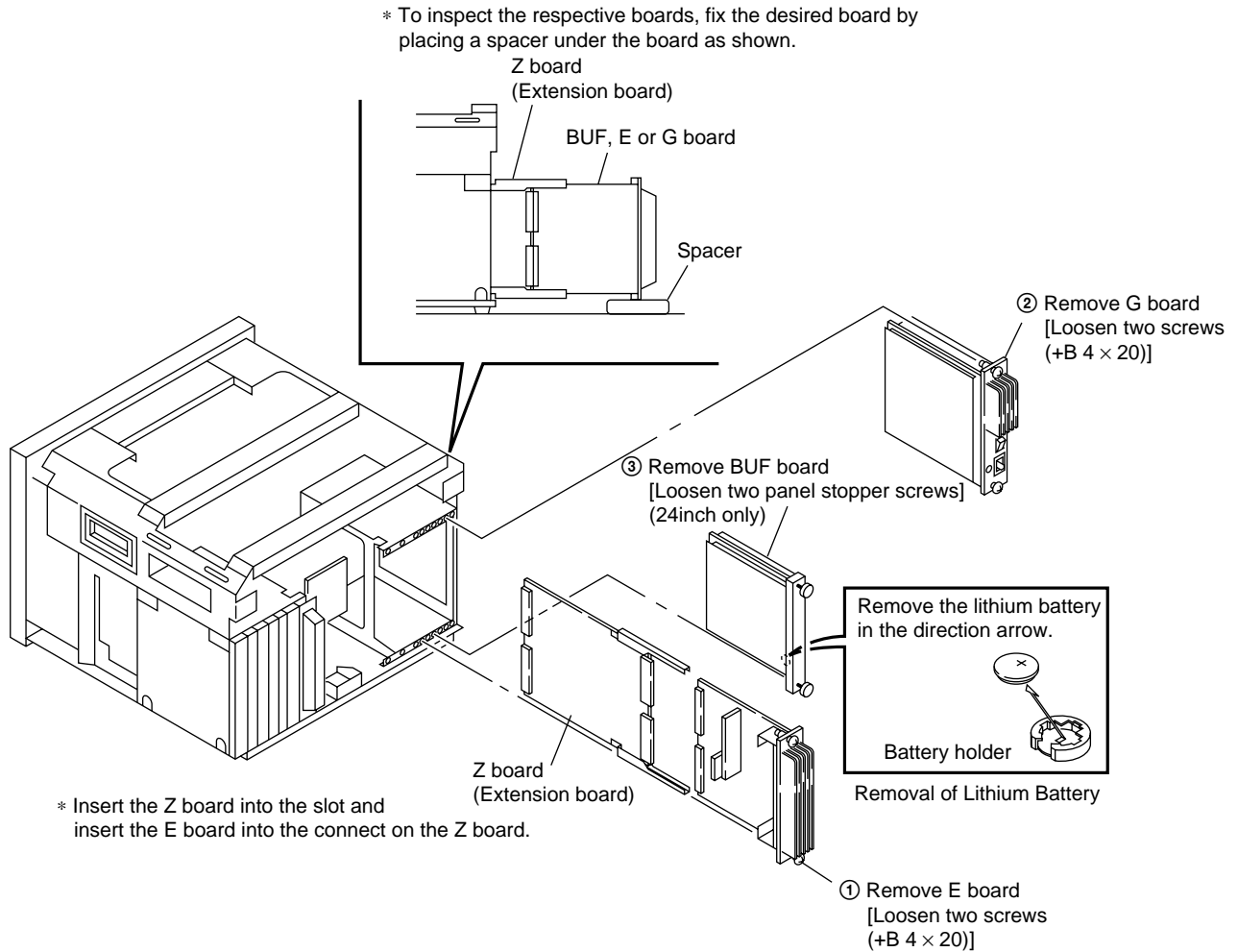


### 2-2-3-2. FBT Block Assy Removal (24 inch)



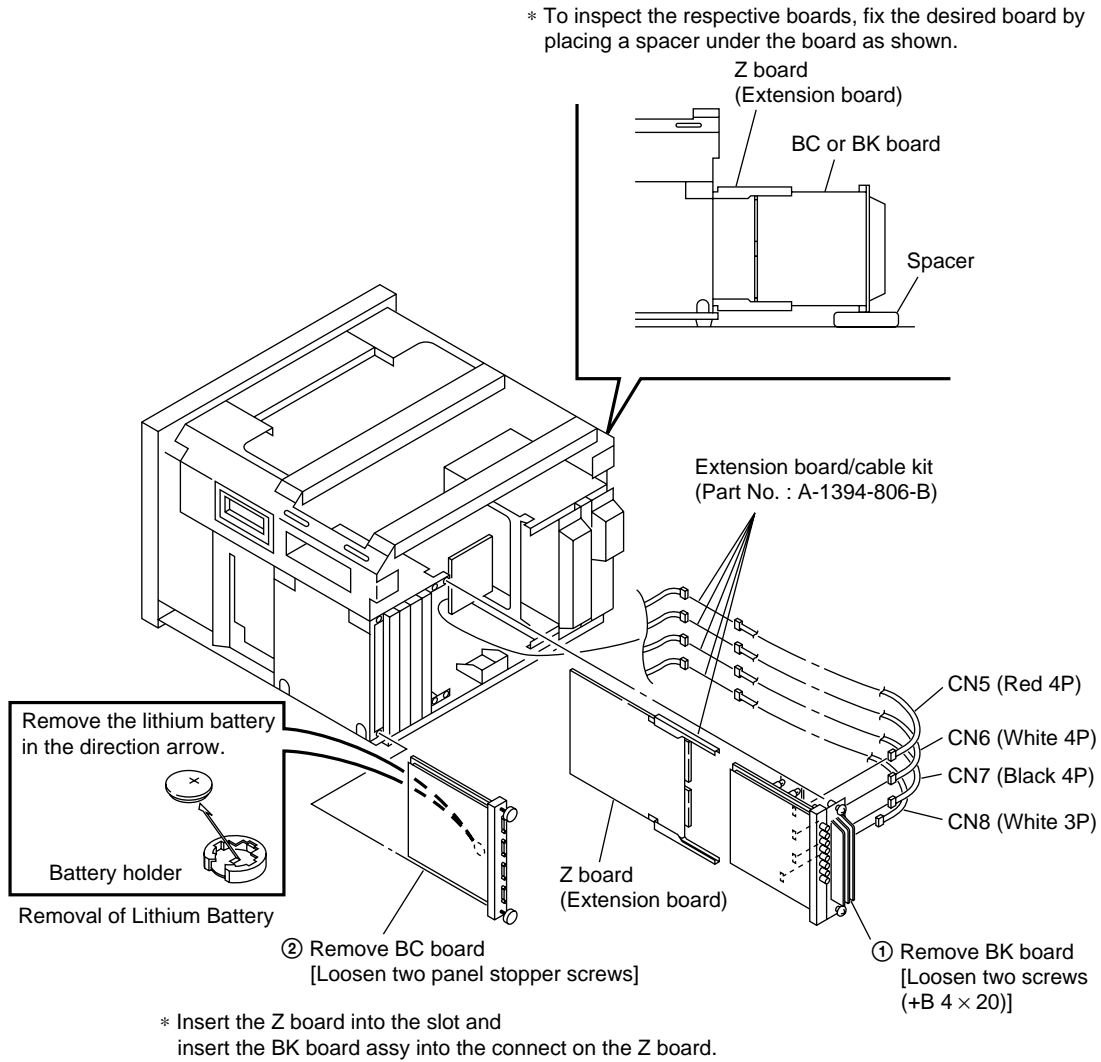
## 2-2-4. BUF, E and G Boards Removal and Check

Note : The BUF and G boards can be checked in the same way of the E board.



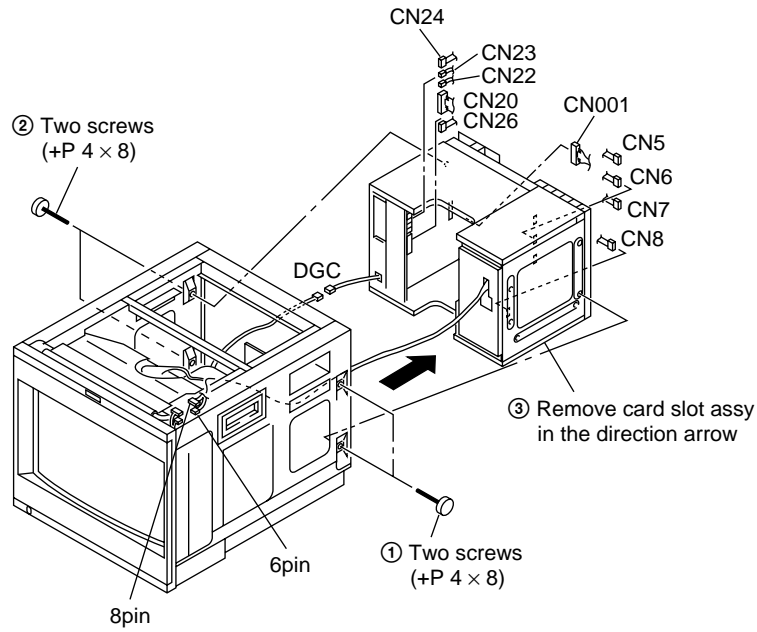
## 2-2-5. BC and BK Boards Removal and Check

Note : The BC board can be checked in the same way of the BK board.

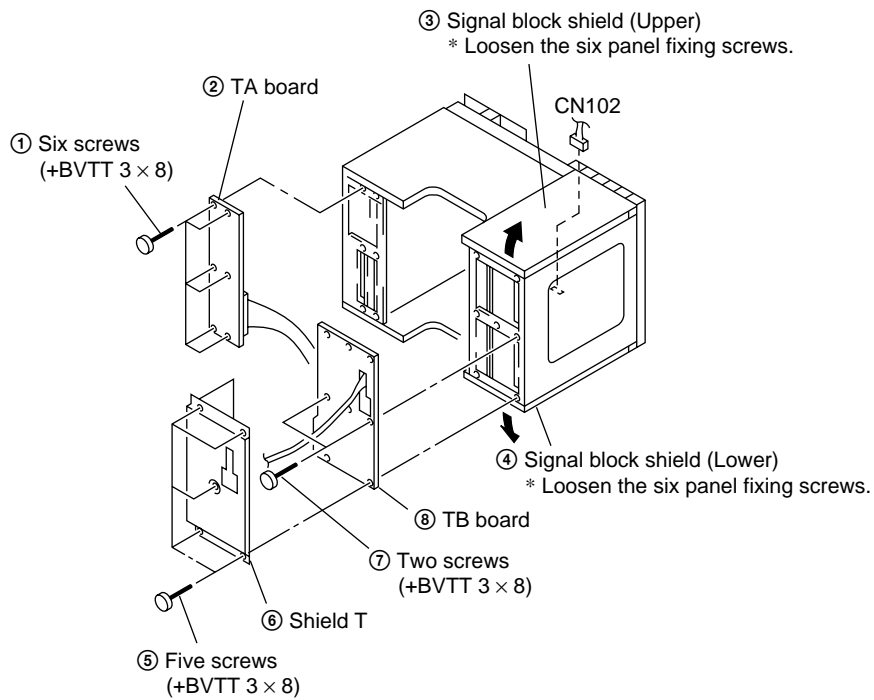


Note: When the lithium battery on the BC board is going to be replaced, exchange it within five minutes.

## 2-2-6. Card Slot Assy Removal (20 inch only)

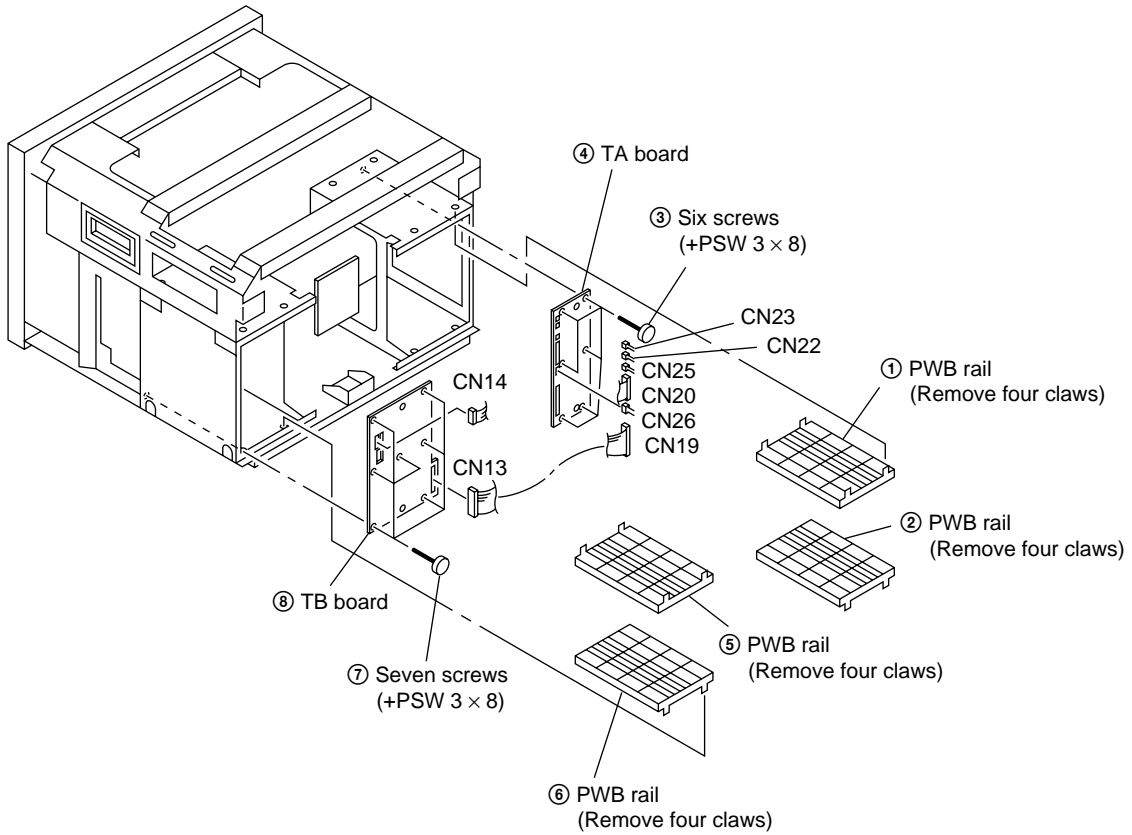


## 2-2-7-1. TA and TB Boards Removal (20 inch)

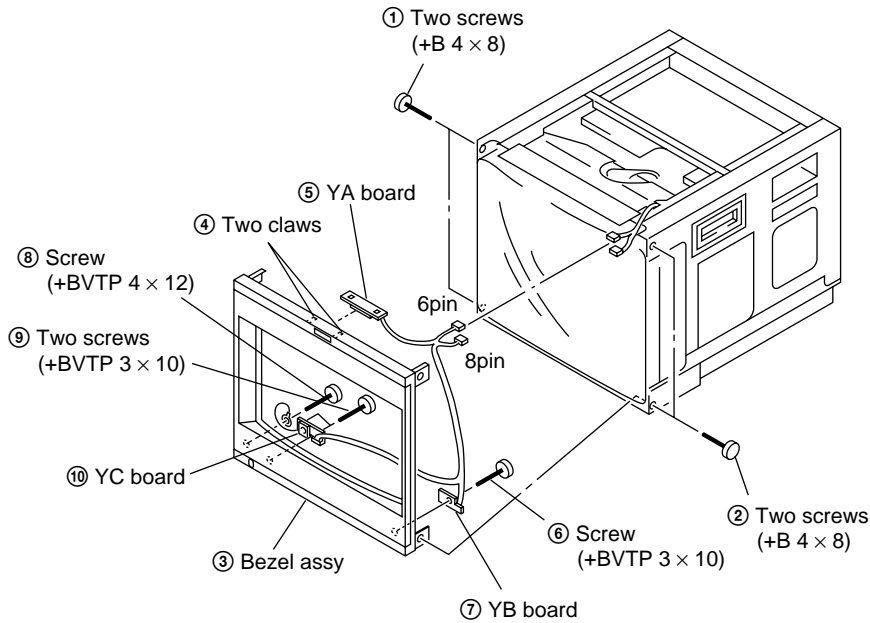




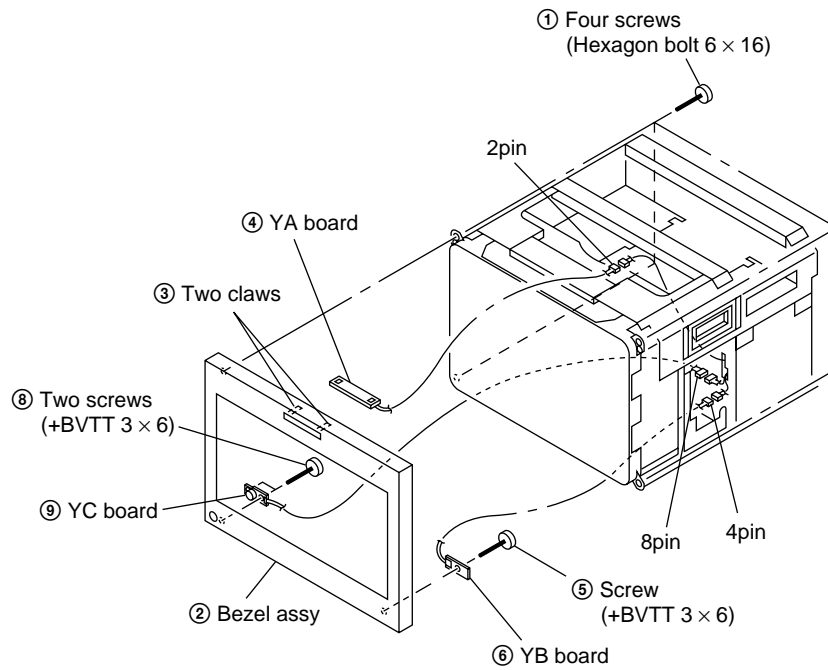
### 2-2-7-2. TA and TB Boards Removal (24 inch)



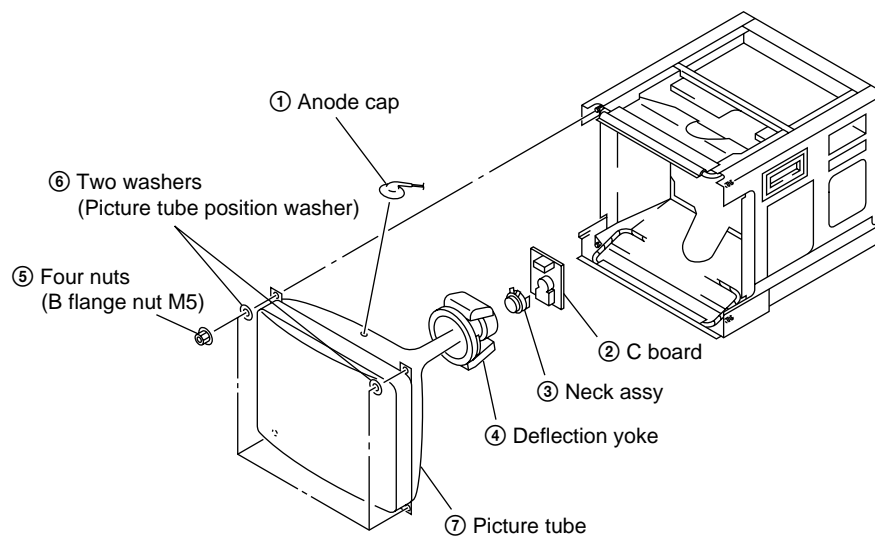
### 2-2-8-1. YA, YB and YC Boards Removal (20 inch)



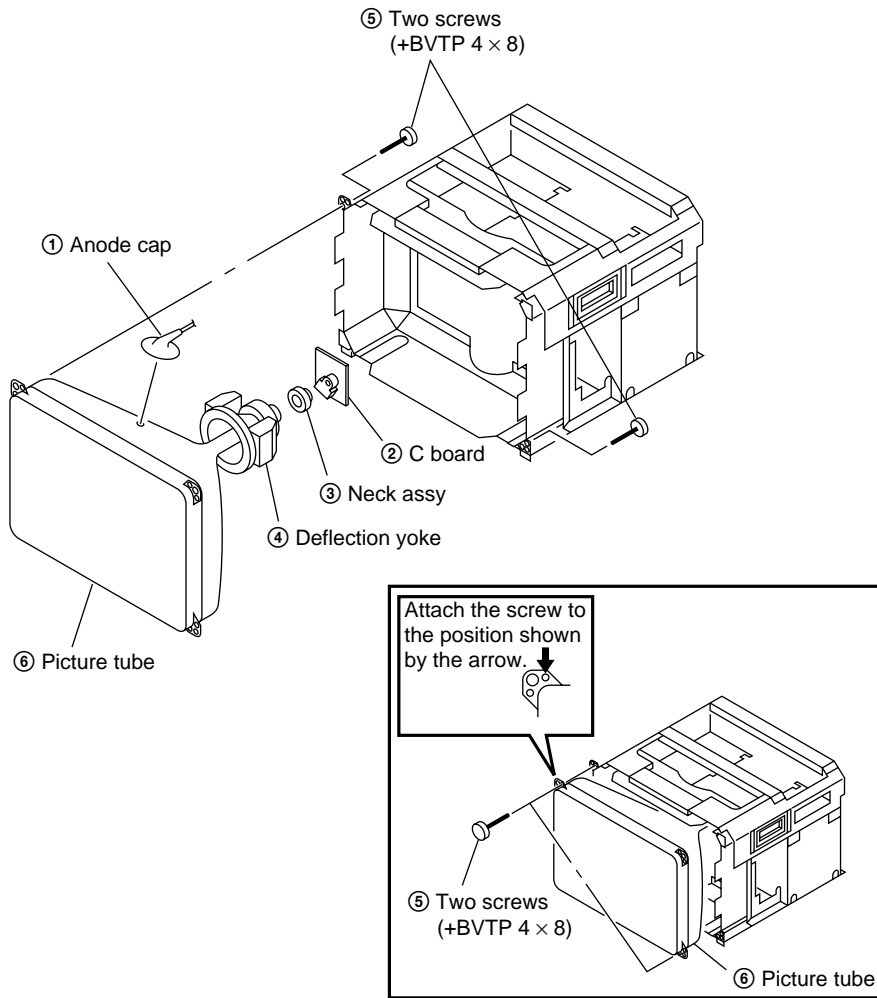
## 2-2-8-2. YA, YB and YC Boards Removal (24 inch)



## 2-2-9-1. Picture Tube Removal (20 inch)



## 2-2-9-2. Picture Tube Removal (24 inch)

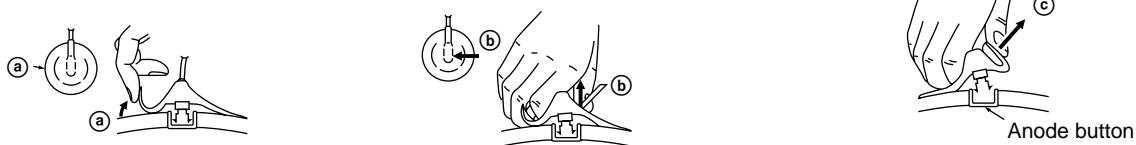


\* To attach the picture tube, use two screws as shown.

### • REMOVAL OF ANODE CAP

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

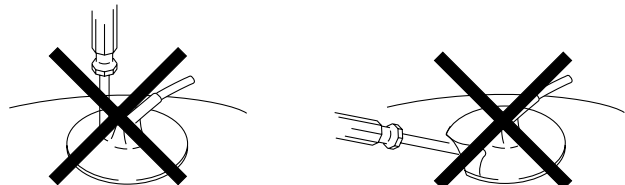
#### • Removal Procedure



- (1) Turn up one side of the rubber cap in the direction indicated by arrow (a).
- (2) Using a thumb, pull up the rubber cap firmly in the direction indicated by arrow (b).
- (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 (c).

#### • Handling Precautions

- (1) Do not scratch the surface of anode cap with a sharp object.
- (2) Do not press the rubber so hard that it damages the inside of anode caps. A shatter-hook terminal is built into the rubber.
- (3) Do not turn the foot of the rubber over. The shatter-hook terminal will stick out or damage the rubber.



# Section 3 Set-Up Adjustment

## 3-1. Set-Up Adjustment When CRT is Replaced

This section describes adjustments to be performed when the CRT has been replaced.

### Preparations

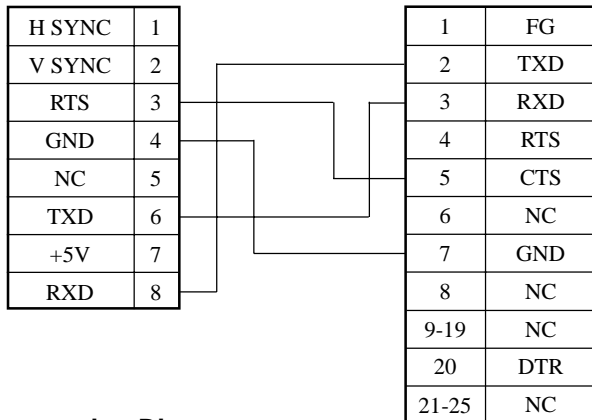
- Required tools and measuring instruments
- 1. Signal generator
  - 1125 (1035) : SMPTE240M standard or BTA S-001A standard
  - 1125 (1080) : SMPTE274M standard
  - 525P : SMPTE293M standard or BTA T-1004 standard
  - 1250 : SMPTE295M standard
- 2. Oscilloscope
- 3. Color analyzer (Minolta CA-100)
- 4. Cables of the following specifications for connecting the CA-100 RS-232C terminal and OPTION terminal of the monitor.

- Setting the INPUT CONFIGURATION Menu  
Unless specified otherwise, set the INPUT CONFIGURATION menu of the SETUP menu as follows.

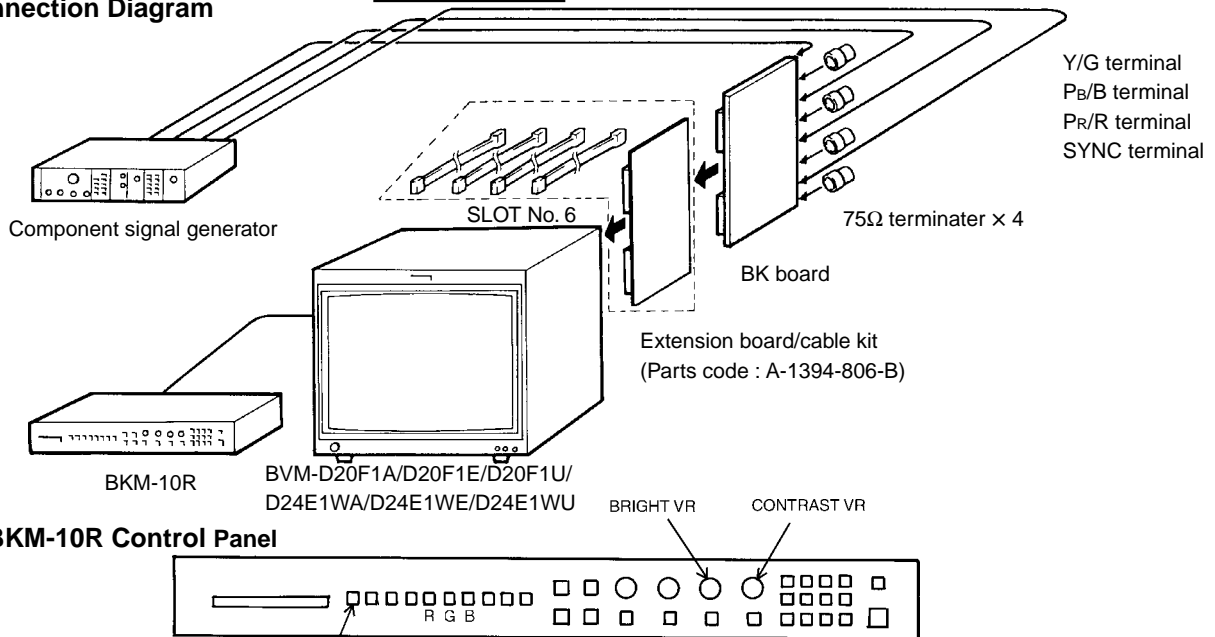
```

FORMAT ..... YPBPR 1080
SLOT NO ..... 6
INPUT No. .... 1, 2, 3
SYNC MODE ..... INT
SCREEN MODE ..... 16 : 9 NOR
SALF AREA DISPLAY ... OFF
SALF AREA MODE ..... 16 : 9-88%
APERTURE ..... OFF
APERTURE VALUE ..... 100
CHANNEL NAME ..... PROG
CONTROL ..... CH SET
COLOR TEMP ..... STD
H PHASE ..... 000
    
```

BVM Option connector side    CA-100 RS-232C connector side  
Mini DIN 8pin                      D Sub 25-pin (Male)



### • Connection Diagram



## [Focus Adjustment]

1. Input the HD (1125) cross-hatch signal.
2. Set the following DF adjustment data to the preset value (128).

DF SIDE  
 DF CORNER  
 DF SIDE PHASE  
 DF T&B PHASE  
 DF T&B

Note: The above adjustment menu is located inside the E BOARD menu of the MAINTENANCE menu.

3. Obtain the best focus at the center of screen by adjusting the Focus 1/F2 (vertical direction focus adjustment) and the Focus 2/F2 (horizontal direction focus adjustment) as shown in Fig. 1-1 while maintaining the focus at the three points in the left.
4. Connect the MODE1 1080 cross-hatch signal to the input.
5. While the best focus is maintained by Focus 2/F1 (focus tracking), the horizontal resolution better than the specifications must be visually recognized.

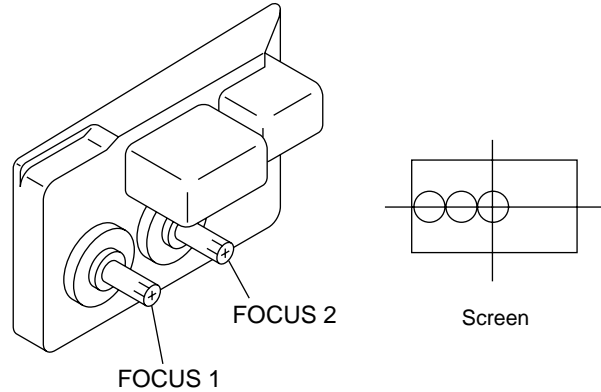
20 inch : 900 TV lines or more  
 24 inch : 1000 TV lines or more

6. Adjust the following DF adjustment data so that the cross-hatch lines in the vicinity of the screen are as thick as the lines at the center of the screen.

DF SIDE  
 DF SIDE PHASE  
 DF CORNER  
 DF T&B  
 DF T&B PHASE

7. Adjust the DF data in the same way in the following modes.

• 20 inch



• 24 inch

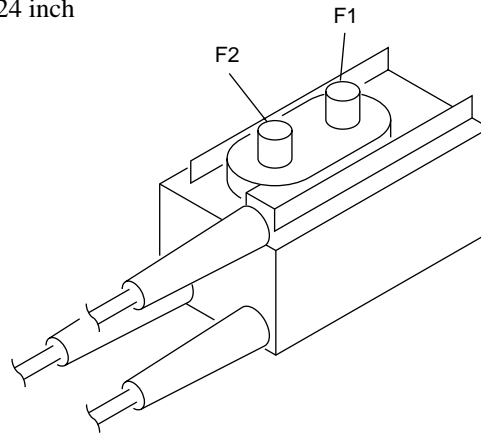


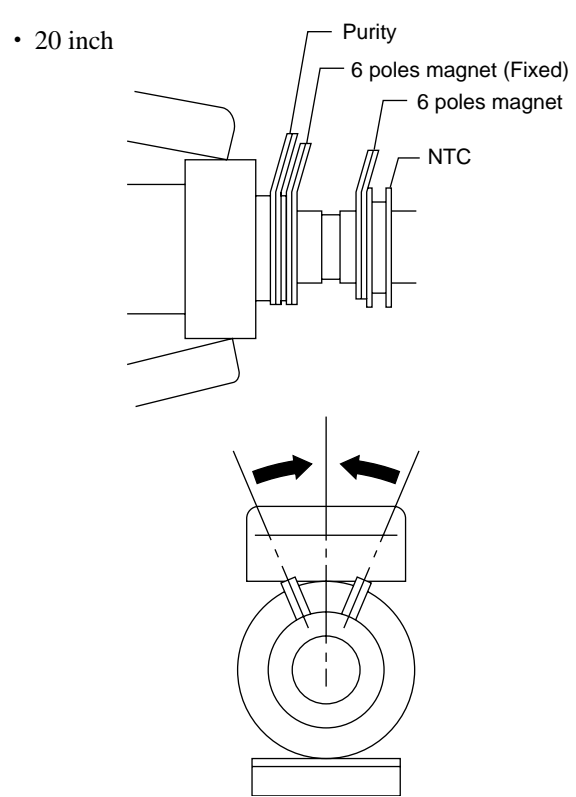
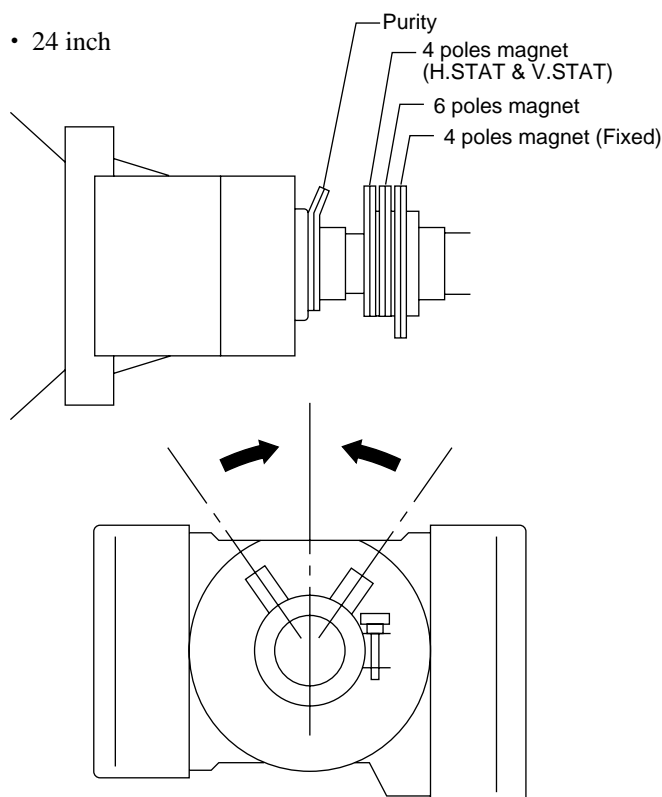
Fig. 1-1

MODE1	1080/60i (33kHz)	16 : 9	NORMAL MODE	Perform the steps 3 to 6 adjustments.
MODE2	1125	16 : 9	UNDER SCAN MODE	Copy the MODE1 data.
MODE3	1035/60i (33kHz)	16 : 9	NORMAL MODE	
MODE4	1125	16 : 9	UNDER SCAN MODE	Input the 720 signal, and perform the step 6 adjustments.
MODE5	720/60P (45kHz)	16 : 9	NORMAL MODE	
MODE6	720/60P (45kHz)	16 : 9	UNDER SCAN MODE	Copy the MODE5 data.
MODE7	480/60P (31kHz)	16 : 9	NORMAL MODE	Copy the MODE1 data.
MODE8	525	16 : 9	UNDER SCAN MODE	
MODE9	525	4 : 3	NORMAL MODE	Input the 480 signal, and perform the step 6 adjustments.
MODE10	525	4 : 3	UNDER SCAN MODE	
MODE11	480/60P (15kHz)	16 : 9	NORMAL MODE	Copy the MODE11 data.
MODE12	525	16 : 9	UNDER SCAN MODE	
MODE13	525	4 : 3	NORMAL MODE	Copy the MODE1 data.
MODE14	525	4 : 3	UNDER SCAN MODE	
MODE15	1080/48i (27kHz)	16 : 9	NORMAL MODE	Copy the MODE1 data.
MODE16	1125	16 : 9	UNDER SCAN MODE	

## [Landing Adjustment]

Note: When the DY position setting adjustment is going to be performed, set the ROTATION (20 inch) or ROTATION2 (24 inch) to 128. Set the LCC switch to OFF (0) (24 inch). Set the digital uniformity DU to OFF (0) (24 inch). Perform all these settings before starting the DY position setting adjustment. The ROTATION and the LCC switch are located in the lower layer of the E board of MAINTENANCE. DU ON/OFF is located in the lower layer of the BUF board.

1. Input the white signal.
2. Press the BRIGHTNESS VR button and CONTRAST VR button to set both into the PRESET state. (The LED (Green) on the buttons will go off.) Press the SHIFT button and the 16:9 button of the FUNCTION button to select the 16:9 mode (24 inch) 4:3 mode (20 inch).
3. Allow the aging of 30 to 60 minutes with luminance of 100 dc/m<sup>2</sup>.
4. Confirm that ROTATION2 (24 inch) remains in the center value 128 using the ALIGNMENT menu of the SET UP menu.
5. Direct the CRT screen in the direction of east (or west). Press the DEGAUSS button.
6. Set the Purity knob in its mechanical center.



7. Push the DY (deflection yoke) to the front as much as possible.
8. Fix the neck assembly at the position shown in Fig. 1-3.

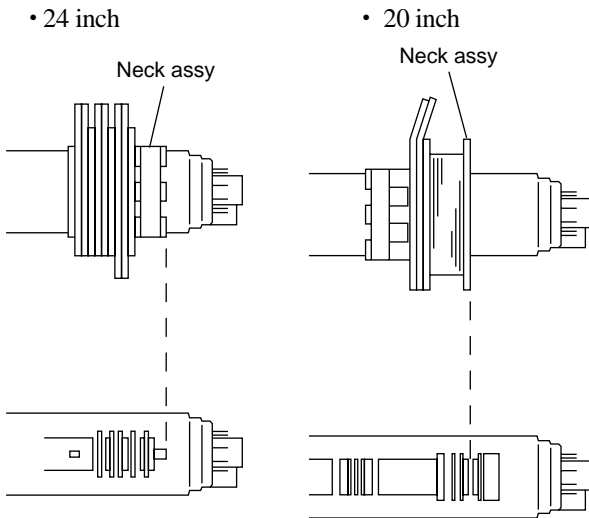


Fig. 1-3

9. Adjust the screen to green color only. [Turn ON the SHIFT button (orange LED lights up), and turn ON the R and B buttons (LED lights up)].
10. Adjust the Purity knob so that green comes to the center of screen as shown in Fig. 1-4.

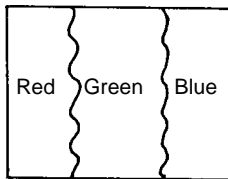
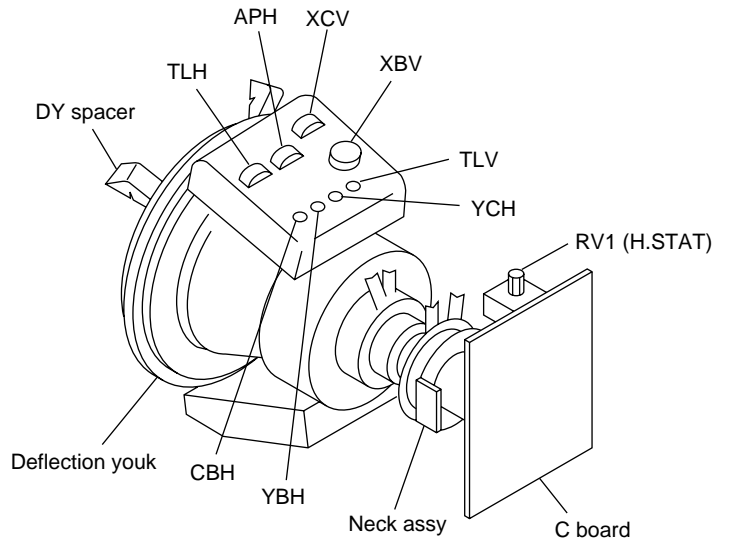


Fig. 1-4

11. Move the DY back until the whole screen becomes green only.
12. Adjust the DY tilt using the cross-hatch signal, and tighten the DY tightening screw.
13. Adjust the up/down DY twist adjustment in vertical direction while observing the vertical pin cushion signal.
14. Adjust the DY neck twist adjustment in horizontal direction while observing the horizontal trapezoidal signal.  
(The adjustment sensitivity for the horizontal trapezoidal signal is very poor. Be careful not to adjust the DY inclination too excessively so as to adversely affect the convergence.)
15. Fix the deflection yoke using the four DY spacers.  
(Confirm DY inclination and the DY position in the front and rear directions.)

• 20 inch



• 24 inch

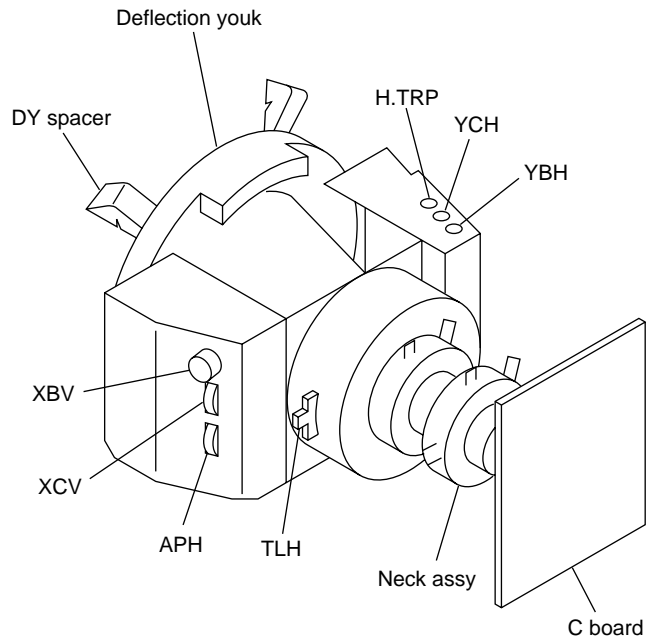


Fig. 1-5

- Final check

After the adjustment is complete, confirm that the landing error does not occur even the BVM monitor is directed in all directions of east, west, north and south. Return the LCC and DU to their ON positions.

16. LCC adjustment (24 inch only)

(1) Adjust the landing at all four corners with LCC.

(White uniformity)

(2) Confirm that “LCC LT”, “LCC LB” “LCC RT” and “LCC RB” are all in the pre-set values (128).

(3) Check in which direction the CRT screen is directed. Adjust the direction using “LCC DIR”.

(4) Change the signal to the R then G the B. Check landing at the corners when each single color is displayed and at white screen. When the color purity is poor at the any corners, adjust “LCC LT”, “LCC LB” “LCC RT” and “LCC RB” so that the landing at all corners is optimum.

When the adjustment is complete, save the adjustment data and fix the purity magnet with white paint.

Note: Use the Auto Setup Probe (BKM-14L) as much as possible and perform the automatic adjustment.



## [H Blanking Adjustment]

### • Preparations

1. Connect a signal generator and connect the HD (1125) cross-hatch signal to the input. Set the CRT screen to all black display.

Note: The following adjustment menu is located inside the E BOARD menu of the MAINTENANCE menu.

H BLK LEFT  
H BLK RIGHT  
H CENTER  
H PHASE  
H SIZE

### • 1080/60i (33 kHz) 16:9 NORMAL mode horizontal blanking adjustment

1. Select 1080 16:9 NORM of the SCREEN mode using the INPUT CONFIGURATION menu of the SETUP menu.
2. Connect the MODE1 1080/60i (33 kHz) cross-hatch signal to the input.
3. Adjust the H. BLK. LEFT data to the minimum (0). Adjust the H. BLK. RIGHT data to the maximum (255).
4. Adjust BRIGHT to its maximum.
5. Reduce the H. SIZE so that the left-most end and the right-most end of raster are visible without any lacking.
6. Adjust the H. CENTER data so that the raster comes to the center of the effective screen ( $A \approx B$  is obtained.) (Fig. 1-6)  
When this adjustment is complete, take note of the H. CENTER adjustment data.
7. Adjust the H. SIZE so that the effective screen of the raster is 10 mm smaller both in the right and the left.
8. Set BRIGHT to the normal position.
9. Adjust the H. PHASE data so that the signal comes to the center of the raster ( $C \approx D$  is obtained.)  
When this adjustment is complete, take note of the H. CENTER adjustment data.
10. Adjust BRIGHT to its maximum.
11. Adjust the H. BLK. LEFT data so that the blanking is position at 6 mm outside the left-most end of the cross-hatch signal area. (Fig. 1-7.)  
When this adjustment is complete, take note of the H. BLK. LEFT adjustment data.
12. Adjust the H. BLK. RIGHT data so that the blanking is position at 3 mm outside the right-most end of the cross-hatch signal area. (Fig. 1-7.)

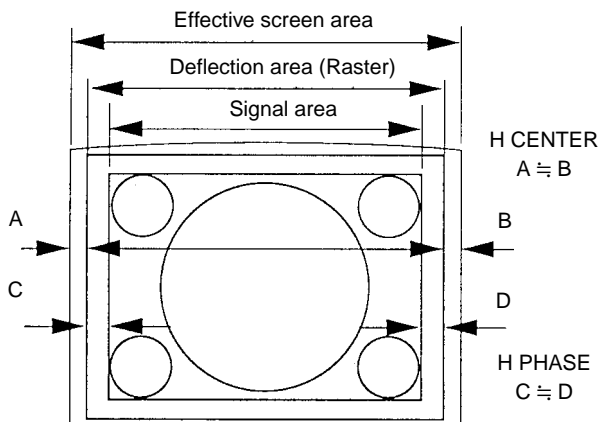


Fig. 1-6

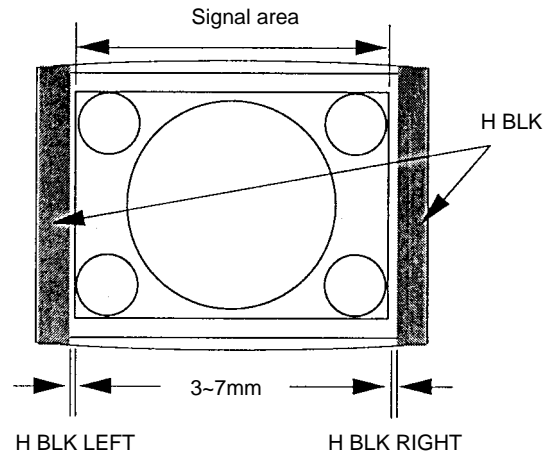


Fig. 1-7

13. H CENTER  
H PHASE  
H BLK PHASE  
H BLK WIDTH

Copy the above data to the following mode.

MODE2	1125	16:9	UNDER SCAN
MODE3	1035/60i (33kHz)	16:9	NORMAL
MODE4	1125 (1035)	16:9	UNDER SCAN

### • 720/60P (45 kHz) 16:9 NORMAL Mode H Blanking Adjustment

1. Set SCREEN MODE to 720P 16:9 NORM at the INPUT CONFIGURATION menu of the SETUP menu.
2. Connect the MODE5 720/60P (45 kHz) cross-hatch signal to the input.
3. Adjust the H. CENTER, H. PHASE, H. BLK. LEFT and H. BLK. RIGHT data in the same manner as steps 3 to 12 in the 1080/60i (33 kHz) 16:9 NORMAL mode.
4. Adjust the H. BLK. LEFT data so that the blanking is position at 7 mm outside the left-most end of the cross-hatch signal area. (Fig. 1-7.)
5. Adjust the H. BLK. RIGHT data so that the blanking is position at 7 mm outside the right-most end of the cross-hatch signal area. (Fig. 1-7.)
6. H CENTER  
H PHASE  
H BLK LEFT  
H BLK RIGHT

Copy the above data to the following mode.

MODE6	16:9	UNDER SCAN
-------	------	------------

- 480/60P (31 kHz/15 kHz) 16:9 NORMAL mode horizontal blanking adjustment
1. Select 480 16:9 NORM of the SCREEN mode using the INPUT CONFIGURATION menu of the SETUP menu.
  2. Connect the MODE7/MODD11 480/60P (31 kHz/15 kHz) cross-hatch signal to the input.
  3. Adjust the H. CENTER, H. PHASE, H. BLK. LEFT and H. BLK. RIGHT data in the same manner as steps 3 to 12 of the 1080/60i (33 kHz) 16:9 NORMAL mode.
  4. Adjust the H. BLK. LEFT data so that the blanking is position at 7 mm outside the left-most end of the cross-hatch signal area. (Fig. 1-7.)  
When this adjustment is complete, take note of the H. BLK. LEFT adjustment data.
  5. Adjust the H. BLK. RIGHT data so that the blanking is position at 7 mm outside the right-most end of the cross-hatch signal area. (Fig. 1-7.)  
When this adjustment is complete, take note of the H. BLK. RIGHT adjustment data.
  6. H CENTER  
H PHASE  
H BLK LEFT  
H BLK RIGHT  
Copy the above-described data to the following modes.  
MODE8/MODE12 525 16:9 UNDER SCAN  
MODE9/MODE13 4:3 NORMAL  
MODE10/MODE14 4:3 UNDER SCAN

- 1080/48i (27 kHz) 16:9 NORMAL mode horizontal blanking adjustment
1. Select 1080 16:9 NORM of the SCREEN mode using the INPUT CONFIGURATION menu of the SETUP menu.
  2. Connect the MODE15 1080/48i (27 kHz) cross-hatch signal to the input.
  3. Adjust the H. CENTER, H. PHASE, H. BLK. LEFT and H. BLK. RIGHT data in the same manner as steps 3 to 12 of the 1080/60i (33 kHz) 16:9 NORMAL mode.
  4. Adjust the H. BLK. LEFT data so that the blanking is position at 7 mm outside the left-most end of the cross-hatch signal area. (Fig. 1-7.)  
When this adjustment is complete, take note of the H. BLK. LEFT adjustment data.
  5. Adjust the H. BLK. RIGHT data so that the blanking is position at 7 mm outside the right-most end of the cross-hatch signal area. (Fig. 1-7.)  
When this adjustment is complete, take note of the H. BLK. RIGHT adjustment data.
  6. H CENTER  
H PHASE  
H BLK LEFT  
H BLK RIGHT  
Copy the above-described data to the following modes.  
MODE16 1125 16:9 UNDER SCAN

### [Linearity Adjustment]

Note: The following adjustment menu is located inside the E BOARD menu of the MAINTENANCE menu.

- |           |              |
|-----------|--------------|
| V CENTER  | H CENTER BOW |
| H LIN BAL | H MID PIN    |
| H LIN     | H CORNER PIN |
| V LIN BAL | V SIZE       |
| H KEY BAL | H LINE       |
| H KEY     | V LIN        |
| H PIN BAL | H CENTER     |
| H PIN     |              |

1. Input the HD (1125) cross-hatch signal.
2. Select the 16:9 NORM of the SCREEN mode using the INPUT CONFIGURATION menu of the SETUP menu.
3. Confirm that there exists no DY inclination, no V PIN cushion distortion in the top and bottom and no horizontal trapezoidal distortions on screen. If there exists any errors, remove the errors as follows.  
DY inclination :  
Adjust the DY inclination  
V PIN cushion distortion in the top and bottom:  
DY up/down neck twist  
Horizontal trapezoidal distortion :  
Adjust by H. TRP VR of the DY (24 inch)  
Adjust by TLV VR of the DY (20 inch)  
(If they are adjusted extremely, the convergence can be adversely affected. In such a case, select the green single color for this adjustment.)
4. Input the HD (1125) monoscope signal.
5. Adjust the H CENTER data and adjust the horizontal center of the image.
6. Adjust the V CENTER data and adjust the vertical center of the image.
7. Input the HD (1125) cross-hatch signal.
8. Adjust the VSIZE, V LIN BAL, and V LIN data as shown in Fig. 1-8.

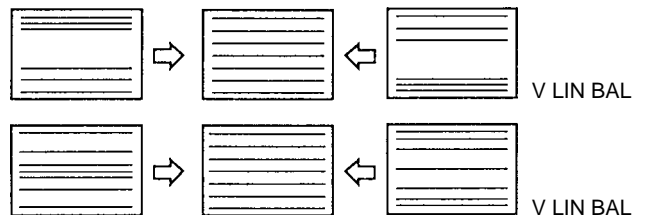


Fig. 1-8

9. Adjust the H SIZE, H LIN BAL, and H LIN data as shown in Fig. 1-9.

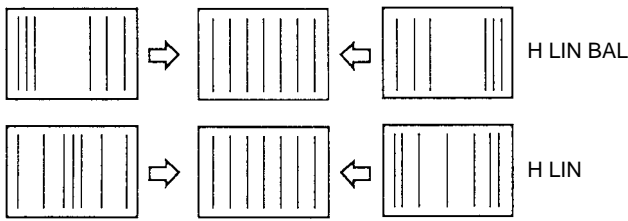


Fig. 1-9

10. Adjust the H KEY BAL, H KEY, H PIN BAL, and H PIN data so that the trapezoid distortion and PIN distortion at the side disappear as shown in Fig. 1-10.
11. Adjust the H CENTER BOW, H MID PIN, and H CORNER PIN data as shown in Fig. 1-11.
12. Repeat the above adjustments and optimize the horizontal and vertical linearities.
13. Change the SCREEN MODE for the following modes as well, and perform adjustments in the same way.

MODE2	1125	16:9	UNDER SCAN
MODE3	1035/60i (33kHz)	16:9	NORMAL
MODE4	1125	16:9	UNDER SCAN
MODE7	480/60P (31kHz)	16:9	NORMAL
MODE8	525	16:9	UNDER SCAN
MODE9	525	4:3	NORMAL
MODE10	525	4:3	UNDER SCAN
MODE15	1080/84i (27kHz)	16:9	NORMAL
MODE16	1125	16:9	UNDER SCAN

- The items that are common in different modes.
    - DY inclination
    - Up/down V PIN distortion
    - H. CENTER. BOW
    - H. MID. PIN
    - H. CORNER PIN
- } Copy the data of MODE1 1080/60i (33 kHz) 16:9 NORM.

- The items that are different in different modes.
  - H. TRP (24 inch)
  - TLV VR (20 inch)
  - V CENTER
  - H LIN BAL
  - H LIN
  - V LIN BAL
  - H KEY BAL
  - H KEY
  - H PIN BAL
  - H PIN
  - V SIZE
  - H SIZE
  - V LIN
  - H CENTER

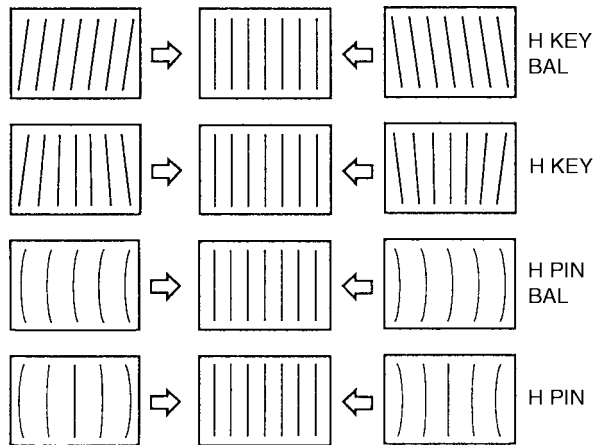


Fig. 1-10

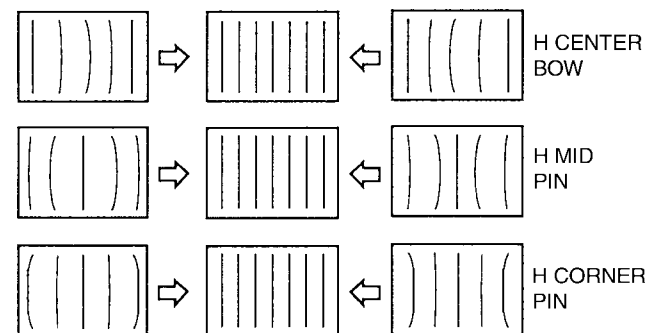


Fig. 1-11

14. Connect the MODE5 720/60P (45 kHz) signal to the input.
15. Set SCREEN MODE to 16:9 NORM at the INPUT CONFIGURATION menu of the SETUP menu.
16. Perform the adjustments of steps 3 to 12.
17. Change the SCREEN MODE of the following modes as well, and perform adjustments in the same way.  
MODE6 720/60p 45kHz 16:9 UNDER SCAN

- Common items for modes

DY inclination	}	Copy the data of MODE5 720/60P (45 kHz) 16:9 NORM.
Up/down V PIN distortion		
H CENTER BOW		
H MID PIN		
H CORNER PIN		

- Items differing between modes

H TRP (24 inch)  
TLV (20 inch)  
V CENTER  
H LIN BAL  
H LIN  
V LIN BAL  
H KEY BAL  
H KEY  
H PIN BAL  
H PIN  
V SIZE  
H SIZE  
V LIN  
H CENTER

18. Connect the MODE11 480/60P (15 kHz) signal to the input.
19. Set SCREEN MODE to 16:9 NORM at the INPUT CONFIGURATION menu of the SETUP menu.
20. Perform the adjustments of steps 3 to 12.
21. Change the SCREEN MODE of the following modes as well, and perform adjustments in the same way.

MODE12	525	16:9	UNDER SCAN
MODE13	525	4:3	NORMAL
MODE14	525	4:3	UNDER SCAN

- Common items for modes

DY inclination	}	Copy the data of MODE11 480/60P (15 kHz) 16:9 NORM.
Up/down V PIN distortion		
H CENTER BOW		
H MID PIN		
H CORNER PIN		

- Items differing between modes

H TRP (24 inch)  
TLV (20 inch)  
V CENTER  
H LIN BAL  
H LIN  
V LIN BAL  
H KEY BAL  
H KEY  
H PIN BAL  
H PIN  
V SIZE  
H SIZE  
V LIN  
H CENTER

## [Convergence Adjustment]

- Preparations

1. Set SCREEN MODE to 16:9 NORM at the INPUT CONFIGURATION menu of the SETUP menu.
2. Input the HD (1125) cross-hatch signal.
3. Set the 4-pole magnet of the DY to the OFFSET state in the case of 24 inch monitor.

Confirm that the H. STAT data is in the pre-set value (128) and the V. STAT data is also in the pre-set value (128).

Set the user's menu ALIGNMENT V. STATIC CONV., V. CONV. TOP., V. CONV. BOT, and H. STATIC CONV. to 100. (In both 20- and 24 inch monitors)

In the case of the 20 inch monitor, set the 6-pole magnet of the DY to the OFFSET state.

Confirm that the H. STAT data is in the pre-set value (128) and the V. STAT data is also in the pre-set value (128).

Note: The V. STATIC CONV. adjustment menu is located in the lower layer of the E board menu of the MAINTENANCE menu.

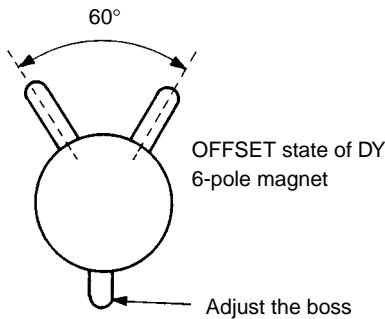


Fig. 1-12

- HMC and VMC correction by the 6-pole magnet

1. HMC (horizontal mis-convergence) correction by the 6-pole magnet and movement electronic beam

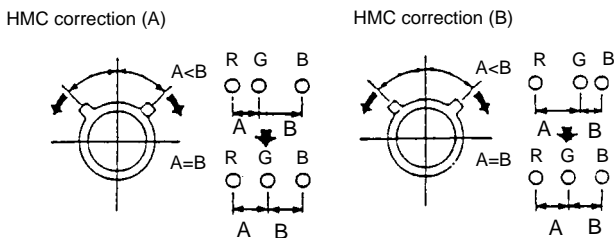


Fig. 1-13

2. Correction of 6-pole magnet VMC (vertical mis-convergence) and movement of electronic beam

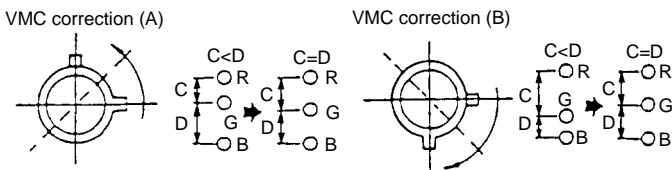


Fig. 1-14

## [Static Convergence Adjustment]

- Horizontal static convergence

1. Adjust RV1 (H. STAT) of the C board (20 inch) or the 4-pole magnet and the 6-pole magnet (24 inch) of the neck assembly until the red and green dots are aligned in the horizontal direction at the center of screen.
2. If the blue dots are mis-aligned against the red and green dots, adjust as follows.

- In the case of 24 inch monitor  
Adjust the HMC (horizontal mis-convergence) correction using the 6-pole magnet of the neck assembly. (Refer to Fig. 1-2.)

- Vertical static convergence

1. Adjust the V. STATIC CONV. data (20 inch) or the 4-pole magnet and the 6-pole magnet (24 inch) of the neck assembly until the red and green dots are aligned in the vertical direction at the center of screen.

Note: The V. STATIC CONV. adjustment menu is located in the lower layer of the E board menu of the MAINTENANCE menu.

2. If the blue dots are mis-aligned against the red and green dots, adjust as follows.

- In the case of 24 inch monitor  
Adjust the VMC (vertical mis-convergence) correction using the 6-pole magnet of the neck assembly. (Refer to Fig. 1-2.)

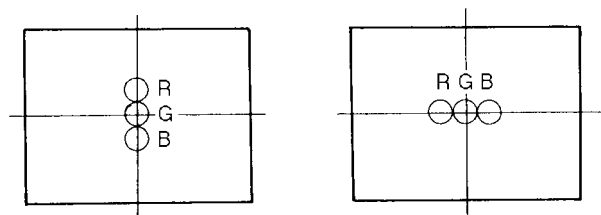


Fig. 1-15

20 inch

RV1 (H. STAT)

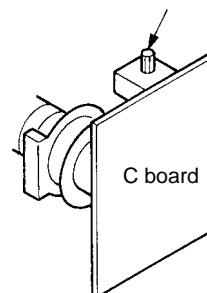


Fig. 1-16

## [20 inch Convergence Adjustment]

### • Preparation

1. Select the 16:9 NORM of the SCREEN mode using the INPUT CONFIGURATION menu of the SETUP menu.
2. Connect the MODE13 480/60i (15 kHz) cross-hatch signal to input.

### • Convergence adjustment

1. Minimize the vertical mis-convergence in the center at the left-most end and at the right-most end of screen using the DY correction reactors XBV and XCV.
  - \* Because TLV is used for horizontal trapezoidal distortion adjustment, adjust the convergence while maintaining the correct adjustment of the horizontal trapezoidal distortion correction only when MSV is extremely poor.
2. Minimize the horizontal mis-convergence in the top and the bottom of screen using the DY correction reactors YBH and YCH.
3. Minimize the mis-convergence at the left-most end and at the right-most end of screen using the DY correction reactors APH, TLH and CBH.
4. Adjust the V. STAT BOTTOM data then adjust the V. STAT TOP data in this order so that the vertical mis-convergence in the top and bottom of screen. (Keep the V.STAT data to be 128, and do not change it to any data other than 128.)

Note: The V. STATIC BOTTOM and the V. STAT. TOP adjustment menus are located in the lower layer of the E board menu of the MAINTENANCE menu.

5. If there exists any left-to-right asymmetrical areas, insert the TLH correction plate into DY and so that the mis-convergence is minimized.)
6. Copy the respective adjustment data into all modes. Then confirm the vertical and horizontal convergence again. If any mis-convergence is noticed, adjust the convergence again.

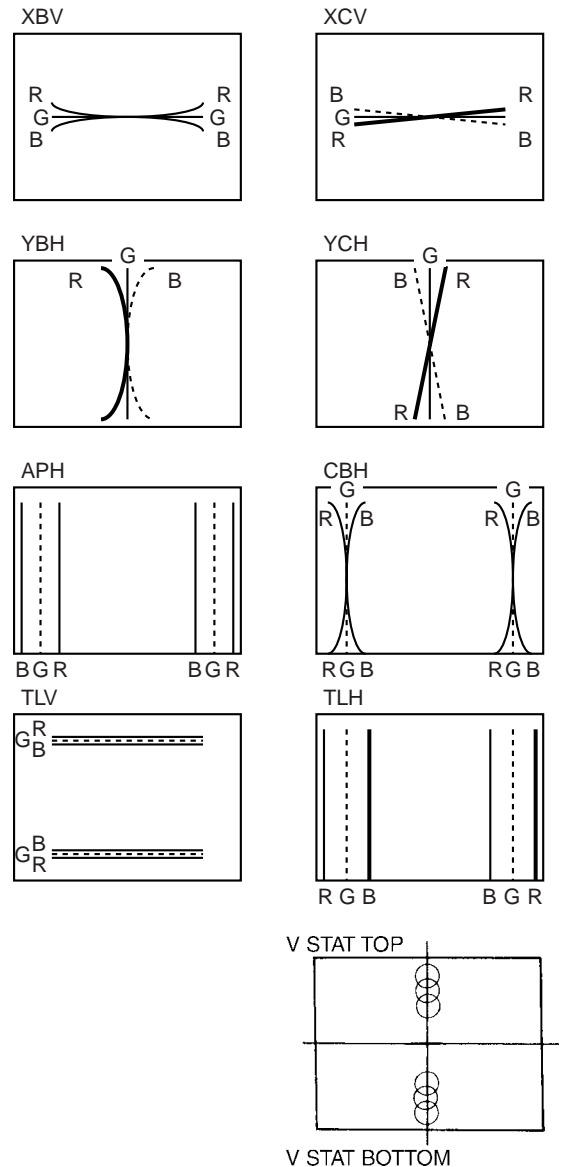


Fig. 1-17

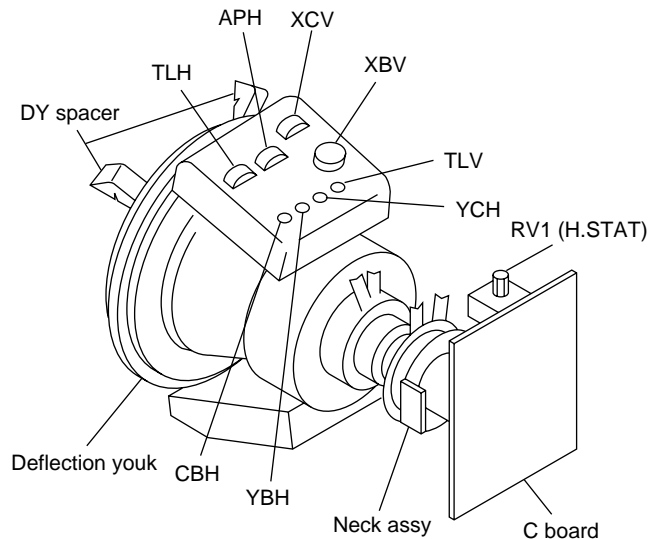


Fig. 1-18

## [24 inch Convergence Adjustment]

### • Preparation

1. Select the 16:9 NORM of the SCREEN mode using the INPUT CONFIGURATION menu of the SETUP menu.
2. Connect the MODE13 480/60i (15 kHz) cross-hatch signal to input.

### • Convergence adjustment

1. Minimize the vertical mis-convergence in the center at the left-most end and at the right-most end of screen using the DY correction reactors XBV and XCV.
2. Minimize the horizontal mis-convergence in the top and the bottom of screen using the DY correction reactors YCH and YBH.
3. Minimize the mis-convergence at the left-most end and at the right-most end of screen using the DY correction reactors APH and TLH.

4. Adjust the V. STAT BOTTOM data then adjust the V. STAT TOP data in this order so that the vertical mis-convergence in the top and bottom of screen.  
(Keep the V.STAT data to be 128, and do not change it to any data other than 128.)

Note: The V. STATIC BOTTOM and the V. STAT. TOP adjustment menus are located in the lower layer of the E board menu of the MAINTENANCE menu.

5. If there exists any left-to-right asymmetrical areas, insert the TLH correction plate into DY and so that the mis-convergence is minimized.)
6. Copy the respective adjustment data into MODE1 to MODE12/MODE14. Then confirm the vertical and horizontal convergence again. If any mis-convergence is noticed, adjust the convergence again.

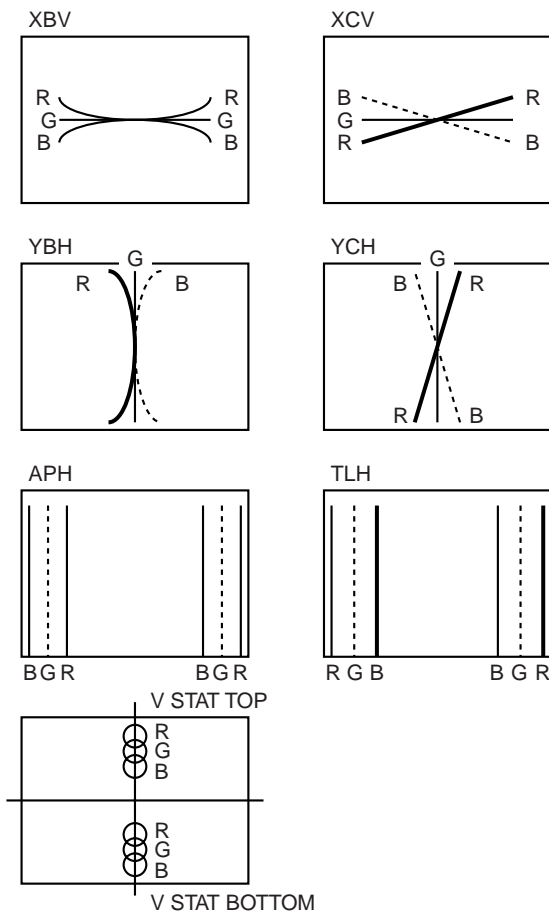


Fig. 1-19

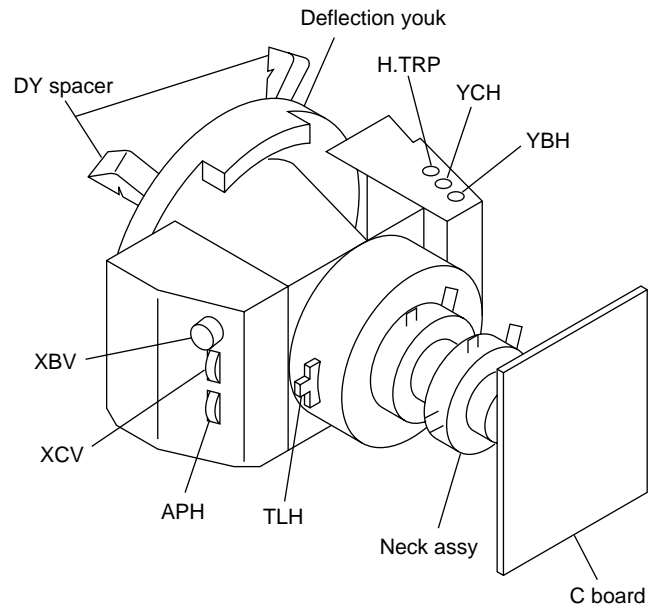


Fig. 1-20

## [G2 Adjustment]

Note: The G2 REF adjustment menu is located inside the BK BOARD menu of the MAINTENANCE menu.

1. Input the HD (1125) color bar signal. (CHROMA: OFF state)
2. Connect the probe of the oscilloscope to each R, G, B cathode (TP2, 3, 4) of the C board, and check the DC voltages of the color bar signal pedestal portions. (20V/Div)
3. Connect the probe of the oscilloscope to the cathode with the highest pedestal DC voltage.
4. Adjust the G2 REF data so that the DC voltage at the pedestal becomes the value as shown below.  
 20 inch :  $97.5 \pm 2.5$  V  
 24 inch :  $102.5 \pm 2/5$  V

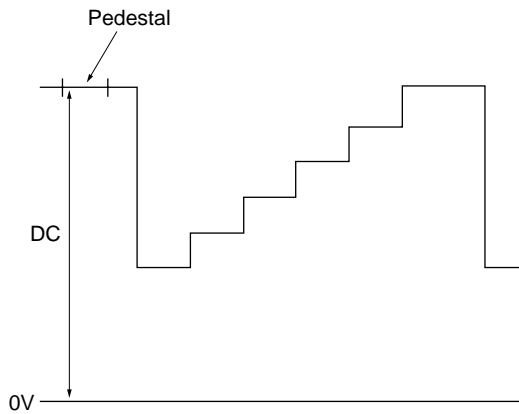
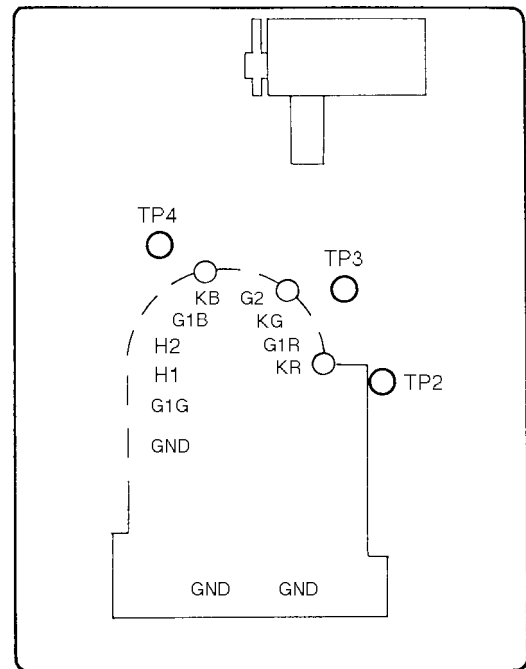
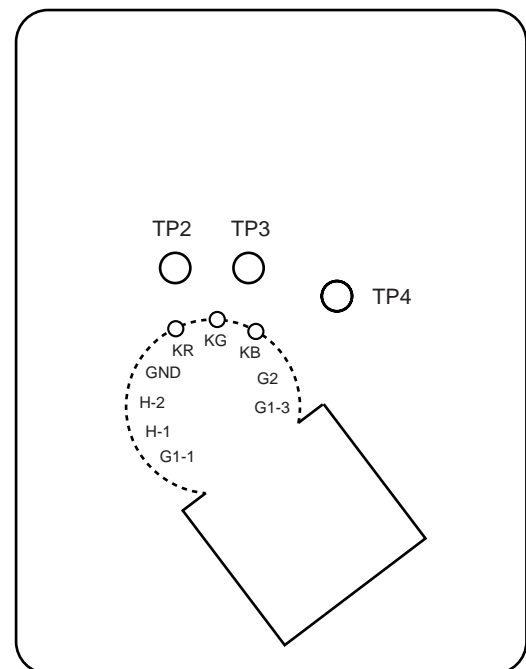


Fig. 1-21



C board – Side B –  
(20 inch)



C board – Side B –  
(24 inch)

Fig. 1-22



## [White Balance Adjustment]

Note: Perform the landing adjustment and the digital uniformity adjustment before the white balance adjustment as much as possible. (Only in 24 inch)

### 1. Outline of Adjustments and Calibration of the Color Analyzer Used for Adjustments

Perform the following adjustments.

#### 1.1 Obtaining the Parameters for Converting the RGB

Drive Voltage of the CRT to the Chromaticity Coordinate  
This monitor comes equipped with a function to copy color temperature between several monitors.

Since the CRT drive voltage depends on each individual CRT. The same color temperature cannot be obtained even if the same drive voltage is supplied to several monitors. Consequently, to copy a certain color temperature between several monitors, there is a need to transmit data which does not depend on the CRT using the xyY chromaticity coordinate.

When the SYSTEM/COLOR TEMP/FACTORY ADJ menu of the MAINTENANCE menu is selected and executed, the D93 color temperature will automatically be adjusted, and at the same time, the parameters for converting the drive voltage and chromaticity coordinate will be created. Use these parameters when copying color temperature to other monitors and copying color temperature to the memory card.

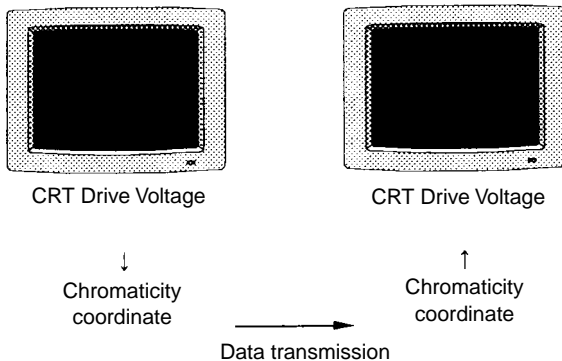


Fig. 1-26

#### 1.2 D65 Color Temperature Adjustment

#### 1.3 Copying Color Temperature Data D93 to Color Temperature STD, COLOR1, COLOR2, and AUX

##### • Calibration of color analyzer

Generally, when measuring the color temperature of a certain monitor using several color analyzers, these color analyzers will show different measured values. The measured values will also change with time.

Use the color analyzers for this adjustment after calibrating them so that they will show the correct measured values at the following chromaticity coordinate.

	x	y	(cd/m <sup>2</sup> )
D93	283	297	2.7 (low)
	283	297	100 (high)
D65	313	329	2.7 (low)
	313	329	100 (high)
D56	331	346	2.7 (low)
	331	346	100 (high)

### 2. Preparations for Adjustments

2.1 Input the HD signal (1125) into the G/Y input terminal of the BK board to display it on the screen.

2.2 Connect the RS-232C terminal of CA-100 and the OPTION terminal of the monitor using the cables indicated at Required Tools and Measuring Instruments (see page 3-1).

2.3 Set CA-100 as follows, and attach the measuring probe of CA-100 to the center of the CRT screen.

Display mode : xyY mode

Baud Rate : 9600

3. Select SET UP menu of MAINTENANCE menu.

4. Select the SYSTEM/COLOR TEMP menu of the MAINTENANCE menu.

5. Select D93 of COLOR TEMP, cover the CRT screen with a blackout cloth, select FACTORY SET, and start automatic adjustments.

6. Select D65 of COLOR TEMP, and then select the PROBE menu. After selecting D65, cover the CRT screen with a blackout cloth, and select START to start automatic adjustments.

7. Select the SYSTEM/COLOR TEMP/COPY/OTHER VALUE menu of the MAINTENANCE menu.

8. Select STD of COLOR TEMP, select D65, and copy the color temperature data to STD.

9. Select COLOR1 of COLORTEMP, select D93, and copy the color temperature data to COLOR1.

10. Select COLOR2 of COLORTEMP, select D65, and copy the color temperature data to COLOR2.

11. Select AUX of COLORTEMP, select D65, and copy the color temperature data to AUX.

## Section 4

# Safety Related Adjustments

### +B (135V) Voltage Adjustments

Perform the following checks and adjustments when the following parts (  on the schematic diagram) have been replaced.

G board ..... IC202

1. Connect a digital voltmeter to TP1 of the G board. (GND is TP6 of the G board)
  - Use a digital voltmeter with more than 4 digits.
2. Confirm that the TP1 voltage value is as shown below.  
135.2 V  $\pm$  0.8 VDC

### High Voltage Regulator Check/Adjustment

(  RV501)

Perform the following checks/adjustments when the following parts (  on the schematic diagram) have been replaced.

PA board ..... R501, R502, R505, R506, R508, R509, R510, R512, R513, R801, R802, R804, RV501, IC501, IC801 (20 inch), IC805 (24 inch)

1. Turn OFF the power.
2. Connect the static voltmeter to the anode cap of the CRT.
  - Static voltmeter : Calibrated to an input impedance of above  $2 \times 10^9 \Omega$ . (For example, Singer ESH-27X or ESH-23X)
3. Turn ON the power.
4. Input the HD (1125) monoscope signal.
5. Press the BRIGHTNESS VR and CONTRAST VR buttons to set the PRESET state. [ The LED (green) on the button goes off. ]
6. Check that the high voltage value is within the following range.  
27.0  $\pm$  0.15 kV
7. If 6 is not satisfied, replace RV501 of the PA board and adjust RV501 to satisfy the specifications.
8. Remove the static voltmeter.
9. If RV501 has been replaced at step 7, fix it with epoxy resin (made by DP-190 3M) after adjusting the RV.

### High Voltage Hold-Down Check/Adjustment

(  RV503)

Perform the following checks/adjustments when the following parts (  on the schematic diagram) have been replaced.

PA board ..... R524, R525, R526, R527, R530, RV503, D502, D505, D902

PC board ..... R812, D801

1. Turn OFF the power.
2. Connect the static voltmeter to the anode cap of the CRT.
  - Static voltmeter : Calibrated to an input impedance of above  $2 \times 10^9 \Omega$ . (For example, Singer ESH-27X or ESH-23X)
3. Connect a 200 k $\Omega$  variable resistor between TP501 and TP504 (GND) of the PA board. (Set the resistance of the 200 k $\Omega$  resistor to the maximum value.)
4. Turn ON the power.
5. Input the HD (1125) cross-hatch signal.
6. Press the BRIGHTNESS VR and CONTRAST VR buttons to set the PRESET state. [ The LED (green) on the button goes off. ]
7. Cut-off the R,G,B. [ Turn ON the SHIFT button (orange LED lights up) and turn ON the R, G, and B buttons (LED lights up)].
8. Decrease the resistance of the 200 k $\Omega$  variable resistor connected to TP501, and check that the high voltage value drops suddenly at the following values.  
30.0  $\pm$  0.5 kV
9. If 8 is not satisfied, replace RV503 of the PA board and adjust RV503 to satisfy the specifications.
10. Remove the 200 k $\Omega$  variable resistor.
11. Check that the high voltage values satisfy the following values.  
27.00  $\pm$  0.15 kV
12. Remove the static voltmeter.
13. If RV503 has been replaced at step 9, fix it with epoxy resin (made by DP-190 3M) after adjusting the RV.

## Beam Current Protector Check

Perform the following checks when the following parts (  on the schematic diagram) have been replaced.

PA board ..... R514, R515, R516, R517, R521,  
R522, IC502, Q501, Q502, D501,  
D503, D901

PC board  
(20 inch) ..... R801, R802, R803, R804, R805,  
R806  
(24 inch) ..... R804, R805, R806, R807, R808,  
R809

BK board ..... R912, R913, IC901

E board  
(20 inch) ..... R1301, R1302, Q1302, Q1303

1. Turn OFF the power.
2. Connect the CN3 connector of the PC board.
3. Connect a direct current meter between pins 1 and 2 of CN3 of the PC board.
4. Short-circuit between pins 3 and 4 of CN3 of the PC board using a jumper.
5. Short-circuit between TP502 and TP504 (GND) of the PA board using a jumper.
6. Turn ON the power.
7. Input the HD (1125) 100% all white signal.
8. Press the BRIGHTNESS VR and CONTRAST VR buttons to set the MANUAL state.  
[ The LED (green) on the button goes off. ]
9. Turn the BRIGHTNESS VR and the CONTRAST VR starting from the MIN end toward the MAX end gently. When the ammeter reading reaches the following value, confirm that the protectors do not operate.  
24 inch: 1.35 mA  
20 inch: 1.5 mA
10. Turn the BRIGHTNESS VR and the CONTRAST VR starting from the MIN end toward the MAX end gently. When the ammeter reading reaches the following value, confirm that the protectors operate.  
24 inch:  $1.7 \pm_{0.3}^{\pm 0.1}$  mA  
20 inch:  $2.00 \pm_{0.45}^{\pm 0.15}$  mA
11. Turn OFF the power.
12. Remove the jumper from between TP502 and TP504 (GND) of the PA board.
13. Turn ON the power again.

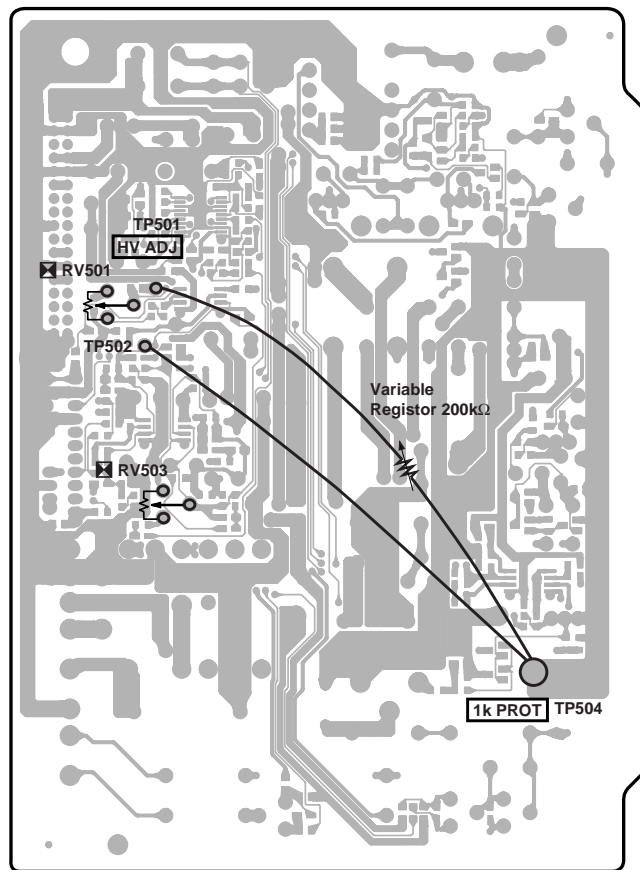
14. Check that when the BRIGHTNESS VR and CONTRAST VR buttons are rotated from MIN to MAX, the ABL operates (the maximum reading of the current meter should be the value below).

24 inch :  $1.2 \pm_{0.15}^{\pm 0.1}$  mA  
20 inch :  $1.00 \pm_{0.15}^{\pm 0.20}$  mA (16:9)  
          :  $1.30 \pm 0.15$ mA (4:3)

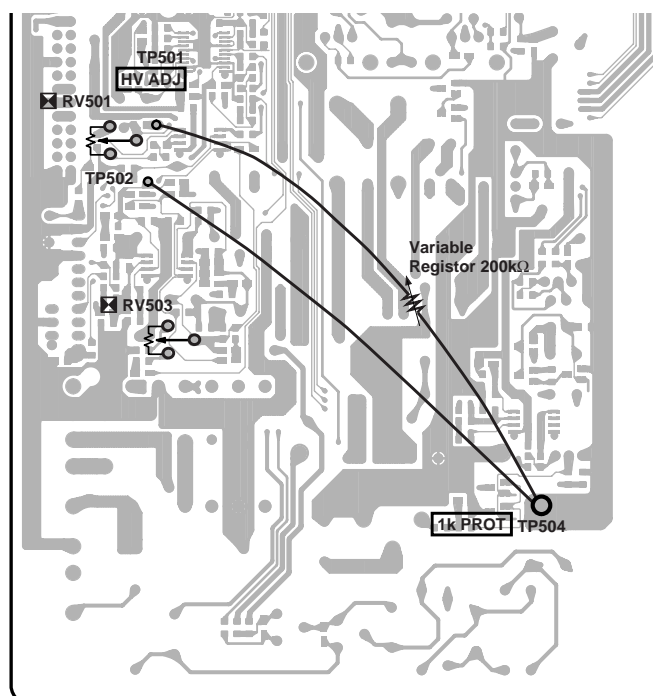
15. Remove the direct current meter.
16. Remove the jumper between pins 3 and 4 of the PC board.
17. Connect the CN3 connector of the PC board.

PA BOARD  
-B SIDE-

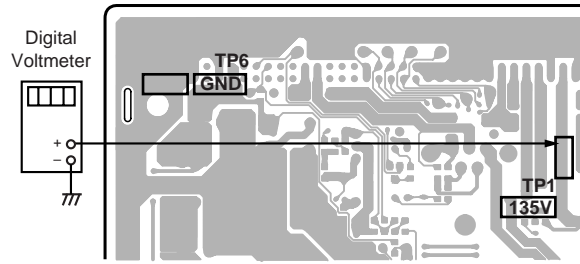
(20 inch)



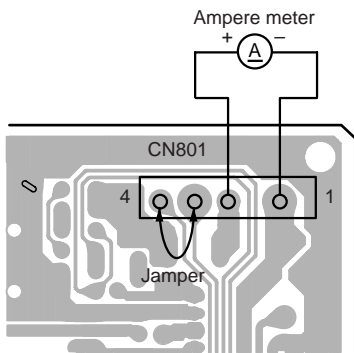
(24 inch)



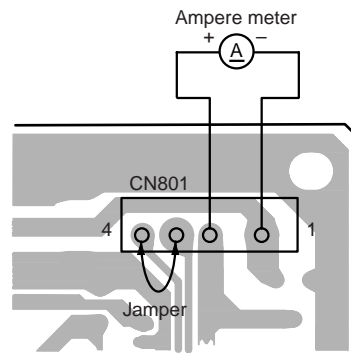
**G BOARD  
-B SIDE-**



**PC BOARD  
-B SIDE-  
(20 inch)**



(24 inch)



# Section 5

## Circuit Adjustments

### 5-1. BK Board Adjustments

This section describes the following adjustments which are required when performing the maintenance and parts replacement of the BK board.

1. Bright center adjustment
2. Clamp level adjustment
3. Pulse level adjustment
4. R-Y GAIN, B-Y GAIN adjustment
5. SETUP adjustment
6. 100 IRE adjustment
7. BIAS REF. Adjustment
8. DRIVE REF. Adjustment
9. RGB SETUP adjustment
10. RGB 100 IRE adjustment
11. Frequency characteristics adjustment

#### Control Settings

- Set as follows at the INPUT CONFIGURATION menu of the SETUP menu.

For component signal

FORMAT ..... YPBPR 1035

SLOT No. .... 6

INPUT No. .... 1, 2, 3

SYNC MODE ..... INT

For RGB signal

FORMAT ..... GBR

- Select and execute SLOT 6 VIDEO AMP at RE-LOAD FACTORY DATA in EXTEND MENU of the SETUP menu.
- Before starting the adjustment, turn the digital uniformity (DU) to OFF (0) in the lower layer of the MAINTENANCE. (24 inch only) Set DU to ON (1) upon completion of the BK adjustment.

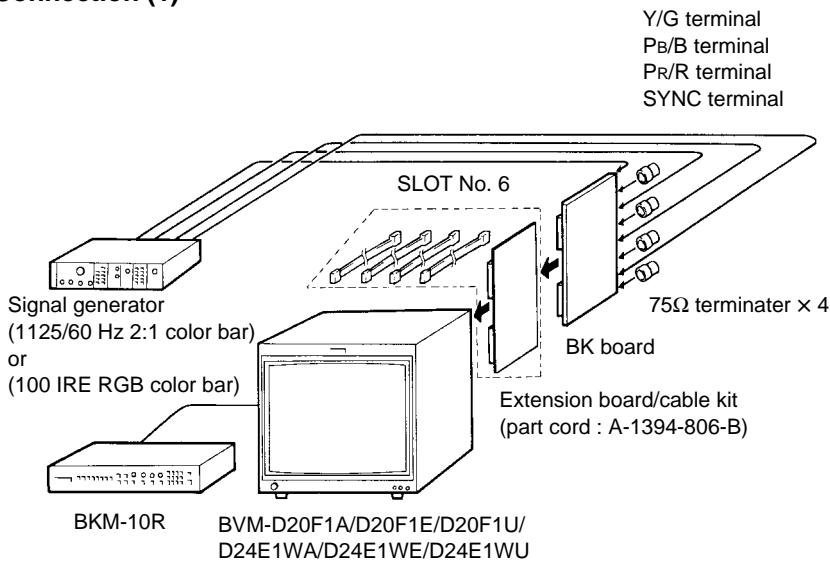
## Equipment Used

Name	Main Specifications	Equipment
Signal generator	<ul style="list-style-type: none"> <li>• 1125 (1035) : SMPTE240M standard or BTA S-S001A standard</li> <li>• 1125 (1080) : SMPTE274M standard</li> <li>• 525P : SMPTE293M standard or BTA T-1004 standard</li> <li>• 1250 : SMPTE295M standard</li> </ul>	
Oscilloscope	Frequency : Above DC to 150 MHz Above 2 phenomena (ADD mode)	TEKTRONIX 2445A or equivalent

## Tools

Name	Parts No.	Remarks
Extension board/cable kit	A-1394-806-B	Z board and four cables
75Ω terminal	—	× 4
Adjusting screwdriver	—	

## Connection (1)

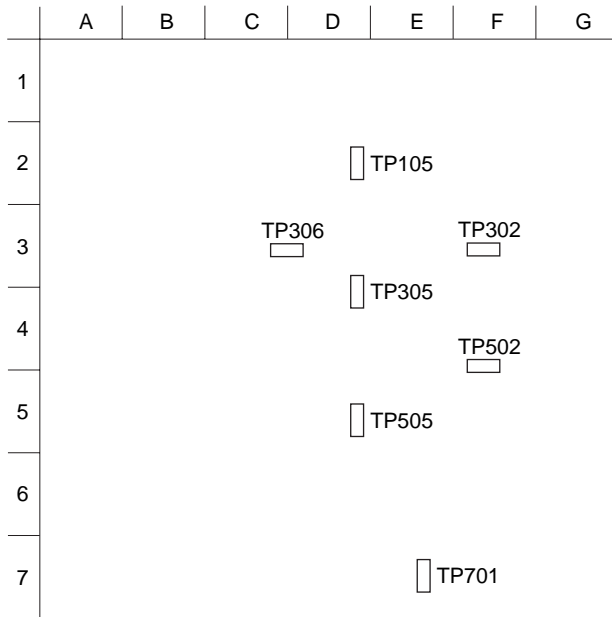


## Adjusting Point

	A	B
1		
2		RV100 CV100
3		
4		RV300 CV300
5		RV500 CV500

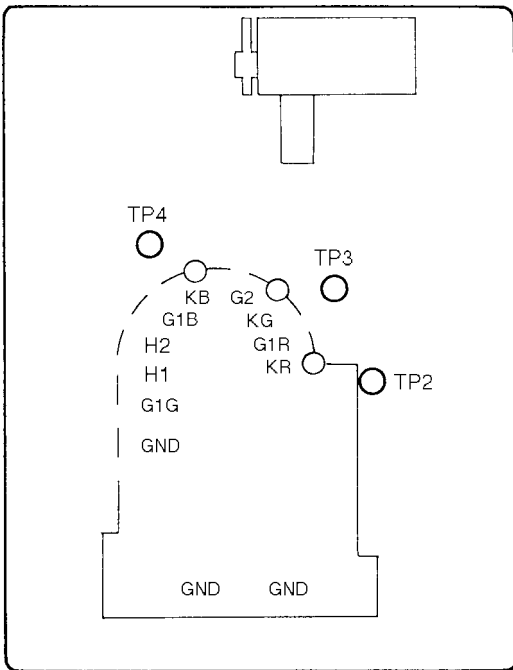
BK board –Side A–

**Connectio (2)**

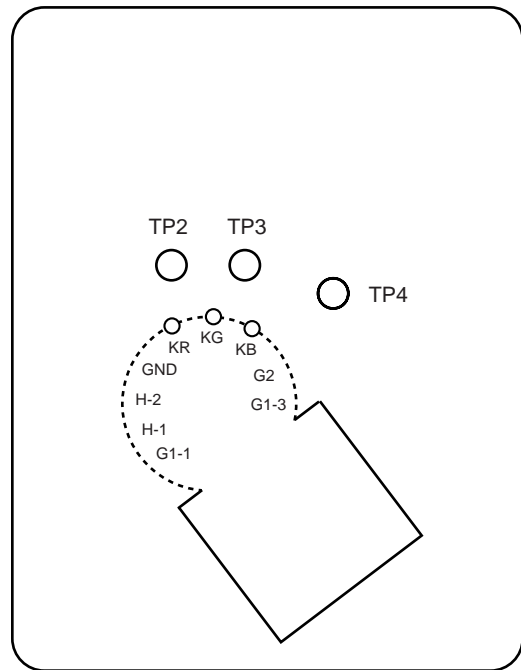


**BK Board –SIDE A–**

**Connectio (3)**



**C Board –SIDE B–  
(20 inch)**

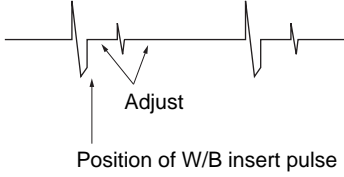


**C Board –SIDE B–  
(24 inch)**

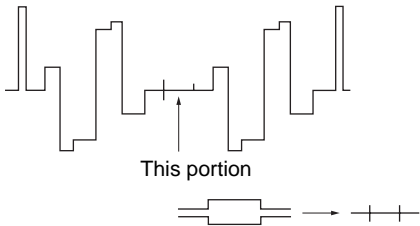
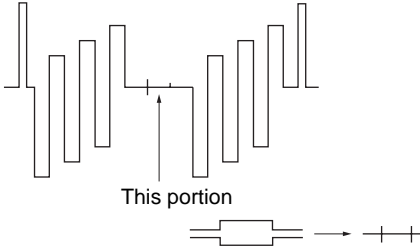


## Adjusting Procedure

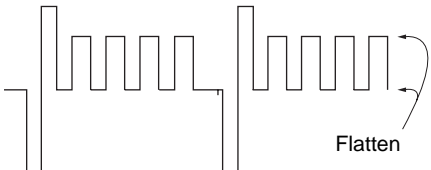
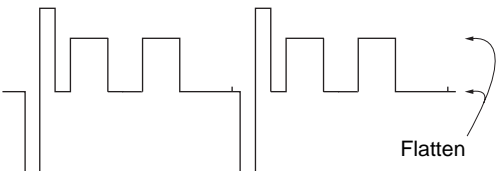
### 1. Bright Center Adjustment

Adjustment	Standard	Adjusting Point
<ul style="list-style-type: none"> <li>Input color bar signal (1125/60 Hz 2:1).</li> <li>Set the BRIGHT data to 1000 using the BRIGHT knob. (<b>Note:</b> At CONTROL PRESET)</li> <li>Connect an oscilloscope to TP701 (BRT).</li> </ul>	Deviation of TP701 (BRT) center: Level difference : $0 \pm 8$ mV 	The adjustment menu is BRT CENTER located inside the BK BOARD menu of the MAINTENANCE menu.

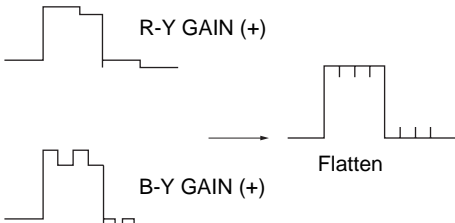
### 2. Clamp Level Adjustment

Adjustment	Standard	Adjusting Point
Step 1 <ul style="list-style-type: none"> <li>Input color bar signal (1125/60 Hz 2:1).</li> <li>Set the CHROMA data to MAX2000 using the CHROMA knob. (<b>Note:</b> At CONTROL PRESET)</li> <li>Connect an oscilloscope to TP302.</li> </ul>	Equalize the TP302 pedestal and clamp offset pulse. 	The adjustment menu is R-Y CLAMP OFFSET located inside the BK BOARD menu of the MAINTENANCE menu.
Step 2 <ul style="list-style-type: none"> <li>Connect an oscilloscope to TP502.</li> <li>After adjusting, set the CHROMA data to 1000.</li> </ul>	Equalize the TP502 pedestal and clamp offset pulse. 	The adjustment menu is B-Y CLAMP OFFSET located inside the BK BOARD menu of the MAINTENANCE menu.

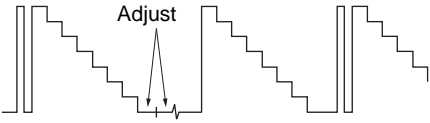
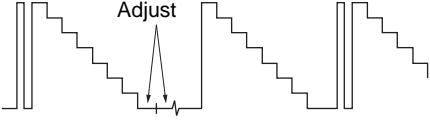
### 3. Pulse Level Adjustment

Adjustment	Standard	Adjusting Point
<p>Step 1</p> <ul style="list-style-type: none"> <li>Input color bar signal (1125/60 Hz 2:1).</li> <li>Set the CHROMA data to 1000 using the CHROMA knob. <b>(Note: At CONTROL PRESET)</b></li> <li>Connect an oscilloscope to TP505.</li> </ul>	<p>The output waveform of TP505 is flat: Level difference : <math>0 \pm 10</math> mV</p> 	<p>The adjustment menu is PB LEVEL located inside the BK BOARD menu of the MAINTENANCE menu.</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>Connect an oscilloscope to TP105.</li> </ul>	<p>The output waveform of TP105 is flat: Level difference : <math>0 \pm 10</math> mV</p> 	<p>The adjustment menu is PR LEVEL located inside the BK BOARD menu of the MAINTENANCE menu.</p>

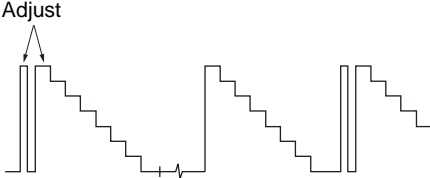
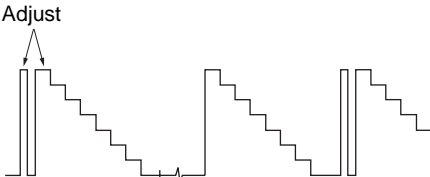
### 4. R-Y GAIN, B-Y GAIN Adjustment

Adjustment	Standard	Adjusting Point
<ul style="list-style-type: none"> <li>Input color bar signal (1125/60 Hz 2:1).</li> <li>Set the CHROMA data to 1000 using the CHROMA knob. <b>(Note: At CONTROL PRESET)</b></li> <li>Connect an oscilloscope to TP305.</li> </ul>	<p>The GREEN waveform of TP305 is flat: Level difference : <math>0 \pm 10</math> mV</p> 	<p>The adjustment menus are R-Y GAIN, B-Y GAIN located inside the BK BOARD menu of the MAINTENANCE menu.</p>

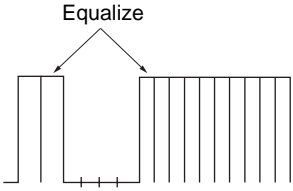
## 5. SETUP Adjustment

Adjustment	Standard	Adjusting Point
<p>Step 1</p> <ul style="list-style-type: none"> <li>Input only the Y signal of color bar signal (1125/60 Hz 2:1). (Cut off the B-Y and R-Y signals.)</li> <li>Connect an oscilloscope to TP105.</li> </ul>	<p>The black level and setup signal level of TP105 are equal: Level difference : <math>0 \pm 2</math> mV</p> 	<p>The adjustment menu is R SETUP located inside the BK BOARD menu of the MAINTENANCE menu.</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>Like step 1, connect oscilloscopes to TP305 and TP505.</li> </ul>	<p>The black levels and setup signal levels of TP305 and TP505 are equal: Level difference : <math>0 \pm 2</math> mV</p> 	<p>The adjustment menus are G SETUP and B SETUP located inside the BK BOARD menu of the MAINTENANCE menu.</p>

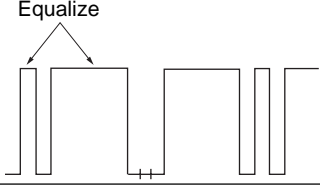
## 6. 100 IRE Adjustment

Adjustment	Standard	Adjusting Point
<p>Step 1</p> <ul style="list-style-type: none"> <li>Input color bar signal (1125/60 Hz 2:1).</li> <li>Connect an oscilloscope to TP105.</li> </ul>	<p>The 100 IRE level and 100 IRE pulse level of the TP105 output are equal: Level difference : <math>0 \pm 2</math> mV</p> 	<p>The adjustment menu is R 100 IRE located inside the BK BOARD menu of the MAINTENANCE menu.</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>Like step 1, connect oscilloscopes to TP305 and TP505.</li> </ul>	<p>The 100 IRE levels and 100 IRE pulse levels of the TP305 and TP505 outputs are equal: Level difference : <math>0 \pm 2</math> mV</p> 	<p>The adjustment menus are G 100 IRE and B 100 IRE located inside the BK BOARD menu of the MAINTENANCE menu.</p>

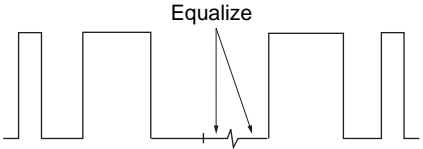
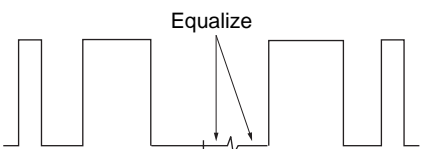
## 7. BIAS REF Adjustment

Adjustment	Standard	Adjusting Point
<ul style="list-style-type: none"> <li>Set CONTRAST to 2048 at the BK BOARD menu of the MAINTENANCE menu.</li> <li>Input the 20 IRE all white signal.</li> <li>Connect an oscilloscope to TP306.</li> </ul>	<p>The all white peak of the TP306 output is equal to the BIAS REF pulse: Level difference : <math>0 \pm 5</math> mV</p> 	<p>The adjustment menu is BIAS REF located inside the BK BOARD menu of the MAINTENANCE menu.</p>
<p><b>Note:</b> Check the waveform in the V period.</p>		

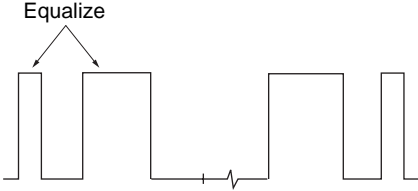
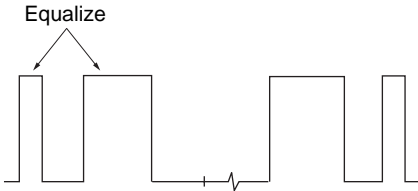
## 8. DRIVE REF Adjustment

Adjustment	Standard	Adjusting Point
<ul style="list-style-type: none"> <li>Set CONTRAST to 2048 at the BK BOARD menu of the MAINTENANCE menu.</li> <li>Input the 100 IRE all white signal.</li> <li>Connect an oscilloscope to TP306.</li> </ul>	<p>The all white peak of the TP306 output is equal to the DRIVE REF pulse: Level difference : <math>0 \pm 5</math> mV</p> 	<p>The adjustment menu is DRIVE REF located inside the BK BOARD menu of the MAINTENANCE menu.</p>

## 9. RGB SETUP Adjustment

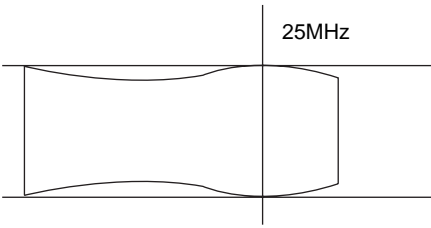
Adjustment	Standard	Adjusting Point
<p>Step 1</p> <ul style="list-style-type: none"> <li>Input the RGB signal of 100 IRE.</li> <li>Connect an oscilloscope to TP105.</li> </ul>	<p>The black level of the TP105 output is equal to the SETUP signal level: Level difference : <math>0 \pm 2</math> mV</p> 	<p>The adjustment menu is R SETUP located inside the BK BOARD menu of the MAINTENANCE menu.</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>Like step 1, connect oscilloscopes to TP305 and TP505.</li> </ul>	<p>The black levels of the TP305 and TP505 outputs are equal to the SETUP signal level: Level difference : <math>0 \pm 2</math> mV</p> 	<p>The adjustment menus are G SETUP and B SETUP located inside the BK BOARD menu of the MAINTENANCE menu.</p>

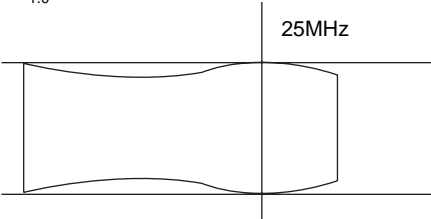
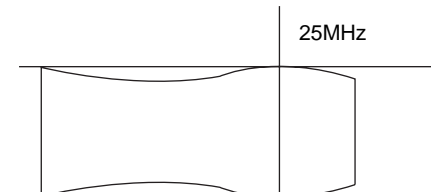
## 10. RGB 100 IRE Adjustment

Adjustment	Standard	Adjusting Point
<p>Step 1</p> <ul style="list-style-type: none"> <li>• Input 100 IRE RGB signal.</li> <li>• Connect an oscilloscope to TP105.</li> </ul>	<p>The 100 IRE level of the TP105 output is equal to the 100 IRE pulse.</p> 	<p>The adjustment menu is R 100 IRE located inside the BK BOARD menu of the MAINTENANCE menu.</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>• Like step 1, connect oscilloscopes to TP305 and TP505.</li> </ul>	<p>The 100 IRE levels of TP305 and TP505 are equal to the 100 IRE pulse.</p> 	<p>The adjustment menus are G 100 IRE and B 100 IRE located inside the BK BOARD menu of the MAINTENANCE menu.</p>

## 11. Frequency Characteristics Adjustment

**Note:** Do not adjust the BK board with the extension board and cable connected in this adjustment.

Adjustment	Standard	Adjusting Point
<p>Step 1</p> <ul style="list-style-type: none"> <li>• Input the 0 to 40 MHz sweep signal with the RGB signal input. (MARKER ON)</li> <li>• Rotate RV100 fully in the clockwise direction (↻).</li> <li>• Connect an oscilloscope to TP2 (R) of the C board using a 100:1 FET probe.</li> <li>• Adjust CV100 so that the waveform satisfies the standard.</li> </ul> <p>If unadjustable completely using CV100, adjust to satisfy the standard while tracking with RV100 and CV100.</p>	<p>The 0 to 30 MHz range of the TP2 (R) output waveform is flat :</p> $0^{+0.5}_{-1.0} \text{ dB}$  <p><b>Note:</b> Adjust so that the 25 MHz marker becomes 0 dB, and check if the above standard is satisfied.</p>	<ul style="list-style-type: none"> <li>• CV100 (B-2) BK board</li> </ul> <p>If outside the standard:</p> <ul style="list-style-type: none"> <li>• RV100 (B-2) BK board</li> </ul>

Adjustment	Standard	Adjusting Point
<p>Step 2</p> <ul style="list-style-type: none"> <li>• Rotate RV300 fully in the clockwise direction (↻).</li> <li>• Connect an oscilloscope to TP3 (G) of the C board using a 100:1 FET probe.</li> <li>• Adjust CV300 so that the waveform satisfies the standard.</li> </ul> <p>If unadjustable completely using CV300, adjust to satisfy the standard while tracking with RV300 and CV300.</p>	<p>The 0 to 30 MHz range of the TP3 (G) output waveform is flat :</p> <p>0<sup>+0.5</sup> -1.0 dB</p> 	<ul style="list-style-type: none"> <li>● CV300 (D-2) BK board</li> </ul> <p>If outside the standard:</p> <ul style="list-style-type: none"> <li>● RV300 (D-2) BK board</li> </ul>
<p>Step 3</p> <ul style="list-style-type: none"> <li>• Rotate RV500 fully in the clockwise direction (↻).</li> <li>• Connect an oscilloscope to TP4 (B) of the C board using a 100:1 FET probe.</li> <li>• Adjust CV500 so that the waveform satisfies the standard.</li> </ul> <p>If unadjustable completely using CV500, adjust to satisfy the standard while tracking with RV500 and CV500.</p>	<p>The 0 to 30 MHz range of the TP4 (B) output waveform is flat :</p> <p>0<sup>+0.5</sup> -1.0 dB</p> 	<ul style="list-style-type: none"> <li>● CV500 (E-2) BK board</li> </ul> <p>If outside the standard:</p> <ul style="list-style-type: none"> <li>● RV500 (E-2) BK board</li> </ul>

## 12. Reference

Refer to 5-1. Basic Adjustments When Replacing CRT for details of the following adjustments.

G2 adjustment

White balance adjustment



## Section 6

# Circuit Descriptions

This section describes the circuits of the following boards used in the BVM-D20F1A/D20F1E/D20F1U/D24E1WA/D24E1WE/D24E1WU.

- 6-1. BK board
- 6-2. PA board
- 6-3. BC board
- 6-4. G board
- 6-5. E, EA board
- 6-6. D board
- 6-7. BUF board

### 6-1. BK board

#### 1. BK Select Switch

When the BK SELECT signal is “Low”, the Y/G signal of the Y/G terminal (TB1) input is input to IC100 via the buffer amplifier (Q100, Q102). When “High”, the 2Y/2G signal of the 12B terminal input of CN1 is input to IC100. In IC100, input switching with the Y/G signal is performed at the 11B terminal input of CN1. The same is performed for the PB/B and PR/R signals.

#### 2. Clamp Circuit (1)

The analog switch (IC100) is turned ON by the Y-CLP-P pulse. As a result, the pedestal voltage of the Y/G signal is sample-held. In IC101 (1/2), this voltage and the reference voltage (0 Vdc) are compared to control the bias current of the Y/G signal clamp amplifier (Q103 to 105) so that the pedestal voltage of the Y/G signal becomes 0 Vdc. The same is performed for the PB/B and PR/R signals.

#### 3. W B INSERT Pulse Insertion Circuit

To adjust the levels of the PR and PB signals, the WHITE pulse and BLACK pulse are alternately input in the horizontal blanking period of the respective signals. For the Y/G signal, the voltage of the period during which the WHITE and BLACK pulses are input at IC100 (3/3) is set to 0 Vdc. For the PR signal, the WHITE and BLACK pulses are input at IC303 (1/3). The level of the WHITE pulse is set by the R-Y PULSE LEVEL voltage while that of the BLACK pulse is set by the R-Y CLAMP OFFSET voltage. These two voltages are switched by WHITE INSERT P at IC300 (3/3), and input to IC303 (1/3). The same is performed for the PB signal.

#### 4. Chroma Level Adjustment Circuit

The PR signal is level-adjusted by IC304 (gain control amplifier) to become the R-Y signal. The R-Y signal output from IC304 is input to IC303 (2/3) and the voltage of the WHITE pulse is sample-held. At IC305 (1/2), this voltage and the CHROMA voltage are compared to control the gain of IC304. As a result, the WHITE pulse voltage becomes equivalent to the CHROMA voltage. Consequently, by varying the CHROMA voltage, the chroma level can be adjusted. The R-Y signal of the IC304 output is also input to IC303 (3/3). In this IC, the voltage of the BLACK pulse is sample-held. This voltage and the GND level are compared at IC305 (2/2) to control the DC bias of IC304. As a result, the pedestal level of the R-Y signal is fixed at the GND level. The same is performed for the PB signal.

#### 5. Matrix Circuit

The Y signal, R-Y signal, and B-Y signal are matrixed to form the R signal, G signal, and B signal.



- **R Signal Matrix Circuit**

The Y signal and R–Y signal are added at Q115 to form the R signal.

- **G Signal Matrix Circuit**

At IC307, the R–Y signal and B–Y signal are inverse-amplified and added via IC306 (gain control amplifier). This signal is added to the Y signal at Q315 to obtain the G signal. The mixing rate is determined by R358, 359, and 361, and the R–Y and B–Y GAIN are finely adjusted.

- **B Signal Matrix Circuit**

The Y signal and B–Y signal are added at Q515 to form the B signal.

## **6. RGB Switch**

Switches between the RGB signal and R,G,B signals from the matrix circuit.

## **7. Clamp Circuit (2)**

The voltage of the BLACK pulse of the R signal is sample-held at IC110. At IC113 (1/2), this voltage and the GND level are compared to control the DC bias of the R signal amplifier (Q120 to Q122). As a result, the pedestal level of the R signal is fixed at the GND level.

The same is performed for the G and B signals.

## **8. Half Blanking**

The video signal is half-blanked at the timing of the CHAR BLK signal. The half-blanking level is switched by the HALF LEVERL SW.

## **9. 100 IRE Pulse, SET UP Pulse Insertion Circuit**

To adjust the contrast, the 100 IRE pulse and SET UP pulse are alternately inserted into the horizontal blanking period of the R,G,B signals. For the R signal, the 100 IRE pulse and SET UP pulse are inserted at IC112 (3/3). The level of the 100 IRE pulse is set by the R100 IRE voltage. The level of the SET UP pulse is set by the R SET UP voltage. These two voltages are switched by WHITE INSERT P at IC110 (3/3), passed through IC112 (2/3), and input to IC112 (3/3). At

IC112 (2/3), the half-blanked video signal is inserted.

The same is performed for the G and B signals.

## **10. Blue Only Switch**

During the blue only mode, the B signal is output instead of the R signal at IC115 (1/3), and the B signal is output instead of the G signal at IC315 (1/3).

## **11. Contrast, Bright Adjustment Circuit**

The R signal is adjusted for its contrast at IC116 (gain control amplifier). The R signal output from IC116 is input to IC115 (2/3) and the voltage of the 100 IRE pulse is sample-held. At IC117 (1/2), this voltage and the CONT voltage are compared to control the gain of IC116. As a result, the 100 IRE pulse voltage becomes equivalent to the CONT voltage. Consequently the contrast can be adjusted by varying the CONT voltage. The R signal output from IC116 is also input to IC115 (3/3). In this IC, the voltage of the SET UP pulse is sample-held. This voltage and the GND level are compared at IC117 (2/2) to control the DC bias of IC112. As a result, the pedestal level of the R signal is fixed at the GND level.

At the same time, the DC bias of IC116 is controlled by the BRT voltage to perform bright adjustment.

The BRT voltage is generated in IC701 (1/3) by switching the BRIGHT voltage and BRT CENTER voltage in the pulse (100 IRE pulse, SET UP pulse) insertion period and in other periods.

The same is performed for the B and G signals.

## 12. Pulse Insertion Circuit

At IC118, the BIAS REF pulse, DRIVE REF pulse, and character pulse are inserted in the R signal. The level of the BIAS REF pulse is set by the BIAS REF voltage. The level of the DRIVE REF pulse is set by the DRIVE REF voltage.

The same is performed for the B and G signals.

## 13. Drive Control Amplifier

The levels of the R, G, B signals are limited so that the drive current of the CRT cathode does not exceed the reference value, and the drive voltage does not exceed its reference value.

The drive current of the CRT cathode is detected by the Q136 collector current. The collector current is clamped by IC132 (2/2), I/V converted, sampled by IC120 (2/3), and compared with the reference voltage (R DRIVE IK) at IC123 (2/2). When the drive current exceeds the reference value, the output signal of IC123 (2/2) is input to IC126 (R drive control amplifier) via IC124 (3/3) to decrease its gain.

The drive voltage of the CRT cathode is detected by the voltage of pin ⑧ of the R VIDEO OUT amplifier (IC131). The voltage of pin ⑧ is clamped by IC127 (1/2), sampled by IC120 (1/3), and compared with the reference voltage (R DRIVE V) at IC123 (1/2). When the drive voltage exceeds the reference value, the output signal of IC123 (1/2) is input to IC126 (R drive control amplifier) via IC124 (3/3) to decrease its gain.

The SUB CPU (IC902) sets whether to control the drive rate based on the drive current (current mode) or based on the drive voltage (voltage mode) (IK/V SW). Normally, the drive control amplifier operates in the voltage mode and uses the current mode during WB adjustments. The DRIVE COMP is used for the conversion of the DRIVE V data during the voltage mode and the DRIVE IK data during the current mode.

The same is performed for the B and G signals.

## 14. Bias Control Circuit

The cathode current detected by IC132 (2/2) is amplified by IC130 (1/2), sampled by IC128 (2/3), and compared with the reference voltage (R BIAS IK) at IC130 (2/2). The output of IC130 (2/2) controls the DC level of IC129 so that the cathode current becomes equivalent to the reference voltage.

## 15. Cut-Off Switch

At IC128 (1/3), the R signal and cut-off voltage (−0.3 Vdc) are switched by the VIDEO TIMING pulse.

The same is performed for the G and B signals.

## 16. VIDEO OUT Amplifier

IC131 drives the R signal cathode of the CRT.

The same is performed for the G and B signals.

## 17. G2 Control

The signal with the lowest voltage amongst the G2 R signal, G2 G signal, and G2 B signal is input to IC705 (1/2), compared with the reference voltage (G2 REF) to become the G2 CONTROL signal, and output from pin 10B of CN1 to the PA board to control the G2 voltage of the CRT.

## 18. ABL, Overload Detection

The ABL voltage and reference voltage (−1 Vdc) are compared at IC901 (1/2). Normally, as the ABL voltage is above −1 Vdc, the output level of IC901 (1/2) is “High”. But when the ABL voltage drops to below −1Vdc, CONT and BRT are controlled so that the ABL voltage becomes −1Vdc (constant). Moreover, as the output level of IC901 (1/2) is lower than the CONTRAST voltage, the OVERLOAD signal of the output of IC904 (1/2) becomes “High”.

## 19. Control Circuit

The SUB CPU (IC902) performs serial communication with the system controller using the three signals MISO, MOSI, and SCLK, and outputs the control signal according to the instructions of the system controller. It also reads the adjustment data of the EEPROM (IC903) (when setting the data from the BC board to the D/A), and outputs the adjustment voltage from the D/A converter (IC906 to 911).

## 6-2. PA Board

### 1. High Voltage Generator and Regulator Circuit

The high voltage regulator circuit of this model uses the switching regulator system in order to decrease the power consumption.

The high voltage generator and regulator circuit consists of the converter block that supplied the high voltage pulse to FBT, the regulator block that supplies to the converter block and the control block that supplies the control signal which stabilizes the high voltage output, to the regulator block.

The PWM control IC that is IC501 receives, the HV RTN voltage, which is the anode voltage detection output voltage via buffer amplifier IC801 (2/2). The anode voltage is already divided by the resistance-type-voltage-divider that is built inside the RBT at the specified ratio so that the divided voltage is sent to IC501. The anode voltage detected signal is inputted to the positive polarity (+) input terminal (pin-1) of the error amplifier while the reference voltage (the voltage that is divided by resistors R505 and R506) is input to the negative polarity (-) input terminal (pin-19). The PWM output signal is supplied from pin-12 of the error amplifier so that the pin-1 input signal and the pin-12 input signal have the unity level. Q102 is driven by the PWM signal.

On the other hand, the Q109 gate input that is the converter block receives the drive pulse all the time. Amplitude of the drain pulse voltage increases in proportional to the duration of the time during when the drive pulse and the ON-time of Q102 (when the power supply voltage is applied to the Q109 drain) overlap. The anode voltage is generated by multiplying the drain pulse voltage by FBT. IC501 controls the anode voltage in such a way that it widens the Q101 ON-time for a higher anode voltage when the anode voltage happens to decrease as a CRT current flows through the CRT. The anode voltage is maintained to a constant voltage in such a manner that the Q102 ON-time is controlled. The anode voltage is switched ON/OFF by turning ON/OFF the IC501 (pin-19) reference voltage with D524 by the HV CTRL signal that is supplied from the E board.

### 2. Excessive Anode Voltage Protector Circuit

The excessive anode voltage protector circuit is installed in this model for the purpose of protecting CRT when the high (anode) voltage increases up to an abnormal voltage due to failure of the feedback system of the high voltage regulator circuit. The excessive anode voltage protector circuit consists of IC502 (2/2), D902, D502, D517, D518, D519 and their peripheral circuit components.

The anode voltage is monitored from the pulse voltage that is developed across the tertiary winding of the FBT. This voltage is rectified by D801 of the PC board and by C801 of the PA board to monitor the anode voltage.

The monitoring voltage is inputted to the negative polarity (-) input terminal of the comparator IC502 (2/2) while the protector operating voltage that is obtained by voltage-dividing the reference voltage is input to the positive polarity (+) input terminal. Because the negative input terminal has a lower voltage than the positive input terminal, the comparator output goes high normally. If anode voltage increases due to failure of the parts of the feedback loop system of the high voltage regulator circuit, the voltage across the tertiary winding also increases. As the result, negative polarity input terminal of the comparator IC502 (2/2) also increases. When it exceeds the protector operating voltage, the comparator output goes low that turns off IC501 trigger input that is the control IC, through D502, D501 and Q502. As the result the HD DRIVE signal is turned off so that oscillation is stopped. Because the PWM output signal is supplied from IC501, the switching FET Q102 is also turned off that stops supplying the power to the converter. As the result, the high voltage converter stops its operation and the high voltage output is held down. IC501 has the latch function with D517 and D518 so that the low state is maintained once the comparator output goes low.

### **3. Excessive Anode Current Protector Circuit**

The excessive anode current protector circuit is installed in this model for the purpose of protecting CRT when an excessive anode current flows through the CRT due to failure of the current limiting circuit's (ABL circuit's) voltage detection system and control system. The excessive anode current protector circuit consists of IC502 (1/2), D901, D512, D513 and their peripheral circuit components. The anode current is monitored in the form of voltage level as the anode current flowing through the high voltage coil of FBT is converted from current to voltage by R804 of the PC board.

The voltage difference between the converted voltage and the reference voltage D901, is divided by the resistance-type-voltage-divider R514 and R515, and is sent to the positive (+) terminal of the comparator IC502 (1/2). At the same time, the reference voltage D901 is divided by the resistance-type-voltage-divider R518, R522 and R517, and is applied to the negative (-) input terminal as the protector operating voltage. As the anode current flows, the converted voltage decreases and the input voltage to the positive (+) input terminal decreases and the current decreases.

As long as the ABL circuit operates, the positive (+) input terminal remains higher than the negative (-) input terminal so that the comparator output is kept high.

If the anode current flows due to failure of the ABL circuit and the positive (+) input terminal exceeds the ABL setting voltage of the comparator and becomes lower than the protector setting voltage, the comparator output goes low. As the result Q501 is turned on through D502. The high voltage converter stops operating in the same manner as the over-voltage protector so that the high voltage output is held down. IC501 (1/2) has the latch function with D512 and D513. If the comparator output goes low, the level is maintained

### **4. Dynamic Focus Circuit**

The DFX signal for the vertical line correction (for X-axis) and the DFY signal for the horizontal line correction (for Y-axis) are inputted from the E board.

The DFX signal is amplified by Q301, Q302, Q303, Q304 and Q305, and is stepped up by T301. The DFY signal is amplified by Q321 and Q322.

The amplified DFX and DFY output signals are drive the focus pack so that the GM voltage that is the G4 voltage of CRT is modulated until the optimum focus is obtained over the entire screen.

### **5. Screen (G2) Voltage Regulator Circuit**

The screen regulator circuit consists of IC401 (1/2), Q201 and Q202.

The G2 regulator circuit is controlled by the G2 control voltage that is supplied from the BK board so that the optimum cathode voltage is obtained.

At the same time, the power supply voltage for this circuit is the high voltage that is obtained by rectifying the drain pulse voltage at Q109.

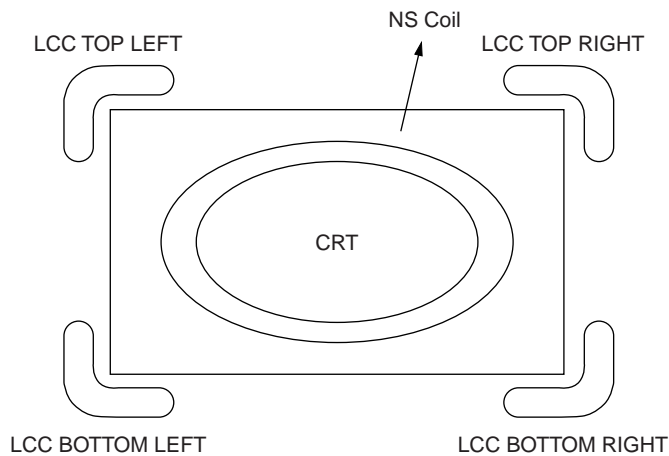
### **6. H. STAT Circuit (Only for 20 inch display)**

The H. STAT circuit consists of IC401 (1/2) and Q401. The horizontal static convergence voltage can be varied using the H. STAT control voltage that is supplied from Q401. However, because the variable range is very narrow, it is used only for fine adjustment.

## 7. Beam Landing Correction Circuit (Only 24 inch)

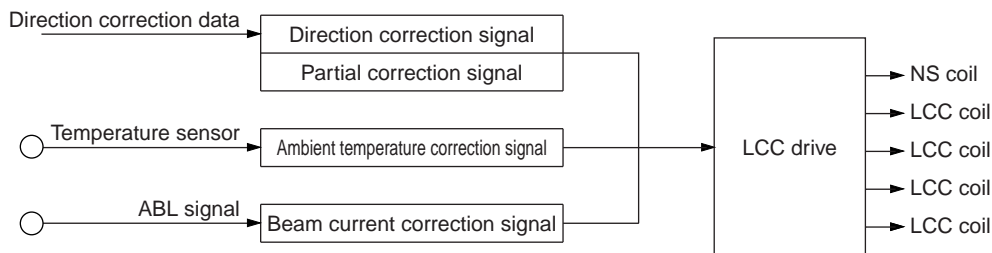
This monitor has the five beam landing correction coils (referred to as LCC = Landing Correction Coil and NS Coil = North South Coil) around the CRT as shown. The optimum beam landing is maintained by flowing the appropriate correction currents through these coils. The following items are corrected by the beam landing correction.

1. Correction of the beam landing that changes in accordance with the direction (horizontal terrestrial magnetism) in which the monitor is installed. The vertical terrestrial magnetism is corrected by the purity magnets that are placed inside the monitor.
2. Correction of the beam landing that changes in accordance with the change of ambient temperature.
3. Correction of the beam landing that changes in accordance with the change of the average beam current.
4. Correction of the beam landing characteristics of the CRT.
5. Correction of the beam landing that changes in accordance with the partial change of surrounding magnetic field.



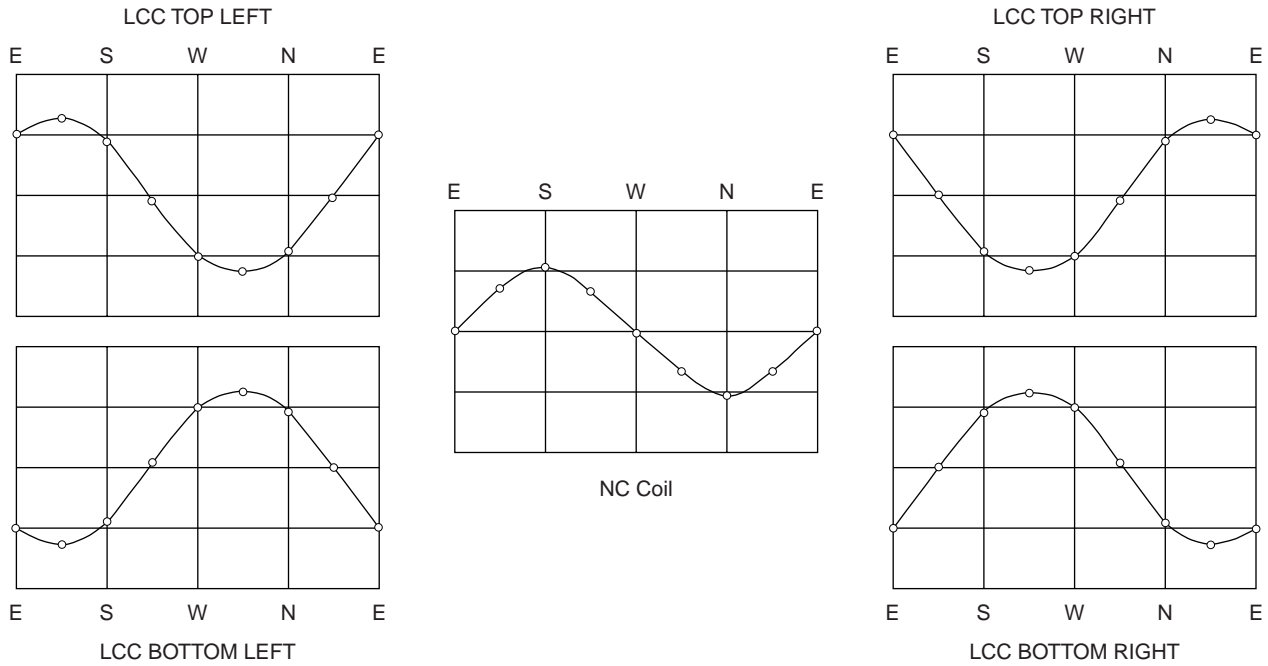
(Beam landing correction when viewed from the CRT side)

Basic structure of the correction circuit is shown below. The respective blocks are described one after another.



**Direction correction signal**

State of beam landing is affected by the direction in which the monitor is installed. The change of beam landing can be corrected by flowing the sinusoidal current through the five correction coils as show below.



In this monitor, the eight different direction correction currents as shown above corresponding to the eight terrestrial directions are stored as the pattern data in the internal memory so that an appropriate pattern that corresponds to the installation direction, can be called.

The pattern that is called from the internal memory, is sent from the microprocessor of the monitor to IC711 where the digital correction data is D/A converted. The DC output signal from the D/A converter is added in the LCC drive block.

MENU/SET UP/WHITE UNIFORMITY (1/2)  
/MANUAL

MANUAL	
DIRECTION	EAST
FINE ADJUST	
NS	100
TOP LEFT	100
TOP RIGHT	100
BOTTOM LEFT	100
BOTTOM RIGHT	100
RESET	100

The menu for landing correction is shown. The landing pattern that corresponds to the terrestrial direction can be called from the DIRECTION item of the menu. Any desired pattern can be selected from the following eight patterns.

- NORTH, NORTH EAST
- EAST, SOUTH EAST
- SOUTH, SOUTH WEST
- WEST, NORTH WEST

Select an appropriate direction from the eight patterns that provides most uniform landing over the entire screen.

**Menu for landing correction.**

### Partial correction signal

Some beam landing cannot be corrected by the direction correction alone in some cases depending on the installation environment of the monitor. The partial correction is used for fine adjustment in such a case as described above. The five registers are prepared for the five coils (NS, TOP LEFT, TOP RIGHT, BOTTOM LEFT and ABOTTOM RIGHT) for the FINE adjustment, that can be selected by the landing correction menu as described in the previous paragraph. The beam landing can be finely adjusted by adjusting these coils.

The data that prepared by these coils for fine adjustment by the MENU, is sent to IC711 in the same way and is added in the LCC drive block.

### - About Automatic Adjustment of Direction Correction and Partial Correction -

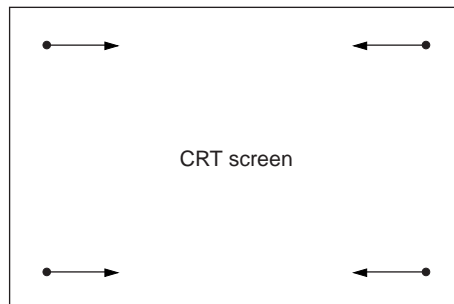
In this monitor, the direction correction and the partial correction can be automatically performed using the option probe (BKM-14L) as follows.

Select AUTO using the MENU (MENU/SET UP/WHITE UNIFORMITY (1/2)). Connect the option probe (BKM-14L) and start the automatic adjustment. The optimum directional correction data and the optimum partial correction data can be automatically calculated and set in the monitor based on the luminance value on the CRT that is measured by the optional probe. The direction correction and the partial correction are sent to IC711 in the same way as in the MANUAL adjustment mode to drive the correction circuit.

### Ambient temperature correction signal

As the ambient temperature of the monitor increases, the beam landing changes in the directions as shown in the illustration. It is assumed that amount of the beam landing change is linear with respect to the change of ambient temperature. Then the correction signal that changes linearly with the change of ambient temperature, is created and is added to the LCC drive at the four corners of CRT. The temperature sensor the diode D600 that detects temperature using the temperature characteristics of the diode. The detected temperature signal is the DC voltage that is outputted from IC605 pin-7 and added at the LCC drive block.

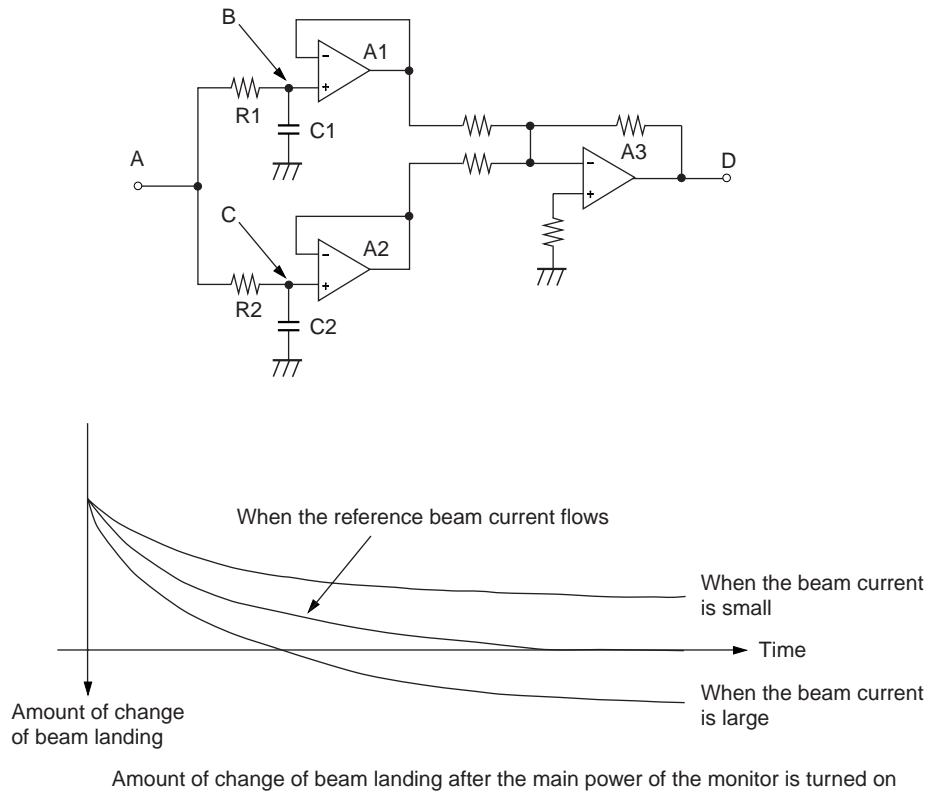
Because the temperature sensor diode D600 is located in the PA board, not only the ambient temperature change but also the temperature inside the monitor is also detected so that difference between the detected temperature and the ambient temperature is created. The circuit that is prepared to cancel the difference is connected to IC622 pin-5.



Directions of the landing change when the ambient temperature increases.  
(Directions are inverted when the ambient temperature decreases.)

### Beam current correction signal

When the average beam current changes, the constituent parts inside the CRT receive the thermal change that results in a slow change of the beam landing condition. The correction waveform that corrects the landing change, is created using the integration characteristics of the resistors and capacitors as shown.



The ABL signal that corresponds to the beam current, is inputted from IC805 pin-1 to the point “A” in the illustration. The integrated voltage of the ABL signal appears at the points “B” and “C”. These voltages are buffered by the voltage followers A1 and A2, and are mixed and inverted by A3. In this circuit the resistor R1 and the capacitor C1 provide the longer time constant while R2 and C2 provide the shorter time constant so that the slower curve and the steeper curve are mixed in order to resemble with the amount of change of the beam landing. The output at point “D” is added to the LCC drive.

In the actual circuit, the two separate circuit systems are prepared to resemble with the amount of change of the beam landing. Outputs from IC606 pin-1 and pin-7 generates the waveforms that resemble with the amount of change of the beam landing at the four corners.

### LCC drive block

The respective correction signals are added and inverted by IC620, IC621 and IC622 (1/2) for respective five coils. These signals are outputted to the optional amplifiers IC700, IC701 and IC702 via switches IC623 and IC624, which drive the respective correction coils.



## 6-3. BC Board

### 1. Outline

The BC board controls the entire system with the system control CPU. The BC board has the function of communication with external equipment, communication with system controller, generation of internal signal, creation of safe area display, generation of H. sync and V. sync signal for deflection circuit and the on-screen display function.

### 2. CPU operation block

IC1 is the system control CPU that controls the entire system. IC3 is the ROM that stores the system control software. IC4 is the SRAM that stores the adjustment data such as picture size. Because the memory contents of the SRAM is cleared when the main power is turned, it is backed up by the back battery (BAT1). When the backup battery is going to be replaced, the data contents are not cleared if the BAT1 is replaced within five minutes. IC7 is the EEPROM in which the model data (such as model name, etc.) is stored. The data in the EEPROM is kept stored even when the main power is turned off. Communication with the sub-CPU's on the other boards is performed by the MIS0, MOSI, SCLK and SLOTO to SLOT7 signals. The counter-part of communication is selected by the SLOTO to SLOT7 signals.

### 3. Communication with the control block (BKM-10R)>

The communication with the control block (BKM-10R) is performed by the RS-422 transceiver (IC14). The data such as key input data, LED turning-on data and memory card data are communicated.

### 4. Communication with BKM-11R

The communication with the control block (BKM-11R) is performed by the RS-232 transceiver (IC36).

### 5. Remote circuit, ISR circuit

The remote control using the serial communication is performed by the RS-485 transceiver (IC25, IC26). The ISR is performed by the RS-232 transceiver (IC36). The parallel remote (REMOTE2) is inputted to IC1 through the buffer (IC550, IC551) and I/O expander (IC5).

### 6. PLD (IC803) circuit

IC803 is a PLD. It is used as the configuration by the configuration ROM (IC890). The fundamental clock signal is the clock signal that is outputted from PLL IC (IC800). When the internal signal is going to be outputted, the 27 MHz clock that is generated by IC822 is used as the fundamental clock signal. The clock signal for communication is generated by PLD. The clock signal that is outputted from IC809 pin-2 is frequency-divided inside the PLD. The clock signal that is generated by dividing the clock frequency, becomes the fundamental clock signal for IC22, IC23 and IC24.

The PLD generates the H. sync (BC HS out) and the V. sync (BC VS out) signals that are used as the reference for deflection circuit inside the PLD. At the same time, generation of the H. delay and V. delay timing signals, and phase adjustment to shift the H. sync to the front in the case of the 1080/481 signals. The safe area display is generated by the PLD. The SAD output and the on-screen display (OSD) are inputted to the OR-gate circuit. Output of the OR-gate is supplied to external circuits.

The internal signals are generated from the 27 MHz clock. Data of the internal signals is stored in the video RAM (IC804). The video RAM data is supplied from the CPU.

The sample pulse that is used for automatic chroma phase adjustment, is also created here.

## **7. Internal signal output circuit**

The hatch signal and the dot signals are sent to IC810 pin-9 where these signals are converted to the signal level that is sent to Q830. The gray scale signal, all white signal and the PLUGE signals are D/A converted by IC806 and are outputted through IC810 and Q830. The internal H. sync signal is outputted from IC104 pin-3 and the internal V. sync signal is outputted from IC104 pin-6.

## **8. Closed caption signal**

IC124 is the decoder of the closed caption. When the SDI 4:2:2 signal is displayed, the video signal does not contain the sync signal. Therefore, the composite sync is added by IC106 (1/3). IC107 and IC108 are the composite signal generation circuit.

## **9. VITC circuit**

IC20, IC29, IC21 and CN7 are the VITC circuit. The VITC circuit is operated by connecting the BC1 (option) board.

## **10. On-screen Display Circuit**

IC805 is the on-screen display IC. Output of IC805 is OR-gated with the SAD and closed-caption signal. The OR-gate output is sent to other circuit as the CHR signal.

## **11. H. sync signal generator circuit for 15 kHz signal**

IC107 generates the H. sync signal generator circuit for 15 kHz signal. Because the H. sync signal of PLD deteriorates of its skew during the fast forward mode of VCR, the H. sync signal is separately created for the 15 kHz signal. Rise-up of this signal is the timing of the H. delay.

## 6-4. G Board

Power supply of this monitor consists of the following three switching regulators.

1. The power factor improvement regulator that is used to comply with the power supply high frequency harmonics.
2. The standby regulator that supplies the power to the control system (such as CPU) and supplies the heater power to CRT.
3. The main regulator that supplies the powers, which are required by the signal system, by, the processing circuit of deflection and high voltage system, and by the output circuit.

### 1. The power factor improvement block

The power factor improvement circuit of this monitor uses the current-threshold type boost-chopper system. Therefore, the output voltage  $V_{pfc}$  is always higher than the peak value of the input power voltage.  $V_{pfc}$  of this monitor is set for about 370 V.

The power factor improvement circuit consists of IC1, T3, C16, C17 and the related components. IC1 is a module IC in which the control IC, the switching FET, the boost diode and input/output voltage detectors are built in.

Basic operation of the power factor improvement block is as follows. When the POWER signal goes Low and the  $V_{cc}$  power supply is supplied to IC1, the FET is turned on and an electric current starts to flow in the primary winding of T3 and the FET. This current increases with the slope of  $V_{in} (rms)/L$  where L is the primary side inductance of T3. This FET current is monitored by the source current detection resistor that is connected between pin-4 and pin-7 of IC1. When this FET current reaches the set value that is specified by the multiplier inside the control IC, the FET is turned off. Then an electric current flow through the boost diode where the current decreases with the slope of  $-(V_{pfc} - V_{in} (rms))/L$ . When this current reaches 0, the FET is turned on. The current-threshold operation is realized by the above described circuit operations.

In other words, the circuit operations that are described as one operation cycle, are performed all the time. When the circuit operations as described above, are observed only during the half-wave period of commercial power line frequency, the ON/OFF timing of the FET is controlled by the control IC so that the envelope of the peak values of the choke current is proportional to the half-wave of the sine waveform of the power line frequency. As the result of this control, waveform of the input voltage and that of the output voltage become similar so that the power factor is improved. This circuit does not operate during the standby mode.

### 2. Standby regulator

The standby regulator consists mainly of IC101, IC102, PH101, T101 and the secondary side rectifier circuit of T101. IC101 has the built-in switching FET, the PWM controller and protection circuit. The control terminal of IC101 receives the control signal from IC104 that performs the constant voltage control over the STBY5V line through the isolator P101. The internal FET is PWM-switched by the control signal so that the STBY5V in the secondary side of T101 is stabilized. At the same time, the floating 7.5 V and -7 V are generated as the other supply voltages.

The floating 7.5 V is regulated to 6.3 V by IC102 to be used for the heater power and is supplied to the C board. The heater power is switched ON/OFF by IC102 that is controlled by the HV CTRL signal of the E board. -7 V power is stabilized to -5 V by IC103 and is supplied to the comparator IC203.

### **3. Main regulator**

The separately excited current composite resonance system is used for the main regulator. The high efficiency and low noise power regulation is realized. The main regulator consists mainly of IC210, IC202, T201, C210, C211 and the secondary side rectifier circuit of T201. IC210 is a multiple chip module in which the four chips of the control block, the FET drive block and the switching FET block (high side and low side) are connected by bonding wire inside the IC. IC210 has the following circuit configuration. A half-bridge rectifier is constructed by the two FET switches, the two capacitors C210 and C211, and the transformer T210 for the input voltage  $V_{pfc}$ . The secondary side of the transformer has the center-tapped full wave rectifier. IC210 receives the control signal from IC202 that performs the constant voltage control over the +135 V line through the isolator PH210. The control signal changes the oscillating frequency of IC210 so that the constant voltage control is realized.

The secondary side of T201 generates not only +135 V but also +15 V, -15 V, +6 V and -6 V powers that are required by the respective circuits.

### **4. Over-voltage protection circuit and over-current protection circuit**

The respective voltage lines of the main power supply and the STBY5V line of the standby power supply have the over-current protection circuit that protects the power supply when an abnormality occurs in the respective loads. The +135 V line and the STBY55V line have the over-current protection circuit that protects the power supplies and the loads when an abnormality occurs in the voltage feedback system. The standby power supply detects the over-current by IC802 (4/4) and detects over-voltage by IC802 (2/4). When the over-current or over-voltage is detected, oscillation of IC101 is stopped by the latch circuit Q101 and Q102 through the isolator PH801.

When the main power supply has an abnormality, Q901 is turned on, and Q5 and Q6 are turned off through the isolator PH901 so that the main power supply is stopped of its operation by turning off the Vcc power that is supplied to IC1 and IC201. The protector mode is notified to the CPU on the E board using the encoder/latch circuit that consists of Q801 through Q813.

## 6-5. E Board and EA Board

### 1. Horizontal system

- H. delay circuit

IC2002 generates the positive polarity pulse as it is triggered by the fall-down edge of the H. sync signal that is supplied from the BC board. This positive polarity pulse is inputted to IC2001 (deflection processor). However, because the H. sync from the BC board is inverted during the H. delay mode, the positive polarity pulse is delayed by about 1/4 of the horizontal period i.e., the H. sync pulse width.

- AFC circuit

IC2001 is the deflection processor IC that performs sync and deflection signal processing. IC2001 is automatically pulled into the input sync signal. IC2001 compares phase and frequency so that the H. OSC signal of pin-10 is locked to the positive polarity pulse that is supplied from the H. delay circuit to pin-38. IC2001 also outputs the H. DRIVE pulse from pin-21 so that the horizontal deflection output pulse (AFC.P) that is wave-shaped by Q25 to Q28 and IC1005 is synchronized with the H. OSC signal. The H. DRIVE pulse has the function of the horizontal picture phase adjustment (H. PHASE) function, the horizontal pin cushion correction (H PIN BAL) function and the horizontal key balance correction (H KEY BAL) function.

The H. PIN voltage that is outputted from pin-31 has the function to correct the horizontal pin distortion (H PIN) and key distortion (H KEY).

- Horizontal deflection circuit

The H.DRIVE pulse performs switching of Q2 (H OUT) via Q1 and T1 (HDT) to drive the H. DY. In order to improve power supply efficiency of the horizontal output circuit, the power supply is generated by switching Q703 with the PWM pulse that is generated by IC701 and IC702. The H. WIDTH voltage and the H. DY current that is detected in the form of the detection voltage and is converted by T4 and R42 are inputted to IC701 so that power supply voltage is controlled.

The identification signal that identifies the horizontal frequency, which is outputted from IC7001, is used to select the S-curve capacitors C10 to C17, the horizontal linearity coils L1 and L2, and the resonance capacitors C6, C25 and C26.

- Horizontal centering circuit

The positive and negative polarity power supplies of the horizontal centering circuit are generated from the secondary output of T2 (HOT). In the horizontal centering circuit (IC101, IC102, Q101), the DC current that flows through the H. DY is controlled by the H. CENT signal that is supplied from IC7005.

- Horizontal linearity circuit

The H. LIN signal that is outputted from IC205 on the D board is amplified by Q201 to Q207, drives T3 (HLT) to flow the horizontal linearity correction current.

## 2. Vertical system

- V DELAY circuit

IC2002 generates the positive polarity pulse using the fall-down edge of the V. sync that is supplied from the BC board as the trigger signal. This positive polarity pulse is inputted to IC2001. However, because polarity of the V. sync signal is inverted by IC1002 during the V. DELAY mode, the positive polarity pulse is delayed by about 1/2 of the vertical period i.e., the V. sync pulse width.

- V OSC circuit

IC2001 generates the sawtooth wave V. DRIVE signal of the vertical cycle as it oscillates in synchronism with the positive polarity pulse that is supplied from the V DELAY circuit.

The V. DRIVE signal has the vertical picture size (V SIZE) adjustment function, the vertical picture position (V CENTER) adjustment function and the vertical linearity balance (V LIN BAL) correction function.

- Vertical deflection circuit

The V. DRIVE signal and the V. CENT signal that are outputted from IC2001 are inputted to IC601 to drive the V. DY.

## 3. Other output circuits

- Rotation circuit

The rotation voltage that is outputted from IC7005 is sent to IC401 that controls the current flowing through the rotation coil of the DY.

- Landing circuit (20 inch models only)

The landing voltage that is outputted from IC7005 is sent to IC801 that controls the current flowing through the landing correction coil.

- H. STAT circuit (24 inch models only)

The H. STAT voltage that is outputted from IC7005 is sent to IC801 so that the current flowing through the H. STAT coil of the DY is controlled.

- V convergence circuit

The V. CONV signal that is outputted from IC204 of the D board is amplified by IC801 that drives NTC (20 inch models) or the V. STAT coil of DY (24 inch models).

#### 4. Protection circuits

- H. STOP, V. STOP detection circuit

The H.DY current is converted to a voltage value by T4 and R42. The voltage thus obtained is sent to IC501 pin-3 on the EA board and is compared with the reference voltage of pin-2. The detected voltage is inputted to IC501 pin-3 of the EA board where it is compared with the reference voltage of pin-2.

When the horizontal deflection is stopped and the input parabolic voltage is not inputted any more, the voltage at pin-3 becomes lower than the reference voltage so that the H. STOP output signal from pin-1 goes “LOW”.

The sawtooth wave voltage that is generated across R606 and R613 from the V. DY current is amplified by IC550 and is used to switch Q550. Because the capacitor C553 keeps discharging as long the sawtooth wave is input, IC501 pin-6 voltage of EA board does not reach the reference voltage that is inputted to pin-5. However, if the vertical deflection is stopped and the sawtooth wave is not inputted any more, IC501 pin-6 voltage exceeds the reference voltage at pin-5 and the V. STOP output signal from pin-7 goes LOW”.

When either the H. STOP signal or the V. STOP signal goes “LOW”, Q502 of the EA board is turned off and Q504 of the EA board is turned on that stops the HV DRV pulse. Because Q503 on the EA board is turned on at the same time, Q505, Q506, Q508 are turned on so that the E\_PROT signal goes “HIGH”. Then the power supply circuit enters the standby state.

- Over-current protection circuit for the power supply circuit of the horizontal deflection circuit

When the current flowing in the power supply of the horizontal deflection circuit becomes larger abnormally, Q702 is turned on. Q512 to Q514 are also turned on the +B. PROT signal goes “LOW”. At the same time Q509 is turned on that sets the E\_PROT signal to “HIGH”. As the result, the power supply circuit enters the standby state.

#### 5. Control circuit

IC7001 (sub-CPU) perform the serial communication with IC1 (system control CPU) of the BC board using the three signals of MISO, MOSI and SCLK. As the result of the communication, IC7001 outputs the control signals such as POWER ON, DEGUASS, H. DELAY, V. DELAY, etc., and also outputs the result of identification of horizontal frequency. IC7001 reads the adjustment data from IC7004, IC7006 to IC7010 (EEPROM), and controls IC2001 and IC7005, and also controls IC202 and IC206 on the D board, and controls IC710 and IC711 (24 inch models) of the PA board. The following protect detection signals are transmitted from IC7001 to IC1 of the BK board.

H. STOP, V. STOP, +B. PROT, HV\_OVP, IK\_PROT, HV\_OCP, G. PROT1 to G. PROT4

## 6-6. D Board

### 1. Fundamental waveform signals generator circuit

The fundamental waveform signals that are required to generate the deflection correction waveforms are generated by this circuit.

IC101 generates the fundamental waveform signals of H. SAW-, H. PARA- and H. SIN- having the horizontal cycle from the pulse (AFC.P) that is output from the horizontal deflection after wave-shaping with Q25 to Q28 and IC1005 of the E board. IC102 generates the fundamental waveform signals of V. SAW-, V. PARA-, V. SIN- and V.4TH- having the vertical cycle from the vertical period pulse (V.BLK.P) that is generated from IC2001, IC2301 (4/4) and IC2303 of the E board. These waveforms are inverted by IC103 and IC104 to generate the H. SAW, H. SIN, V. SAW and V. PARA+ signals. At the same time, the V. SQ signal having the 1/2 vertical rate pulse width is generated from the V. SAW signal at IC105 (1/2). The V. PARA.T and the V.PARA.B signals are generated from the V. SQ signal and the V. PARA+ signals by IC205.

### 2. D/A converter

The fundamental waveforms that are outputted from IC102 and IC104, and the V. PARA.T and the V.PARA.B signals that are outputted from IC205, are sent to IC202 and IC206 (D/A converter) where these signals modulate the D/A conversion reference voltage to generate the following signals. The signal level of the following signals can be varied by the serial data that is supplied from IC7001 (sub CPU) of the E board. The adjustment voltages are also outputted at the same time.

- Modulated by the V. SAW signal  
DFY. PHASE
- Modulated by the V. PARA+ signal  
H. CENTER. BOW, H. MID. PIN, DFX. CORNER and DFY. T&B
- Modulated by the V. Sin signal  
V. LIN. BAL2
- Modulated by the V. PARA.T signal  
V. CONV. TOP
- Modulated by the V. PARA.B signal  
V. CONV. BOT
- Adjustment voltages  
V. STAT, H. STAT.C, H. LIN. BAL, H. LIN. GAIN, DFX. SIDE, and DFX. PHASE

### 3. Vertical convergence correction signal generator circuit

The V. CONV signal is generated by adding and inverting the V. CONV. TOP, V. CONV. BOT and V. STAT signals.

### 4. Horizontal linearity correction signal generator circuit

The H. LIN signal is generated by adding the two signals by IC205: one is generated by modulating the H. PARA- signal with the added outputs of the H. LIN. BAL and H. MID. PIN signals at IC203 (1/2). The other signal is generated by adding the H. LIN. GAIN and H. CENER. BOW signals by IC203 (2/2).

### 5. Dynamic focus signal generator circuit

The DFX signal is generated by adding the two signals by IC205: one is generated by modulating the H. PARA- signal with the added outputs of the DFX. SIDE, DFX. CORNER and V. PARA- signals at IC204 (2/2). The other signal is generated by modulating the H. SAW signal with the DFX. PHASE by IC205. The DFY signal is generated by adding the signals of DFX. PHASE, DFY. T&B and V. PARA+ signals by IC207 (1/2)



## 6-7. BUF Board (only 24 inch)

The BUF board sends the dynamic correction signals to the GAIN control terminals of the R. G. B. channels in the BK (VIDEO OUT) board corresponding the respective positions of the CRT screen positions in order to improve the luminance errors due to non-uniformity of the CRTs. This provides the high quality and uniform white screen over the entire areas from the center up to the corners of the CRT screen.

### 1. Interface

The interface with the CPU is established using the serial communication of 3-wire bus. Writing and reading to and from the internal register are performed using the signals of A3 to A0, D7 to D0, \_WR and \_RD signals.

Various data such as board ID and others are stored in the EEPROM IC903.

### 2. SRAM memory specifications

The BUF board has the data structure consisting of 8-bit data for each of the R. G. B. channels (horizontal 32 x vertical 16) for every format of each scan. The formats and scans can be switched by specifying the SRAM address MA16 to MA11. The SRAM is backed up by the lithium battery.

### 3. PLL

The AFC.P pulse coming from the deflection circuit and the H.OUT signal coming from the H address generator circuit inside the PLD are inputted to the PLL IC104 where PLL is established. The fundamental CLK for the data processing circuit is obtained from the PLL output.

### 4. Data processing circuit

The desired data can be read from the SRAM by accessing the SRAM using the addresses of H8 to H0 and V3 to V0 that are generated by the H address generator circuit and the V address generator circuit that correspond to the raster scanning. The read-out data from the SRAM is D/A converted, passed through a low-pass filter and clamped to generate the correction waveforms. The correction waveforms are sent to the respective GAIN control terminal of Red, Green and Blue of the BK (VIDEO OUT) board. The linear interpolation between the data in the direction is created. At the same the horizontal interpolation is created by implementing the linear interpolation between the horizontal data.

Data read-out requires the real time processing. However, because data must be re-written in the event of adjustment, the interrupt processing is used to stop read-out from the SRAM and data is written into the SRAM.

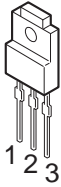
### 5. Cursor generator circuit

For the purpose of user interface, correlation between the adjustment position and the correction waveform is established when the cursor is placed on the CHAR\_BLK line.

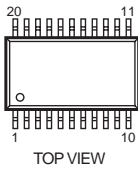
The cursor position can be changed by specifying the desired SRAM address of MA10 to MA0. The number of data is 32 x 16 per every screen. Because amount of data is too many and the cursor area for a data is too small, several data in the vertical and horizontal directions are grouped together as one data block. Size of the cursor is changed in accordance with the size of the group data. This grouping can shorten the adjustment time. In addition to grouping, the linear interpolation is established between the several data in the horizontal and vertical directions within one block by means of software. (It means that the data are interpolated by means of both software and hardware.)

# Section 7 Semiconductors

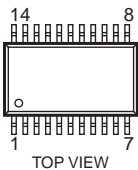
**BA05FP-E2**  
**BA12FP-E2**



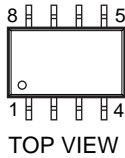
**BA9756FS-E2**



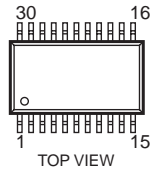
**CLC520AJE-L**  
**LM339NS**  
**LM339NS-E20**  
**MC74HC00AF**  
**MC74HC02AF-T2**  
**MC74HC125AF**  
**MC74HC125AFEL**  
**MC74HC14AF-T2**  
**MC74HC14AFEL**  
**MC74HC74AFEL**  
**MC74HC86AFEL**  
**MC74HC86F**  
**SN74HC02ANS**  
**SN74HC05ANS**  
**SN74HC05ANSR**  
**SN74HC14ANS**  
**SN74LS07NS**  
**TC74HC11AF(EL)**  
**TC74HC30AF**  
**TC74VHC00F**  
**TC74VHC04F**  
**TC74VHC125F**  
**TC74VHC125FT(EL)**  
**TC74VHC138F**  
**TC74VHC14F**  
**TC74VHC32F**  
**TC74VHCU04F**  
**TLC2932IPW**



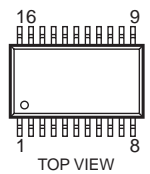
**CXA1211M**  
**EL2082CS-TE2**  
**EL4094CS-TE2**  
**LM358PS**  
**LM358PSR**  
**LM393PS**  
**LT1252CS8**  
**MM1026BFB**  
**NJM4558M-T2**  
**TC7W32FU**  
**TC7W74FU**  
**TL082CPS-E20**  
**TL082M**  
**TL431CPS**  
**TL431CPSR**  
**UPC4558G2**  
**X25040S-C7000**  
**X25040SI**



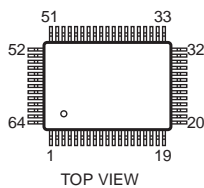
**CXA1726AM**



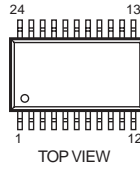
**CXA1875AM-T4**  
**MAX202CSE**  
**MC74HC175F**  
**MC74HC175FEL**  
**MC74HC4051F**  
**MC74HC4053F**  
**MC74HC4053FEL**  
**MC74HC4538AF**  
**MC74HC4538AF-T2**  
**MC74HC4538AFEL**  
**MC74HC4538F**  
**TC74VHC123AF**



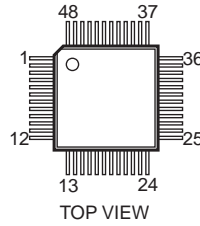
**CXD1095BQ**  
**MB89613R-560**



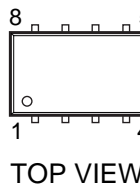
**CXD1171M**



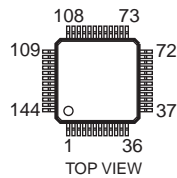
**CXD1178Q**



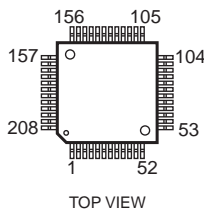
**EPC1PC8**



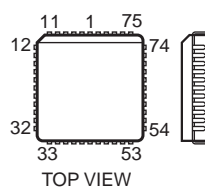
**EPF10K20TC144-3**



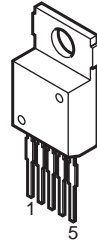
**EPF10K30RC208-4**



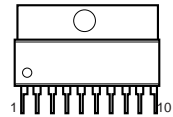
**HD6475368CP-10**



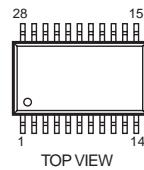
**LA6500-FA**



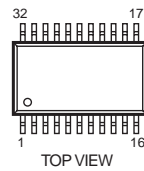
**LA6510**



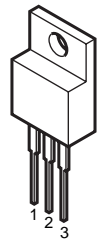
**LC35256DM-70-TLM**  
**MB90096PF-G-127-BND-ER**



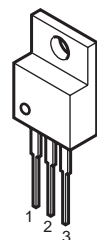
**LC361000AMLL-70-TLA**



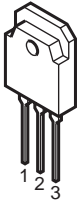
**LM2940CT-5.0**  
**NJM7812FA**  
**TOP224Y-BB**  
**UPC2405HF**



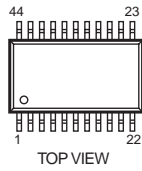
**LM2990SX-5.0**



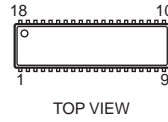
LM2990T-5.0



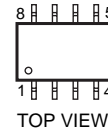
MBM29F400BC-90PF



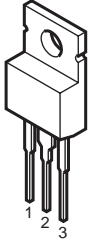
PA0053B  
Z8622812PSC



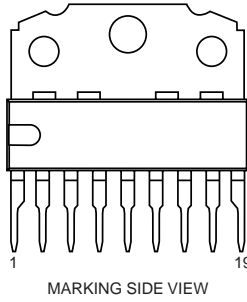
TC3W03FU  
TC4W53FU  
TC7W00FU



LM7815CT



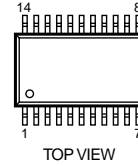
MCR5102



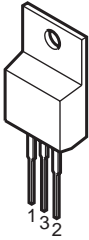
PQ12TZ5U



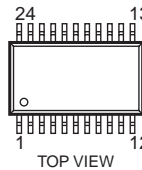
TC74VHC08FT(EL)



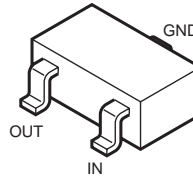
LM7912CT  
NJM7912FA



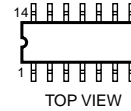
MP7670AS-TE2



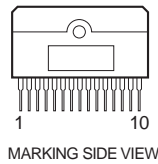
PST529CMT  
PST529CMT-T1



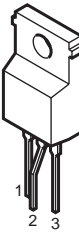
TC74VHCT04AF(EL)  
TC74VHCT08AF(EL)



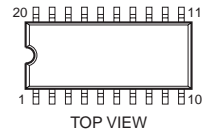
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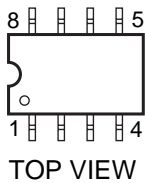
SE-135N  
SE135N-LF12



TC74VHCT245AF(EL)  
TC74VHCT574AF(EL)



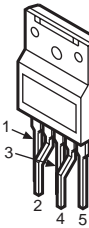
MAX487CSA-TE2  
MAX487ECSA-TE2  
MAX490ECSA



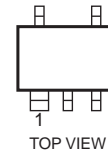
NJM79L05A  
NJM79L05A-T1  
NJM79L05A-T3



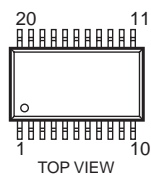
SI-3050F



TC7S00FU(TE85R)  
TC7S02FU(TE85R)  
TC7S08FU(TE85R)  
TC7S32FU(TE85R)  
TC7S86F(TE85R)  
TC7S86F-TE85L  
TC7W04FU  
TC7W08FU



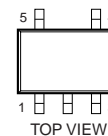
MB88346BPFV  
MB88346BPFV-EF  
MB88351PFV  
MB88351PFV-ER  
MC74HC244AF  
MC74HC244AFEL



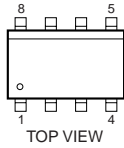
STV9379



TC7SHU04FU



**TC7W32F**  
**TC7W32F(TE12R)**

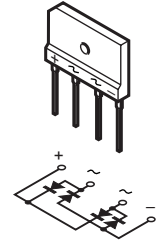


**UPD71051GU-10-E2**

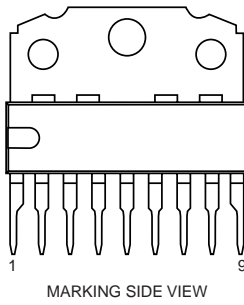


**1SS352**  
**1SS352-TPH3**  
**MA111-(K8).S0**  
**MA111-TX**  
**RD10SB1**  
**RD12SB-T1**  
**RD12SB1-T1**  
**RD13SB2**  
**RD13SB2-T1**  
**RD2.4SB-T1**  
**RD27SB-T1**  
**RD3.3SB1**  
**RD3.3SB1-T1**  
**RD30SB-T1**  
**RD5.1SB3-T1**  
**RD5.1SB3-T2**  
**RD5.6SB**  
**RD6.2SB**  
**RD6.2SB2-T1**  
**RD6.8SB2-T1**  
**RD9.1SB**

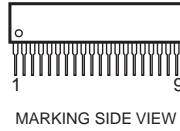
**D10SBS4**  
**D10SBS4F**  
**D4SBL20U**  
**D6SB60L**



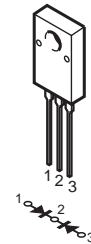
**TDA6101Q/N3**



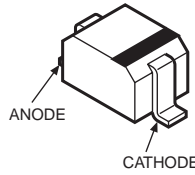
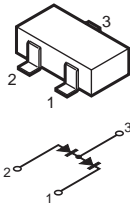
**VPJ05**



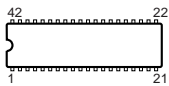
**D10SC9M**



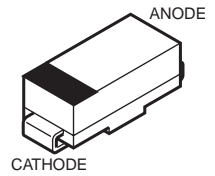
**1PS226-115**



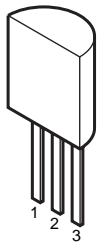
**TDA9106**



**D1FS4A-TA**  
**SC311-6-TE12RA**  
**SC802-04**  
**SC802-04-TE12RA**



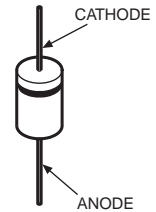
**UPC1093J**  
**UPC1093J-T**



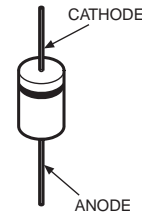
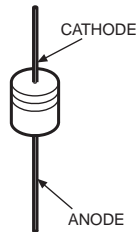
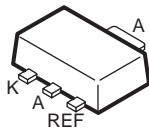
**1SS119-25**  
**1SS119-25TD**  
**D1NS4**  
**D1NS4-TA2**  
**EGP10GPKG23**  
**RD24ES-T1B2**  
**RD24ESB3**  
**UF4005PKG23**

**1SS83**  
**1SS83TA**  
**ERB91-02**  
**ERB91-02TP1**  
**GP08D**  
**GP08DPKG23**  
**HZT33-02TA**  
**RGP02-17EL-6433**  
**RGP02-17PKG23**

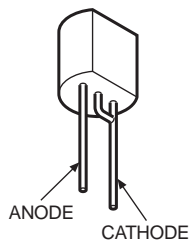
**D1NL20U-TR2**



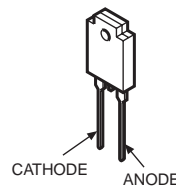
**UPC1093T**  
**UPC1093T-E1**



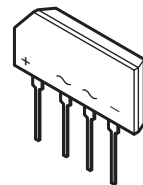
**UPC574J**



**5VUZ52**

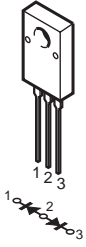


**D4SBS6**

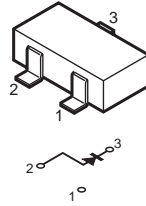


# DIODE, TRANSISTOR

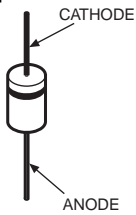
D8LCA20R  
D8LCA20R-F



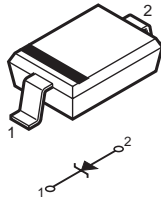
RD12M-B2  
RD2.7M-B2  
RD2.7M-T1B1  
RD22M-B  
RD22M-T1B3  
RD3.0M-B1  
RD3.0M-T1B



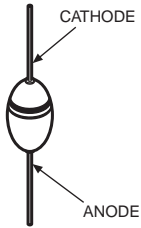
EGP10D  
ERA91-02  
ERC91-02  
ERD38-06  
RD2.2M-T1B  
RH-1A  
RH-1AV1  
S2L20UF



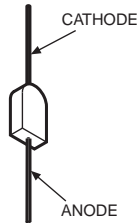
RD6.8SB1-T1  
RD6.8SB1-T2



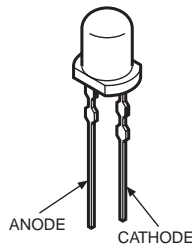
ERC38-06  
V11N  
V11N-52  
V19C-T52  
V19CSS  
V19E-T52



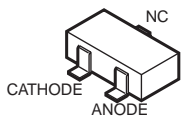
RM11A  
RM11C



SLR-325DCT31  
SLR-325MCT31  
SLR-325VCT31



HSM83-TL

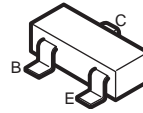


SML-010VT-T87

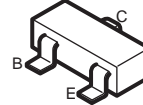


1 ANODE (RED)  
2 CATHODE  
3 ANODE (GRN)

2SA1037AK-T146-QR  
2SA1037AK-T146-R  
2SA1037K-T-146-Q  
2SA1037K-T-146-QR  
2SA1162-G  
2SA1330-06  
2SA1330-T1O7  
2SA1338-5-TA  
2SA1462-T1Y33Y34  
2SA1462-Y33  
2SC1623-L5L6  
2SC1654-T1N5  
2SC2412K-T-146-Q  
2SC2412K-T-146-QR  
2SC3326N-A  
2SC3326N-TE85L-AB  
2SC3360-N16  
2SC3392-5-TB  
2SC3545-T1T43T44  
2SC3545-T43  
DTA114EKA-T146  
DTA114GKAT146  
DTA143ESA-TP  
DTA144EKA-T146  
DTC114EK  
DTC114EKA-T146  
DTC114GKA  
DTC144EKA-T146



2SA1221-K  
2SA1221-T-KLM  
2SB734-34  
2SB734-T-3  
2SC3209LK



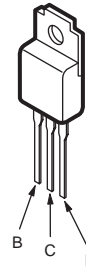
2SA1371-E  
2SA893A-ETZ  
2SA893A-EV



2SB1094-LK  
2SC4686A(LBSONY)  
2SC4793  
2SD1137  
2SD1762F  
2SD982  
IRFI9630GS  
IRFI9630GS-LF



2SB1185-E



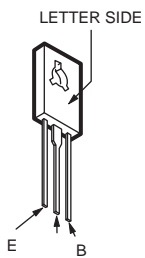
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2SC2362K-G  
2SC2362KG-AA  
2SC2551-O  
2SC2878A-TPE2



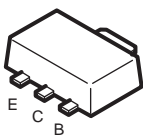
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2SC2668-OTP



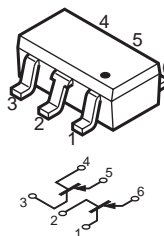
2SC2688-L  
2SC2688-LK



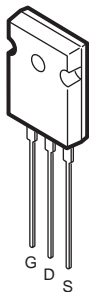
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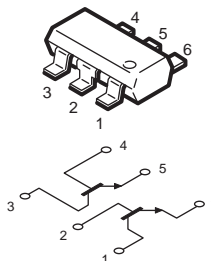
IMT2  
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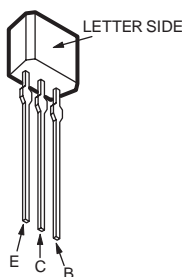
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IRFPG50LF



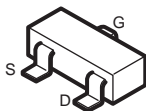
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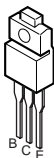
2SC2785-HFE  
2SC3311A-QRSTA  
2SC3623A-LK



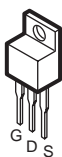
2SK160-K5  
2SK160-T1K4K5K6  
2SK520K44K45-T1B



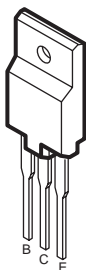
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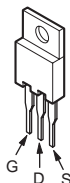
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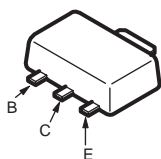
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2SK2655-01R-F165



2SD1834





## Section 8 Exploded Views

**NOTE :**

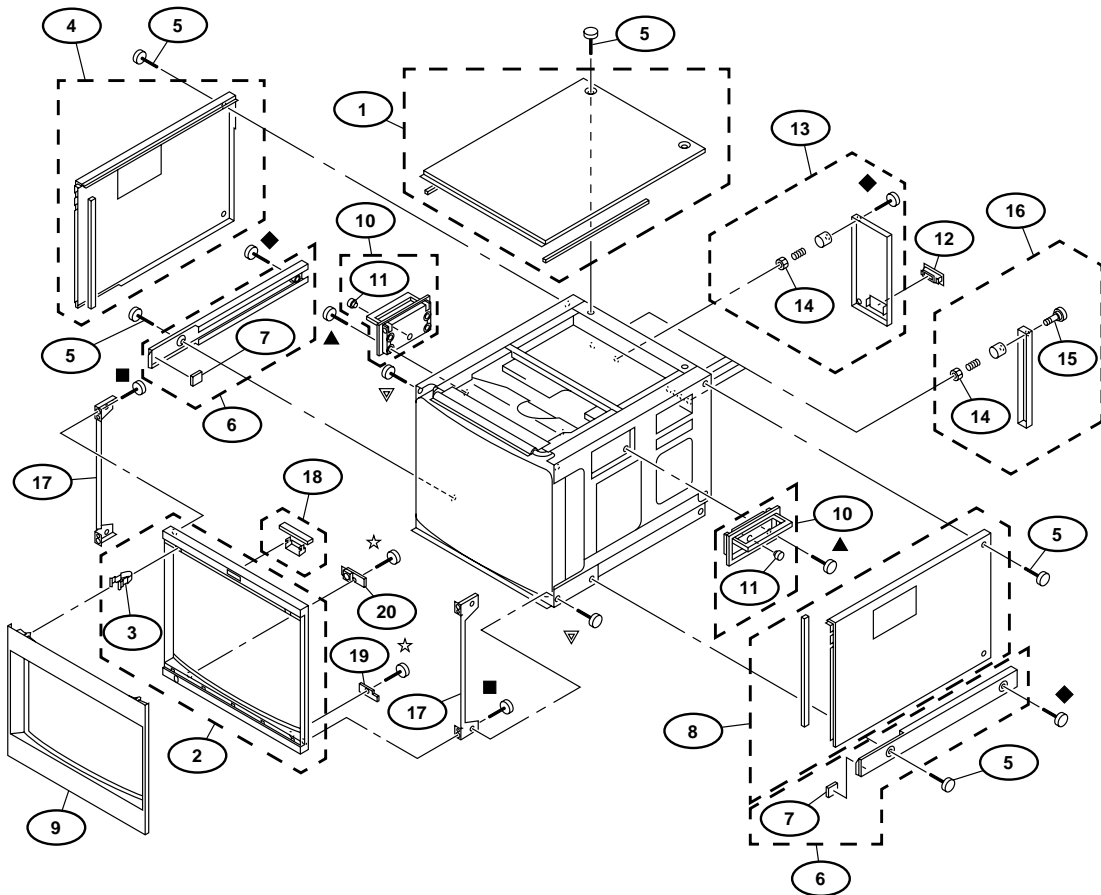
The components identified marked  $\triangle$  are critical for safety. Replace only with the part number specified.

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

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

### 8-1. CABINET (20 inch)

- ▲: 7-685-872-09 +BVTT3x8
- ◆: 7-682-566-04 +B4x20
- : 7-685-661-14 +BVTP4x12
- ☆: 7-685-647-79 +BVTP3x10
- ▽: 7-682-561-09 +B4x8

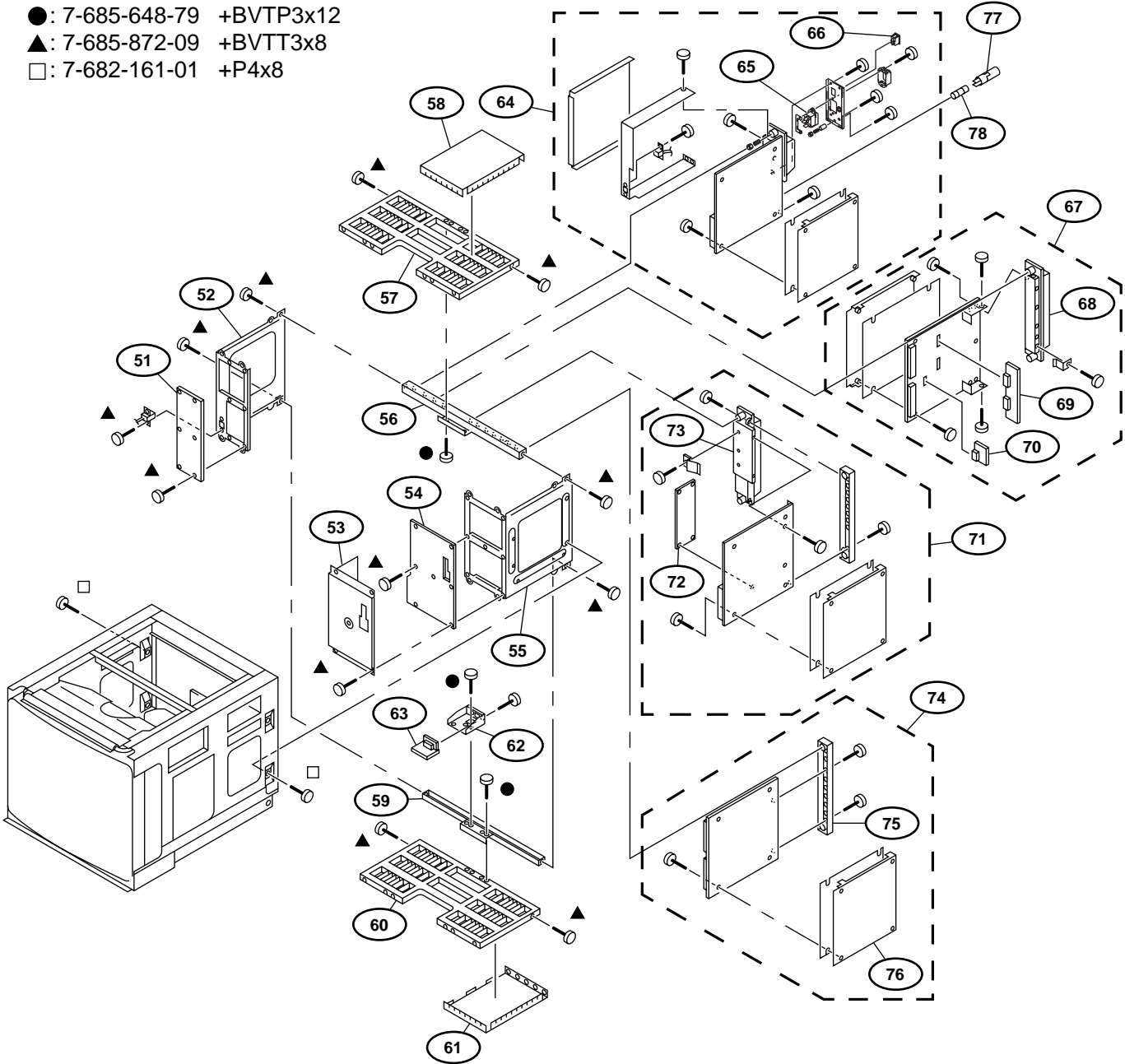


Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
1	X-4033-308-2	CABINET ASSY, TOP		11	* 3-642-047-01	STOP, HANDLE	
2	X-4037-091-1	BEZEL ASSY	3	12	4-050-821-01	ESCUTCHEON	
3	4-051-061-02	HOLDER, MASK		13	* X-4034-953-2	PANEL ASSY, REAR	14
4	X-4033-310-3	CABINET ASSY, LEFT		14	* 3-648-057-00	NUT (ISO-4), U	
5	4-063-969-01	SCREW (OS), CASE, CLAW		15	* 4-050-804-01	SCREW, PANEL STOPPER	
6	* X-4033-324-3	BLIND COVER ASSY	7	16	* X-4033-104-1	PANEL ASSY, BLANK	14, 15
7	* 3-342-839-02	CUSHION		17	* 4-050-830-01	BRACKET, BEZEL	
8	X-4033-309-3	CABINET ASSY, RIGHT		18	* A-1373-746-A	YA MOUNT	
9	X-4033-313-1	MASK (16:9) ASSY		19	* A-1373-747-A	YB MOUNT	
10	X-3642-018-3	HANDLE ASSY	11	20	* A-1373-748-A	YC MOUNT	



8-2. CARD SLOT (20 inch)

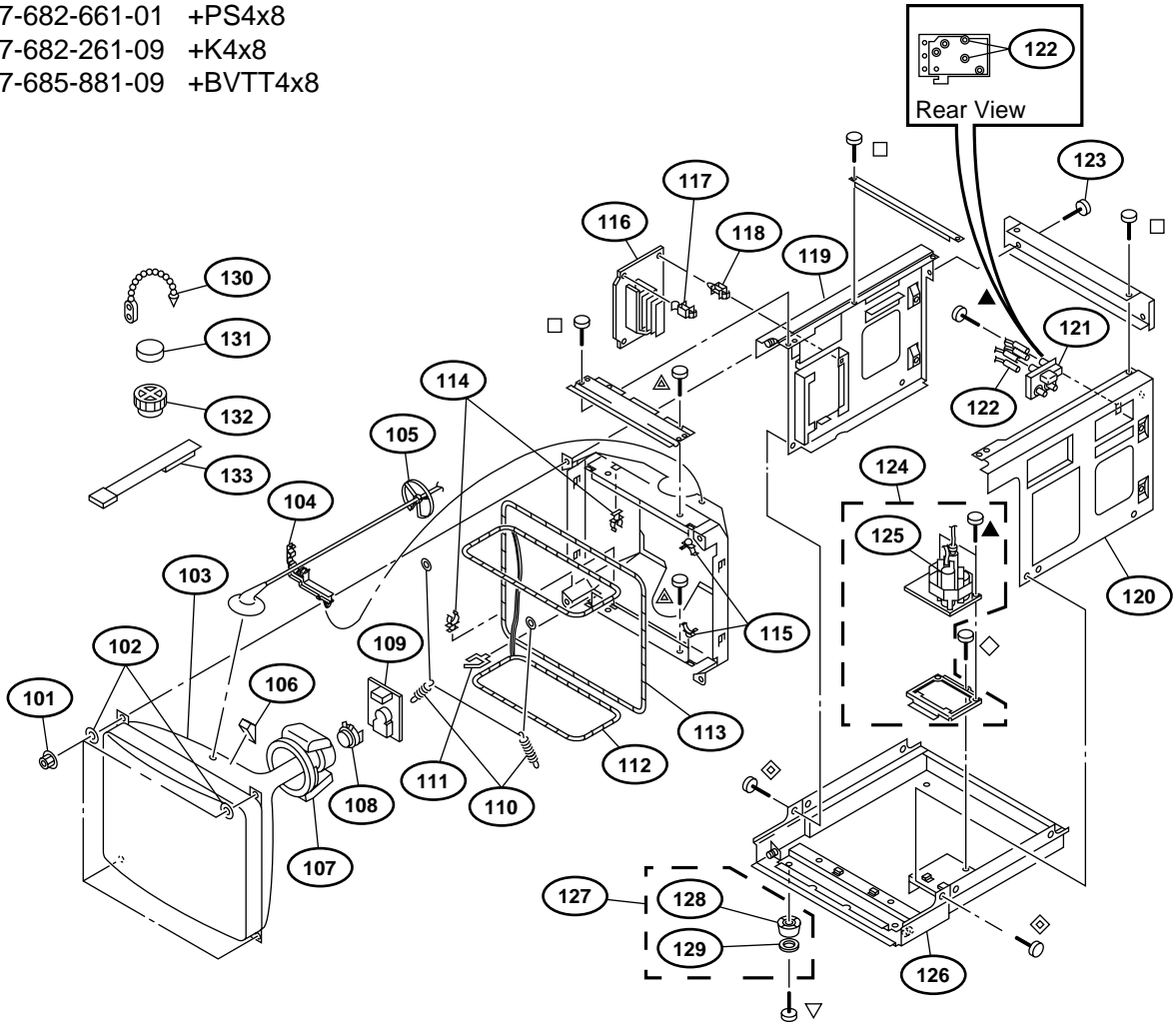
- : 7-685-648-79 +BVTP3x12
- ▲: 7-685-872-09 +BVTT3x8
- : 7-682-161-01 +P4x8



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
51	* A-1390-943-A	TA MOUNT		66	▲ 1-762-300-11	SWITCH, AC POWER SEESAW	
52	* 4-050-842-01	BRACKET (L), T		67	* A-1346-842-A	E COMPL	68-70
53	* X-4037-068-1	SHIELD ASSY, T		68	* X-4033-108-3	HEAT SINK ASSY, DEF	
54	* A-1390-944-A	TB MOUNT		69	* A-1343-686-A	D MOUNT	
55	* 4-072-209-01	BRACKET (R), T		70	* A-1343-730-A	EA MOUNT	
56	* 4-050-847-03	PLATE (UPPER), NUT		71	* A-1136-016-A	BK COMPL	72, 73
57	* 4-072-207-01	BOARD (UPPER), CARD SLOT		72	* A-1131-524-A	BK1 MOUNT	
58	* 4-072-205-01	SHIELD (UPPER), SIGNAL BLOCK		73	X-4034-952-1	HEAT SINK ASSY, BK	
59	* 4-050-848-03	PLATE (LOWER), NUT		74	* A-1136-017-A	BC COMPL	75, 76
60	* 4-072-208-01	BOARD (LOWER), CARD SLOT		75	* X-4033-106-1	PANEL (BC) ASSY, CONNECTOR	
61	* 4-072-204-01	SHIELD (LOWER), SIGNAL BLOCK		76	X-4037-211-1	SHIELD ASSY, PWB	
62	* 4-050-816-01	BRACKET, HD		77	1-533-702-11	HOLDER, FUSE	
63	* A-1372-136-A	HD MOUNT		78	▲ 1-576-231-11	FUSE (H.B.C.) 4A/250V	
64	▲ A-1316-457-A	G COMPL	65, 66				
65	▲ 1-251-263-11	INLET, AC					

8-3. PICTURE TUBE (20 inch)

- ▲: 7-685-872-09 +BVTT3x8
- : 7-682-161-01 +P4x8
- ▽: 7-682-665-09 +PS4x16
- ◇: 7-682-661-01 +PS4x8
- ◆: 7-682-261-09 +K4x8
- △: 7-685-881-09 +BVTT4x8



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
101	4-306-034-00	NUT,(B) (M5), FLANGE		117	* 3-703-141-00	HOLDER, PWB	
102	4-348-567-00	WASHER, CRT POSITION		118	* 4-353-620-11	HINGE, PC BOARD	
103	△ 8-736-375-05	PICTURE TUBE M49LCB20X (U/C)		119	* X-4033-114-4	CHASSIS ASSY, LEFT	
	△ 8-736-374-05	PICTURE TUBE M49LCB21X (AUS, AEP)		120	* X-4033-115-3	CHASSIS ASSY, RIGHT	
104	* 4-387-284-01	HOLDER, LEAD		121	△ 1-223-417-11	RESISTOR ASSY (HIGH-VOLTAGE)	
105	* 4-047-349-01	HOLDER, HV CABLE		122	1-900-214-33	LEAD ASSY, FOCUS	
106	4-040-897-01	SPACER, DY		123	4-063-969-01	SCREW (OS), CASE, CLAW	
107	△ 8-451-513-11	DY Y20MTD-M		124	△ * A-1484-431-A	FBT BLOCK ASSY	125
108	△ 8-453-003-11	NA3012(M)				(Including PC board)	
109	* A-1331-954-A	C MOUNT		125	△ X-4033-492-1	FBT ASSY, NX-4201	
110	4-303-774-03	SPRING		126	* X-4033-113-1	PLATE ASSY, BOTTOM	
111	* 4-316-015-00	HOLDER, WIRE		127	X-4033-117-1	FOOT ASSY	128, 129
112	△ 1-411-659-21	COIL, DEMAGNETIC		128	X-4836-202-9	FOOT	
113	△ 1-411-657-11	COIL, LANDING CORRECTION		129	* 3-668-845-01	CUSHION, LEG	
114	4-041-021-02	HOLDER, DEGAUSE COIL		130	4-308-870-00	CLIP, LEAD WIRE	
115	4-395-824-01	HOLDER, DEGAUSSING COIL		131	1-452-032-00	MAGNET,DISC : 10 mmφ	
116	* A-1195-155-A	PA COMPL		132	1-452-094-00	MAGNET, ROTATABLE DISK : 15 mmφ	
				133	4-051-736-21	PIECE A(90), CONV. CORRECT	

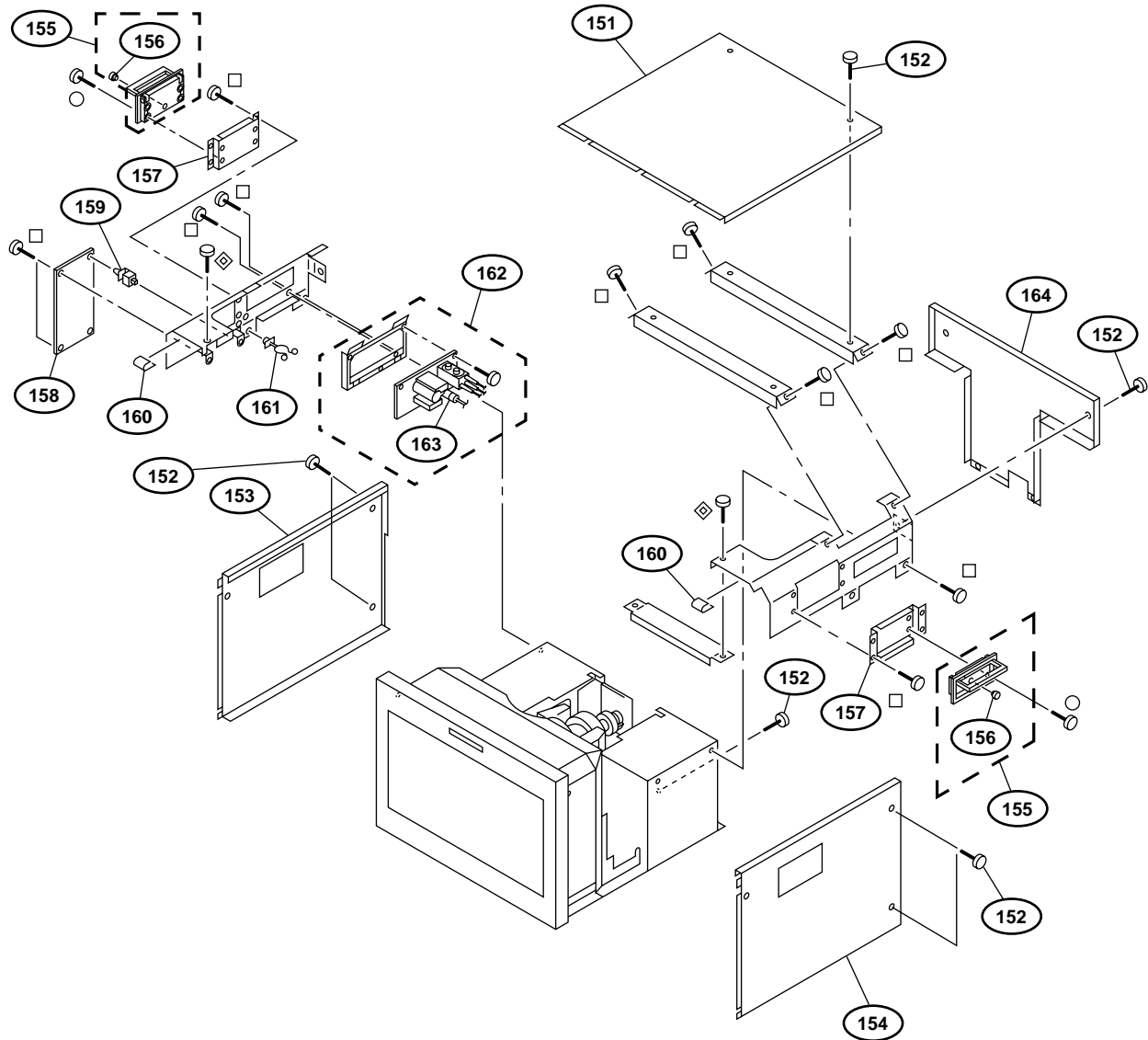
# COVER

## 8-4. COVER (24 inch)

○: 7-682-648-09 +PS3x8

□: 7-682-161-01 +P4x8

◇: 7-682-261-09 +K4x8



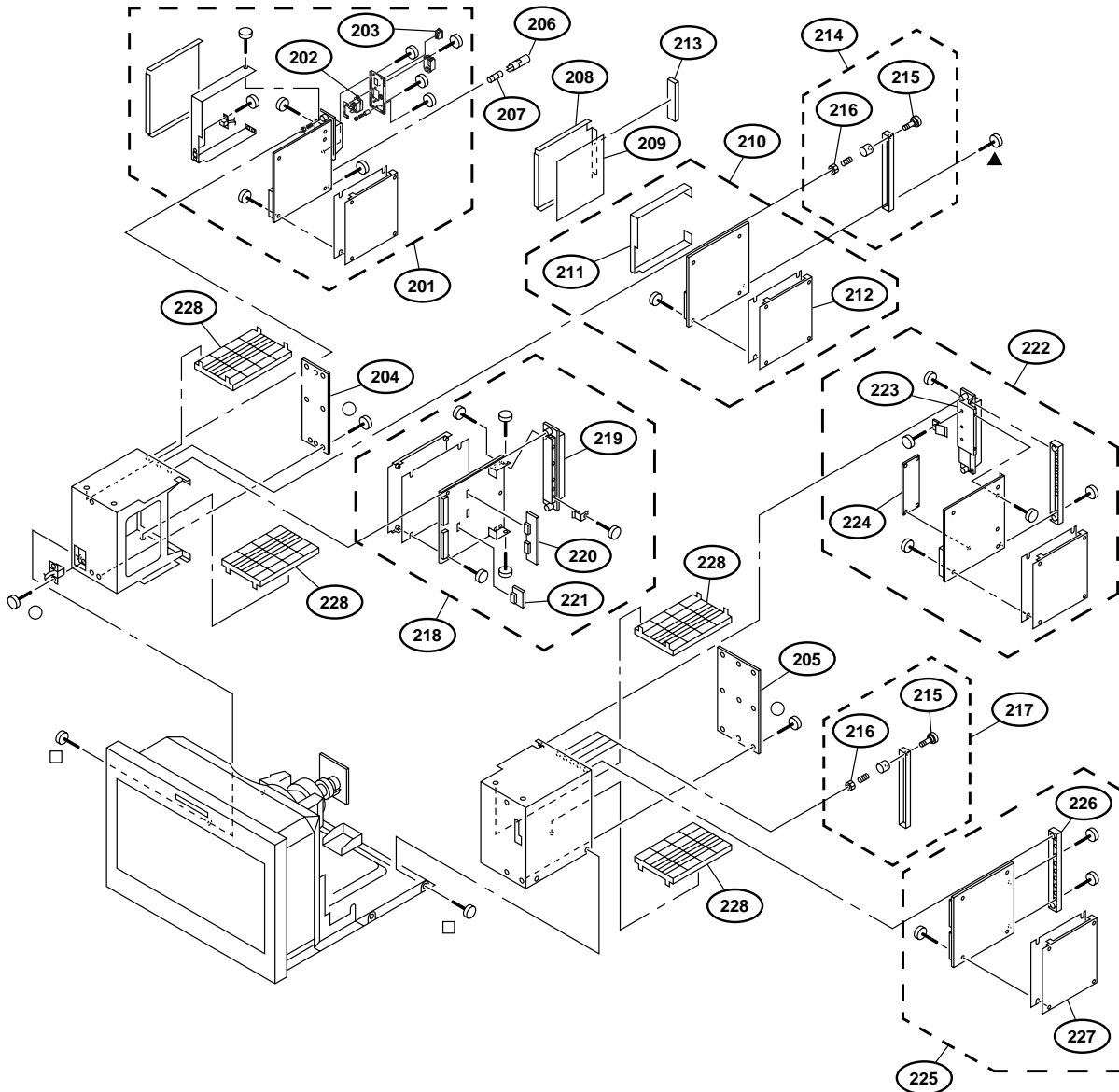
Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
151	* 4-072-141-02	COVER, TOP		161	3-703-319-01	PURSE LOCK (DIA.15)	
152	4-063-969-01	SCREW (OS), CASE, CLAW		162	△ * A-1484-454-A	FBT BLOCK ASSY (Including PC board)	163
153	* 4-072-140-01	COVER (L), SIDE		163	△ X-4560-170-1	FBT ASSY, NX-4202	
154	* 4-072-143-01	COVER (R), SIDE		164	* X-4037-046-1	COVER ASSY, REAR	
155	X-3642-018-3	HANDLE ASSY	156				
156	* 3-642-047-01	STOP, HANDLE					
157	* 4-072-136-01	BRACKET, HANDLE					
158	* A-1195-157-A	PA COMPL					
159	* 4-353-620-11	HINGE, PC BOARD					
160	* 4-072-642-01	COVER (A), EDGE					

### 8-5. CARD SLOT (24 inch)

▲: 7-685-872-09 +BVTT3x8

○: 7-682-648-09 +PS3x8

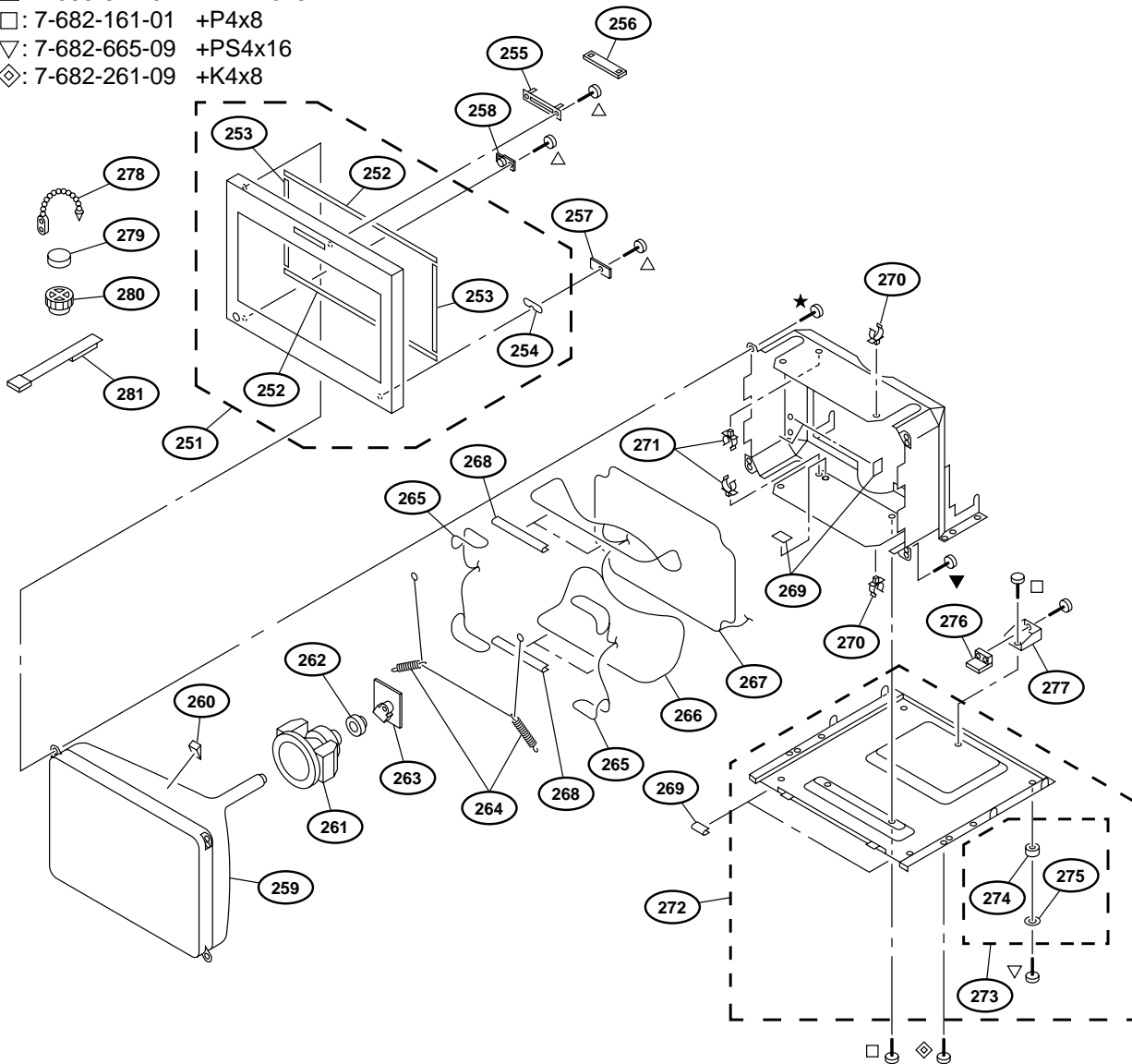
□: 7-682-161-01 +P4x8



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
201	▲* A-1316-457-A	G COMPL	202, 203	216	* 3-648-057-00	NUT (ISO-4), U	
202	▲ 1-251-263-11	INLET, AC		217	* X-4033-104-1	PANEL ASSY, BLANK	215, 216
203	▲ 1-762-300-11	SWITCH, AC POWER SEESAW		218	* A-1346-849-A	E COMPL	219-221
204	* A-1390-943-A	TA MOUNT		219	* X-4033-108-3	HEAT SINK ASSY, DEF	
205	* A-1390-944-A	TB MOUNT		220	* A-1343-686-A	D MOUNT	
206	1-533-702-11	HOLDER, FUSE		221	* A-1343-730-A	EA MOUNT	
207	▲ 1-576-231-11	FUSE (H.B.C.) 4A/250V		222	* A-1136-025-A	BK COMPL	223, 224
208	* 4-072-886-01	COVER, FRAME		223	X-4034-952-1	HEAT SINK ASSY, BK	
209	* 4-072-887-01	INSULATED PLATE		224	* A-1131-524-A	BK1 MOUNT	
210	* A-1136-026-A	BUF COMPL	211, 212	225	* A-1136-017-A	BC COMPL	226, 227
211	* X-4037-157-1	FRAME ASSY, PWB		226	* X-4033-106-1	PANEL (BC) ASSY, CONNECTOR	
212	* X-4037-212-1	SHIELD ASSY, PWB		227	* X-4037-211-1	SHIELD ASSY, PWB	
213	* 4-053-287-01	GASKET		228	* 4-072-145-01	RAIL, PWB	
214	* X-4033-104-1	PANEL ASSY, BLANK	215, 216				
215	* 4-050-804-01	SCREW, PANEL STOPPER					

8-6. PICTURE TUBE (24 inch)

- ★: 7-683-355-07 HEXAGON BOLT 6x16
- ▼: 7-685-659-91 +BVTP4x8
- △: 7-685-871-01 +BVTT3x6
- : 7-682-161-01 +P4x8
- ▽: 7-682-665-09 +PS4x16
- ◇: 7-682-261-09 +K4x8



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
251	X-4037-041-1	BEZEL ASSY	252-254	266	△ 1-419-316-11	COIL, DEGAUSSING	
252	* 4-072-119-01	SPACER, BEZEL		267	△ 1-415-968-11	COIL, LANDING CORRECTION (NS)	
253	* 4-072-119-11	SPACER, BEZEL		268	* 4-072-642-12	COVER (A), EDGE	
254	* 4-072-122-01	YB PLATE		269	* 4-072-642-01	COVER (A), EDGE	
255	* 4-072-138-01	PLATE, TALLY		270	4-041-021-02	HOLDER, DEGAUSE COIL	
256	* A-1373-753-A	YA MOUNT		271	4-395-824-01	HOLDER, DEGAUSSING COIL	
257	* A-1373-754-A	YB MOUNT		272	* X-4037-042-1	CABINET ASSY, BOTTOM	273-275
258	* A-1373-755-A	YC MOUNT		273	X-4033-117-1	FOOT ASSY	274, 275
259	△ 8-733-006-05	PICTURE TUBE M57LRX20X (U/C)		274	4-306-405-01	FOOT	
	△ 8-733-005-05	PICTURE TUBE M57LRX21X (AUS, AEP)		275	* 3-668-845-01	CUSHION, LEG	
260	4-040-897-01	SPACER, DY		276	* A-1372-136-A	HD MOUNT	
261	△ 8-451-510-11	DYY24TXD-M		277	* 4-050-816-11	BRACKET, HD	
262	△ 1-452-912-31	NECK AEEENBLY (NA2914)		278	4-308-870-00	CLIP, LEAD WIRE	
263	* A-1331-958-A	C MOUNT		279	1-452-032-00	MAGNET, DISK : 10 mmφ	
264	3-610-266-01	SPRING		280	1-452-094-00	MAGNET ROTATABLE DISK : 15 mmφ	
265	△ 1-416-140-12	COIL, LANDING CORRECTION		281	4-051-736-21	PIECE A(90), CONV. CORRECT	

## Section 9

### Electrical Parts List

**NOTE :**

The components identified marked  $\triangle$  are critical for safety.  
Replace only with the part number specified.

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

- The components marked  $\square$  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.  
Should replacement be required, replace only with the value originally used.
- Items marked “ \* ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.

**RESISTORS**

- All resistors are in ohms.
- F: nonflammable
- METAL: Metal-film resistor
- METAL OXIDE: Metal oxide-film resistor

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
	* A-1136-017-A	BC COMPL *****		C102	1-164-346-11	CERAMIC CHIP 1 $\mu$ F	16V
	* X-4033-106-1	PANEL (BC) ASSY, CONNECTOR		C103	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
	* X-4037-211-1	SHIELD ASSY, PWB		C104	1-163-275-11	CERAMIC CHIP 0.001 $\mu$ F	5% 50V
	1-526-652-21	SOCKET, IC (DP) 8P		C112	1-115-339-11	CERAMIC CHIP 0.1 $\mu$ F	10% 50V
	1-540-222-11	SOCKET, IC (PCC PACKAGE) 84P		C154	1-115-339-11	CERAMIC CHIP 0.1 $\mu$ F	10% 50V
	* 3-648-057-00	NUT (ISO-4), U		C155	1-164-182-11	CERAMIC CHIP 0.0033 $\mu$ F	10% 50V
	* 4-050-794-03	INSULATOR		C156	1-164-344-11	CERAMIC CHIP 0.068 $\mu$ F	10% 25V
	* 4-050-804-01	SCREW, PANEL STOPPER		C157	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V
	7-432-114-11	SCREW LOCK		C158	1-128-526-11	ELECT 100 $\mu$ F	20% 10V
	7-682-647-09	SCREW +PS 3X6		C159	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V
	7-685-872-09	SCREW +BVTT 3X8 (S)		C232	1-126-396-11	ELECT CHIP 47 $\mu$ F	20% 16V
	<HOLDER, BATTERY>			C246	1-126-392-11	ELECT CHIP 100 $\mu$ F	20% 6.3V
BAT1	1-550-104-11	HOLDER, BATTERY		C247	1-126-396-11	ELECT CHIP 47 $\mu$ F	20% 16V
	<CAPACITOR>			C250	1-163-003-11	CERAMIC CHIP 330PF	10% 50V
C1	1-163-235-11	CERAMIC CHIP 22PF	5% 50V	C251	1-126-396-11	ELECT CHIP 47 $\mu$ F	20% 16V
C2	1-163-227-11	CERAMIC CHIP 10PF	0.5PF 50V	C252	1-126-392-11	ELECT CHIP 100 $\mu$ F	20% 6.3V
C4	1-126-392-11	ELECT CHIP 100 $\mu$ F	20% 6.3V	C253	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C5	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V	C281	1-126-392-11	ELECT CHIP 100 $\mu$ F	20% 6.3V
C7	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V	C282	1-104-652-11	ELECT 470 $\mu$ F	20% 10V
C12	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V	C283	1-104-652-11	ELECT 470 $\mu$ F	20% 10V
C13	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V	C300	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C14	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V	C301	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C31	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C302	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C32	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C303	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C33	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C304	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C34	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C305	1-163-145-00	CERAMIC CHIP 0.0015 $\mu$ F	5% 50V
C35	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C306	1-163-145-00	CERAMIC CHIP 0.0015 $\mu$ F	5% 50V
C36	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C307	1-125-838-91	CERAMIC CHIP 2.2 $\mu$ F	10% 6.3V
C37	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C313	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C39	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C314	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C41	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C351	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C42	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C352	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C43	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C374	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C44	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C375	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C45	1-163-038-91	CERAMIC CHIP 0.1 $\mu$ F	25V	C376	1-163-231-11	CERAMIC CHIP 15PF	5% 50V
C46	1-163-235-11	CERAMIC CHIP 22PF	5% 50V	C377	1-163-231-11	CERAMIC CHIP 15PF	5% 50V
C47	1-163-235-11	CERAMIC CHIP 22PF	5% 50V	C378	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
C51	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	C379	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C101	1-109-982-11	CERAMIC CHIP 1 $\mu$ F	10% 10V	C380	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
				C381	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
				C382	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
				C405	1-107-909-11	ELECT 47 $\mu$ F	20% 16V
				C406	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V
				C407	1-164-690-91	CERAMIC CHIP 0.0022 $\mu$ F	5% 50V
				C551	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F	50V

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C552	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C952	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C553	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C953	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C554	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C954	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C555	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C955	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C556	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C956	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C557	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C960	1-126-392-11	ELECT CHIP 100μF	20% 6.3V
C558	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C961	1-126-392-11	ELECT CHIP 100μF	20% 6.3V
C800	1-104-652-11	ELECT 470μF	20% 10V	C962	1-126-392-11	ELECT CHIP 100μF	20% 6.3V
C801	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C963	1-126-392-11	ELECT CHIP 100μF	20% 6.3V
C802	1-163-275-11	CERAMIC CHIP 0.001μF	5% 50V	C964	1-163-038-91	CERAMIC CHIP 0.1μF	25V
C803	1-104-563-11	FILM CHIP 0.1μF	5% 16V	C965	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C804	1-109-982-11	CERAMIC CHIP 1μF	10% 10V	C966	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C805	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	C967	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C806	1-163-031-11	CERAMIC CHIP 0.01μF	50V	C968	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C807	1-104-652-11	ELECT 470μF	20% 10V	C969	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C808	1-163-038-91	CERAMIC CHIP 0.1μF	25V	C970	1-163-031-11	CERAMIC CHIP 0.01μF	50V
C809	1-163-038-91	CERAMIC CHIP 0.1μF	25V				
C812	1-163-031-11	CERAMIC CHIP 0.01μF	50V			<CONNECTOR>	
C813	1-164-346-11	CERAMIC CHIP 1μF	16V	CN1	1-774-523-11	PIN, CONNECTOR (PC BOARD) 64P	
C815	1-163-231-11	CERAMIC CHIP 15PF	5% 50V	CN2	1-774-523-11	PIN, CONNECTOR (PC BOARD) 64P	
C816	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	CN3	1-565-269-11	SOCKET, CONNECTOR (D-DUB,L) 9P	
C817	1-163-275-11	CERAMIC CHIP 0.001μF	5% 50V	CN4	1-565-269-11	SOCKET, CONNECTOR (D-DUB,L) 9P	
C818	1-163-031-11	CERAMIC CHIP 0.01μF	50V	CN5	1-565-269-11	SOCKET, CONNECTOR (D-DUB,L) 9P	
C819	1-163-031-11	CERAMIC CHIP 0.01μF	50V	CN6	1-565-269-11	SOCKET, CONNECTOR (D-DUB,L) 9P	
C820	1-163-031-11	CERAMIC CHIP 0.01μF	50V	CN7	* 1-784-403-21	CONNECTOR, BOARD TO BOARD 40P	
C821	1-163-038-91	CERAMIC CHIP 0.1μF	25V			<DIODE>	
C822	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D1	8-719-051-89	DIODE SML-010VT-T87	
C823	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D2	8-719-051-89	DIODE SML-010VT-T87	
C824	1-126-396-11	ELECT CHIP 47μF	20% 16V	D3	8-719-051-89	DIODE SML-010VT-T87	
C825	1-126-392-11	ELECT CHIP 100μF	20% 6.3V	D4	8-719-051-89	DIODE SML-010VT-T87	
C826	1-163-038-91	CERAMIC CHIP 0.1μF	25V	D29	8-719-037-00	DIODE RD6.2SB2-T1	
C829	1-104-652-11	ELECT 470μF	20% 10V	D30	8-719-037-00	DIODE RD6.2SB2-T1	
C831	1-164-222-11	CERAMIC CHIP 0.22μF	25V	D31	8-719-037-00	DIODE RD6.2SB2-T1	
C832	1-163-243-11	CERAAMI CHIP 47PF	5% 50V	D32	8-719-037-00	DIODE RD6.2SB2-T1	
C833	1-163-243-11	CERAAMI CHIP 47PF	5% 50V	D33	8-719-037-00	DIODE RD6.2SB2-T1	
C840	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D34	8-719-037-00	DIODE RD6.2SB2-T1	
C871	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D35	8-719-037-00	DIODE RD6.2SB2-T1	
C900	1-126-392-11	ELECT CHIP 100μF	20% 6.3V	D36	8-719-037-00	DIODE RD6.2SB2-T1	
C901	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D37	8-719-037-00	DIODE RD6.2SB2-T1	
C902	1-126-392-11	ELECT CHIP 100μF	20% 6.3V	D38	8-719-037-00	DIODE RD6.2SB2-T1	
C903	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D39	8-719-037-00	DIODE RD6.2SB2-T1	
C904	1-126-392-11	ELECT CHIP 100μF	20% 6.3V	D40	8-719-037-00	DIODE RD6.2SB2-T1	
C905	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D41	8-719-037-00	DIODE RD6.2SB2-T1	
C906	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D111	8-719-159-13	DIODE RD5.1SB3-T2	
C907	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D201	8-719-037-22	DIODE RD12SB-T1	
C908	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D202	8-719-037-22	DIODE RD12SB-T1	
C909	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D203	8-719-037-22	DIODE RD12SB-T1	
C910	1-126-235-11	ELECT 100μF	20% 10V	D204	8-719-037-22	DIODE RD12SB-T1	
C911	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D205	8-719-037-22	DIODE RD12SB-T1	
C912	1-126-396-11	ELECT CHIP 47μF	20% 16V	D206	8-719-037-22	DIODE RD12SB-T1	
C913	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D207	8-719-037-00	DIODE RD6.2SB2-T1	
C914	1-126-235-11	ELECT 100μF	20% 10V	D208	8-719-037-00	DIODE RD6.2SB2-T1	
C915	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D209	8-719-037-00	DIODE RD6.2SB2-T1	
C916	1-126-396-11	ELECT CHIP 47μF	20% 16V	D210	8-719-037-00	DIODE RD6.2SB2-T1	
C917	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D211	8-719-037-00	DIODE RD6.2SB2-T1	
C918	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D212	8-719-037-00	DIODE RD6.2SB2-T1	
C919	1-126-392-11	ELECT CHIP 100μF	20% 6.3V	D213	8-719-037-00	DIODE RD6.2SB2-T1	
C920	1-126-392-11	ELECT CHIP 100μF	20% 6.3V	D214	8-719-073-01	DIODE MA111-(K8),S0	
C921	1-126-392-11	ELECT CHIP 100μF	20% 6.3V	D215	8-719-073-01	DIODE MA111-(K8),S0	
C922	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D216	8-719-037-00	DIODE RD6.2SB2-T1	
C923	1-163-031-11	CERAMIC CHIP 0.01μF	50V	D217	8-719-037-00	DIODE RD6.2SB2-T1	
C924	1-104-652-11	ELECT 470μF	20% 10V				
C925	1-163-031-11	CERAMIC CHIP 0.01μF	50V				
C950	1-126-392-11	ELECT CHIP 100μF	20% 6.3V				
C951	1-163-031-11	CERAMIC CHIP 0.01μF	50V				







Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
IC107	8-759-186-43	IC TC74VHC123AF				<RESISTOR>	
IC108	8-759-195-02	IC TC7S86F-TE85L					
IC109	8-759-523-97	IC TC74VHC123AFT(EL)		R1	1-216-073-00	RES,CHIP 10K 5%	1/10W
IC124	8-759-328-12	IC Z8622812PSC		R2	1-216-073-00	RES,CHIP 10K 5%	1/10W
IC550	8-759-186-30	IC TC74VHC14F		R3	1-216-073-00	RES,CHIP 10K 5%	1/10W
				R4	1-216-073-00	RES,CHIP 10K 5%	1/10W
				R5	1-216-073-00	RES,CHIP 10K 5%	1/10W
IC551	8-759-186-30	IC TC74VHC14F					
IC800	8-759-295-09	IC TLC2932IPW		R6	1-216-073-00	RES,CHIP 10K 5%	1/10W
IC801	8-759-081-42	IC TC74VHC00F		R7	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC802	8-759-524-04	IC TC74VHC125FT(EL)		R8	1-216-049-91	RES,CHIP 1K 5%	1/10W
IC804	8-759-497-29	IC LC35256DM-70-TLM		R9	1-216-073-00	RES,CHIP 10K 5%	1/10W
				R10	1-216-121-91	RES,CHIP 1M 5%	1/10W
IC805	8-759-522-14	IC MB90096PF-G-127-BND-ER					
IC806	8-752-334-64	IC CXD1171M		R11	1-216-073-00	RES,CHIP 10K 5%	1/10W
IC807	8-759-186-38	IC TC74VHC32F		R12	1-216-037-00	RES,CHIP 330 5%	1/10W
IC808	8-759-524-04	IC TC74VHC125FT(EL)		R13	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC809	8-759-081-46	IC TC74VHCU04F		R14	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R15	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC810	8-759-011-65	IC MC74HC4053F					
IC811	8-759-491-33	IC TC74VHCT08AF(EL)		R16	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC812	8-759-491-33	IC TC74VHCT08AF(EL)		R17	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC813	8-759-491-33	IC TC74VHCT08AF(EL)		R18	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC815	8-759-186-30	IC TC74VHC14F		R19	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R20	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC816	8-759-081-42	IC TC74VHC00F					
IC817	8-759-082-57	IC TC7W04FU		R21	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC818	8-759-082-57	IC TC7W04FU		R22	1-216-073-00	RES,CHIP 10K 5%	1/10W
IC819	8-759-082-58	IC TC7W08FU		R23	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC820	8-759-973-72	IC SN74LS07NS		R24	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R25	1-216-097-91	RES,CHIP 100K 5%	1/10W
IC821	8-759-147-47	IC $\mu$ PC1093T					
IC822	8-759-271-88	IC TC7SHU04FU		R26	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R27	1-216-089-91	RES,CHIP 47K 5%	1/10W
				R28	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R29	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R30	1-216-037-00	RES,CHIP 330 5%	1/10W
				R31	1-216-121-91	RES,CHIP 1M 5%	1/10W
				R32	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R33	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R34	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R35	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R36	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R37	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R38	1-216-073-00	RES,CHIP 10K 5%	1/10W
				R41	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R42	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R43	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R44	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R45	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R46	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R47	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R48	1-216-097-91	RES,CHIP 100K 5%	1/10W
				R49	1-216-025-91	RES,CHIP 100 5%	1/10W
				R50	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R51	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R52	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R53	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R54	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R55	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R56	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R57	1-216-049-91	RES,CHIP 1K 5%	1/10W
				R58	1-216-017-91	RES,CHIP 47 5%	1/10W
				R59	1-216-025-91	RES,CHIP 100 5%	1/10W
				R60	1-216-045-00	RES,CHIP 680 5%	1/10W
				R61	1-216-047-91	RES,CHIP 820 5%	1/10W
				R62	1-216-053-00	RES,CHIP 1.5K 5%	1/10W
				R63	1-216-057-00	RES,CHIP 2.2K 5%	1/10W
				R64	1-216-069-00	RES,CHIP 6.8K 5%	1/10W
				R65	1-216-295-91	SHORT 0	
				R66	1-216-053-00	RES,CHIP 1.5K 5%	1/10W
				R67	1-216-053-00	RES,CHIP 1.5K 5%	1/10W

Ref.No.	Part No.	Description	Remark			Ref.No.	Part No.	Description	Remark		
R68	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	R142	1-216-607-11	METAL CHIP	15K	0.50%	1/10W
R69	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	R144	1-218-764-11	METAL CHIP	330K	0.50%	1/10W
R70	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R145	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R71	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R157	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R72	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R170	1-216-073-00	RES,CHIP	10K	5%	1/10W
R73	1-216-097-91	RES,CHIP	100K	5%	1/10W	R171	1-216-073-00	RES,CHIP	10K	5%	1/10W
R74	1-216-073-00	RES,CHIP	10K	5%	1/10W	R172	1-216-073-00	RES,CHIP	10K	5%	1/10W
R75	1-216-073-00	RES,CHIP	10K	5%	1/10W	R179	1-216-073-00	RES,CHIP	10K	5%	1/10W
R76	1-216-073-00	RES,CHIP	10K	5%	1/10W	R180	1-216-073-00	RES,CHIP	10K	5%	1/10W
R77	1-216-073-00	RES,CHIP	10K	5%	1/10W	R181	1-216-073-00	RES,CHIP	10K	5%	1/10W
R78	1-216-097-91	RES,CHIP	100K	5%	1/10W	R182	1-216-073-00	RES,CHIP	10K	5%	1/10W
R79	1-216-025-91	RES,CHIP	100	5%	1/10W	R183	1-216-073-00	RES,CHIP	10K	5%	1/10W
R80	1-216-089-91	RES,CHIP	47K	5%	1/10W	R210	1-216-049-91	RES,CHIP	1K	5%	1/10W
R81	1-216-121-91	RES,CHIP	1M	5%	1/10W	R211	1-216-049-91	RES,CHIP	1K	5%	1/10W
R82	1-216-089-91	RES,CHIP	47K	5%	1/10W	R212	1-216-049-91	RES,CHIP	1K	5%	1/10W
R83	1-216-121-91	RES,CHIP	1M	5%	1/10W	R220	1-216-025-91	RES,CHIP	100	5%	1/10W
R84	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R221	1-216-025-91	RES,CHIP	100	5%	1/10W
R85	1-216-097-91	RES,CHIP	100K	5%	1/10W	R222	1-216-025-91	RES,CHIP	100	5%	1/10W
R86	1-216-049-91	RES,CHIP	1K	5%	1/10W	R223	1-216-025-91	RES,CHIP	100	5%	1/10W
R87	1-216-049-91	RES,CHIP	1K	5%	1/10W	R551	1-216-049-91	RES,CHIP	1K	5%	1/10W
R88	1-216-049-91	RES,CHIP	1K	5%	1/10W	R552	1-216-049-91	RES,CHIP	1K	5%	1/10W
R89	1-216-089-91	RES,CHIP	47K	5%	1/10W	R553	1-216-049-91	RES,CHIP	1K	5%	1/10W
R90	1-247-807-31	CARBON	100k	5%	1/4W	R554	1-216-049-91	RES,CHIP	1K	5%	1/10W
R91	1-216-097-91	RES,CHIP	100K	5%	1/10W	R555	1-216-049-91	RES,CHIP	1K	5%	1/10W
R100	1-216-013-00	RES,CHIP	33	5%	1/10W	R556	1-216-049-91	RES,CHIP	1K	5%	1/10W
R101	1-216-013-00	RES,CHIP	33	5%	1/10W	R557	1-216-049-91	RES,CHIP	1K	5%	1/10W
R102	1-216-013-00	RES,CHIP	33	5%	1/10W	R558	1-216-049-91	RES,CHIP	1K	5%	1/10W
R103	1-216-013-00	RES,CHIP	33	5%	1/10W	R562	1-216-033-00	RES,CHIP	220	5%	1/10W
R104	1-216-013-00	RES,CHIP	33	5%	1/10W	R563	1-216-033-00	RES,CHIP	220	5%	1/10W
R105	1-216-025-91	RES,CHIP	100	5%	1/10W	R564	1-216-033-00	RES,CHIP	220	5%	1/10W
R106	1-216-013-00	RES,CHIP	33	5%	1/10W	R566	1-216-033-00	RES,CHIP	220	5%	1/10W
R107	1-216-025-91	RES,CHIP	100	5%	1/10W	R567	1-216-033-00	RES,CHIP	220	5%	1/10W
R108	1-216-013-00	RES,CHIP	33	5%	1/10W	R568	1-216-033-00	RES,CHIP	220	5%	1/10W
R109	1-216-013-00	RES,CHIP	33	5%	1/10W	R800	1-216-049-91	RES,CHIP	1K	5%	1/10W
R110	1-216-073-00	RES,CHIP	10K	5%	1/10W	R801	1-216-295-91	SHORT	0		
R111	1-216-089-91	RES,CHIP	47K	5%	1/10W	R802	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R112	1-216-049-91	RES,CHIP	1K	5%	1/10W	R803	1-216-681-11	METAL CHIP	18K	0.50%	1/10W
R113	1-216-025-91	RES,CHIP	100	5%	1/10W	R804	1-216-131-11	RES,CHIP	2.7M	5%	1/10W
R114	1-216-025-91	RES,CHIP	100	5%	1/10W	R805	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R115	1-216-025-91	RES,CHIP	100	5%	1/10W	R806	1-216-665-11	METAL CHIP	3.9K	0.50%	1/10W
R116	1-216-073-00	RES,CHIP	10K	5%	1/10W	R807	1-216-638-11	METAL CHIP	300	0.50%	1/10W
R117	1-216-061-00	RES,CHIP	3.3K	5%	1/10W	R808	1-216-625-11	METAL CHIP	82	0.50%	1/10W
R118	1-216-025-91	RES,CHIP	100	5%	1/10W	R809	1-216-073-00	RES,CHIP	10K	5%	1/10W
R119	1-216-049-91	RES,CHIP	1K	5%	1/10W	R810	1-216-113-00	RES,CHIP	470K	5%	1/10W
R120	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W	R811	1-216-295-91	SHORT	0		
R121	1-216-097-91	RES,CHIP	100K	5%	1/10W	R812	1-216-295-91	SHORT	0		
R122	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	R814	1-216-295-91	SHORT	0		
R123	1-216-059-00	RES,CHIP	2.7K	5%	1/10W	R816	1-216-025-91	RES,CHIP	100	5%	1/10W
R124	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	R817	1-216-073-00	RES,CHIP	10K	5%	1/10W
R125	1-216-059-00	RES,CHIP	2.7K	5%	1/10W	R818	1-216-073-00	RES,CHIP	10K	5%	1/10W
R126	1-216-013-00	RES,CHIP	33	5%	1/10W	R819	1-216-073-00	RES,CHIP	10K	5%	1/10W
R127	1-216-039-00	RES,CHIP	390	5%	1/10W	R820	1-216-681-11	METAL CHIP	18K	0.50%	1/10W
R128	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R821	1-216-634-11	METAL CHIP	200	0.50%	1/10W
R129	1-216-081-00	RES,CHIP	22K	5%	1/10W	R822	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W
R130	1-216-081-00	RES,CHIP	22K	5%	1/10W	R823	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W
R131	1-216-681-11	METAL CHIP	18K	0.50%	1/10W	R824	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R132	1-216-073-00	RES,CHIP	10K	5%	1/10W	R827	1-216-025-91	RES,CHIP	100	5%	1/10W
R133	1-216-073-00	RES,CHIP	10K	5%	1/10W	R828	1-216-025-91	RES,CHIP	100	5%	1/10W
R134	1-216-089-91	RES,CHIP	47K	5%	1/10W	R830	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R135	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R831	1-216-097-91	RES,CHIP	100K	5%	1/10W
R137	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W	R832	1-216-025-91	RES,CHIP	100	5%	1/10W
R138	1-216-025-91	RES,CHIP	100	5%	1/10W	R833	1-216-025-91	RES,CHIP	100	5%	1/10W
R139	1-216-675-91	METAL CHIP	10K	0.50%	1/10W	R834	1-216-081-00	RES,CHIP	22K	5%	1/10W
R140	1-216-049-91	RES,CHIP	1K	5%	1/10W	R835	1-216-025-91	RES,CHIP	100	5%	1/10W
R141	1-216-049-91	RES,CHIP	1K	5%	1/10W	R836	1-216-065-91	RES,CHIP	4.7K	5%	1/10W



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C168	1-104-559-11	FILM CHIP	0.047μF 5% 16V	C376	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C169	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C377	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V
C170	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C378	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C171	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C380	1-163-127-00	CERAMIC CHIP	270PF 5% 50V
C172	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C500	1-163-227-11	CERAMIC CHIP	10PF 0.5PF 50V
C173	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	C501	1-163-229-11	CERAMIC CHIP	12PF 5% 50V
C174	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C502	1-115-155-11	ELECT CHIP	22μF 20% 16V
C175	1-107-823-11	CERAMIC CHIP	0.47μF 10% 16V	C503	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C176	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C506	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C177	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V	C507	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C178	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C510	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C180	1-163-127-00	CERAMIC CHIP	270PF 5% 50V	C511	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C300	1-163-227-11	CERAMIC CHIP	10PF 0.5PF 50V	C512	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C301	1-163-229-11	CERAMIC CHIP	12PF 5% 50V	C513	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C302	1-115-155-11	ELECT CHIP	22μF 20% 16V	C514	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C303	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C515	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C306	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C516	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C307	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C517	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V
C310	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C518	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V
C311	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C519	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C312	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C520	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C313	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C521	1-163-222-11	CERAMIC CHIP	5PF 0.25PF 50V
C315	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C530	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C316	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C531	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C317	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V	C535	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C318	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V	C536	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C319	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C537	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C320	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C538	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C321	1-163-222-11	CERAMIC CHIP	5PF 0.25PF 50V	C540	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C325	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C541	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C326	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C542	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V
C330	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C543	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V
C331	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C544	1-164-346-11	CERAMIC CHIP	1μF 16V
C335	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C545	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C336	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C546	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C337	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C547	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C338	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C548	1-126-390-11	ELECT CHIP	22μF 20% 6.3V
C340	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C555	1-163-087-00	CERAMIC CHIP	4PF 0.25PF 50V
C341	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C556	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C342	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V	C557	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C343	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V	C558	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C344	1-164-346-11	CERAMIC CHIP	1μF 16V	C559	1-163-257-11	CERAMIC CHIP	180PF 5% 50V
C345	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C560	1-107-364-11	MYLAR	0.01μF 10% 200V
C346	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C561	1-126-355-11	ELECT	33μF 20% 160V
C347	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C562	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C348	1-126-390-11	ELECT CHIP	22μF 20% 6.3V	C565	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C355	1-163-087-00	CERAMIC CHIP	4PF 0.25PF 50V	C566	1-110-501-11	CERAMIC CHIP	0.33μF 10% 16V
C356	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C567	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C357	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C568	1-104-559-11	FILM CHIP	0.047μF 5% 16V
C358	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C569	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C359	1-163-257-11	CERAMIC CHIP	180PF 5% 50V	C570	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C360	1-107-364-11	MYLAR	0.01μF 10% 200V	C571	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C361	1-126-355-11	ELECT	33μF 20% 160V	C572	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C362	1-163-235-11	CERAMIC CHIP	22PF 5% 50V	C573	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V
C365	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C574	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C366	1-110-501-11	CERAMIC CHIP	0.33μF 10% 16V	C575	1-107-823-11	CERAMIC CHIP	0.47μF 10% 16V
C367	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C576	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C368	1-104-559-11	FILM CHIP	0.047μF 5% 16V	C577	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V
C369	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C578	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C370	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C580	1-163-127-00	CERAMIC CHIP	270PF 5% 50V
C371	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C700	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C372	1-104-551-11	FILM CHIP	0.01μF 5% 16V	C701	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C373	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	C702	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C374	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C703	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C375	1-107-823-11	CERAMIC CHIP	0.47μF 10% 16V	C704	1-126-391-11	ELECT CHIP	47μF 20% 6.3V

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C705	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C903	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C706	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C904	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C707	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C905	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C708	1-115-153-11	ELECT CHIP	4.7μF 20% 16V	C907	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C709	1-107-960-11	ELECT	4.7μF 20% 160V	C908	1-163-035-00	CERAMIC CHIP	0.047μF 50V
C710	1-107-364-11	MYLAR	0.01μF 10% 200V	C909	1-164-346-11	CERAMIC CHIP	1μF 16V
C711	1-107-943-11	ELECT	10μF 20% 160V	C910	1-163-038-91	CERAMIC CHIP	0.1μF 25V
C712	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C911	1-163-035-00	CERAMIC CHIP	0.047μF 50V
C713	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C914	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C728	1-163-133-00	CERAMIC CHIP	470PF 5% 50V	C915	1-163-035-00	CERAMIC CHIP	0.047μF 50V
C729	1-104-563-11	FILM CHIP	0.1μF 5% 16V	C917	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C734	1-164-505-11	CERAMIC CHIP	2.2μF 16V	C918	1-164-161-11	CERAMIC CHIP	0.0022μF 10% 50V
C740	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C921	1-163-038-91	CERAMIC CHIP	0.1μF 25V
C741	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C924	1-126-391-11	ELECT CHIP	47μF 20% 6.3V
C751	1-126-396-11	ELECT CHIP	47μF 20% 16V	C925	1-126-391-11	ELECT CHIP	47μF 20% 6.3V
C770	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C926	1-163-038-91	CERAMIC CHIP	0.1μF 25V
C782	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C928	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C783	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C930	1-126-390-11	ELECT CHIP	22μF 20% 6.3V
C800	1-163-089-00	CERAMIC CHIP	6PF 0.5PF 50V	C931	1-163-038-91	CERAMIC CHIP	0.1μF 25V
C801	1-163-231-11	CERAMIC CHIP	15PF 5% 50V	C1000	1-126-396-11	ELECT CHIP	47μF 20% 16V
C804	1-115-155-11	ELECT CHIP	22μF 20% 16V	C1001	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C805	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1002	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C806	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1003	1-126-392-11	ELECT CHIP	100μF 20% 6.3V
C807	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1010	1-126-392-11	ELECT CHIP	100μF 20% 6.3V
C808	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1011	1-126-392-11	ELECT CHIP	100μF 20% 6.3V
C809	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1012	1-126-392-11	ELECT CHIP	100μF 20% 6.3V
C810	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1013	1-126-392-11	ELECT CHIP	100μF 20% 6.3V
C812	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1014	1-126-392-11	ELECT CHIP	100μF 20% 6.3V
C813	1-126-394-11	ELECT CHIP	10μF 20% 16V	C1015	1-126-392-11	ELECT CHIP	100μF 20% 6.3V
C814	1-163-251-11	CERAMIC CHIP	100PF 5% 50V	C1020	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C815	1-163-257-11	CERAMIC CHIP	180PF 5% 50V	C1021	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C816	1-163-251-11	CERAMIC CHIP	100PF 5% 50V	C1022	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C817	1-126-401-21	ELECT CHIP	1μF 20% 50V	C1023	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C818	1-126-390-11	ELECT CHIP	22μF 20% 6.3V	C1024	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C820	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	C1025	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C821	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	C1026	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C822	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	C1027	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C823	1-128-235-11	ELECT CHIP	0.47μF 20% 50V	C1028	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C824	1-109-982-11	CERAMIC CHIP	1μF 10% 10V	C1029	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C825	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C1030	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C826	1-163-251-11	CERAMIC CHIP	100PF 5% 50V	C1031	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C827	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1032	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C828	1-163-133-00	CERAMIC CHIP	470PF 5% 50V	C1033	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C829	1-164-161-11	CERAMIC CHIP	0.0022μF 10% 50V	C1034	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C830	1-163-133-00	CERAMIC CHIP	470PF 5% 50V	C1035	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C831	1-163-009-11	CERAMIC CHIP	0.001μF 10% 50V	C1036	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C832	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C1037	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C833	1-163-133-00	CERAMIC CHIP	470PF 5% 50V	C1038	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C834	1-163-133-00	CERAMIC CHIP	470PF 5% 50V	C1039	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C835	1-163-251-11	CERAMIC CHIP	100PF 5% 50V	C1060	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C836	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C1061	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C837	1-164-222-11	CERAMIC CHIP	0.22μF 25V	C1062	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C838	1-164-222-11	CERAMIC CHIP	0.22μF 25V	C1063	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C839	1-163-275-11	CERAMIC CHIP	0.001μF 5% 50V	C1065	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C840	1-163-019-00	CERAMIC CHIP	0.0068μF 10% 50V	C1066	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C841	1-164-346-11	CERAMIC CHIP	1μF 16V	C1067	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V
C842	1-163-263-11	CERAMIC CHIP	330PF 5% 50V	C1068	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C847	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1069	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C851	1-126-168-11	ELECT	1000μF 20% 6.3V	C1070	1-164-340-11	CERAMIC CHIP	0.22μF 10% 25V
C852	1-126-391-11	ELECT CHIP	47μF 20% 6.3V	C1071	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C853	1-126-168-11	ELECT	1000μF 20% 6.3V	C1072	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C863	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1073	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C900	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1080	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C901	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1081	1-126-396-11	ELECT CHIP	47μF 20% 16V
C902	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1082	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C1083	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1462	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C1200	1-126-396-11	ELECT CHIP	47μF 20% 16V	C1600	1-126-397-11	ELECT CHIP	33μF 20% 25V
C1201	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1601	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1202	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1602	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1203	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1603	1-126-396-11	ELECT CHIP	47μF 20% 16V
C1210	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1610	1-126-396-11	ELECT CHIP	47μF 20% 16V
C1211	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1611	1-126-396-11	ELECT CHIP	47μF 20% 16V
C1212	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1612	1-126-396-11	ELECT CHIP	47μF 20% 16V
C1213	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1620	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1214	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1621	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1215	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	C1622	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1221	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1623	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1222	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1624	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1223	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1625	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1224	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1626	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1225	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1627	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1226	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1628	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C1227	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1660	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C1228	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1661	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C1229	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1662	1-164-505-11	CERAMIC CHIP	2.2μF 16V
C1230	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	<CONNECTOR>			
C1231	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN1	* 1-774-523-11	PIN, CONNECTOR (PC BOARD) 64P	
C1232	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN2	* 1-691-408-11	CONNECTOR, BOARD TO BOARD 7P	
C1233	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN3	* 1-691-408-11	CONNECTOR, BOARD TO BOARD 7P	
C1234	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN4	* 1-691-408-11	CONNECTOR, BOARD TO BOARD 7P	
C1235	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN5	* 1-564-507-11	PLUG, CONNECTOR 4P	
C1236	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN6	* 1-564-507-11	PLUG, CONNECTOR 4P	
C1237	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN7	* 1-564-507-11	PLUG, CONNECTOR 4P	
C1238	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	CN8	* 1-564-506-11	PLUG, CONNECTOR 3P	
C1239	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	<TRIMMER>			
C1260	1-164-505-11	CERAMIC CHIP	2.2μF 16V	CV100	1-141-444-11	CAP, CERAMIC TRIMMER 50PF	
C1261	1-164-505-11	CERAMIC CHIP	2.2μF 16V	CV300	1-141-444-11	CAP, CERAMIC TRIMMER 50PF	
C1262	1-164-505-11	CERAMIC CHIP	2.2μF 16V	CV500	1-141-444-11	CAP, CERAMIC TRIMMER 50PF	
C1263	1-164-505-11	CERAMIC CHIP	2.2μF 16V	<DIODE>			
C1265	1-164-505-11	CERAMIC CHIP	2.2μF 16V	D1	8-719-016-74	DIODE 1SS352	
C1266	1-164-505-11	CERAMIC CHIP	2.2μF 16V	D20	8-719-063-74	DIODE D1NL20U-TR2	
C1267	1-164-340-11	CERAMIC CHIP	2.2μF 10% 25V	D102	8-719-016-74	DIODE 1SS352	
C1268	1-164-505-11	CERAMIC CHIP	2.2μF 16V	D103	8-719-016-74	DIODE 1SS352	
C1269	1-164-505-11	CERAMIC CHIP	2.2μF 16V	D105	8-719-016-74	DIODE 1SS352	
C1270	1-164-340-11	CERAMIC CHIP	2.2μF 10% 25V	D106	8-719-016-74	DIODE 1SS352	
C1271	1-164-505-11	CERAMIC CHIP	2.2μF 16V	D107	8-719-016-74	DIODE 1SS352	
C1272	1-164-505-11	CERAMIC CHIP	2.2μF 16V	D108	8-719-016-74	DIODE 1SS352	
C1273	1-164-505-11	CERAMIC CHIP	2.2μF 16V	D110	8-719-016-74	DIODE 1SS352	
C1280	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D112	8-719-016-74	DIODE 1SS352	
C1281	1-126-396-11	ELECT CHIP	47μF 20% 16V	D113	8-719-016-74	DIODE 1SS352	
C1282	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D114	8-719-157-72	DIODE RD22M-B	
C1283	1-126-392-11	ELECT CHIP	100μF 20% 6.3V	D115	8-719-016-74	DIODE 1SS352	
C1400	1-126-397-11	ELECT CHIP	33μF 20% 25V	D116	8-719-016-74	DIODE 1SS352	
C1401	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D117	8-719-901-83	DIODE 1SS83	
C1402	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D118	8-719-901-83	DIODE 1SS83	
C1403	1-126-396-11	ELECT CHIP	47μF 20% 16V	D121	8-719-016-74	DIODE 1SS352	
C1410	1-126-396-11	ELECT CHIP	47μF 20% 16V	D125	8-719-045-99	DIODE RD2.2M-T1B	
C1411	1-126-396-11	ELECT CHIP	47μF 20% 16V	D126	8-719-045-99	DIODE RD2.2M-T1B	
C1412	1-126-396-11	ELECT CHIP	47μF 20% 16V	D127	8-719-016-74	DIODE 1SS352	
C1420	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D302	8-719-016-74	DIODE 1SS352	
C1421	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D303	8-719-016-74	DIODE 1SS352	
C1422	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D305	8-719-016-74	DIODE 1SS352	
C1423	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D306	8-719-016-74	DIODE 1SS352	
C1424	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D307	8-719-016-74	DIODE 1SS352	
C1425	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V				
C1426	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V				
C1427	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V				
C1428	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V				
C1460	1-164-505-11	CERAMIC CHIP	2.2μF 16V				
C1461	1-164-505-11	CERAMIC CHIP	2.2μF 16V				

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
D308	8-719-016-74	DIODE 1SS352		IC6	8-759-247-67	IC LM2990T-5.0	
D310	8-719-016-74	DIODE 1SS352		IC100	8-759-011-65	IC MC74HC4053F	
D312	8-719-016-74	DIODE 1SS352		IC101	8-759-981-48	IC TL082M	
D313	8-719-016-74	DIODE 1SS352		IC110	8-759-011-65	IC MC74HC4053F	
D314	8-719-157-72	DIODE RD22M-B		IC111	8-759-981-48	IC TL082M	
D315	8-719-016-74	DIODE 1SS352		IC112	8-759-011-65	IC MC74HC4053F	
D316	8-719-016-74	DIODE 1SS352		IC113	8-759-981-48	IC TL082M	
D317	8-719-901-83	DIODE 1SS83		IC115	8-759-011-65	IC MC74HC4053F	
D318	8-719-901-83	DIODE 1SS83		IC116	8-759-182-47	IC CLC520AJE-L	
D320	8-719-016-74	DIODE 1SS352		IC117	8-759-981-48	IC TL082M	
D321	8-719-016-74	DIODE 1SS352		IC118	8-759-011-63	IC MC74HC4051F	
D325	8-719-045-99	DIODE RD2.2M-T1B		IC120	8-759-011-65	IC MC74HC4053F	
D326	8-719-045-99	DIODE RD2.2M-T1B		IC121	8-759-988-13	IC LM393PS	
D327	8-719-016-74	DIODE 1SS352		IC122	8-759-981-48	IC TL082M	
D502	8-719-016-74	DIODE 1SS352		IC123	8-759-981-48	IC TL082M	
D503	8-719-016-74	DIODE 1SS352		IC124	8-759-011-65	IC MC74HC4053F	
D505	8-719-016-74	DIODE 1SS352		IC125	8-759-476-12	IC EL2082CS-TE2	
D506	8-719-016-74	DIODE 1SS352		IC126	8-759-476-12	IC EL2082CS-TE2	
D507	8-719-016-74	DIODE 1SS352		IC127	8-759-981-48	IC TL082M	
D508	8-719-016-74	DIODE 1SS352		IC128	8-759-011-65	IC MC74HC4053F	
D510	8-719-016-74	DIODE 1SS352		IC129	8-759-271-04	IC LT1252CS8	
D512	8-719-016-74	DIODE 1SS352		IC130	8-759-981-48	IC TL082M	
D513	8-719-016-74	DIODE 1SS352		IC132	8-759-981-48	IC TL082M	
D514	8-719-157-72	DIODE RD22M-B		IC300	8-759-011-65	IC MC74HC4053F	
D515	8-719-016-74	DIODE 1SS352		IC301	8-759-981-48	IC TL082M	
D516	8-719-016-74	DIODE 1SS352		IC302	8-759-981-48	IC TL082M	
D517	8-719-901-83	DIODE 1SS83		IC303	8-759-011-65	IC MC74HC4053F	
D518	8-719-901-83	DIODE 1SS83		IC304	8-759-182-47	IC CLC520AJE-L	
D520	8-719-016-74	DIODE 1SS352		IC305	8-759-981-48	IC TL082M	
D521	8-719-016-74	DIODE 1SS352		IC306	8-752-053-21	IC CXA1211M	
D525	8-719-045-99	DIODE RD2.2M-T1B		IC307	8-759-271-04	IC LT1252CS8	
D526	8-719-045-99	DIODE RD2.2M-T1B		IC310	8-759-011-65	IC MC74HC4053F	
D527	8-719-016-74	DIODE 1SS352		IC311	8-759-981-48	IC TL082M	
D802	8-719-016-74	DIODE 1SS352		IC312	8-759-011-65	IC MC74HC4053F	
D803	8-719-016-74	DIODE 1SS352		IC313	8-759-981-48	IC TL082M	
D804	8-719-016-74	DIODE 1SS352		IC315	8-759-011-65	IC MC74HC4053F	
D805	8-719-016-74	DIODE 1SS352		IC316	8-759-182-47	IC CLC520AJE-L	
D806	8-719-016-74	DIODE 1SS352		IC317	8-759-981-48	IC TL082M	
D900	8-719-158-15	DIODE RD5.6SB		IC318	8-759-011-63	IC MC74HC4051F	
D901	8-719-016-74	DIODE 1SS352		IC320	8-759-011-65	IC MC74HC4053F	
D902	8-719-016-74	DIODE 1SS352		IC321	8-759-988-13	IC LM393PS	
D903	8-719-016-74	DIODE 1SS352		IC322	8-759-981-48	IC TL082M	
D904	8-719-016-74	DIODE 1SS352		IC323	8-759-981-48	IC TL082M	
D905	8-719-016-74	DIODE 1SS352		IC324	8-759-011-65	IC MC74HC4053F	
D906	8-719-016-74	DIODE 1SS352		IC325	8-759-476-12	IC EL2082CS-TE2	
<DELAY LINE>				IC326	8-759-476-12	IC EL2082CS-TE2	
DL1	1-416-475-21	DELAY LINE		IC327	8-759-981-48	IC TL082M	
DL2	1-416-475-21	DELAY LINE		IC328	8-759-011-65	IC MC74HC4053F	
DL3	1-416-475-21	DELAY LINE		IC329	8-759-271-04	IC LT1252CS8	
<FILTER>				IC330	8-759-981-48	IC TL082M	
FL900	1-239-480-11	FILTER, EMI		IC332	8-759-981-48	IC TL082M	
FL901	1-239-480-11	FILTER, EMI		IC500	8-759-011-65	IC MC74HC4053F	
FL902	1-239-183-11	FILTER, EMI		IC501	8-759-981-48	IC TL082M	
<IC>				IC502	8-759-981-48	IC TL082M	
IC1	8-759-144-82	IC $\mu$ PC2405HF		IC503	8-759-011-65	IC MC74HC4053F	
IC2	8-759-247-67	IC LM2990T-5.0		IC504	8-759-182-47	IC CLC520AJE-L	
IC3	8-759-701-79	IC NJM7812FA		IC505	8-759-981-48	IC TL082M	
IC4	8-759-701-88	IC NJM7912FA		IC506	8-759-082-61	IC TC4W53FU	
IC5	8-759-144-82	IC $\mu$ PC2405HF		IC507	8-759-058-54	IC TC7S00FU(TE85R)	
				IC510	8-759-011-65	IC MC74HC4053F	
				IC511	8-759-981-48	IC TL082M	
				IC512	8-759-011-65	IC MC74HC4053F	
				IC513	8-759-981-48	IC TL082M	
				IC515	8-759-011-65	IC MC74HC4053F	
				IC516	8-759-182-47	IC CLC520AJE-L	

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
IC517	8-759-981-48	IC TL082M				<TRANSISTOR>	
IC518	8-759-011-63	IC MC74HC4051F					
IC520	8-759-011-65	IC MC74HC4053F					
IC521	8-759-988-13	IC LM393PS		Q20	8-729-903-68	TRANSISTOR 2SD982	
IC522	8-759-981-48	IC TL082M		Q100	8-729-112-65	TRANSISTOR 2SA1462-Y33	
				Q101	8-729-027-38	TRANSISTOR DTA144EKA-T146	
IC523	8-759-981-48	IC TL082M		Q102	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC524	8-759-011-65	IC MC74HC4053F		Q103	8-729-112-65	TRANSISTOR 2SA1462-Y33	
IC525	8-759-476-12	IC EL2082CS-TE2					
IC526	8-759-476-12	IC EL2082CS-TE2		Q104	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC527	8-759-981-48	IC TL082M		Q105	8-729-107-31	TRANSISTOR 2SC3545-T43	
				Q108	8-729-112-65	TRANSISTOR 2SA1462-Y33	
IC528	8-759-011-65	IC MC74HC4053F		Q109	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC529	8-759-271-04	IC LT1252CS8		Q110	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC530	8-759-981-48	IC TL082M					
IC532	8-759-981-48	IC TL082M		Q115	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC700	8-759-988-13	IC LM393PS		Q116	8-729-107-31	TRANSISTOR 2SC3545-T43	
				Q117	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC701	8-759-011-65	IC MC74HC4053F		Q120	8-729-112-65	TRANSISTOR 2SA1462-Y33	
IC702	8-759-011-65	IC MC74HC4053F		Q121	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC703	8-759-988-13	IC LM393PS					
IC704	8-759-981-48	IC TL082M		Q122	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC705	8-759-981-48	IC TL082M		Q124	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR	
				Q125	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
IC706	8-759-346-42	IC TDA6101Q/N3		Q130	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC707	8-759-083-94	IC TC7W74FU		Q131	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
IC708	8-759-082-61	IC TC4W53FU					
IC710	8-759-008-45	IC MC74HC4538F		Q132	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC711	8-759-058-62	IC TC7S08FU(TE85R)		Q133	1-801-806-11	TRANSISTOR DTC144EKA-T146	
				Q134	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
IC728	8-759-032-01	IC MC74HC00AF		Q135	8-729-033-31	TRANSISTOR 2SK520K44K45-T1B	
IC730	8-759-925-72	IC SN74HC02ANS		Q136	8-729-105-08	TRANSISTOR 2SA1330-06	
IC731	8-759-925-80	IC SN74HC14ANS					
IC732	8-759-649-75	IC MC74HC175AFEL		Q137	8-729-105-37	TRANSISTOR 2SC3360-N16	
IC734	8-759-235-27	IC TC74HC11AF(EL)		Q138	1-801-806-11	TRANSISTOR DTC144EKA-T146	
				Q139	8-729-027-38	TRANSISTOR DTA144EKA-T146	
IC735	8-759-925-72	IC SN74HC02ANS		Q300	8-729-112-65	TRANSISTOR 2SA1462-Y33	
IC736	8-759-925-72	IC SN74HC02ANS		Q301	8-729-027-38	TRANSISTOR DTA144EKA-T146	
IC800	8-759-011-65	IC MC74HC4053F					
IC801	8-759-008-45	IC MC74HC4538F		Q302	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC802	8-759-100-96	IC $\mu$ PC4558G2		Q303	8-729-112-65	TRANSISTOR 2SA1462-Y33	
				Q304	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC803	8-759-523-04	IC MC74HC4538AFT(EL)		Q305	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC804	8-759-008-45	IC MC74HC4538F		Q307	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC805	8-759-058-56	IC TC7S02FU(TE85R)					
IC806	8-759-011-65	IC MC74HC4053F		Q308	8-729-112-65	TRANSISTOR 2SA1462-Y33	
IC808	8-759-082-61	IC TC4W53FU		Q310	8-729-107-31	TRANSISTOR 2SC3545-T43	
				Q311	1-801-806-11	TRANSISTOR DTC144EKA-T146	
IC809	8-759-082-61	IC TC4W53FU		Q312	8-729-027-38	TRANSISTOR DTA144EKA-T146	
IC810	8-759-082-61	IC TC4W53FU		Q315	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC811	8-759-586-19	IC TC7WH123FU(TE12R)					
IC900	8-759-032-26	IC MC74HC125AF		Q316	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC901	8-759-981-48	IC TL082M		Q317	8-729-107-31	TRANSISTOR 2SC3545-T43	
				Q320	8-729-112-65	TRANSISTOR 2SA1462-Y33	
IC902	8-759-546-25	IC MB89613R-560		Q321	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC903	8-759-156-54	IC X25040SI		Q322	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC904	8-759-988-13	IC LM393PS					
IC905	8-759-032-53	IC MC74HC244AF		Q324	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR	
IC906	8-759-059-50	IC MB88351PFV		Q325	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
				Q330	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC907	8-759-059-50	IC MB88351PFV		Q331	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
IC908	8-759-064-36	IC MB88346BPFV		Q332	8-729-107-31	TRANSISTOR 2SC3545-T43	
IC909	8-759-059-50	IC MB88351PFV					
IC910	8-759-064-36	IC MB88346BPFV		Q333	1-801-806-11	TRANSISTOR DTC144EKA-T146	
IC911	8-759-059-50	IC MB88351PFV		Q334	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
				Q335	8-729-033-31	TRANSISTOR 2SK520K44K45-T1B	
IC912	8-759-082-59	IC TC7W32FU		Q336	8-729-105-08	TRANSISTOR 2SA1330-06	
IC914	8-759-058-64	IC TC7S32FU(TE85R)		Q337	8-729-105-37	TRANSISTOR 2SC3360-N16	
		<COIL>		Q338	1-801-806-11	TRANSISTOR DTC144EKA-T146	
L728	1-412-280-31	INDUCTOR 330 $\mu$ H		Q500	8-729-112-65	TRANSISTOR 2SA1462-Y33	
L900	1-412-002-31	INDUCTOR CHIP 4.7 $\mu$ H		Q501	8-729-027-38	TRANSISTOR DTA144EKA-T146	
				Q502	8-729-107-31	TRANSISTOR 2SC3545-T43	
				Q503	8-729-112-65	TRANSISTOR 2SA1462-Y33	
				Q504	8-729-107-31	TRANSISTOR 2SC3545-T43	
				Q505	8-729-107-31	TRANSISTOR 2SC3545-T43	
				Q507	8-729-107-31	TRANSISTOR 2SC3545-T43	



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
Q508	8-729-112-65	TRANSISTOR 2SA1462-Y33				<RESISTOR>	
Q510	8-729-107-31	TRANSISTOR 2SC3545-T43		R10	1-216-025-91	RES,CHIP 100 5%	1/10W
Q515	8-729-107-31	TRANSISTOR 2SC3545-T43		R11	1-216-025-91	RES,CHIP 100 5%	1/10W
Q516	8-729-107-31	TRANSISTOR 2SC3545-T43		R12	1-216-025-91	RES,CHIP 100 5%	1/10W
Q517	8-729-107-31	TRANSISTOR 2SC3545-T43		R13	1-216-025-91	RES,CHIP 100 5%	1/10W
Q520	8-729-112-65	TRANSISTOR 2SA1462-Y33		R14	1-216-025-91	RES,CHIP 100 5%	1/10W
Q521	8-729-107-31	TRANSISTOR 2SC3545-T43		R20	1-249-383-11	CARBON 1.5 5%	1/4W F
Q522	8-729-107-31	TRANSISTOR 2SC3545-T43		R21	1-249-428-11	CARBON 8.2K 5%	1/4W F
Q524	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R100	1-216-085-00	RES,CHIP 33K 5%	1/10W
Q525	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R101	1-216-107-00	RES,CHIP 270K 5%	1/10W
Q529	8-729-112-65	TRANSISTOR 2SA1462-Y33		R102	1-216-049-91	RES,CHIP 1K 5%	1/10W
Q530	8-729-107-31	TRANSISTOR 2SC3545-T43		R103	1-216-097-91	RES,CHIP 100K 5%	1/10W
Q531	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R104	1-216-025-91	RES,CHIP 100 5%	1/10W
Q532	8-729-107-31	TRANSISTOR 2SC3545-T43		R105	1-216-051-00	RES,CHIP 1.2K 5%	1/10W
Q533	1-801-806-11	TRANSISTOR DTC144EKA-T146		R106	1-216-025-91	RES,CHIP 100 5%	1/10W
Q534	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R107	1-216-049-91	RES,CHIP 1K 5%	1/10W
Q535	8-729-033-31	TRANSISTOR 2SK520K44K45-T1B		R108	1-216-049-91	RES,CHIP 1K 5%	1/10W
Q536	8-729-105-08	TRANSISTOR 2SA1330-06		R109	1-216-009-91	RES,CHIP 22 5%	1/10W
Q537	8-729-105-37	TRANSISTOR 2SC3360-N16		R110	1-216-009-91	RES,CHIP 22 5%	1/10W
Q538	1-801-806-11	TRANSISTOR DTC144EKA-T146		R115	1-216-055-00	RES,CHIP 1.8K 5%	1/10W
Q700	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R117	1-216-671-11	METAL CHIP 6.8K 0.50%	1/10W
Q701	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R118	1-216-657-11	METAL CHIP 1.8K 0.50%	1/10W
Q702	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R119	1-216-659-11	METAL CHIP 2.2K 0.50%	1/10W
Q703	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R120	1-216-671-11	METAL CHIP 6.8K 0.50%	1/10W
Q728	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R121	1-216-025-91	RES,CHIP 100 5%	1/10W
Q729	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R122	1-216-049-91	RES,CHIP 1K 5%	1/10W
Q800	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R123	1-216-009-91	RES,CHIP 22 5%	1/10W
Q801	8-729-112-65	TRANSISTOR 2SA1462-Y33		R124	1-216-009-91	RES,CHIP 22 5%	1/10W
Q802	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R126	1-216-666-11	METAL CHIP 4.3K 0.50%	1/10W
Q803	8-729-920-59	TRANSISTOR IMX2-T109		R127	1-218-762-11	METAL CHIP 270K 0.50%	1/10W
Q804	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R128	1-218-776-11	METAL CHIP 1M 0.50%	1/10W
Q805	8-729-920-59	TRANSISTOR IMX2-T109		R149	1-216-041-00	RES,CHIP 470 5%	1/10W
Q806	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R150	1-216-049-91	RES,CHIP 1K 5%	1/10W
Q807	8-729-107-31	TRANSISTOR 2SC3545-T43		R155	1-216-643-11	METAL CHIP 470 0.50%	1/10W
Q808	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R156	1-216-643-11	METAL CHIP 470 0.50%	1/10W
Q809	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R157	1-216-643-11	METAL CHIP 470 0.50%	1/10W
Q810	8-729-925-42	TRANSISTOR IMT2		R158	1-216-643-11	METAL CHIP 470 0.50%	1/10W
Q811	8-729-925-42	TRANSISTOR IMT2		R159	1-216-047-91	RES,CHIP 820 5%	1/10W
Q812	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R166	1-216-049-91	RES,CHIP 1K 5%	1/10W
Q813	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R170	1-216-640-11	METAL CHIP 360 0.50%	1/10W
Q814	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R172	1-216-638-11	METAL CHIP 300 0.50%	1/10W
Q815	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R173	1-216-649-11	METAL CHIP 820 0.50%	1/10W
Q816	8-729-112-65	TRANSISTOR 2SA1462-Y33		R174	1-216-049-91	RES,CHIP 1K 5%	1/10W
Q817	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R175	1-216-055-00	RES,CHIP 1.8K 5%	1/10W
Q818	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R176	1-216-025-91	RES,CHIP 100 5%	1/10W
Q819	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R177	1-216-053-00	RES,CHIP 1.5K 5%	1/10W
Q820	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R180	1-216-025-91	RES,CHIP 100 5%	1/10W
Q821	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R181	1-216-675-91	METAL CHIP 10K 0.50%	1/10W
Q822	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R182	1-216-657-11	METAL CHIP 1.8K 0.50%	1/10W
Q823	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R183	1-216-659-11	METAL CHIP 2.2K 0.50%	1/10W
Q824	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R184	1-216-671-11	METAL CHIP 6.8K 0.50%	1/10W
Q825	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R185	1-216-033-00	RES,CHIP 220 5%	1/10W
Q826	8-729-202-38	TRANSISTOR 2SC3326N-A		R186	1-216-057-00	RES,CHIP 2.2K 5%	1/10W
Q827	8-729-202-38	TRANSISTOR 2SC3326N-A		R187	1-216-009-91	RES,CHIP 22 5%	1/10W
Q828	8-729-026-50	TRANSISTOR 2SA1037AK-T-146-QR		R188	1-216-129-00	METAL CHIP 2.2M 5%	1/10W
Q829	8-729-027-38	TRANSISTOR DTA144EKA-T146		R189	1-216-666-11	METAL CHIP 4.3K 0.50%	1/10W
Q830	8-729-027-38	TRANSISTOR DTA144EKA-T146		R192	1-216-637-11	METAL CHIP 270 0.50%	1/10W
Q831	8-729-027-38	TRANSISTOR DTA144EKA-T146		R193	1-216-635-11	METAL CHIP 220 0.50%	1/10W
Q832	8-729-027-38	TRANSISTOR DTA144EKA-T146		R194	1-216-633-11	METAL CHIP 180 0.50%	1/10W
Q833	1-801-806-11	TRANSISTOR DTC144EKA-T146		R195	1-216-071-00	RES,CHIP 8.2K 5%	1/10W
Q834	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R196	1-216-071-00	RES,CHIP 8.2K 5%	1/10W
Q900	1-801-806-11	TRANSISTOR DTC144EKA-T146		R200	1-218-764-11	METAL CHIP 330K 0.50%	1/10W
Q901	1-801-806-11	TRANSISTOR DTC144EKA-T146		R201	1-218-760-11	METAL CHIP 220K 0.50%	1/10W
Q902	8-729-027-38	TRANSISTOR DTA144EKA-T146		R202	1-216-675-91	METAL CHIP 10K 0.50%	1/10W
				R203	1-216-692-11	METAL CHIP 51K 0.50%	1/10W
				R204	1-216-677-11	METAL CHIP 12K 0.50%	1/10W

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R205	1-216-033-00	RES,CHIP	220 5% 1/10W	R277	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W
R206	1-216-033-00	RES,CHIP	220 5% 1/10W	R278	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R207	1-216-067-00	RES,CHIP	5.6K 5% 1/10W	R279	1-216-695-11	METAL CHIP	68K 0.50% 1/10W
R210	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R280	1-216-033-00	RES,CHIP	220 5% 1/10W
R211	1-216-025-91	RES,CHIP	100 5% 1/10W	R281	1-216-033-00	RES,CHIP	220 5% 1/10W
R212	1-216-049-91	RES,CHIP	1K 5% 1/10W	R282	1-216-073-00	RES,CHIP	10K 5% 1/10W
R213	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R283	1-216-073-00	RES,CHIP	10K 5% 1/10W
R214	1-216-662-11	METAL CHIP	3K 0.50% 1/10W	R290	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R215	1-216-043-91	RES,CHIP	560 5% 1/10W	R291	1-216-049-91	RES,CHIP	1K 5% 1/10W
R216	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	R300	1-216-085-00	RES,CHIP	33K 5% 1/10W
R217	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W	R301	1-216-107-00	RES,CHIP	270K 5% 1/10W
R219	1-216-073-00	RES,CHIP	10K 5% 1/10W	R302	1-216-049-91	RES,CHIP	1K 5% 1/10W
R220	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R303	1-216-097-91	RES,CHIP	100K 5% 1/10W
R221	1-216-025-91	RES,CHIP	100 5% 1/10W	R304	1-216-015-00	RES,CHIP	39 5% 1/10W
R222	1-216-047-91	RES,CHIP	820 5% 1/10W	R305	1-216-051-00	RES,CHIP	1.2K 5% 1/10W
R223	1-216-679-11	METAL CHIP	15K 0.50% 1/10W	R306	1-216-025-91	RES,CHIP	100 5% 1/10W
R224	1-216-654-11	METAL CHIP	1.3K 0.50% 1/10W	R307	1-216-049-91	RES,CHIP	1K 5% 1/10W
R225	1-216-033-00	RES,CHIP	220 5% 1/10W	R308	1-216-049-91	RES,CHIP	1K 5% 1/10W
R226	1-216-047-91	RES,CHIP	820 5% 1/10W	R309	1-216-009-91	RES,CHIP	22 5% 1/10W
R230	1-216-049-91	RES,CHIP	1K 5% 1/10W	R310	1-216-009-91	RES,CHIP	22 5% 1/10W
R231	1-216-025-91	RES,CHIP	100 5% 1/10W	R315	1-216-025-91	RES,CHIP	100 5% 1/10W
R232	1-216-650-11	METAL CHIP	910 0.50% 1/10W	R317	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R233	1-216-658-11	METAL CHIP	2K 0.50% 1/10W	R318	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
R234	1-216-644-11	METAL CHIP	510 0.50% 1/10W	R319	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R235	1-216-025-91	RES,CHIP	100 5% 1/10W	R320	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W
R236	1-216-025-91	RES,CHIP	100 5% 1/10W	R321	1-216-025-91	RES,CHIP	100 5% 1/10W
R237	1-216-627-11	METAL CHIP	100 0.50% 1/10W	R322	1-216-049-91	RES,CHIP	1K 5% 1/10W
R238	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W	R323	1-216-009-91	RES,CHIP	22 5% 1/10W
R239	1-216-697-91	METAL CHIP	82K 0.50% 1/10W	R324	1-216-009-91	RES,CHIP	22 5% 1/10W
R240	1-216-073-00	RES,CHIP	10K 5% 1/10W	R325	1-218-776-11	METAL CHIP	1M 0.50% 1/10W
R241	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R326	1-216-666-11	METAL CHIP	4.3K 0.50% 1/10W
R242	1-216-025-91	RES,CHIP	100 5% 1/10W	R330	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R243	1-216-629-11	METAL CHIP	120 0.50% 1/10W	R331	1-216-676-11	METAL CHIP	11K 0.50% 1/10W
R244	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R332	1-216-699-91	METAL CHIP	100K 0.50% 1/10W
R245	1-216-603-11	METAL CHIP	10 0.50% 1/10W	R333	1-218-764-11	METAL CHIP	330K 0.50% 1/10W
R246	1-216-603-11	METAL CHIP	10 0.50% 1/10W	R334	1-216-670-11	METAL CHIP	6.2K 0.50% 1/10W
R247	1-216-097-91	RES,CHIP	100K 5% 1/10W	R335	1-216-033-00	RES,CHIP	220 5% 1/10W
R248	1-216-689-11	RES,CHIP	39K 5% 1/10W	R336	1-216-033-00	RES,CHIP	220 5% 1/10W
R249	1-216-081-00	RES,CHIP	22K 5% 1/10W	R340	1-216-049-91	RES,CHIP	1K 5% 1/10W
R250	1-216-055-00	RES,CHIP	1.8K 5% 1/10W	R341	1-216-043-91	RES,CHIP	560 5% 1/10W
R251	1-219-743-11	CARBON	100 5% 1/2W	R342	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
R252	1-216-073-00	RES,CHIP	10K 5% 1/10W	R343	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R253	1-216-603-11	METAL CHIP	10 0.50% 1/10W	R345	1-216-073-00	RES,CHIP	10K 5% 1/10W
R254	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R346	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R255	1-216-089-91	RES,CHIP	47K 5% 1/10W	R347	1-216-025-91	RES,CHIP	100 5% 1/10W
R256	1-216-105-91	RES,CHIP	220K 5% 1/10W	R348	1-216-045-00	RES,CHIP	680 5% 1/10W
R257	1-216-113-00	RES,CHIP	470K 5% 1/10W	R349	1-216-041-00	RES,CHIP	470 5% 1/10W
R258	1-216-097-91	RES,CHIP	100K 5% 1/10W	R350	1-216-053-00	RES,CHIP	1.5K 5% 1/10W
R260	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R356	1-218-756-11	METAL CHIP	150K 0.50% 1/10W
R261	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R357	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
R262	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W	R358	1-216-655-11	METAL CHIP	1.5K 0.50% 1/10W
R263	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W	R359	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
R264	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R360	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R265	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R361	1-216-644-11	METAL CHIP	510 0.50% 1/10W
R266	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W	R363	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
R267	1-216-678-11	METAL CHIP	13K 0.50% 1/10W	R365	1-216-025-91	RES,CHIP	100 5% 1/10W
R268	1-216-073-00	RES,CHIP	10K 5% 1/10W	R366	1-216-047-91	RES,CHIP	820 5% 1/10W
R269	1-216-069-00	RES,CHIP	6.8K 0.50% 1/10W	R367	1-216-097-91	RES,CHIP	100K 5% 1/10W
R270	1-216-033-00	RES,CHIP	220 5% 1/10W	R368	1-216-097-91	RES,CHIP	100K 5% 1/10W
R271	1-216-073-00	RES,CHIP	10K 5% 1/10W	R370	1-216-640-11	METAL CHIP	360 0.50% 1/10W
R272	1-218-760-11	METAL CHIP	220K 0.50% 1/10W	R372	1-216-645-11	METAL CHIP	560 0.50% 1/10W
R273	1-218-760-11	METAL CHIP	220K 0.50% 1/10W	R373	1-216-649-11	METAL CHIP	820 0.50% 1/10W
R274	1-216-065-00	RES,CHIP	4.7K 5% 1/10W	R374	1-216-049-91	RES,CHIP	1K 5% 1/10W
R275	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W	R375	1-216-055-00	RES,CHIP	1.8K 5% 1/10W
R276	1-216-033-00	RES,CHIP	220 5% 1/10W	R376	1-216-025-91	RES,CHIP	100 5% 1/10W

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R377	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R455	1-216-089-91	RES,CHIP	47K 5% 1/10W
R380	1-216-025-91	RES,CHIP	100 5% 1/10W	R456	1-216-105-91	RES,CHIP	220K 5% 1/10W
R381	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R457	1-216-113-00	RES,CHIP	470K 5% 1/10W
R382	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	R458	1-216-097-91	RES,CHIP	100K 5% 1/10W
R383	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W	R460	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R384	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W	R461	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R385	1-216-033-00	RES,CHIP	220 5% 1/10W	R462	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R386	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R463	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R387	1-216-009-91	RES,CHIP	22 5% 1/10W	R464	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
R388	1-216-129-00	RES,CHIP	2.2M 0.50% 1/10W	R465	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R389	1-216-666-11	METAL CHIP	4.3K 0.50% 1/10W	R466	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R392	1-216-637-11	METAL CHIP	270 0.50% 1/10W	R467	1-216-678-11	METAL CHIP	13K 0.50% 1/10W
R393	1-216-635-11	METAL CHIP	220 0.50% 1/10W	R468	1-216-073-00	RES,CHIP	10K 5% 1/10W
R394	1-216-633-11	METAL CHIP	180 0.50% 1/10W	R469	1-216-069-11	RES,CHIP	6.8K 0.50% 1/10W
R395	1-216-071-00	RES,CHIP	8.2K 5% 1/10W	R470	1-216-033-00	RES,CHIP	220 5% 1/10W
R396	1-216-071-00	RES,CHIP	8.2K 5% 1/10W	R471	1-216-073-00	RES,CHIP	10K 5% 1/10W
R400	1-218-764-11	METAL CHIP	330K 0.50% 1/10W	R472	1-218-760-11	METAL CHIP	220K 0.50% 1/10W
R401	1-218-760-11	METAL CHIP	220K 0.50% 1/10W	R473	1-218-760-11	METAL CHIP	220K 0.50% 1/10W
R402	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R474	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
R403	1-216-692-11	METAL CHIP	51K 0.50% 1/10W	R475	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
R404	1-216-677-11	METAL CHIP	12K 0.50% 1/10W	R476	1-216-033-00	RES,CHIP	220 5% 1/10W
R405	1-216-033-00	RES,CHIP	220 5% 1/10W	R477	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W
R406	1-216-033-00	RES,CHIP	220 5% 1/10W	R478	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R407	1-216-067-00	RES,CHIP	5.6K 5% 1/10W	R479	1-216-695-11	METAL CHIP	68K 0.50% 1/10W
R410	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R480	1-216-033-00	RES,CHIP	220 5% 1/10W
R411	1-216-025-91	RES,CHIP	100 5% 1/10W	R481	1-216-033-00	RES,CHIP	220 5% 1/10W
R412	1-216-049-91	RES,CHIP	1K 5% 1/10W	R482	1-216-073-00	RES,CHIP	10K 5% 1/10W
R413	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R483	1-216-073-00	RES,CHIP	10K 5% 1/10W
R414	1-216-662-11	METAL CHIP	3K 0.50% 1/10W	R490	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R415	1-216-043-91	RES,CHIP	560 5% 1/10W	R491	1-216-049-91	RES,CHIP	1K 5% 1/10W
R416	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	R500	1-216-085-00	RES,CHIP	33K 5% 1/10W
R417	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W	R501	1-216-107-00	RES,CHIP	270K 5% 1/10W
R419	1-216-073-00	RES,CHIP	10K 5% 1/10W	R502	1-216-049-91	RES,CHIP	1K 5% 1/10W
R420	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R503	1-216-097-91	RES,CHIP	100K 5% 1/10W
R421	1-216-025-91	RES,CHIP	100 5% 1/10W	R504	1-216-015-00	RES,CHIP	39 5% 1/10W
R422	1-216-047-91	RES,CHIP	820 5% 1/10W	R505	1-216-051-00	RES,CHIP	1.2K 5% 1/10W
R423	1-216-687-11	METAL CHIP	33K 0.50% 1/10W	R506	1-216-025-91	RES,CHIP	100 5% 1/10W
R424	1-216-683-11	METAL CHIP	22K 0.50% 1/10W	R507	1-216-049-91	RES,CHIP	1K 5% 1/10W
R425	1-216-033-00	RES,CHIP	220 5% 1/10W	R508	1-216-049-91	RES,CHIP	1K 5% 1/10W
R426	1-216-047-91	RES,CHIP	820 5% 1/10W	R509	1-216-009-91	RES,CHIP	22 5% 1/10W
R430	1-216-049-91	RES,CHIP	1K 5% 1/10W	R510	1-216-009-91	RES,CHIP	22 5% 1/10W
R431	1-216-025-91	RES,CHIP	100 5% 1/10W	R515	1-216-025-91	RES,CHIP	100 5% 1/10W
R432	1-216-650-11	METAL CHIP	910 0.50% 1/10W	R517	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R433	1-216-658-11	METAL CHIP	2K 0.50% 1/10W	R518	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
R434	1-216-644-11	METAL CHIP	510 0.50% 1/10W	R519	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R435	1-216-025-91	RES,CHIP	100 5% 1/10W	R520	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W
R436	1-216-025-91	RES,CHIP	100 5% 1/10W	R521	1-216-025-91	RES,CHIP	100 5% 1/10W
R437	1-216-627-11	METAL CHIP	100 0.50% 1/10W	R522	1-216-049-91	RES,CHIP	1K 5% 1/10W
R438	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W	R523	1-216-009-91	RES,CHIP	22 5% 1/10W
R439	1-216-697-91	METAL CHIP	82K 0.50% 1/10W	R524	1-216-009-91	RES,CHIP	22 5% 1/10W
R440	1-216-073-00	RES,CHIP	10K 5% 1/10W	R525	1-218-776-11	METAL CHIP	1M 0.50% 1/10W
R441	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R526	1-216-666-11	METAL CHIP	4.3K 0.50% 1/10W
R442	1-216-025-91	RES,CHIP	100 5% 1/10W	R530	1-216-699-91	METAL CHIP	100K 0.50% 1/10W
R443	1-216-629-11	METAL CHIP	120 0.50% 1/10W	R531	1-216-674-11	METAL CHIP	9.1K 0.50% 1/10W
R444	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R532	1-216-699-91	METAL CHIP	100K 0.50% 1/10W
R445	1-216-603-11	METAL CHIP	10 0.50% 1/10W	R533	1-218-764-11	METAL CHIP	330K 0.50% 1/10W
R446	1-216-603-11	METAL CHIP	10 0.50% 1/10W	R534	1-216-670-11	METAL CHIP	6.2K 0.50% 1/10W
R447	1-216-097-91	RES,CHIP	100K 5% 1/10W	R535	1-216-033-00	RES,CHIP	220 5% 1/10W
R448	1-216-689-11	RES,CHIP	39K 5% 1/10W	R536	1-216-033-00	RES,CHIP	220 5% 1/10W
R449	1-216-081-00	RES,CHIP	22K 5% 1/10W	R537	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R450	1-216-055-00	RES,CHIP	1.8K 5% 1/10W	R538	1-216-693-11	METAL CHIP	56K 0.50% 1/10W
R451	1-219-743-11	CARBON	100 5% 1/2W	R540	1-216-049-91	RES,CHIP	1K 5% 1/10W
R452	1-216-073-00	RES,CHIP	10K 5% 1/10W	R541	1-216-043-91	RES,CHIP	560 5% 1/10W
R453	1-216-603-11	METAL CHIP	10 0.50% 1/10W	R542	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
R454	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R543	1-216-651-11	METAL CHIP	1K 0.50% 1/10W

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R545	1-216-073-00	RES,CHIP	10K 5% 1/10W	R636	1-216-025-91	RES,CHIP	100 5% 1/10W
R546	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R637	1-216-627-11	METAL CHIP	100 0.50% 1/10W
R547	1-216-025-91	RES,CHIP	100 5% 1/10W	R638	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R548	1-216-045-00	RES,CHIP	680 5% 1/10W	R639	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R549	1-216-039-00	RES,CHIP	390 5% 1/10W	R640	1-216-073-00	RES,CHIP	10K 5% 1/10W
R550	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R641	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R555	1-216-643-11	METAL CHIP	470 0.50% 1/10W	R642	1-216-025-91	RES,CHIP	100 5% 1/10W
R556	1-216-643-11	METAL CHIP	470 0.50% 1/10W	R643	1-216-629-11	METAL CHIP	120 0.50% 1/10W
R557	1-216-049-91	RES,CHIP	1K 5% 1/10W	R644	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R558	1-216-025-91	RES,CHIP	100 5% 1/10W	R645	1-216-603-11	METAL CHIP	10 0.50% 1/10W
R566	1-216-047-91	RES,CHIP	820 5% 1/10W	R646	1-216-603-11	METAL CHIP	10 0.50% 1/10W
R570	1-216-640-11	METAL CHIP	360 0.50% 1/10W	R647	1-216-097-91	RES,CHIP	100K 5% 1/10W
R572	1-216-638-11	METAL CHIP	300 0.50% 1/10W	R648	1-216-689-11	RES,CHIP	39K 5% 1/10W
R573	1-216-649-11	METAL CHIP	820 0.50% 1/10W	R649	1-216-081-00	RES,CHIP	22K 5% 1/10W
R574	1-216-049-91	RES,CHIP	1K 5% 1/10W	R650	1-216-055-00	RES,CHIP	1.8K 5% 1/10W
R575	1-216-055-00	RES,CHIP	1.8K 5% 1/10W	R651	1-219-743-11	CARBON	100 5% 1/2W
R576	1-216-025-91	RES,CHIP	100 5% 1/10W	R652	1-216-073-00	RES,CHIP	10K 5% 1/10W
R577	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R653	1-216-603-11	METAL CHIP	10 0.50% 1/10W
R580	1-216-025-91	RES,CHIP	100 5% 1/10W	R654	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R581	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R655	1-216-089-91	RES,CHIP	47K 5% 1/10W
R582	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	R656	1-216-105-91	RES,CHIP	220K 5% 1/10W
R583	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W	R657	1-216-113-00	RES,CHIP	470K 5% 1/10W
R584	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W	R658	1-216-097-91	RES,CHIP	100K 5% 1/10W
R585	1-216-033-00	RES,CHIP	220 5% 1/10W	R660	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R586	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R661	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R587	1-216-019-00	RES,CHIP	56 5% 1/10W	R662	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R588	1-216-129-00	METAL CHIP	2.2M 5% 1/10W	R663	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R589	1-216-666-11	METAL CHIP	4.3K 0.50% 1/10W	R664	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
R592	1-216-637-11	METAL CHIP	270 0.50% 1/10W	R665	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R593	1-216-635-11	METAL CHIP	220 0.50% 1/10W	R666	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R594	1-216-633-11	METAL CHIP	180 0.50% 1/10W	R667	1-216-678-11	METAL CHIP	13K 0.50% 1/10W
R595	1-216-071-00	RES,CHIP	8.2K 5% 1/10W	R668	1-216-073-00	RES,CHIP	10K 5% 1/10W
R596	1-216-071-00	RES,CHIP	8.2K 5% 1/10W	R669	1-216-069-00	RES,CHIP	6.8K 0.50% 1/10W
R600	1-218-764-11	METAL CHIP	330K 0.50% 1/10W	R670	1-216-033-00	RES,CHIP	220 5% 1/10W
R601	1-218-760-11	METAL CHIP	220K 0.50% 1/10W	R671	1-216-073-00	RES,CHIP	10K 5% 1/10W
R602	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R672	1-218-760-11	METAL CHIP	220K 0.50% 1/10W
R603	1-216-692-11	METAL CHIP	51K 0.50% 1/10W	R673	1-218-760-11	METAL CHIP	220K 0.50% 1/10W
R604	1-216-677-11	METAL CHIP	12K 0.50% 1/10W	R674	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
R605	1-216-033-00	RES,CHIP	220 5% 1/10W	R675	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
R606	1-216-033-00	RES,CHIP	220 5% 1/10W	R676	1-216-033-00	RES,CHIP	220 5% 1/10W
R607	1-216-067-00	RES,CHIP	5.6K 5% 1/10W	R677	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W
R608	1-216-025-91	RES,CHIP	100 5% 1/10W	R678	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R609	1-216-043-91	RES,CHIP	560 5% 1/10W	R679	1-216-695-11	METAL CHIP	68K 0.50% 1/10W
R610	1-216-049-91	RES,CHIP	1K 5% 1/10W	R680	1-216-033-00	RES,CHIP	220 5% 1/10W
R611	1-216-025-91	RES,CHIP	100 5% 1/10W	R681	1-216-033-00	RES,CHIP	220 5% 1/10W
R612	1-216-049-91	RES,CHIP	1K 5% 1/10W	R682	1-216-073-00	RES,CHIP	10K 5% 1/10W
R613	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R683	1-216-073-00	RES,CHIP	10K 5% 1/10W
R614	1-216-662-11	METAL CHIP	3K 0.50% 1/10W	R690	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R615	1-216-043-91	RES,CHIP	560 5% 1/10W	R691	1-216-049-91	RES,CHIP	1K 5% 1/10W
R616	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	R700	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R617	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W	R701	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R619	1-216-073-00	RES,CHIP	10K 5% 1/10W	R702	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R620	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R703	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R621	1-216-025-91	RES,CHIP	100 5% 1/10W	R704	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R622	1-216-047-91	RES,CHIP	820 5% 1/10W	R705	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R623	1-216-687-11	METAL CHIP	33K 0.50% 1/10W	R706	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R624	1-216-683-11	METAL CHIP	22K 0.50% 1/10W	R707	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R625	1-216-033-00	RES,CHIP	220 5% 1/10W	R708	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R626	1-216-047-91	RES,CHIP	820 5% 1/10W	R709	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R630	1-216-049-91	RES,CHIP	1K 5% 1/10W	R710	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W
R631	1-216-025-91	RES,CHIP	100 5% 1/10W	R711	1-218-754-11	METAL CHIP	120K 0.50% 1/10W
R632	1-216-650-11	METAL CHIP	910 0.50% 1/10W	R712	1-216-695-11	METAL CHIP	68K 0.50% 1/10W
R633	1-216-658-11	METAL CHIP	2K 0.50% 1/10W	R713	1-216-049-91	RES,CHIP	1K 5% 1/10W
R634	1-216-644-11	METAL CHIP	510 0.50% 1/10W	R714	1-216-049-91	RES,CHIP	1K 5% 1/10W
R635	1-216-025-91	RES,CHIP	100 5% 1/10W	R715	1-216-067-00	RES,CHIP	5.6K 5% 1/10W

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R716	1-216-049-91	RES,CHIP	1K 5% 1/10W	R838	1-216-067-00	RES,CHIP	5.6K 5% 1/10W
R717	1-216-097-91	RES,CHIP	100K 5% 1/10W	R839	1-216-676-11	METAL CHIP	11K 0.50% 1/10W
R718	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R840	1-216-079-00	RES,CHIP	18K 5% 1/10W
R719	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W	R841	1-216-097-91	RES,CHIP	100K 5% 1/10W
R720	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R842	1-216-692-11	METAL CHIP	51K 0.50% 1/10W
R721	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R843	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R722	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R844	1-216-059-00	RES,CHIP	2.7K 5% 1/10W
R723	1-216-049-91	RES,CHIP	1K 5% 1/10W	R845	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R724	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	R846	1-216-679-11	METAL CHIP	15K 0.50% 1/10W
R725	1-214-903-31	METAL	39K 1% 1/2W	R847	1-216-073-00	RES,CHIP	10K 5% 1/10W
R726	1-216-121-91	RES,CHIP	1M 5% 1/10W	R848	1-216-099-00	RES,CHIP	120K 5% 1/10W
R727	1-219-743-11	CARBON	100 5% 1/2W	R849	1-216-037-00	RES,CHIP	330 5% 1/10W
R728	1-216-025-91	RES,CHIP	100 5% 1/10W	R850	1-216-699-91	METAL CHIP	100K 0.50% 1/10W
R729	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R851	1-216-085-00	RES,CHIP	33K 5% 1/10W
R730	1-216-639-11	METAL CHIP	330 0.50% 1/10W	R852	1-216-696-11	METAL CHIP	75K 0.50% 1/10W
R731	1-216-699-91	METAL CHIP	100K 0.50% 1/10W	R853	1-216-025-91	RES,CHIP	100 5% 1/10W
R732	1-216-049-91	RES,CHIP	1K 5% 1/10W	R854	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R735	1-216-033-00	RES,CHIP	220 5% 1/10W	R855	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
R736	1-216-033-00	RES,CHIP	220 5% 1/10W	R856	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R740	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W	R857	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R741	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W	R858	1-216-699-91	METAL CHIP	100K 0.50% 1/10W
R750	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R859	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R751	1-216-025-91	RES,CHIP	100 5% 1/10W	R860	1-216-049-91	RES,CHIP	1K 5% 1/10W
R760	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W	R861	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R761	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W	R862	1-216-699-91	METAL CHIP	100K 0.50% 1/10W
R765	1-216-107-00	RES,CHIP	270K 5% 1/10W	R863	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R766	1-216-107-00	RES,CHIP	270K 5% 1/10W	R864	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R800	1-216-025-91	RES,CHIP	100 5% 1/10W	R865	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
R801	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R866	1-216-049-91	RES,CHIP	1K 5% 1/10W
R802	1-216-085-00	RES,CHIP	33K 5% 1/10W	R867	1-216-025-91	RES,CHIP	100 5% 1/10W
R803	1-216-049-91	RES,CHIP	1K 5% 1/10W	R868	1-216-025-91	RES,CHIP	100 5% 1/10W
R804	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R869	1-216-059-00	RES,CHIP	2.7K 5% 1/10W
R805	1-216-091-00	RES,CHIP	56K 5% 1/10W	R870	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R806	1-216-039-00	RES,CHIP	390 5% 1/10W	R871	1-216-097-91	RES,CHIP	100K 5% 1/10W
R807	1-216-079-00	RES,CHIP	18K 5% 1/10W	R872	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R808	1-216-039-00	RES,CHIP	390 5% 1/10W	R873	1-216-097-91	RES,CHIP	100K 5% 1/10W
R809	1-216-039-00	RES,CHIP	390 5% 1/10W	R874	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R810	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R875	1-216-041-00	RES,CHIP	470 5% 1/10W
R811	1-216-049-91	RES,CHIP	1K 5% 1/10W	R876	1-216-039-00	RES,CHIP	390 5% 1/10W
R812	1-216-063-91	RES,CHIP	3.9K 5% 1/10W	R877	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R813	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R878	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R814	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R879	1-216-025-91	RES,CHIP	100 5% 1/10W
R815	1-216-077-91	RES,CHIP	15K 5% 1/10W	R880	1-216-097-91	RES,CHIP	100K 5% 1/10W
R816	1-216-085-00	RES,CHIP	33K 5% 1/10W	R881	1-218-754-11	METAL CHIP	120K 0.50% 1/10W
R817	1-216-097-91	RES,CHIP	100K 5% 1/10W	R882	1-216-025-91	RES,CHIP	100 5% 1/10W
R818	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R883	1-216-053-00	RES,CHIP	1.5K 5% 1/10W
R819	1-216-061-00	RES,CHIP	3.3K 5% 1/10W	R884	1-216-097-91	RES,CHIP	100K 5% 1/10W
R820	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R885	1-216-025-91	RES,CHIP	100 5% 1/10W
R821	1-216-049-91	RES,CHIP	1K 5% 1/10W	R886	1-216-025-91	RES,CHIP	100 5% 1/10W
R822	1-216-081-00	RES,CHIP	22K 5% 1/10W	R887	1-216-699-91	METAL CHIP	100K 0.50% 1/10W
R823	1-216-037-00	RES,CHIP	330 5% 1/10W	R889	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
R824	1-216-041-00	RES,CHIP	470 5% 1/10W	R890	1-216-025-91	RES,CHIP	100 5% 1/10W
R825	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R891	1-216-025-91	RES,CHIP	100 5% 1/10W
R826	1-216-693-11	METAL CHIP	56K 0.50% 1/10W	R892	1-216-049-91	RES,CHIP	1K 5% 1/10W
R827	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R893	1-216-673-91	METAL CHIP	8.2K 0.50% 1/10W
R828	1-216-031-00	RES,CHIP	180 5% 1/10W	R900	1-216-025-91	RES,CHIP	100 5% 1/10W
R829	1-218-768-11	METAL CHIP	470K 0.50% 1/10W	R901	1-216-097-91	RES,CHIP	100K 5% 1/10W
R830	1-218-755-11	METAL CHIP	130K 0.50% 1/10W	R902	1-216-097-91	RES,CHIP	100K 5% 1/10W
R831	1-216-661-11	METAL CHIP	2.7K 0.50% 1/10W	R903	1-216-097-91	RES,CHIP	100K 5% 1/10W
R832	1-216-637-11	METAL CHIP	270 0.50% 1/10W	R904	1-216-025-91	RES,CHIP	100 5% 1/10W
R833	1-216-637-11	METAL CHIP	270 0.50% 1/10W	R905	1-216-025-91	RES,CHIP	100 5% 1/10W
R834	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W	R906	1-216-025-91	RES,CHIP	100 5% 1/10W
R835	1-216-069-00	RES,CHIP	6.8K 5% 1/10W	R907	1-216-097-91	RES,CHIP	100K 5% 1/10W
R836	1-216-051-00	RES,CHIP	1.2K 5% 1/10W	R908	1-216-121-91	RES,CHIP	1M 5% 1/10W
R837	1-216-081-00	RES,CHIP	22K 5% 1/10W	R909	1-216-097-91	RES,CHIP	100K 5% 1/10W



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
<CONNECTOR>				R103	1-216-043-91	RES,CHIP	560 5% 1/10W
CN1	* 1-691-406-11	CONNECTOR, BOARD TO BOARD 7P		R104	1-216-631-11	METAL CHIP	150 0.50% 1/10W
CN2	* 1-691-406-11	CONNECTOR, BOARD TO BOARD 7P		R105	1-216-631-11	METAL CHIP	150 0.50% 1/10W
CN3	* 1-691-406-11	CONNECTOR, BOARD TO BOARD 7P		R106	1-216-025-91	RES,CHIP	100 5% 1/10W
<DELAY LINE>				R107	1-216-055-00	RES,CHIP	1.8K 5% 1/10W
DL100	1-416-476-21	DELAY LINE		R108	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
DL300	1-416-476-21	DELAY LINE		R109	1-216-025-91	RES,CHIP	100 5% 1/10W
DL500	1-416-476-21	DELAY LINE		R110	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
DL700	1-416-475-21	DELAY LINE		R111	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
DL701	1-416-475-21	DELAY LINE		R112	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
<IC>				R113	1-216-655-11	METAL CHIP	1.5K 0.50% 1/10W
IC100	8-759-082-61	IC TC4W53FU		R114	1-216-025-91	RES,CHIP	100 5% 1/10W
IC131	8-749-014-06	IC VPJ05		R115	1-216-025-91	RES,CHIP	100 5% 1/10W
IC300	8-759-082-61	IC TC4W53FU		R116	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
IC331	8-749-014-06	IC VPJ05		R117	1-216-025-91	RES,CHIP	100 5% 1/10W
IC500	8-759-082-61	IC TC4W53FU		R118	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
IC531	8-749-014-06	IC VPJ05		R119	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
IC701	8-759-451-53	IC EL4094CS-TE2		R120	1-216-625-11	METAL CHIP	82 0.50% 1/10W
IC702	8-759-271-04	IC LT1252CS8		R121	1-216-625-11	METAL CHIP	82 0.50% 1/10W
IC703	8-759-082-61	IC TC4W53FU		R122	1-216-625-11	METAL CHIP	82 0.50% 1/10W
IC704	8-759-981-48	IC TL082M		R123	1-216-033-00	METAL CHIP	220K 5% 1/10W
<TRANSISTOR>				R124	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q100	8-729-107-31	TRANSISTOR 2SC3545-T43		R126	1-216-049-91	METAL CHIP	1K 5% 1/10W
Q101	8-729-107-31	TRANSISTOR 2SC3545-T43		R300	1-216-033-00	RES,CHIP	220 5% 1/10W
Q102	8-729-112-65	TRANSISTOR 2SA1462-Y33		R301	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
Q103	8-729-112-65	TRANSISTOR 2SA1462-Y33		R302	1-216-033-00	RES,CHIP	220 5% 1/10W
Q104	8-729-107-31	TRANSISTOR 2SC3545-T43		R303	1-216-043-91	RES,CHIP	560 5% 1/10W
Q105	8-729-107-31	TRANSISTOR 2SC3545-T43		R304	1-216-631-11	METAL CHIP	150 0.50% 1/10W
Q106	8-729-112-65	TRANSISTOR 2SA1462-Y33		R305	1-216-631-11	METAL CHIP	150 0.50% 1/10W
Q107	8-729-107-31	TRANSISTOR 2SC3545-T43		R306	1-216-025-91	RES,CHIP	100 5% 1/10W
Q108	8-729-112-65	TRANSISTOR 2SA1462-Y33		R307	1-216-055-00	RES,CHIP	1.8K 5% 1/10W
Q300	8-729-107-31	TRANSISTOR 2SC3545-T43		R308	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
Q301	8-729-107-31	TRANSISTOR 2SC3545-T43		R309	1-216-025-91	RES,CHIP	100 5% 1/10W
Q302	8-729-112-65	TRANSISTOR 2SA1462-Y33		R310	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
Q303	8-729-112-65	TRANSISTOR 2SA1462-Y33		R311	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
Q304	8-729-107-31	TRANSISTOR 2SC3545-T43		R312	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
Q305	8-729-107-31	TRANSISTOR 2SC3545-T43		R313	1-216-655-11	METAL CHIP	1.5K 0.50% 1/10W
Q306	8-729-112-65	TRANSISTOR 2SA1462-Y33		R314	1-216-025-91	RES,CHIP	100 5% 1/10W
Q307	8-729-107-31	TRANSISTOR 2SC3545-T43		R315	1-216-055-00	RES,CHIP	1.8K 5% 1/10W
Q308	8-729-112-65	TRANSISTOR 2SA1462-Y33		R316	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
Q500	8-729-107-31	TRANSISTOR 2SC3545-T43		R317	1-216-025-91	RES,CHIP	100 5% 1/10W
Q501	8-729-107-31	TRANSISTOR 2SC3545-T43		R318	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
Q502	8-729-112-65	TRANSISTOR 2SA1462-Y33		R319	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
Q503	8-729-112-65	TRANSISTOR 2SA1462-Y33		R320	1-216-625-11	METAL CHIP	82 0.50% 1/10W
Q504	8-729-107-31	TRANSISTOR 2SC3545-T43		R321	1-216-625-11	METAL CHIP	82 0.50% 1/10W
Q505	8-729-107-31	TRANSISTOR 2SC3545-T43		R322	1-216-625-11	METAL CHIP	82 0.50% 1/10W
Q506	8-729-112-65	TRANSISTOR 2SA1462-Y33		R323	1-216-033-00	METAL CHIP	220K 5% 1/10W
Q507	8-729-107-31	TRANSISTOR 2SC3545-T43		R324	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q508	8-729-112-65	TRANSISTOR 2SA1462-Y33		R326	1-216-049-91	METAL CHIP	1K 5% 1/10W
Q700	8-729-107-31	TRANSISTOR 2SC3545-T43		R500	1-216-033-00	RES,CHIP	220 5% 1/10W
Q701	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R501	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
Q702	8-729-107-31	TRANSISTOR 2SC3545-T43		R502	1-216-033-00	RES,CHIP	220 5% 1/10W
Q703	8-729-107-31	TRANSISTOR 2SC3545-T43		R503	1-216-043-91	RES,CHIP	560 5% 1/10W
Q704	8-729-107-31	TRANSISTOR 2SC3545-T43		R504	1-216-631-11	METAL CHIP	150 0.50% 1/10W
<RESISTOR>				R505	1-216-631-11	METAL CHIP	150 0.50% 1/10W
R100	1-216-033-00	RES,CHIP	220 5% 1/10W	R506	1-216-025-91	RES,CHIP	100 5% 1/10W
R101	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R507	1-216-055-00	RES,CHIP	1.8K 5% 1/10W
R102	1-216-033-00	RES,CHIP	220 5% 1/10W	R508	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
				R509	1-216-025-91	RES,CHIP	100 5% 1/10W
				R510	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
				R511	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
				R512	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
				R513	1-216-655-11	METAL CHIP	1.5K 0.50% 1/10W
				R514	1-216-049-91	RES,CHIP	1K 5% 1/10W
				R515	1-216-055-00	RES,CHIP	1.8K 5% 1/10W

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R516	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	C106	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R517	1-216-025-91	RES,CHIP	100 5% 1/10W	C107	1-164-222-11	CERAMIC CHIP 0.22μF	25V
				C108	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R518	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	C109	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R519	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	C110	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R520	1-216-625-11	METAL CHIP	82 0.50% 1/10W	C111	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R521	1-216-625-11	METAL CHIP	82 0.50% 1/10W	C112	1-128-526-11	ELECT 100μF	20% 16V
R522	1-216-625-11	METAL CHIP	82 0.50% 1/10W	C113	1-164-222-11	CERAMIC CHIP 0.22μF	10% 25V
R523	1-216-033-00	METAL CHIP	220K 5% 1/10W	C114	1-164-222-11	CERAMIC CHIP 0.22μF	10% 25V
R524	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	C115	1-164-222-11	CERAMIC CHIP 0.22μF	10% 25V
R526	1-216-049-91	METAL CHIP	1K 5% 1/10W	C116	1-164-222-11	CERAMIC CHIP 0.22μF	10% 25V
R700	1-216-678-11	METAL CHIP	13K 0.50% 1/10W	C117	1-164-222-11	CERAMIC CHIP 0.22μF	10% 25V
R701	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	C118	1-164-222-11	CERAMIC CHIP 0.22μF	10% 25V
R702	1-216-033-00	RES,CHIP	220 5% 1/10W	C119	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R703	1-216-683-11	METAL CHIP	22K 0.50% 1/10W	C120	1-164-222-11	CERAMIC CHIP 0.22μF	10% 25V
R710	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	C121	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R711	1-216-631-11	METAL CHIP	150 0.50% 1/10W	C122	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
R712	1-216-660-11	METAL CHIP	2.4K 0.50% 1/10W	C123	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
R713	1-216-295-91	SHORT	0	C124	1-163-038-91	CERAMIC CHIP 0.1μF	25V
R714	1-216-631-11	METAL CHIP	150 0.50% 1/10W	C125	1-163-038-91	CERAMIC CHIP 0.1μF	25V
R715	1-216-621-11	METAL CHIP	56 0.50% 1/10W	C126	1-164-004-11	CERAMIC CHIP 0.1μF	10% 25V
R716	1-216-025-91	RES,CHIP	100 5% 1/10W	C127	1-128-526-11	ELECT 100μF	20% 16V
R717	1-216-641-11	METAL CHIP	390 0.50% 1/10W	C128	1-163-038-91	CERAMIC CHIP 0.1μF	25V
R718	1-216-635-11	METAL CHIP	220 0.50% 1/10W	C129	1-128-526-11	ELECT 100μF	20% 16V
R720	1-216-025-91	RES,CHIP	100 5% 1/10W	C130	1-163-038-91	CERAMIC CHIP 0.1μF	25V
R721	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	C131	1-164-004-11	CERAMIC CHIP 0.1μF	10% 25V
R722	1-216-681-11	METAL CHIP	18K 0.50% 1/10W	C132	1-163-275-11	CERAMIC CHIP 0.001μF	5% 50V
R723	1-216-043-91	RES,CHIP	560 5% 1/10W	C133	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
R724	1-216-643-11	METAL CHIP	470 0.50% 1/10W	C134	1-163-038-91	CERAMIC CHIP 0.1μF	25V
R725	1-216-025-91	RES,CHIP	100 5% 1/10W	C135	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
R726	1-216-049-91	RES,CHIP	1K 5% 1/10W	C136	1-163-038-91	CERAMIC CHIP 0.1μF	25V
R727	1-216-643-11	METAL CHIP	470 0.50% 1/10W	C137	1-164-222-11	CERAMIC CHIP 0.22μF	25V
R728	1-216-025-91	RES,CHIP	100 5% 1/10W	C138	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
R729	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	C139	1-163-275-11	CERAMIC CHIP 0.001μF	5% 50V
R730	1-216-049-91	RES,CHIP	1K 5% 1/10W	C151	1-163-038-91	CERAMIC CHIP 0.1μF	25V
R731	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	C152	1-128-526-11	ELECT 100μF	20% 16V
R732	1-216-645-11	METAL CHIP	560 0.50% 1/10W	C153	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C154	1-128-526-11	ELECT 100μF	20% 16V
				C155	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C156	1-164-004-11	CERAMIC CHIP 0.1μF	10% 25V
				C171	1-128-526-11	ELECT 100μF	20% 16V
				C172	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C173	1-128-526-11	ELECT 100μF	20% 16V
				C174	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C175	1-128-526-11	ELECT 100μF	20% 16V
				C176	1-128-526-11	ELECT 100μF	20% 16V
				C177	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C211	1-128-526-11	ELECT 100μF	20% 16V
				C212	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C213	1-128-526-11	ELECT 100μF	20% 16V
				C214	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C215	1-164-004-11	CERAMIC CHIP 0.1μF	10% 25V
				C216	1-164-004-11	CERAMIC CHIP 0.1μF	10% 25V
				C217	1-164-004-11	CERAMIC CHIP 0.1μF	10% 25V
				C231	1-128-526-11	ELECT 100μF	20% 16V
				C301	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C302	1-163-259-91	CERAMIC CHIP 220PF	5% 50V
				C303	1-163-243-11	CERAMIC CHIP 47PF	5% 50V
				C304	1-163-809-11	CERAMIC CHIP 0.047μF	10% 25V
				C305	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V
				C321	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C322	1-163-038-91	CERAMIC CHIP 0.1μF	25V
				C401	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C402	1-163-259-91	CERAMIC CHIP 220PF	5% 50V
				C403	1-163-243-11	CERAMIC CHIP 47PF	5% 50V
C001	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C002	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C003	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C051	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C052	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C053	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C054	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C101	1-128-526-11	ELECT	100μF 20% 16V				
C102	1-163-038-91	CERAMIC CHIP	0.1μF 25V				
C103	1-128-526-11	ELECT	100μF 20% 16V				
C104	1-164-222-11	CERAMIC CHIP	0.22μF 25V				
C105	1-164-222-11	CERAMIC CHIP	0.22μF 25V				

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\* A-1136-026-A BUF COMPL (D24MODEL)

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\* X-4037-157-1 FRAME ASSY, PWB

\* X-4037-212-1 SHIELD ASSY, PWB

1-526-652-21 SOCKET, IC (DP) 8P

1-550-104-11 HOLDER, BATTERY

\* 3-648-057-00 NUT (ISO-4), U

\* 4-050-794-03 INSULATOR

7-682-647-09 SCREW +PS 3X6

<CAPACITOR>





Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R011	1-216-025-91	RES,CHIP	100 5% 1/10W	R117	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R012	1-216-097-91	RES,CHIP	100K 5% 1/10W	R118	1-216-025-91	RES,CHIP	100 5% 1/10W
R013	1-216-097-91	RES,CHIP	100K 5% 1/10W	R119	1-216-001-00	RES,CHIP	10 5% 1/10W
R016	1-216-097-91	RES,CHIP	100K 5% 1/10W	R120	1-216-033-00	RES,CHIP	220 5% 1/10W
R017	1-216-025-91	RES,CHIP	100 5% 1/10W	R121	1-216-097-91	RES,CHIP	100K 5% 1/10W
R018	1-216-073-00	RES,CHIP	10K 5% 1/10W	R122	1-216-017-91	RES,CHIP	47 5% 1/10W
R019	1-216-073-00	RES,CHIP	10K 5% 1/10W	R123	1-216-001-00	RES,CHIP	10 5% 1/10W
R020	1-216-097-91	RES,CHIP	100K 5% 1/10W	R125	1-216-017-91	RES,CHIP	47 5% 1/10W
R021	1-216-097-91	RES,CHIP	100K 5% 1/10W	R126	1-216-017-91	RES,CHIP	47 5% 1/10W
R051	1-216-017-91	RES,CHIP	47 5% 1/10W	R127	1-216-017-91	RES,CHIP	47 5% 1/10W
R052	1-216-017-91	RES,CHIP	47 5% 1/10W	R128	1-216-017-91	RES,CHIP	47 5% 1/10W
R053	1-216-017-91	RES,CHIP	47 5% 1/10W	R132	1-216-017-91	RES,CHIP	47 5% 1/10W
R054	1-216-017-91	RES,CHIP	47 5% 1/10W	R151	1-216-049-91	RES,CHIP	1K 5% 1/10W
R055	1-216-017-91	RES,CHIP	47 5% 1/10W	R152	1-216-049-91	RES,CHIP	1K 5% 1/10W
R056	1-216-017-91	RES,CHIP	47 5% 1/10W	R153	1-216-097-91	RES,CHIP	100K 5% 1/10W
R057	1-216-017-91	RES,CHIP	47 5% 1/10W	R154	1-216-097-91	RES,CHIP	100K 5% 1/10W
R058	1-216-017-91	RES,CHIP	47 5% 1/10W	R155	1-216-097-91	RES,CHIP	100K 5% 1/10W
R061	1-216-097-91	RES,CHIP	100K 5% 1/10W	R156	1-216-097-91	RES,CHIP	100K 5% 1/10W
R062	1-216-097-91	RES,CHIP	100K 5% 1/10W	R157	1-216-097-91	RES,CHIP	100K 5% 1/10W
R063	1-216-097-91	RES,CHIP	100K 5% 1/10W	R158	1-216-097-91	RES,CHIP	100K 5% 1/10W
R064	1-216-097-91	RES,CHIP	100K 5% 1/10W	R159	1-216-097-91	RES,CHIP	100K 5% 1/10W
R065	1-216-097-91	RES,CHIP	100K 5% 1/10W	R160	1-216-097-91	RES,CHIP	100K 5% 1/10W
R066	1-216-097-91	RES,CHIP	100K 5% 1/10W	R171	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R067	1-216-097-91	RES,CHIP	100K 5% 1/10W	R172	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R068	1-216-097-91	RES,CHIP	100K 5% 1/10W	R173	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R071	1-216-097-91	RES,CHIP	100K 5% 1/10W	R174	1-216-025-91	RES,CHIP	100 5% 1/10W
R072	1-216-097-91	RES,CHIP	100K 5% 1/10W	R175	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R073	1-216-097-91	RES,CHIP	100K 5% 1/10W	R176	1-216-097-91	RES,CHIP	100K 5% 1/10W
R074	1-216-097-91	RES,CHIP	100K 5% 1/10W	R177	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R075	1-216-097-91	RES,CHIP	100K 5% 1/10W	R211	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W
R076	1-216-097-91	RES,CHIP	100K 5% 1/10W	R212	1-216-655-11	METAL CHIP	1.5K 0.50% 1/10W
R077	1-216-097-91	RES,CHIP	100K 5% 1/10W	R213	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R078	1-216-097-91	RES,CHIP	100K 5% 1/10W	R214	1-216-634-11	METAL CHIP	200 0.50% 1/10W
R081	1-216-017-91	RES,CHIP	47 5% 1/10W	R215	1-216-634-11	METAL CHIP	200 0.50% 1/10W
R082	1-216-017-91	RES,CHIP	47 5% 1/10W	R216	1-216-634-11	METAL CHIP	200 0.50% 1/10W
R083	1-216-017-91	RES,CHIP	47 5% 1/10W	R231	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
R084	1-216-017-91	RES,CHIP	47 5% 1/10W	R232	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R085	1-216-017-91	RES,CHIP	47 5% 1/10W	R301	1-216-025-91	RES,CHIP	100 5% 1/10W
R086	1-216-017-91	RES,CHIP	47 5% 1/10W	R302	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R087	1-216-017-91	RES,CHIP	47 5% 1/10W	R303	1-216-667-11	METAL CHIP	4.7K 0.5% 1/10W
R088	1-216-017-91	RES,CHIP	47 5% 1/10W	R304	1-216-645-11	METAL CHIP	560 0.5% 1/10W
R091	1-216-097-91	RES,CHIP	100K 5% 1/10W	R305	1-216-025-91	RES,CHIP	100 5% 1/10W
R092	1-216-097-91	RES,CHIP	100K 5% 1/10W	R306	1-216-669-11	METAL CHIP	5.6K 0.5% 1/10W
R093	1-216-097-91	RES,CHIP	100K 5% 1/10W	R307	1-216-051-00	RES,CHIP	1.2K 5% 1/10W
R094	1-216-097-91	RES,CHIP	100K 5% 1/10W	R308	1-216-663-11	METAL CHIP	3.3K 0.5% 1/10W
R095	1-216-097-91	RES,CHIP	100K 5% 1/10W	R309	1-216-657-11	METAL CHIP	1.8K 0.5% 1/10W
R096	1-216-097-91	RES,CHIP	100K 5% 1/10W	R310	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R097	1-216-097-91	RES,CHIP	100K 5% 1/10W	R311	1-216-025-91	RES,CHIP	100 5% 1/10W
R098	1-216-097-91	RES,CHIP	100K 5% 1/10W	R312	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R101	1-216-049-91	RES,CHIP	1K 5% 1/10W	R313	1-216-689-11	METAL CHIP	39K 0.50% 1/10W
R102	1-216-049-91	RES,CHIP	1K 5% 1/10W	R314	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R103	1-216-067-00	RES,CHIP	5.6K 5% 1/10W	R315	1-216-663-11	METAL CHIP	3.3K 0.5% 1/10W
R104	1-216-097-91	RES,CHIP	100K 5% 1/10W	R401	1-216-025-91	RES,CHIP	100 5% 1/10W
R105	1-216-121-91	RES,CHIP	1M 5% 1/10W	R402	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R106	1-216-049-91	RES,CHIP	1K 5% 1/10W	R403	1-216-667-11	METAL CHIP	4.7K 0.5% 1/10W
R107	1-216-001-00	RES,CHIP	10 5% 1/10W	R404	1-216-645-11	METAL CHIP	560 0.5% 1/10W
R108	1-216-041-00	RES,CHIP	470 5% 1/10W	R405	1-216-025-91	RES,CHIP	100 5% 1/10W
R109	1-216-041-00	RES,CHIP	470 5% 1/10W	R406	1-216-669-11	METAL CHIP	5.6K 0.5% 1/10W
R110	1-216-073-00	RES,CHIP	10K 5% 1/10W	R407	1-216-051-00	RES,CHIP	1.2K 5% 1/10W
R111	1-216-079-00	RES,CHIP	18K 5% 1/10W	R408	1-216-663-11	METAL CHIP	3.3K 0.5% 1/10W
R112	1-216-133-00	RES,CHIP	3.3M 5% 1/10W	R409	1-216-657-11	METAL CHIP	1.8K 0.5% 1/10W
R113	1-216-073-00	RES,CHIP	10K 5% 1/10W	R410	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R114	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W	R411	1-216-025-91	RES,CHIP	100 5% 1/10W
R115	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W	R412	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R116	1-216-049-91	RES,CHIP	1K 5% 1/10W	R413	1-216-689-11	METAL CHIP	39K 0.50% 1/10W







Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C51	1-164-346-11	CERAMIC CHIP	1μF 16V	C912	1-107-889-11	ELECT	220μF 20% 25V
C52	1-128-526-11	ELECT	100μF 20% 16V	C913	1-107-889-11	ELECT	220μF 20% 25V
C53	1-165-319-11	CERAMIC CHIP	0.1μF 50V	C1007	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C54	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C1012	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C101	1-128-528-11	ELECT	470μF 20% 16V	C1120	1-125-838-91	CERAMIC CHIP	2.2μF 10% 6.3V
C102	1-128-528-11	ELECT	470μF 20% 16V	C2000	1-107-682-11	CERAMIC CHIP	1μF 10% 16V
C103	1-163-011-11	CERAMIC CHIP	0.0015μF 10% 50V	C2001	1-163-037-11	CERAMIC CHIP	0.022μF 10% 50V
C104	1-164-004-11	CERAMIC CHIP	0.1μF 10% 25V	C2002	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C105	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C2003	1-107-909-11	ELECT	47μF 20% 16V
C201	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C2004	1-163-001-11	CERAMIC CHIP	220PF 10% 50V
C203	1-128-526-11	ELECT	100μF 20% 25V	C2005	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V
C204	1-128-526-11	ELECT	100μF 20% 25V	C2006	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V
C207	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C2007	1-163-275-11	CERAMIC CHIP	0.001μF 5% 50V
C208	1-163-009-11	CERAMIC CHIP	0.001μF 10% 50V	C2008	1-164-004-11	CERAMIC CHIP	0.1μF 10% 25V
C209	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V	C2009	1-107-906-11	ELECT	10μF 20% 50V
C401	1-136-165-00	FILM	0.1μF 5% 50V	C2010	1-127-573-11	CERAMIC CHIP	1μF 10% 16V
C402	1-137-370-11	FILM	0.01μF 5% 50V	C2011	1-107-682-11	CERAMIC CHIP	1μF 10% 16V
C403	1-164-004-11	CERAMIC CHIP	0.1μF 10% 25V	C2012	1-163-275-11	CERAMIC CHIP	0.001μF 5% 50V
C405	1-128-526-11	ELECT	100μF 20% 25V	C2013	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C410	1-128-526-11	ELECT	100μF 20% 25V	C2014	1-128-526-11	ELECT	100μF 20% 16V
C501	1-107-364-11	MYLAR	0.01μF 10% 200V	C2015	1-163-275-11	CERAMIC CHIP	0.001μF 5% 50V
C502	1-125-827-91	CERAMIC CHIP	1μF 10% 25V	C2016	1-104-551-11	FILM CHIP	0.01μF 5% 16V
C503	1-107-903-11	ELECT	2.2μF 20% 50V	C2017	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C507	1-107-906-11	ELECT	10μF 20% 50V	C2018	1-165-319-11	CERAMIC CHIP	0.1μF 10% 50V
C550	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C2019	1-165-319-11	CERAMIC CHIP	0.1μF 10% 50V
C551	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C2019	1-164-182-11	CERAMIC CHIP	0.0033μF 10% 50V
C552	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V	C2019	1-164-182-11	CERAMIC CHIP	0.0033μF 10% 50V
C553	1-107-902-11	ELECT	1μF 20% 50V	C2020	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C601	1-163-017-00	CERAMIC CHIP	0.0047μF 10% 50V	C2020	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C602	1-128-526-11	ELECT	100μF 20% 25V	C2021	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C604	1-128-526-11	ELECT	100μF 20% 25V	C2021	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C606	1-117-663-21	FILM	0.22μF 5% 250V	C2022	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C607	1-107-910-11	ELECT	100μF 20% 50V	C2023	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C609	1-163-037-11	CERAMIC CHIP	0.022μF 10% 50V	C2024	1-107-906-11	ELECT	10μF 20% 50V
C701	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C2025	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C702	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C2026	1-163-009-11	CERAMIC CHIP	0.001μF 10% 50V
C703	1-163-017-00	CERAMIC CHIP	0.0047μF 10% 50V	C2026	1-163-009-11	CERAMIC CHIP	0.001μF 10% 50V
C704	1-163-037-11	CERAMIC CHIP	0.022μF 10% 50V	C2027	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C705	1-163-275-11	CERAMIC CHIP	0.001μF 5% 50V	C2028	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C706	1-163-121-00	CERAMIC CHIP	150PF 5% 50V	C2029	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C707	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	C2030	1-107-909-11	ELECT	47μF 20% 16V
C708	1-163-037-11	CERAMIC CHIP	0.022μF 10% 50V	C2031	1-107-823-11	CERAMIC CHIP	0.47μF 10% 16V
C709	1-107-884-11	ELECT	1000μF 20% 16V	C2032	1-164-489-11	CERAMIC CHIP	0.22μF 10% 16V
C714	1-128-526-11	ELECT	100μF 20% 25V	C2033	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C715	1-110-641-51	ELECT	33μF 20% 200V	C2034	1-128-526-11	ELECT	100μF 20% 16V
C716	1-107-364-11	MYLAR	0.01μF 10% 200V	C2035	1-164-004-11	CERAMIC CHIP	0.1μF 10% 25V
C718	1-163-003-11	CERAMIC CHIP	330PF 10% 50V	C2036	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C801	1-136-165-00	FILM	0.1μF 5% 50V	C2037	1-163-251-11	CERAMIC CHIP	100PF 5% 50V
C802	1-128-526-11	ELECT	100μF 20% 16V	C2038	1-107-905-11	ELECT	4.7μF 20% 50V
C803	1-128-526-11	ELECT	100μF 20% 16V	C2039	1-163-009-11	CERAMIC CHIP	0.001μF 10% 50V
C804	1-136-165-00	FILM	0.1μF 5% 50V	C2040	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C805	1-137-370-11	FILM	0.01μF 5% 50V	C2041	1-163-017-00	CERAMIC CHIP	0.0047μF 10% 50V
C807	1-164-004-11	CERAMIC CHIP	0.1μF 10% 25V	C2301	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C808	1-104-760-11	CERAMIC CHIP	0.047μF 10% 50V	C2302	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C901	1-128-527-11	ELECT	330μF 20% 25V	C2303	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C902	1-128-528-11	ELECT	470μF 20% 16V	C2305	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C903	1-128-527-11	ELECT	330μF 20% 25V	C2306	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C904	1-128-528-11	ELECT	470μF 20% 16V	C2307	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C905	1-104-652-11	ELECT	470μF 20% 10V	C2308	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C906	1-104-652-11	ELECT	470μF 20% 10V	C2309	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C907	1-104-652-11	ELECT	470μF 20% 10V	C2311	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V
C908	1-104-652-11	ELECT	470μF 20% 10V	C2312	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C909	1-107-492-11	ELECT	47μF 20% 160V	C2313	1-165-319-11	CERAMIC CHIP	0.1μF 50V
C910	1-126-168-11	ELECT	1000μF 20% 6.3V				



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C2314	1-165-319-11	CERAMIC CHIP 0.1μF	50V	D50	8-719-073-01	DIODE MA111-(K8).S0	
C2315	1-165-319-11	CERAMIC CHIP 0.1μF	50V	D101	8-719-971-20	DIODE ERC38-06	
C2316	1-165-319-11	CERAMIC CHIP 0.1μF	50V	D102	8-719-971-20	DIODE ERC38-06	
C2317	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D103	8-749-036-67	DIODE RD2.4SB-T1	
C2318	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	D201	8-719-073-01	DIODE MA111-(K8).S0	
C2319	1-165-319-11	CERAMIC CHIP 0.1μF	50V	D202	8-719-073-01	DIODE MA111-(K8).S0	
C2320	1-165-319-11	CERAMIC CHIP 0.1μF	50V	D401	8-719-911-19	DIODE 1SS119-25	
C2321	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D402	8-719-911-19	DIODE 1SS119-25	
C2322	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D501	8-719-901-83	DIODE 1SS83	
C2323	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D502	8-719-073-01	DIODE MA111-(K8).S0	
C2324	1-104-551-11	FILM CHIP 0.01μF	5% 16V	D503	8-719-037-22	DIODE RD12SB-T1	
C2325	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D550	8-719-073-01	DIODE MA111-(K8).S0	
C2326	1-104-551-11	FILM CHIP 0.01μF	5% 16V	D601	8-719-901-95	DIODE V19CSS	
C7001	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D602	8-719-033-53	DIODE RD6.8SB2-T1	
C7002	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D603	8-719-908-03	DIODE GP08D	
C7003	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D701	8-719-073-01	DIODE MA111-(K8).S0	
C7004	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D702	8-719-073-01	DIODE MA111-(K8).S0	
C7005	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D703	8-719-073-01	DIODE MA111-(K8).S0	
C7006	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D704	8-719-073-01	DIODE MA111-(K8).S0	
C7007	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D705	8-719-158-35	DIODE RD9.1SB	
C7008	1-128-526-11	ELECT 100μF	20% 16V	D706	8-719-500-42	DIODE D8LCA20R	
C7009	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D707	8-719-055-30	DIODE D1FS4A-TA	
C7010	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D708	8-719-073-01	DIODE MA111-(K8).S0	
C7011	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D751	8-719-073-01	DIODE MA111-(K8).S0	
C7012	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D752	8-719-073-01	DIODE MA111-(K8).S0	
C7013	1-163-021-91	CERAMIC CHIP 0.01μF	10% 50V	D753	8-719-073-01	DIODE MA111-(K8).S0	
		<CONNECTOR>		D754	8-719-073-01	DIODE MA111-(K8).S0	
CN1	* 1-580-798-11	CONNECTOR PIN (DY) 6P		D755	8-719-073-01	DIODE MA111-(K8).S0	
CN2	1-695-915-11	TAB (CONTACT) (D24)		D756	8-719-073-01	DIODE MA111-(K8).S0	
CN501	* 1-793-709-11	CONNECTOR, BORAD TO BOARD 10P		D1206	8-719-510-02	DIODE D1NS4 (D24)	
CN503	* 1-691-000-11	CONNECTOR, BOARD TO BOARD 3P		D2000	8-719-073-01	DIODE MA111-(K8).S0	
CN1001	1-774-523-11	PIN, CONNECTOR (PC BOARD) 64P		D7001	8-719-158-15	DIODE RD5.6SB	
CN1002	1-774-523-11	PIN, CONNECTOR (PC BOARD) 64P		D7002	8-719-073-01	DIODE MA111-(K8).S0	
CN2001	* 1-793-709-11	CONNECTOR, BORAD TO BOARD 10P				<FERRITE BEAD>	
CN2002	* 1-793-709-11	CONNECTOR, BORAD TO BOARD 10P		FB701	1-410-397-21	FERRITE 1.1μH	
		<DIODE>		FB702	1-410-397-21	FERRITE 1.1μH	
D1	8-719-971-20	DIODE ERC38-06				<FILTER>	
D2	8-719-300-76	DIODE RH-1A		FL1002	1-239-183-11	FILTER, EMI	
D3	8-719-053-57	DIODE 5VUZ52		FL1006	1-236-164-11	ENCAPSULATED COMPONENT	
D4	8-719-073-01	DIODE MA111-(K8).S0 (D24)		FL1007	1-236-164-11	ENCAPSULATED COMPONENT	
D5	8-719-073-01	DIODE MA111-(K8).S0 (D24)				<IC>	
D6	8-719-073-01	DIODE MA111-(K8).S0		IC50	8-759-988-13	IC LM393PS	
D7	8-719-073-01	DIODE MA111-(K8).S0		IC101	8-759-100-96	IC μPC4558G2	
D8	8-719-073-01	DIODE MA111-(K8).S0 (D24)		IC102	8-759-803-42	IC LA6500-FA	
D9	8-719-073-01	DIODE MA111-(K8).S0 (D24)		IC401	8-759-803-42	IC LA6500-FA	
D10	8-719-073-01	DIODE MA111-(K8).S0 (D24)		IC550	8-759-100-96	IC μPC4558G2	
D11	8-719-073-01	DIODE MA111-(K8).S0 (D24)		IC601	8-759-192-71	IC STV9379	
D12	8-719-073-01	DIODE MA111-(K8).S0 (D24)		IC701	8-759-981-48	IC TL082M	
D13	8-719-073-01	DIODE MA111-(K8).S0		IC702	8-759-988-13	IC LM393PS	
D14	8-719-073-01	DIODE MA111-(K8).S0		IC801	8-759-822-38	IC LA6510	
D15	8-719-073-01	DIODE MA111-(K8).S0		IC901	8-759-929-65	IC LM7912CT	
D16	8-719-073-01	DIODE MA111-(K8).S0 (D24)		IC902	8-759-701-79	IC NJM7812FA	
D17	8-719-908-03	DIODE GP08D		IC903	8-759-460-74	IC BA05FP-E2	
D18	8-719-073-01	DIODE MA111-(K8).S0		IC904	8-759-539-89	IC LM2990SX-5.0	
D19	8-719-073-01	DIODE MA111-(K8).S0		IC905	8-759-460-81	IC BA12FP-E2	
D20	8-719-073-01	DIODE MA111-(K8).S0		IC1002	8-759-008-48	IC MC74HC86F	
D21	8-719-073-01	DIODE MA111-(K8).S0		IC1005	8-759-242-68	IC TC7W32F	
D22	8-719-073-01	DIODE MA111-(K8).S0		IC2001	8-759-593-29	IC TDA9106	
D23	8-719-073-01	DIODE MA111-(K8).S0		IC2002	8-759-038-15	IC MC74HC4538AF	
D24	8-719-063-74	DIODE D1NL2OU-TR2					
D25	8-719-063-74	DIODE D1NL2OU-TR2					

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
IC2003	8-759-981-48	IC TL082M (D20)		Q26	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
IC2004	8-759-038-15	IC MC74HC4538AF		Q27	8-729-141-30	TRANSISTOR 2SC3623A-LK	
IC2005	8-759-981-48	IC TL082M		Q28	8-729-141-30	TRANSISTOR 2SC3623A-LK	
IC2006	8-759-981-48	IC TL082M		Q29	8-729-034-60	TRANSISTOR 2SK2350	
IC2007	8-759-367-67	IC MC74HC14AFEL		Q101	8-729-800-32	TRANSISTOR 2SC2362K-G	
IC2301	8-759-085-67	IC LM339NS		Q201	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
IC2302	8-759-038-15	IC MC74HC4538AF		Q202	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
IC2303	8-759-367-69	IC MC74HC74AFEL		Q203	8-729-255-12	TRANSISTOR 2SC2551-O	
IC2304	8-759-649-75	IC MC74HC175AFEL		Q204	8-729-017-06	TRANSISTOR 2SC4793	
IC2305	8-759-085-67	IC LM339NS		Q205	8-729-309-36	TRANSISTOR 2SA893A-EV	
IC2306	8-759-988-13	IC LM393PS		Q206	8-729-017-06	TRANSISTOR 2SC4793	
IC7001	8-759-546-25	IC MB89613R-560		Q207	8-729-140-50	TRANSISTOR 2SC3209LK	
IC7002	8-759-367-70	IC MC74HC125AFEL		Q505	8-729-027-38	TRANSISTOR DTA144EKA-T146	
IC7003	8-759-424-39	IC MC74HC244AFEL		Q506	1-801-806-11	TRANSISTOR DTC144EKA-T146	
IC7004	8-759-156-54	IC X25040SI		Q507	1-801-806-11	TRANSISTOR DTC144EKA-T146	
IC7005	8-759-064-36	IC MB88346BPFV		Q508	8-729-027-38	TRANSISTOR DTA144EKA-T146	
IC7006	8-759-156-54	IC X25040SI		Q509	8-729-027-38	TRANSISTOR DTA144EKA-T146	
IC7007	8-759-156-54	IC X25040SI		Q510	1-801-806-11	TRANSISTOR DTC144EKA-T146	
IC7008	8-759-156-54	IC X25040SI		Q511	1-801-806-11	TRANSISTOR DTC144EKA-T146	
IC7009	8-759-156-54	IC X25040SI		Q512	1-801-806-11	TRANSISTOR DTC144EKA-T146	
IC7010	8-759-156-54	IC X25040SI		Q513	8-729-027-38	TRANSISTOR DTA144EKA-T146	
		<CHIP CONDUCTOR>		Q514	1-801-806-11	TRANSISTOR DTC144EKA-T146	
JR2002	1-163-139-00	CERAMIC CHIP 820PF 5% 50V		Q515	1-801-806-11	TRANSISTOR DTC144EKA-T146	
		<COIL>		Q531	1-801-806-11	TRANSISTOR DTC144EKA-T146	
L1	1-419-337-11	COIL, HORIZONTAL LINEARITY		Q532	8-729-027-38	TRANSISTOR DTA144EKA-T146	
L2	1-419-338-11	COIL, HORIZONTAL LINEARITY		Q550	1-801-806-11	TRANSISTOR DTC144EKA-T146	
L4	1-406-673-21	INDUCTOR 2.2μH		Q701	1-801-806-11	TRANSISTOR DTC144EKA-T146	
L5	1-406-989-21	INDUCTOR 10μH		Q702	8-729-803-76	TRANSISTOR 2SA1371-E	
L6	1-406-670-11	INDUCTOR 680μH		Q703	8-729-015-28	TRANSISTOR IRFI9630GS	
L7	1-406-673-21	INDUCTOR 2.2μH		Q704	8-729-019-85	TRANSISTOR 2SC3392-5-TB	
L101	1-406-892-11	INDUCTOR 4μH		Q705	8-729-824-24	TRANSISTOR 2SA1338-5-TB	
L701	1-459-433-00	INDUCTOR 22μH		Q706	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L2001	1-406-669-11	INDUCTOR 470μH		Q707	1-801-806-11	TRANSISTOR DTC144EKA-T146	
L2002	1-406-669-11	INDUCTOR 470μH		Q708	8-729-027-38	TRANSISTOR DTA144EKA-T146	
		<TRANSISTOR>		Q709	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q1	8-729-119-80	TRANSISTOR 2SC2688-LK		Q710	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q2	8-729-042-55	TRANSISTOR 2SC5143		Q751	8-729-027-38	TRANSISTOR DTA144EKA-T146	
Q3	8-729-034-60	TRANSISTOR 2SK2350 (D24)		Q752	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q4	8-729-034-60	TRANSISTOR 2SK2350 (D24)		Q753	8-729-027-38	TRANSISTOR DTA144EKA-T146	
Q5	8-729-034-60	TRANSISTOR 2SK2350		Q754	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q6	8-729-034-60	TRANSISTOR 2SK2350		Q755	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q7	1-801-806-11	TRANSISTOR DTC144EKA-T146 (D24)		Q756	8-729-027-38	TRANSISTOR DTA144EKA-T146	
Q8	1-801-806-11	TRANSISTOR DTC144EKA-T146 (D24)		Q1302	8-729-027-38	TRANSISTOR DTA144EKA-T146 (D20)	
Q9	1-801-806-11	TRANSISTOR DTC144EKA-T146		Q1303	1-801-806-11	TRANSISTOR DTC144EKA-T146 (D20)	
Q10	1-801-806-11	TRANSISTOR DTC144EKA-T146		Q2000	8-729-027-38	TRANSISTOR DTA144EKA-T146	
Q11	1-801-806-11	TRANSISTOR DTC144EKA-T146 (D24)		Q2001	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q12	1-801-806-11	TRANSISTOR DTC144EKA-T146 (D24)		Q2002	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q13	1-801-806-11	TRANSISTOR DTC144EKA-T146 (D24)		Q2003	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R (D20)	
Q14	1-801-806-11	TRANSISTOR DTC144EKA-T146		Q2004	8-729-116-05	TRANSISTOR 2SK160-K5 (D20)	
Q15	8-729-122-13	TRANSISTOR 2SA1221-K		Q2005	8-729-027-59	TRANSISTOR DTC144EKA	
Q16	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		Q2006	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q17	8-729-034-60	TRANSISTOR 2SK2350		Q2007	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q18	1-801-806-11	TRANSISTOR DTC144EKA-T146		Q2301	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q19	8-729-034-60	TRANSISTOR 2SK2350		Q2302	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q20	1-801-806-11	TRANSISTOR DTC144EKA-T146		Q2303	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q21	8-729-044-21	TRANSISTOR 2SK2655-01R-F165		Q2304	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q22	1-801-806-11	TRANSISTOR DTC144EKA-T146		Q2305	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q23	1-801-806-11	TRANSISTOR DTC144EKA-T146		Q7001	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q24	8-729-027-38	TRANSISTOR DTA144EKA-T146		Q7002	1-801-806-11	TRANSISTOR DTC144EKA-T146	
Q25	8-729-120-28	TRANSISTOR 2SC1623-L5L6		Q7003	1-801-806-11	TRANSISTOR DTC144EKA-T146	
		<RESISTOR>		R1	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
				R2	1-216-073-00	RES,CHIP 10K 5% 1/10W	
				R3	1-216-025-91	RES,CHIP 100 5% 1/10W	





Ref.No.	Part No.	Description			Remark	Ref.No.	Part No.	Description			Remark
R4	1-249-389-11	CARBON	4.7	5%	1/4W	R56	1-215-911-11	METAL OXIDE	100	5%	3W F
R5	1-216-462-00	METAL OXIDE	8.2K	5%	2W F	R60	1-216-089-91	RES,CHIP	47K	5%	1/10W
R6	1-215-917-11	METAL OXIDE	1K	5%	3W F	R61	1-216-089-91	RES,CHIP	47K	5%	1/10W
R7	1-215-917-11	METAL OXIDE	1K	5%	3W F						(D24)
R9	1-216-383-11	METAL OXIDE	0.33	5%	3W F	R62	1-216-089-91	RES,CHIP	47K	5%	1/10W
					(D20)						(D24)
R9	1-216-385-11	METAL OXIDE	0.47	5%	3W F	R63	1-216-089-91	RES,CHIP	47K	5%	1/10W
					(D24)	R64	1-216-089-91	RES,CHIP	47K	5%	1/10W
R10	1-216-383-11	METAL OXIDE	0.33	5%	3W F	R65	1-216-089-91	RES,CHIP	47K	5%	1/10W
					(D20)	R101	1-216-369-00	METAL OXIDE	1	5%	2W F
R10	1-216-385-11	METAL OXIDE	0.47	5%	3W F	R102	1-216-113-00	RES,CHIP	470K	5%	1/10W
					(D24)	R103	1-216-651-11	METAL CHIP	1K	0.50%	1/10W
R11	1-216-380-11	METAL OXIDE	8.2	5%	2W	R104	1-216-651-11	METAL CHIP	1K	0.50%	1/10W
R12	1-211-824-71	FUSIBLE	220	5%	1/2W F	R105	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W
R13	1-211-824-71	FUSIBLE	220	5%	1/2W F	R106	1-216-049-91	RES,CHIP	1K	5%	1/10W
R14	1-216-089-91	RES,CHIP	47K	5%	1/10W	R107	1-216-049-91	RES,CHIP	1K	5%	1/10W
					(D24)						
R15	1-216-089-91	RES,CHIP	47K	5%	1/10W	R108	1-216-660-11	METAL CHIP	2.4K	0.50%	1/10W
					(D24)	R109	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R16	1-216-089-91	RES,CHIP	47K	5%	1/10W	R110	1-216-682-11	METAL CHIP	20K	0.50%	1/10W
R17	1-216-089-91	RES,CHIP	47K	5%	1/10W	R111	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W
R18	1-216-073-00	RES,CHIP	10K	5%	1/10W	R112	1-249-381-11	CARBON	1	5%	1/4W F
R19	1-216-073-00	RES,CHIP	10K	5%	1/10W						
					(D24)	R113	1-249-381-11	CARBON	1	5%	1/4W F
R20	1-216-073-00	RES,CHIP	10K	5%	1/10W	R114	1-216-689-11	METAL CHIP	39K	0.50%	1/10W
					(D24)	R201	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R21	1-216-073-00	RES,CHIP	10K	5%	1/10W	R202	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
					(D24)	R204	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R22	1-216-073-00	RES,CHIP	10K	5%	1/10W						(D20)
					(D24)	R204	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R23	1-216-073-00	RES,CHIP	10K	5%	1/10W						(D24)
					(D24)	R205	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R24	1-216-073-00	RES,CHIP	10K	5%	1/10W	R206	1-249-422-11	CARBON	2.7K	5%	1/4W
					(D24)	R207	1-216-043-91	RES,CHIP	560	5%	1/10W
R25	1-216-073-00	RES,CHIP	10K	5%	1/10W	R208	1-216-365-00	METAL OXIDE	0.47	5%	2W F
					(D24)	R209	1-216-365-00	METAL OXIDE	0.47	5%	2W F
R26	1-216-073-00	RES,CHIP	10K	5%	1/10W	R210	1-216-385-11	METAL OXIDE	0.47	5%	3W F
					(D24)	R211	1-216-375-00	METAL OXIDE	3.3	5%	2W F
R27	1-216-073-00	RES,CHIP	10K	5%	1/10W	R212	1-216-009-91	RES,CHIP	22	5%	1/10W
R28	1-216-073-00	RES,CHIP	10K	5%	1/10W	R213	1-216-375-00	METAL OXIDE	3.3	5%	2W
R29	1-216-073-00	RES,CHIP	10K	5%	1/10W						
R30	1-216-073-00	RES,CHIP	10K	5%	1/10W	R242	1-216-295-91	SHORT	0		
R31	1-216-073-00	RES,CHIP	10K	5%	1/10W	R244	1-216-295-91	SHORT	0		
R32	1-216-073-00	RES,CHIP	10K	5%	1/10W	R401	1-249-414-11	CARBON	560	5%	1/4W F
R33	1-216-025-91	RES,CHIP	100	5%	1/10W	R402	1-249-393-11	CARBON	10	5%	1/4W F
R34	1-216-051-00	RES,CHIP	1.2K	5%	1/10W	R403	1-249-377-11	CARBON	0.47	5%	1/4W F
R35	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R405	1-216-079-00	RES,CHIP	18K	5%	1/10W
R36	1-216-097-91	RES,CHIP	100K	5%	1/10W	R406	1-216-085-00	RES,CHIP	33K	5%	1/10W
R37	1-216-025-91	RES,CHIP	100	5%	1/10W	R407	1-216-101-00	RES,CHIP	150K	5%	1/10W
R38	1-216-049-91	RES,CHIP	1K	5%	1/10W	R408	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R39	1-216-073-00	RES,CHIP	10K	5%	1/10W	R409	1-216-049-91	RES,CHIP	1K	5%	1/10W
R40	1-216-097-91	RES,CHIP	100K	5%	1/10W	R422	1-249-393-11	CARBON	10	5%	1/4W
R41	1-216-073-00	RES,CHIP	10K	5%	1/10W	R501	1-214-913-00	METAL	100K	1%	1/2W
R42	1-214-841-55	METAL	110	1%	1/2W	R502	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R43	1-215-911-11	METAL OXIDE	100	5%	3W F						(D20)
R44	1-215-907-11	METAL OXIDE	22	5%	3W F	R502	1-216-672-11	METAL CHIP	7.5K	0.50%	1/10W
											(D24)
R45	1-216-470-00	METAL OXIDE	18	5%	3W F	R503	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W
R46	1-216-073-00	RES,CHIP	10K	5%	1/10W						(D20)
R47	1-216-073-00	RES,CHIP	10K	5%	1/10W	R503	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W
R48	1-216-073-00	RES,CHIP	10K	5%	1/10W						(D24)
R49	1-216-083-00	RES,CHIP	27K	5%	1/10W	R512	1-216-049-91	RES,CHIP	1K	5%	1/10W
R50	1-216-121-91	RES,CHIP	1M	5%	1/10W	R513	1-216-049-91	RES,CHIP	1K	5%	1/10W
R51	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	R514	1-216-049-91	RES,CHIP	1K	5%	1/10W
R52	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	R515	1-216-101-00	RES,CHIP	150K	5%	1/10W
R53	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	R516	1-216-049-91	RES,CHIP	1K	5%	1/10W
R54	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	R517	1-216-049-91	RES,CHIP	1K	5%	1/10W
R55	1-260-130-91	CARBON	390K	5%	1/2W	R550	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W
						R551	1-216-699-91	METAL CHIP	100K	0.50%	1/10W
						R552	1-216-675-91	METAL CHIP	10K	0.50%	1/10W

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R553	1-216-073-00	RES,CHIP	10K 5% 1/10W	R802	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W
R554	1-216-049-91	RES,CHIP	1K 5% 1/10W	R803	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R555	1-216-107-00	RES,CHIP	270K 5% 1/10W	R804	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R601	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R805	1-249-377-11	CARBON	0.47 5% 1/4W F
R602	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W	R806	1-249-433-11	CARBON	22K 5% 1/4W F
R603	1-249-413-11	CARBON	470 5% 1/4W F	R807	1-249-401-11	CARBON	47 5% 1/4W F (D20)
R605	1-249-377-11	CARBON	0.47 5% 1/4W F	R807	1-249-397-11	CARBON	22 5% 1/4W F (D24)
R606	1-214-799-11	METAL	2 1% 1/2W	R808	1-249-393-11	CARBON	10 5% 1/4W
R610	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W	R809	1-249-377-11	CARBON	0.47 5% 1/4W F
R611	1-249-377-11	CARBON	0.47 5% 1/4W F	R810	1-249-425-11	CARBON	4.7K 5% 1/4W F
R612	1-249-377-11	CARBON	0.47 5% 1/4W F	R811	1-249-392-11	CARBON	8.2 5% 1/4W F
R613	1-214-799-11	METAL	2 1% 1/2W	R812	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R614	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R813	1-249-385-11	CARBON	2.2 5% 1/4W
R615	1-216-077-91	RES,CHIP	15K 5% 1/10W	R814	1-249-393-11	CARBON	10 5% 1/4W
R616	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R815	1-216-089-91	RES,CHIP	47K 5% 1/10W
R618	1-249-385-11	CARBON	2.2 5% 1/4W F	R816	1-249-385-11	CARBON	2.2 5% 1/4W
R701	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W (D20)	R817	1-216-073-00	RES,CHIP	10K 5% 1/10W
R701	1-216-662-11	METAL CHIP	3K 0.50% 1/10W (D24)	R818	1-216-055-00	RES,CHIP	1.8K 5% 1/10W
R702	1-216-677-11	METAL CHIP	12K 0.50% 1/10W	R819	1-216-049-91	RES,CHIP	1K 5% 1/10W
R703	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W	R1005	1-216-073-00	RES,CHIP	10K 5% 1/10W
R704	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W (D20)	R1006	1-216-073-00	RES,CHIP	10K 5% 1/10W
R704	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R1108	1-216-025-91	RES,CHIP	100 5% 1/10W
R705	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D20)	R1109	1-216-025-91	RES,CHIP	100 5% 1/10W
R705	1-216-683-11	METAL CHIP	22K 0.50% 1/10W (D24)	R1110	1-216-041-00	RES,CHIP	470 5% 1/10W
R706	1-216-679-11	METAL CHIP	15K 0.50% 1/10W (D20)	R1114	1-216-049-91	RES,CHIP	1K 5% 1/10W
R706	1-216-691-11	METAL CHIP	47K 0.50% 1/10W (D24)	R1116	1-216-041-00	RES,CHIP	470 5% 1/10W
R707	1-216-679-11	METAL CHIP	15K 0.50% 1/10W (D20)	R1117	1-216-041-00	RES,CHIP	470 5% 1/10W
R707	1-216-691-11	METAL CHIP	47K 0.50% 1/10W (D24)	R1119	1-216-061-00	RES,CHIP	3.3K 5% 1/10W
R709	1-216-627-11	METAL CHIP	100 0.50% 1/10W	R1124	1-216-079-00	RES,CHIP	18K 5% 1/10W
R710	1-216-695-11	METAL CHIP	68K 0.50% 1/10W	R1140	1-216-097-91	RES,CHIP	100K 5% 1/10W
R711	1-216-073-00	RES,CHIP	10K 5% 1/10W	R1158	1-216-025-91	RES,CHIP	100 5% 1/10W
R712	1-216-025-91	RES,CHIP	100 5% 1/10W	R1159	1-216-041-00	RES,CHIP	470 5% 1/10W
R713	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R1166	1-216-041-00	RES,CHIP	470 5% 1/10W
R714	1-215-479-00	METAL	270K 1% 1/4W	R1167	1-216-041-00	RES,CHIP	470 5% 1/10W
R715	1-215-473-00	METAL	150K 1% 1/4W	R1168	1-216-025-91	RES,CHIP	100 5% 1/10W
R716	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R1189	1-216-097-91	RES,CHIP	100K 5% 1/10W
R717	1-216-073-00	RES,CHIP	10K 5% 1/10W	R1202	1-216-025-91	RES,CHIP	100 5% 1/10W
R718	1-215-479-00	METAL	270K 1% 1/4W	R1204	1-216-025-91	RES,CHIP	100 5% 1/10W
R719	1-216-369-00	METAL OXIDE	1 5% 2W F	R1206	1-216-025-91	RES,CHIP	100 5% 1/10W
R720	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R1209	1-216-025-91	RES,CHIP	100 5% 1/10W
R721	1-249-397-11	CARBON	22 5% 1/4W F	R1211	1-216-025-91	RES,CHIP	100 5% 1/10W
R722	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R1212	1-216-025-91	RES,CHIP	100 5% 1/10W
R723	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W	R1252	1-216-025-91	RES,CHIP	100 5% 1/10W
R724	1-216-670-11	METAL CHIP	6.2K 0.50% 1/10W	R1259	1-216-025-91	RES,CHIP	100 5% 1/10W
R725	1-216-049-91	RES,CHIP	1K 5% 1/10W	R1260	1-216-025-91	RES,CHIP	100 5% 1/10W
R726	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D20)	R1261	1-216-025-91	RES,CHIP	100 5% 1/10W
R726	1-216-687-11	METAL CHIP	33K 0.50% 1/10W (D24)	R1262	1-216-025-91	RES,CHIP	100 5% 1/10W
R727	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W	R1266	1-216-025-91	RES,CHIP	100 5% 1/10W
R728	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D20)	R1301	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D20)
R728	1-216-695-11	METAL CHIP	68K 0.50% 1/10W (D24)	R1302	1-218-759-11	METAL CHIP	200K 0.50% 1/10W (D20)
R729	1-216-025-91	RES,CHIP	100 5% 1/10W	R2000	1-216-083-00	RES,CHIP	27K 5% 1/10W
R751	1-216-073-00	RES,CHIP	10K 5% 1/10W	R2001	1-216-001-00	RES,CHIP	10 5% 1/10W
R752	1-216-073-00	RES,CHIP	10K 5% 1/10W	R2002	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R753	1-216-073-00	RES,CHIP	10K 5% 1/10W	R2003	1-216-647-11	METAL CHIP	680 0.50% 1/10W
				R2004	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
				R2005	1-216-295-91	SHORT	0
				R2006	1-216-121-91	RES,CHIP	1M 5% 1/10W
				R2012	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
				R2013	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
				R2014	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
				R2015	1-216-073-00	RES,CHIP	10K 5% 1/10W



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R2017	1-216-655-11	METAL CHIP	1.5K 0.50% 1/10W	R2322	1-216-049-91	RES,CHIP	1K 5% 1/10W
R2018	1-216-683-11	METAL CHIP	22K 0.50% 1/10W	R2323	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R2020	1-216-025-91	RES,CHIP	100 5% 1/10W	R2324	1-216-662-11	METAL CHIP	3K 0.50% 1/10W
R2021	1-216-677-11	METAL CHIP	12K 0.50% 1/10W	R2325	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R2022	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R2326	1-216-073-00	RES,CHIP	10K 5% 1/10W
R2023	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R2327	1-216-073-00	RES,CHIP	10K 5% 1/10W
R2024	1-216-682-11	METAL CHIP	20K 0.50% 1/10W (D20)	R2328	1-216-049-91	RES,CHIP	1K 5% 1/10W
R2025	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W (D20)	R2329	1-216-690-11	METAL CHIP	43K 0.50% 1/10W
R2026	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R2330	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R2027	1-216-049-91	RES,CHIP	1K 5% 1/10W	R2331	1-216-693-11	METAL CHIP	56K 0.50% 1/10W
R2028	1-216-681-11	METAL CHIP	18K 0.50% 1/10W	R2332	1-216-049-91	RES,CHIP	1K 5% 1/10W
R2029	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R2333	1-216-049-91	RES,CHIP	1K 5% 1/10W
R2030	1-216-049-91	RES,CHIP	1K 5% 1/10W	R2334	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R2031	1-216-689-11	METAL CHIP	39K 0.50% 1/10W	R2335	1-216-683-11	METAL CHIP	22K 0.50% 1/10W
R2032	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R2336	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R2033	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R2337	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R2034	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R2338	1-216-049-91	RES,CHIP	1K 5% 1/10W
R2035	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R2339	1-216-695-11	METAL CHIP	68K 0.50% 1/10W
R2036	1-216-683-11	METAL CHIP	22K 0.50% 1/10W (D20)	R2340	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R2037	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D20)	R7001	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2037	1-216-295-91	SHORT	0 (D24)	R7002	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2038	1-216-089-91	RES,CHIP	47K 5% 1/10W (D20)	R7003	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2039	1-216-073-00	RES,CHIP	10K 5% 1/10W (D20)	R7004	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2040	1-216-089-91	RES,CHIP	47K 5% 1/10W (D20)	R7005	1-216-025-91	RES,CHIP	100 5% 1/10W
R2041	1-216-687-11	METAL CHIP	33K 0.50% 1/10W (D20)	R7006	1-216-025-91	RES,CHIP	100 5% 1/10W
R2042	1-216-693-11	METAL CHIP	56K 0.50% 1/10W (D20)	R7007	1-216-025-91	RES,CHIP	100 5% 1/10W
R2043	1-216-682-11	METAL CHIP	20K 0.50% 1/10W (D20)	R7008	1-216-025-91	RES,CHIP	100 5% 1/10W
R2044	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D20)	R7009	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2044	1-216-295-91	SHORT	0 (D24)	R7011	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2045	1-216-049-91	RES,CHIP	1K 5% 1/10W	R7012	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2046	1-216-025-91	RES,CHIP	100 5% 1/10W	R7013	1-216-073-00	RES,CHIP	10K 5% 1/10W
R2047	1-216-025-91	RES,CHIP	100 5% 1/10W	R7014	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R2048	1-216-679-11	METAL CHIP	15K 0.50% 1/10W (D20)	R7015	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R2048	1-216-295-91	SHORT	0 (D24)	R7016	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2301	1-216-073-00	RES,CHIP	10K 5% 1/10W	R7017	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2302	1-216-679-11	METAL CHIP	15K 0.50% 1/10W	R7018	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2303	1-216-677-11	METAL CHIP	12K 0.50% 1/10W	R7019	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2304	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R7020	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2305	1-216-689-11	METAL CHIP	39K 0.50% 1/10W	R7021	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2306	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W	R7022	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2307	1-216-690-11	METAL CHIP	43K 0.50% 1/10W	R7023	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2308	1-216-049-91	RES,CHIP	1K 5% 1/10W	R7025	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2309	1-216-693-11	METAL CHIP	56K 0.50% 1/10W	R7026	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2310	1-216-049-91	RES,CHIP	1K 5% 1/10W	R7027	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2311	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R7028	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2312	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R7029	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2313	1-216-687-11	METAL CHIP	33K 0.50% 1/10W	R7030	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2314	1-216-049-91	RES,CHIP	1K 5% 1/10W	R7031	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2315	1-216-049-91	RES,CHIP	1K 5% 1/10W	R7032	1-216-041-00	RES,CHIP	470 5% 1/10W
R2316	1-216-683-11	METAL CHIP	22K 0.50% 1/10W	R7033	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2317	1-216-679-11	METAL CHIP	15K 0.50% 1/10W	R7034	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2318	1-216-689-11	METAL CHIP	39K 0.50% 1/10W	R7035	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2319	1-216-049-91	RES,CHIP	1K 5% 1/10W	R7036	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2320	1-216-049-91	RES,CHIP	1K 5% 1/10W	R7037	1-216-097-91	RES,CHIP	100K 5% 1/10W
R2321	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R7038	1-216-097-91	RES,CHIP	100K 5% 1/10W
				R7039	1-216-097-91	RES,CHIP	100K 5% 1/10W
				R7040	1-216-097-91	RES,CHIP	100K 5% 1/10W
				R7041	1-216-097-91	RES,CHIP	100K 5% 1/10W
				R7042	1-216-097-91	RES,CHIP	100K 5% 1/10W
				R7050	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
				R7051	1-216-073-00	RES,CHIP	10K 5% 1/10W
				R7052	1-216-025-91	RES,CHIP	100 5% 1/10W
				R7053	1-216-025-91	RES,CHIP	100 5% 1/10W
				R7054	1-216-025-91	RES,CHIP	100 5% 1/10W





Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C16	1-131-913-11	CAPACITOR	150μF 20% 450V	C808	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V
C17	1-131-913-11	CAPACITOR	150μ 20% 450V	C809	1-107-909-11	ELECT	47μF 20% 50V
C18	1-107-909-11	ELECT	47μF 20% 50V	C901	△ 1-113-907-51	CERAMIC	0.0022μF 20% 250V
C19	1-163-251-11	CERAMIC CHIP	100PF 5% 50V	C902	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V
C101	1-136-203-91	CAPACITOR	0.01μF 20% 630V			<CONNECTOR>	
C102	1-111-118-91	ELECT	220μF 20% 50V				
C103	1-128-526-11	ELECT	100μF 20% 16V	CN1	* 1-691-960-11	PIN, CONNECTOR (PC BOARD)	3P
C104	1-107-909-11	ELECT	47μF 20% 50V	CN2	* 1-695-561-11	PIN, CONNECTOR (PC BOARD)	7P
C105	1-111-063-11	ELECT	470μF 20% 25V	CN4	1-774-523-11	PIN, CONNECTOR (PC BOARD)	64P
C106	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V			<DIODE>	
C107	1-107-909-11	ELECT	47μF 20% 50V				
C108	1-111-019-91	ELECT	0.0022F 20% 10V	D1	△ 8-719-022-99	DIODE D6SB60L	
C109	1-111-019-91	ELECT	0.0022F 20% 10V	D2	8-719-037-54	DIODE RD30SB-T1	
C110	1-111-019-91	ELECT	0.0022F 20% 10V	D3	8-719-073-01	DIODE MA111-(K8),S0	
C111	1-111-063-11	ELECT	470μF 20% 25V	D4	8-719-028-72	DIODE RGP02-17EL-6433	
C112	1-107-909-11	ELECT	47μF 20% 50V	D6	8-719-037-53	DIODE RD27SB-T1	
C113	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V	D7	8-719-073-01	DIODE MA111-(K8),S0	
C114	1-107-909-11	ELECT	47μF 20% 50V	D8	8-719-073-01	DIODE MA111-(K8),S0	
C115	1-115-340-11	CERAMIC CHIP	0.22μF 10% 25V	D9	8-719-073-01	DIODE MA111-(K8),S0	
C116	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	D10	8-719-073-01	DIODE MA111-(K8),S0	
C117	1-107-877-11	ELECT	1000μF 20% 10V	D11	8-719-304-63	DIODE RM11C	
C201	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V	D12	8-719-073-01	DIODE MA111-(K8),S0	
C202	1-107-905-11	ELECT	4.7μF 20% 50V	D16	8-719-073-01	DIODE MA111-(K8),S0	
C203	1-163-009-11	CERAMIC CHIP	0.001μF 10% 50V	D101	8-719-063-74	DIODE D1NL20U-TR2	
C204	1-107-906-11	ELECT	10μF 20% 50V	D102	8-719-979-64	DIODE UF4005PKG23	
C206	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	D104	8-719-159-23	DIODE RD6.8SB1-T2	
C207	1-107-906-11	ELECT	10μF 20% 50V	D105	8-719-027-43	DIODE S2L20UF	
C208	1-131-876-91	CAPACITOR	00000 0 0	D106	8-719-510-41	DIODE D10SC9M	
C210	1-131-877-91	CAPACITOR	10000PF 5% 800V	D107	8-719-063-74	DIODE D1NL20U-TR2	
C211	1-131-877-91	CAPACITOR	10000PF 5% 800V	D108	8-719-060-27	DIODE SLR-325MCT31	
C212	1-107-909-11	ELECT	47μF 20% 50V	D201	8-719-989-76	DIODE SC802-04	
C213	1-115-789-11	ELECT	0.001F 20% 25V	D202	8-719-989-21	DIODE SC311-6-TE12RA	
C214	1-115-789-11	ELECT	0.001F 20% 25V	D203	8-719-037-23	DIODE RD12SB1-T1	
C215	1-115-789-11	ELECT	0.001F 20% 25V	D204	8-719-060-88	DIODE D4SBS6	
C216	1-115-789-11	ELECT	0.001F 20% 25V	D205	8-719-052-92	DIODE D10SBS4F	
C217	1-111-019-91	ELECT	0.0022F 20% 10V	D206	8-719-050-18	DIODE D4SBL20U	
C218	1-111-019-91	ELECT	0.0022F 20% 10V	D207	8-719-989-21	DIODE SC311-6-TE12RA	
C219	1-111-019-91	ELECT	0.0022F 20% 10V	D801	8-719-073-01	DIODE MA111-(K8),S0	
C220	1-111-019-91	ELECT	0.0022F 20% 10V	D802	8-719-073-01	DIODE MA111-(K8),S0	
C221	1-110-641-51	ELECT	33μF 20% 200V	D803	8-719-073-01	DIODE MA111-(K8),S0	
C222	1-110-641-51	ELECT	33μF 20% 200V	D804	8-719-073-01	DIODE MA111-(K8),S0	
C223	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	D805	8-719-073-01	DIODE MA111-(K8),S0	
C224	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	D806	8-719-073-01	DIODE MA111-(K8),S0	
C225	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	D807	8-719-073-01	DIODE MA111-(K8),S0	
C226	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	D808	8-719-157-95	DIODE RD3.3SB1	
C227	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	D901	△ 8-719-404-50	DIODE MA111-TX	
C228	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V			<FUSE>	
C229	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	F1	△ 1-576-231-11	FUSE (H.B.C.)	4A/250V
C230	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V			<FERRITE BEAD>	
C231	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	FB101	1-410-396-41	FERRITE	0.45μH
C232	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	FB202	1-410-397-21	FERRITE	1.1μH
C233	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V	FB204	1-410-397-21	FERRITE	1.1μH
C234	1-115-339-11	CERAMIC CHIP	0.1μF 10% 50V			<CONNECTOR ASSY>	
C235	1-128-528-11	ELECT	470μF 20% 25V	IC3P	1-900-214-50	CONNECTOR ASSY, FASTEN TAB	
C236	1-128-528-11	ELECT	470μF 20% 25V				
C237	1-107-877-11	ELECT	1000μF 20% 10V				
C238	1-107-877-11	ELECT	1000μF 20% 10V				
C239	1-107-952-11	ELECT	22μF 20% 200V				
C801	1-126-235-11	ELECT	100μF 20% 10V				
C802	1-163-021-91	CERAMIC CHIP	0.01μF 10% 50V				
C803	1-107-701-11	ELECT	47μF 20% 16V				
C804	1-128-526-11	ELECT	100μF 20% 16V				
C805	1-128-526-11	ELECT	100μF 20% 16V				
C806	1-128-526-11	ELECT	100μF 20% 16V				
C807	1-128-526-11	ELECT	100μF 20% 16V				



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
	<IC>				<RESISTOR>		
IC1	8-749-015-27	IC MZ1540		R1	△ 1-220-825-91	CARBON 330K	5% 1/2W
IC2	8-759-929-63	IC LM7815CT		R2	1-240-251-11	CMT,MELF 6.8	5% 10W
IC101	8-759-490-02	IC TOP224Y-BB		R3	1-216-089-91	RES,CHIP 47K	5% 1/10W
IC102	8-749-011-42	IC SI-3050F		R4	1-216-095-00	RES,CHIP 82K	5% 1/10W
IC103	8-759-700-65	IC NJM79L05A		R5	1-216-049-91	RES,CHIP 1K	5% 1/10W
IC104	8-759-140-85	IC μPC1093J		R6	1-216-075-00	RES,CHIP 12K	5% 1/10W
IC201	8-749-013-78	IC MCR5102		R7	1-260-085-11	CARBON 68	5% 1/2W
IC202	8-749-920-61	IC SE-135N		R8	1-216-073-00	RES,CHIP 10K	5% 1/10W
IC203	8-759-085-67	IC LM339NS		R9	1-216-073-00	RES,CHIP 10K	5% 1/10W
IC801	8-759-140-85	IC μPC1093J		R10	1-216-081-00	RES,CHIP 22K	5% 1/10W
IC802	8-759-085-67	IC LM339NS		R11	1-215-861-00	METAL OXIDE 47	5% 1W F
	<COIL>			R12	1-219-729-11	METAL 0.33	10% 5W
L1	1-406-975-21	INDUCTOR 47μH		R13	1-219-729-11	METAL 0.33	10% 5W
L101	1-406-971-21	INDUCTOR 10μH		R14	1-216-073-00	RES,CHIP 10K	5% 1/10W
L201	1-406-659-11	INDUCTOR 10μH		R15	1-249-405-11	CARBON 100	5% 1/4W F
L202	1-406-659-11	INDUCTOR 10μH		R16	1-215-861-00	METAL OXIDE 47	5% 1W F
L203	1-406-971-21	INDUCTOR 10μH		R17	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
L204	1-406-971-21	INDUCTOR 10μH		R18	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
L205	1-406-659-11	INDUCTOR 10μH		R19	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
	<PHOTO COUPLER>			R20	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
PH101	△ 8-749-010-64	PHOTO COUPLER PC123F2		R21	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
PH103	8-749-010-64	PHOTO COUPLER PC123F2		R22	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
PH201	△ 8-749-010-64	PHOTO COUPLER PC123F2		R23	1-216-695-11	METAL CHIP 68K	0.50% 1/10W
PH801	△ 8-749-010-64	PHOTO COUPLER PC123F2		R101	1-249-387-11	CARBON 3.3	5% 1/4W F
PH901	△ 8-749-010-64	PHOTO COUPLER PC123F2		R102	1-215-901-00	METAL OXIDE 33K	5% 2W F
	<TRANSISTOR>			R103	1-215-917-11	METAL OXIDE 1K	5% 3W F
Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE		R104	1-216-017-91	RES,CHIP 47	5% 1/10W
Q2	8-729-033-26	TRANSISTOR DTA114GKAT146		R105	1-216-077-91	RES,CHIP 15K	5% 1/10W
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE		R106	1-216-009-91	RES,CHIP 22	5% 1/10W
Q4	8-729-900-53	TRANSISTOR DTC114EK		R107	1-215-892-11	METAL OXIDE 1K	5% 2W F
Q5	8-729-029-47	TRANSISTOR DTA143ESA-TP		R108	1-216-049-91	RES,CHIP 1K	5% 1/10W
Q6	8-729-029-47	TRANSISTOR DTA143ESA-TP		R109	1-216-049-91	RES,CHIP 1K	5% 1/10W
Q7	8-729-027-38	TRANSISTOR DTA144EKA-T146		R110	1-216-651-11	METAL CHIP 1K	0.50% 1/10W
Q8	1-801-806-11	TRANSISTOR DTC144EKA-T146		R111	1-216-635-11	METAL CHIP 220	0.50% 1/10W
Q101	8-729-033-25	TRANSISTOR DTC114GKA		R112	1-215-886-11	METAL OXIDE 100	5% 2W F
Q102	8-729-033-26	TRANSISTOR DTA114GKAT146		R113	1-216-057-00	RES,CHIP 2.2K	5% 1/10W
Q103	8-729-027-38	TRANSISTOR DTA144EKA-T146		R114	1-216-041-00	RES,CHIP 470	5% 1/10W
Q801	8-729-027-23	TRANSISTOR DTA114EKA-T146		R115	1-216-009-91	RES,CHIP 22	5% 1/10W
Q802	1-801-806-11	TRANSISTOR DTC144EKA-T146		R116	1-216-661-11	METAL CHIP 2.7K	0.50% 1/10W
Q803	8-729-027-38	TRANSISTOR DTA144EKA-T146		R117	1-216-661-11	METAL CHIP 2.7K	0.50% 1/10W
Q804	1-801-806-11	TRANSISTOR DTC144EKA-T146		R118	1-219-718-11	CEMENTED 0.1	10% 5W
Q805	8-729-027-38	TRANSISTOR DTA144EKA-T146		R119	1-219-718-11	CEMENTED 0.1	10% 5W
Q806	1-801-806-11	TRANSISTOR DTC144EKA-T146		R120	1-219-718-11	CEMENTED 0.1	10% 5W
Q807	8-729-027-38	TRANSISTOR DTA144EKA-T146		R121	1-219-718-11	CEMENTED 0.1	10% 5W
Q808	1-801-806-11	TRANSISTOR DTC144EKA-T146		R122	1-216-001-00	RES,CHIP 10	5% 1/10W
Q809	8-729-027-38	TRANSISTOR DTA144EKA-T146		R123	1-216-009-91	RES,CHIP 22	5% 1/10W
Q810	1-801-806-11	TRANSISTOR DTC144EKA-T146		R124	1-216-057-00	RES,CHIP 2.2K	5% 1/10W
Q811	1-801-806-11	TRANSISTOR DTC144EKA-T146		R201	1-202-933-61	FUSIBLE 0.1	10% 1/2W F
Q812	1-801-806-11	TRANSISTOR DTC144EKA-T146		R202	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
Q813	1-801-806-11	TRANSISTOR DTC144EKA-T146		R203	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
Q814	1-801-806-11	TRANSISTOR DTC144EKA-T146		R204	1-218-760-11	METAL CHIP 220K	0.50% 1/10W
Q815	1-801-806-11	TRANSISTOR DTC144EKA-T146		R205	1-216-676-11	METAL CHIP 11K	0.50% 1/10W
Q901	8-729-900-53	TRANSISTOR DTC114EK		R206	1-216-661-11	METAL CHIP 2.7K	0.50% 1/10W
Q902	8-729-900-53	TRANSISTOR DTC114EK		R207	1-216-675-91	METAL CHIP 10K	0.50% 1/10W
Q903	8-729-900-53	TRANSISTOR DTC114EK		R208	1-216-659-11	METAL CHIP 2.2K	0.50% 1/10W
Q904	8-729-033-25	TRANSISTOR DTC114GKA		R209	1-219-729-11	METAL 0.33	10% 5W
Q905	8-729-027-38	TRANSISTOR DTA144EKA-T146		R210	1-219-729-11	METAL 0.33	10% 5W
				R211	1-219-512-11	CARBON 2.2M	5% 1/2W
				R213	1-216-041-00	RES,CHIP 470	5% 1/10W
				R215	1-219-512-11	CARBON 2.2M	5% 1/2W
				R217	1-216-659-11	METAL CHIP 2.2K	0.50% 1/10W
				R218	1-216-677-11	METAL CHIP 12K	0.50% 1/10W
				R219	1-219-718-11	CEMENTED 0.1	10% 5W

Ref.No.	Part No.	Description	Remark
R220	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R221	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R222	1-218-775-11	METAL CHIP	910K 0.50% 1/10W
R223	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
R224	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R225	1-219-718-11	CEMENTED	0.1 10% 5W
R226	1-219-718-11	CEMENTED	0.1 10% 5W
R227	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R228	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R229	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
R230	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R231	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
R232	1-219-718-11	CEMENTED	0.1 10% 5W
R233	1-219-718-11	CEMENTED	0.1 10% 5W
R234	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R235	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R236	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W
R237	1-219-718-11	CEMENTED	0.1 10% 5W
R238	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R239	1-216-049-91	RES,CHIP	1K 5% 1/10W
R240	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R241	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R242	1-219-718-11	CEMENTED	0.1 10% 5W
R243	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R244	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R245	1-218-775-11	METAL CHIP	910K 0.50% 1/10W
R246	1-202-933-61	FUSIBLE	0.1 10% 1/2W F
R247	1-202-933-61	FUSIBLE	0.1 10% 1/2W F
R248	1-218-760-11	METAL CHIP	220K 0.50% 1/10W
R249	1-218-760-11	METAL CHIP	220K 0.50% 1/10W
R250	1-218-760-11	METAL CHIP	220K 0.50% 1/10W
R801	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R802	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R803	1-216-683-11	METAL CHIP	22K 0.50% 1/10W
R804	1-216-049-91	RES,CHIP	1K 5% 1/10W
R805	1-216-661-11	METAL CHIP	2.7K 0.50% 1/10W
R806	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W
R807	1-216-073-00	RES,CHIP	10K 5% 1/10W
R808	1-216-683-11	METAL CHIP	22K 0.50% 1/10W
R809	1-216-676-11	METAL CHIP	11K 0.50% 1/10W
R810	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R811	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R812	1-216-049-91	RES,CHIP	1K 5% 1/10W
R813	1-216-073-00	RES,CHIP	10K 5% 1/10W
R814	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R815	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R816	1-216-697-91	METAL CHIP	82K 0.50% 1/10W
R817	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R818	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R819	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W
R820	1-216-073-00	RES,CHIP	10K 5% 1/10W
R821	1-216-073-00	RES,CHIP	10K 5% 1/10W
R822	1-216-073-00	RES,CHIP	10K 5% 1/10W
R823	1-216-073-00	RES,CHIP	10K 5% 1/10W
R824	1-216-025-91	RES,CHIP	100 5% 1/10W
R825	1-216-025-91	RES,CHIP	100 5% 1/10W
R826	1-216-025-91	RES,CHIP	100 5% 1/10W
R827	1-216-025-91	RES,CHIP	100 5% 1/10W
R828	1-216-089-91	RES,CHIP	47K 5% 1/10W
R829	1-216-081-00	RES,CHIP	22K 5% 1/10W
R901	△1-219-513-11	CARBON	4.7M 5% 1/2W
R902	△1-219-513-11	CARBON	4.7M 5% 1/2W
R903	1-216-097-91	RES,CHIP	100K 5% 1/10W
R904	1-216-041-00	RES,CHIP	470 5% 1/10W
R905	1-216-089-91	RES,CHIP	47K 5% 1/10W
R906	1-216-073-00	RES,CHIP	10K 5% 1/10W

Ref.No.	Part No.	Description	Remark
R907	1-260-085-11	CARBON	68 5% 1/2W
		<RELAY>	
RY1	△1-755-268-11	RELAY, AC POWER	
RY2	1-755-171-11	RELAY	
		<SPARK GAP>	
SG1	△1-533-982-21	GAP, SPARK	
		<TRANSFORMER>	
T1	△1-435-180-11	TRANSFORMER, LINE FILTER	
T2	△1-435-180-11	TRANSFORMER, LINE FILTER	
T3	1-419-336-11	COIL, CHOKE	
T101	△1-435-184-11	TRANSFORMER, CONVERTER	
T201	△1-435-179-11	TRANSFORMER, CONVERTER	
		<THERMISTOR>	
THP1	△1-808-059-32	THERMISTOR, POSITIVE	
		<TEST PIN>	
TP1	* 1-537-864-11	PIN, POST	
TP2	* 1-537-864-11	PIN, POST	
TP3	* 1-537-864-11	PIN, POST	
TP4	* 1-537-864-11	PIN, POST	
TP5	* 1-537-864-11	PIN, POST	
TP6	* 1-537-864-11	PIN, POST	
TP7	* 1-537-864-11	PIN, POST	
TP8	* 1-537-864-11	PIN, POST	
TP9	* 1-537-864-11	PIN, POST	
		<VARISTOR>	
VDR2	△1-801-268-51	VARISTOR TNR14V471K660	
VDR3	△1-810-622-21	VARISTOR	
*****			
	* A-1372-136-A	HD MOUNT	*****
		<CONNECTOR>	
CN101	1-565-269-11	SOCKET, CONNECTOR (D-DUB,L) 9P	
CN102	1-506-474-11	PIN, CONNECTOR 9P	
		<DIODE>	
D101	8-719-037-00	DIODE RD6.2SB2-T1	
D102	8-719-037-00	DIODE RD6.2SB2-T1	
D103	8-719-037-00	DIODE RD6.2SB2-T1	
D104	8-719-037-00	DIODE RD6.2SB2-T1	
D105	8-719-037-00	DIODE RD6.2SB2-T1	
*****			

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
* A-1195-157-A	PA COMPL (D24)			C625	1-126-953-11	ELECT 2200μF 20%	35V (D24)
* A-1195-155-A	PA COMPL (D20)	*****		C626	1-126-767-11	ELECT 1000μF 20%	16V (D24)
* X-4035-068-1	HEAT SINK ASSY (D20)			C627	1-126-767-11	ELECT 1000μF 20%	16V (D24)
3-710-578-01	COVER, VOLUME, 6 MOLD			C628	1-163-031-11	CERAMIC CHIP 0.01μF	50V (D24)
4-047-285-01	SHEET, INSULATING			C629	1-163-031-11	CERAMIC CHIP 0.01μF	50V (D24)
4-382-854-11	SCREW (M3X10), P, SW (+)			C630	1-163-031-11	CERAMIC CHIP 0.01μF	50V (D24)
7-682-950-01	SCREW +PSW 3X12			C631	1-163-031-11	CERAMIC CHIP 0.01μF	50V (D24)
<CAPACITOR>				C632	1-163-009-11	CERAMIC CHIP 0.001μF 10%	50V (D24)
C101	1-126-934-11	ELECT	220μF 20%	16V	C633	1-163-009-11	CERAMIC CHIP 0.001μF 10%
C102	1-123-024-21	ELECT	33μF	160V	C650	1-163-031-11	CERAMIC CHIP 0.01μF
C103	1-137-417-11	MYLAR	0.0047μF 10%	200V	C651	1-163-031-11	CERAMIC CHIP 0.01μF
C104	1-115-522-11	FILM	1μF 5%	250V	C652	1-163-031-11	CERAMIC CHIP 0.01μF
C105	1-106-355-12	MYLAR	0.0033μF 10%	200V	C653	1-163-031-11	CERAMIC CHIP 0.01μF
C106	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V	C654	1-163-031-11	CERAMIC CHIP 0.01μF
C107	1-162-134-11	CERAMIC	470PF 10%	2KV	C655	1-163-009-11	CERAMIC CHIP 0.001μF 10%
C108	1-136-069-00	FILM	0.0044μF 3%	2KV	C656	1-163-009-11	CERAMIC CHIP 0.001μF 10%
C201	1-126-934-11	ELECT	220μF 20%	16V	C657	1-163-009-11	CERAMIC CHIP 0.001μF 10%
C202	1-163-021-91	CERAMIC CHIP	0.01μF 10%	50V	C658	1-163-009-11	CERAMIC CHIP 0.001μF 10%
C203	1-115-350-51	CERAMIC	0.0047μF	2KV (D24)	C659	1-163-009-11	CERAMIC CHIP 0.001μF 10%
C204	1-115-350-51	CERAMIC	0.0047μF	2KV (D24)	C660	1-163-009-11	CERAMIC CHIP 0.001μF 10%
C205	1-115-350-51	CERAMIC	0.0047μF	2KV (D24)	C661	1-126-935-11	ELECT 470μF 20%
C301	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V	C670	1-104-652-11	ELECT 470μF 20%
C302	1-164-505-11	CERAMIC CHIP	2.2μF	16V	C671	1-104-652-11	ELECT 470μF 20%
C305	1-164-505-11	CERAMIC CHIP	2.2μF	16V	C672	1-163-031-11	CERAMIC CHIP 0.01μF
C501	1-163-009-11	CERAMIC CHIP	0.001μF 10%	50V	C673	1-163-031-11	CERAMIC CHIP 0.01μF
C502	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V	C674	1-104-652-11	ELECT 470μF 20%
C503	1-164-690-91	CERAMIC CHIP	0.0022μF 5%	50V	C675	1-104-652-11	ELECT 470μF 20%
C504	1-163-275-11	CERAMIC CHIP	0.001μF 5%	50V	C676	1-104-652-11	ELECT 470μF 20%
C505	1-126-934-11	ELECT	220μF 20%	16V	C677	1-104-652-11	ELECT 470μF 20%
C506	1-104-665-11	ELECT	100μF 20%	25V	C678	1-163-031-11	CERAMIC CHIP 0.01μF
C507	1-163-021-91	CERAMIC CHIP	0.01μF 10%	50V	C679	1-163-031-11	CERAMIC CHIP 0.01μF
C508	1-163-243-11	CERAMIC CHIP	47PF 5%	50V	C680	1-163-031-11	CERAMIC CHIP 0.01μF
C509	1-126-960-11	ELECT	1μF 20%	50V	C681	1-163-031-11	CERAMIC CHIP 0.01μF
C510	1-104-663-11	ELECT	33μF 20%	25V	C682	1-163-031-11	CERAMIC CHIP 0.01μF
C511	1-127-573-91	CERAMIC CHIP	1μF 10%	16V	C683	1-163-031-11	CERAMIC CHIP 0.01μF
C512	1-163-021-91	CERAMIC CHIP	0.01μF 10%	50V			
C513	1-127-573-91	CERAMIC CHIP	1μF 10%	16V			
C514	1-126-963-11	ELECT	4.7μF 20%	50V			
C515	1-163-021-91	CERAMIC CHIP	0.01μF 10%	50V (D20)			
C516	1-127-573-91	CERAMIC CHIP	1μF 10%	16V			
C517	1-126-964-11	ELECT	10μF 20%	50V			
C518	1-107-701-11	ELECT	47μF 20%	16V			
C519	1-164-816-91	CERAMIC CHIP	220PF 5%	50V (D20)			
C520	1-127-573-91	CERAMIC CHIP	1μF 10%	16V			
C600	1-115-339-11	CERAMIC CHIP	0.1μF 10%	50V (D24)			
C601	1-163-009-11	CERAMIC CHIP	0.001μF 10%	50V (D24)			
C602	1-163-009-11	CERAMIC CHIP	0.001μF 10%	50V (D24)			
C620	1-104-664-11	ELECT	47μF 20%	25V (D24)			
C622	1-163-031-11	CERAMIC CHIP	0.01μF	50V (D24)			
C623	1-163-009-11	CERAMIC CHIP	0.001μF 10%	50V (D24)			
C624	1-126-953-11	ELECT	2200μF 20%	35V (D24)			



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C684	1-163-031-11	CERAMIC CHIP	0.01μF	50V (D24)	C802	1-130-481-00	MYLAR 0.0068μF 5% 50V
C685	1-163-031-11	CERAMIC CHIP	0.01μF	50V (D24)	C803	1-163-037-11	CERAMIC CHIP 0.022μF 10% 50V
C687	1-163-031-11	CERAMIC CHIP	0.01μF	50V (D24)	C804	1-164-004-11	CERAMIC CHIP 0.1μF 10% 25V
C700	1-130-495-00	FILM	0.1μF 5%	50V (D24)	C811	1-164-004-11	CERAMIC CHIP 0.1μF 10% 25V
C701	1-130-495-00	FILM	0.1μF 5%	50V (D24)	C849	1-163-021-91	CERAMIC CHIP 0.01μF 10% 50V (D24)
C702	1-115-339-11	CERAMIC CHIP	0.1μF 10%	50V (D24)	C901	1-128-526-11	ELECT 100μF 20% 25V
C703	1-115-339-11	CERAMIC CHIP	0.1μF 10%	50V (D24)	C902	1-128-526-11	ELECT 100μF 20% 25V
C704	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	C903	1-163-021-91	CERAMIC CHIP 0.01μF 10% 50V
C705	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	C904	1-163-021-91	CERAMIC CHIP 0.01μF 10% 50V
C706	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	C907	1-107-639-11	ELECT 47μF 20% 160V
C707	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	C911	1-107-888-11	ELECT 47μF 20% 25V
C708	1-104-664-11	ELECT	47μF 20%	25V (D24)	C912	1-164-004-11	CERAMIC CHIP 0.1μF 10% 25V
C709	1-104-664-11	ELECT	47μF 20%	25V (D24)	C921	1-128-526-11	ELECT 100μF 20% 25V
C710	1-164-489-11	CERAMIC CHIP	0.22μF 10%	16V (D24)	C923	1-163-021-91	CERAMIC CHIP 0.01μF 10% 50V
C711	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	<CONNECTOR>		
C712	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	CN600	* 1-564-513-11	PLUG, CONNECTOR 10P
C713	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	CN801	1-774-536-11	CONNECTOR PIN (PC BOARD) 34P
C714	1-115-339-11	CERAMIC CHIP	0.1μF 10%	50V (D24)	CN901	1-774-536-11	CONNECTOR PIN (PC BOARD) 34P (D20)
C715	1-115-339-11	CERAMIC CHIP	0.1μF 10%	50V (D24)	CN902	1-766-243-11	PIN, CONNECTOR (PC BOARD) 5P
C716	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	CN903	1-766-241-11	PIN, CONNECTOR (PC BOARD) 3P
C717	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	CN904	1-764-334-11	PLUG, CONNECTOR 11P
C718	1-104-664-11	ELECT	47μF 20%	25V (D24)	CN905	1-766-240-11	PIN, CONNECTOR (PC BOARD) 2P (D20)
C719	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	CN905	* 1-691-135-11	PIN, CONNECTOR (PC BOARD) 4P (D24)
C720	1-104-664-11	ELECT	47μF 20%	25V (D24)	<DIODE>		
C721	1-130-495-00	FILM	0.1μF 5%	50V (D24)	D101	8-719-073-01	DIODE MA111-(K8).S0
C722	1-130-495-00	FILM	0.1μF 5%	50V (D24)	D102	8-719-158-49	DIODE RD12SB2
C723	1-104-664-11	ELECT	47μF 20%	25V (D24)	D103	8-719-920-67	DIODE ERC91-02
C724	1-104-664-11	ELECT	47μF 20%	25V (D24)	D104	8-719-073-01	DIODE MA111-(K8).S0
C725	1-164-004-11	CERAMIC CHIP	0.1μF 10%	25V (D24)	D107	8-719-941-74	DIODE ERB91-02 (D20)
C726	1-130-495-00	FILM	0.1μF 5%	50V (D24)	D201	8-719-901-19	DIODE V11N
C760	1-107-889-11	ELECT	220μF 20%	10V (D24)	D203	8-719-073-01	DIODE MA111-(K8).S0
C761	1-163-031-11	CERAMIC CHIP	0.01μF	50V (D24)	D204	8-719-073-01	DIODE MA111-(K8).S0
C762	1-163-031-11	CERAMIC CHIP	0.01μF	50V (D24)	D205	8-719-073-01	DIODE MA111-(K8).S0
C763	1-107-889-11	ELECT	220μF 20%	10V (D24)	D206	8-719-901-19	DIODE V11N (D24)
C764	1-163-031-11	CERAMIC CHIP	0.01μF	50V (D24)	D207	8-719-901-19	DIODE V11N (D24)
C801	1-126-967-11	ELECT	47μF 20%	50V	D301	8-719-073-01	DIODE MA111-(K8).S0
					D321	8-719-073-01	DIODE MA111-(K8).S0
					D322	8-719-073-01	DIODE MA111-(K8).S0
					D401	8-719-073-01	DIODE MA111-(K8).S0 (D20)
					D501	8-719-073-01	DIODE MA111-(K8).S0
					D502	8-719-073-01	DIODE MA111-(K8).S0
					D503	8-719-109-80	DIODE RD4.7ESB1
					D505	8-719-073-01	DIODE MA111-(K8).S0
					D511	8-719-073-01	DIODE MA111-(K8).S0
					D512	8-719-073-01	DIODE MA111-(K8).S0
					D513	8-719-157-94	DIODE RD3.3SB
					D514	8-719-073-01	DIODE MA111-(K8).S0
					D516	8-719-073-01	DIODE MA111-(K8).S0
					D517	8-719-157-94	DIODE RD3.3SB
					D518	8-719-073-01	DIODE MA111-(K8).S0
					D519	8-719-073-01	DIODE MA111-(K8).S0
					D521	8-719-073-01	DIODE MA111-(K8).S0
					D522	8-719-073-01	DIODE MA111-(K8).S0
					D524	8-719-073-01	DIODE MA111-(K8).S0
					D525	8-719-158-40	DIODE RD10SB1
					D530	8-719-073-01	DIODE MA111-(K8).S0
					D531	8-719-073-01	DIODE MA111-(K8).S0
					D532	8-719-073-01	DIODE MA111-(K8).S0
					D533	8-719-036-65	DIODE RD2.0SB-T1
					D600	8-719-073-01	DIODE MA111-(K8).S0 (D24)

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
D700	8-719-062-51	DIODE 1PS226-115 (D24)		Q305	8-729-141-83	TRANSISTOR 2SB1094-LK	
D701	8-719-062-51	DIODE 1PS226-115 (D24)		Q321	8-729-020-07	TRANSISTOR 2SC4686A(LBSONY)	
D702	8-719-062-51	DIODE 1PS226-115 (D24)					
D703	8-719-062-51	DIODE 1PS226-115 (D24)		Q322	8-729-020-07	TRANSISTOR 2SC4686A(LBSONY)	
D704	8-719-062-51	DIODE 1PS226-115 (D24)		Q401	8-729-020-07	TRANSISTOR 2SC4686A(LBSONY) (D20)	
D801	8-719-158-49	DIODE RD12SB2		Q501	8-729-027-38	TRANSISTOR DTA144EKA-T146	
D810	8-719-941-74	DIODE ERB91-02 (D24)		Q502	1-801-806-11	TRANSISTOR DTC144EKA-T146	
D901	△8-759-300-59	DIODE HZT33-02TA					
D902	△8-759-300-59	DIODE HZT33-02TA					
		<FILTER>					
FL600	1-236-164-11	ENCAPSULATED COMPONENT (D24)					
		<IC>					
IC401	8-759-981-48	IC TL082M(D20)		R101	1-216-347-11	METAL OXIDE 0.68	5% 1W F
IC501	8-759-467-70	IC BA9756FS-E2		R102	1-216-635-11	METAL CHIP 220	0.50% 1/10W
IC502	8-759-988-13	IC LM393PS		R103	1-215-479-00	METAL 270K	1% 1/4W
IC600	8-759-100-96	IC μPC4558G2 (D24)		R104	1-215-477-00	METAL 220K	1% 1/4W
IC601	8-759-144-82	IC μPC2405HF (D24)		R105	1-216-055-00	RES,CHIP 1.8K	5% 1/10W
IC602	8-759-247-67	IC LM2990T-5.0 (D24)		R106	1-216-635-11	METAL CHIP 220	0.50% 1/10W
IC603	8-759-100-96	IC μPC4558G2 (D24)		R107	1-215-479-00	METAL 270K	1% 1/4W
IC604	8-759-100-96	IC μPC4558G2 (D24)		R108	1-216-073-00	RES,CHIP 10K	5% 1/10W
IC605	8-759-100-96	IC μPC4558G2 (D24)		R109	1-216-081-00	RES,CHIP 22K	5% 1/10W
IC606	8-759-100-96	IC μPC4558G2 (D24)		R110	1-249-397-11	CARBON 22	5% 1/4W F
IC620	8-759-100-96	IC μPC4558G2 (D24)		R111	1-215-911-11	METAL OXIDE 100	5% 3W F
IC621	8-759-100-96	IC μPC4558G2 (D24)		R112	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
IC622	8-759-100-96	IC μPC4558G2 (D24)		R113	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
IC623	8-759-011-65	IC MC74HC4053F (D24)		R114	1-216-073-00	RES,CHIP 10K	5% 1/10W
IC624	8-759-011-65	IC MC74HC4053F (D24)		R115	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
IC700	8-759-822-38	IC LA6510 (D24)		R116	1-216-073-00	RES,CHIP 10K	5% 1/10W
IC701	8-759-822-38	IC LA6510 (D24)		R117	1-216-001-00	RES,CHIP 10	5% 1/10W
IC702	8-759-803-42	IC LA6500-FA (D24)		R201	1-216-105-91	RES,CHIP 220K	5% 1/10W (D20)
IC710	8-752-072-94	IC CXA1875AM-T4 (D24)		R201	1-216-081-00	RES,CHIP 22K	5% 1/10W (D24)
IC711	8-752-072-94	IC CXA1875AM-T4 (D24)		R202	1-216-089-00	RES,CHIP 47K	5% 1/10W (D20)
IC801	8-759-981-48	IC TL082M (D20)		R202	1-216-083-00	RES,CHIP 27K	5% 1/10W (D24)
IC803	8-759-981-48	IC TL082M (D24)		R203	1-216-101-00	RES,CHIP 150K	5% 1/10W (D20)
IC805	8-759-981-48	IC TL082M (D24)		R203	1-216-095-00	METAL CHIP 82K	5% 1/10W (D24)
IC901	8-759-701-79	IC NJM7812FA		R204	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
		<COIL>		R205	1-216-095-00	RES,CHIP 82K	5% 1/10W
L101	1-429-284-11	TRANSFORMER, FERRITE (LOT)		R206	1-216-073-00	RES,CHIP 10K	5% 1/10W
L102	1-406-659-11	INDUCTOR 10μH		R207	1-208-612-11	METAL OXIDE 10μ	5% 1W
		<TRANSISTOR>		R208	1-208-612-11	METAL OXIDE 10μ	5% 1W
Q101	8-729-803-76	TRANSISTOR 2SA1371-E		R209	1-216-097-91	RES,CHIP 100K	5% 1/10W
Q102	8-729-015-28	TRANSISTOR IRF19630GS		R210	1-216-093-91	METAL CHIP 68K	5% 1/10W (D20)
Q103	8-729-216-22	TRANSISTOR 2SA1162-G		R210	1-216-113-00	METAL CHIP 470K	5% 1/10W (D24)
Q104	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R211	1-219-759-11	CARBON 1μ	5% 1/2W
Q105	8-729-266-82	TRANSISTOR 2SC2668-O		R212	1-219-038-11	FUSIBLE 470	5% 1/2W F
Q107	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R301	1-216-025-91	RES,CHIP 100	5% 1/10W
Q108	8-729-216-22	TRANSISTOR 2SA1162-G		R302	1-216-053-00	RES,CHIP 1.5K	5% 1/10W
Q109	8-729-020-64	TRANSISTOR IRFPG50LF		R303	1-216-069-00	RES,CHIP 6.8K	5% 1/10W (D20)
Q113	1-801-806-11	TRANSISTOR DTC144EKA-T146		R304	1-216-051-00	RES,CHIP 1.2K	5% 1/10W
Q201	8-729-020-07	TRANSISTOR 2SC4686A(LBSONY) (D20)		R305	1-216-061-00	RES,CHIP 3.3K	5% 1/10W (D20)
Q201	8-729-032-61	TRANSISTOR 2SC5022-02 (D24)		R305	1-216-065-91	RES,CHIP 4.7K	5% 1/10W (D24)
Q202	8-729-032-61	TRANSISTOR 2SC5022-02 (D24)		R307	1-208-610-11	METAL OXIDE 2μ	5% 1W
Q202	8-729-020-07	TRANSISTOR 2SC4686A(LBSONY) (D20)		R308	1-216-035-00	RES,CHIP 270	5% 1/10W
Q210	8-729-216-22	TRANSISTOR 2SA1162-G		R309	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
Q301	8-729-216-22	TRANSISTOR 2SA1162-G		R310	1-249-393-11	CARBON 10	5% 1/4W F
Q302	8-729-216-22	TRANSISTOR 2SA1162-G		R311	1-249-393-11	CARBON 10	5% 1/4W F
Q303	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R312	1-215-862-11	METAL OXIDE 68	5% 1W F
Q304	8-729-927-54	TRANSISTOR 2SD1762F		R313	1-215-862-11	METAL OXIDE 68	5% 1W F
				R321	1-216-099-00	RES,CHIP 120K	5% 1/10W



Ref.No.	Part No.	Description	Remark			Ref.No.	Part No.	Description	Remark		
R322	1-208-610-11	METAL OXIDE	2M	5%	1W	R607	1-216-694-11	METAL CHIP	62K	0.50%	1/10W
R323	1-208-612-11	METAL OXIDE	10M	5%	1W						(D24)
					(D20)	R608	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R324	1-219-749-91	CARBON	10K	5%	1/2W						(D24)
						R609	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R363	1-216-069-00	RES,CHIP	6.8K	5%	1/10W						(D24)
					(D24)	R610	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R401	1-216-073-00	RES,CHIP	10K	5%	1/10W						(D24)
					(D20)	R611	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R402	1-216-089-91	RES,CHIP	47K	5%	1/10W						(D24)
					(D20)	R612	1-216-682-11	METAL CHIP	20K	0.50%	1/10W
R403	1-216-073-00	RES,CHIP	10K	5%	1/10W						(D24)
					(D20)	R613	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W
R404	1-216-073-00	RES,CHIP	10K	5%	1/10W						(D24)
					(D20)	R620	1-216-699-91	METAL CHIP	100K	0.50%	1/10W
R405	1-216-103-00	RES,CHIP	180K	5%	1/10W						(D24)
					(D20)	R621	1-216-699-91	METAL CHIP	100K	0.50%	1/10W
R406	1-219-759-11	CARBON	1M	5%	1/2W						(D24)
					(D20)	R622	1-216-073-00	RES,CHIP	10K	5%	1/10W
R501	1-216-025-91	RES,CHIP	100	5%	1/10W						(D24)
R502	1-216-073-00	RES,CHIP	10K	5%	1/10W						
R503	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	R623	1-216-684-91	METAL CHIP	24K	0.50%	1/10W
					(D20)						(D24)
						R624	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W
R503	1-216-065-91	RES,CHIP	4.7K	5%	1/10W						(D24)
					(D24)	R625	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R504	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W						(D24)
R505	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	R626	1-216-678-11	METAL CHIP	13K	0.50%	1/10W
R506	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W						(D24)
R507	1-216-085-00	RES,CHIP	33K	5%	1/10W	R627	1-216-129-00	RES,CHIP	2.2M	5%	1/10W
											(D24)
R508	1-216-065-91	RES,CHIP	4.7K	5%	1/10W						
R509	1-216-073-00	RES,CHIP	10K	5%	1/10W	R628	1-216-129-00	RES,CHIP	2.2M	5%	1/10W
R510	1-216-097-91	RES,CHIP	100K	5%	1/10W						(D24)
R511	1-216-067-00	RES,CHIP	5.6K	5%	1/10W	R629	1-218-776-11	METAL CHIP	1M	0.50%	1/10W
R512	1-216-081-00	RES,CHIP	22K	5%	1/10W						(D24)
						R630	1-218-774-11	METAL CHIP	820K	0.50%	1/10W
											(D24)
R513	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	R631	1-216-113-00	RES,CHIP	470K	5%	1/10W
R514	1-218-754-11	METAL CHIP	120K	0.50%	1/10W						(D24)
R515	1-218-769-11	METAL CHIP	510K	0.50%	1/10W	R632	1-216-113-00	RES,CHIP	470K	5%	1/10W
R516	1-218-769-11	METAL CHIP	510K	0.50%	1/10W						(D24)
R517	1-216-666-11	METAL CHIP	4.3K	0.50%	1/10W						(D20)
						R633	1-216-113-00	RES,CHIP	470K	5%	1/10W
R517	1-216-662-11	METAL CHIP	3K	0.50%	1/10W						(D24)
						R634	1-216-113-00	RES,CHIP	470K	5%	1/10W
R519	1-216-081-00	RES,CHIP	22K	5%	1/10W						(D24)
R521	1-216-295-91	SHORT	0			R635	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W
R522	1-216-698-11	METAL CHIP	91K	5%	1/10W						(D24)
					(D20)	R636	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R522	1-216-694-11	METAL CHIP	62K	0.50%	1/10W						(D24)
					(D24)	R637	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W
											(D24)
R524	1-216-692-11	METAL CHIP	51K	0.50%	1/10W						
R525	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	R638	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R526	1-216-694-11	METAL CHIP	62K	0.50%	1/10W						(D24)
R527	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	R639	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R529	1-216-081-00	RES,CHIP	22K	5%	1/10W						(D24)
						R640	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R530	1-216-691-11	METAL CHIP	47K	0.50%	1/10W						(D24)
R532	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	R641	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R533	1-216-053-00	RES,CHIP	1.5K	5%	1/10W						(D24)
R600	1-216-081-00	RES,CHIP	22K	5%	1/10W	R642	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
					(D24)						(D24)
R601	1-216-073-00	RES,CHIP	10K	5%	1/10W						
					(D24)	R643	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
											(D24)
R602	1-216-675-91	METAL CHIP	10K	0.50%	1/10W	R644	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
					(D24)						(D24)
R603	1-216-685-11	METAL CHIP	27K	0.50%	1/10W	R645	1-216-668-11	METAL CHIP	5.1K	0.50%	1/10W
					(D24)						(D24)
R604	1-216-675-91	METAL CHIP	10K	0.50%	1/10W	R646	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W
					(D24)						(D24)
R605	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	R647	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
					(D24)						(D24)
R606	1-216-675-91	METAL CHIP	10K	0.50%	1/10W						
					(D24)						

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R648	1-216-687-11	METAL CHIP	33K 0.50% 1/10W (D24)	R695	1-216-129-00	RES,CHIP 2.2M 5%	1/10W (D24)
R649	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D24)	R700	1-215-882-00	METAL OXIDE 22 5%	2W F (D24)
R650	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D24)	R701	1-215-882-00	METAL OXIDE 22 5%	2W F (D24)
R651	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R702	1-249-383-11	CARBON 1.5 5%	1/4W F(D24)
R652	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R703	1-249-441-11	CARBON 100K 5%	1/4W F (D24)
R653	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R704	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R654	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R705	1-249-441-11	CARBON 100K 5%	1/4W F (D24)
R656	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R706	1-216-298-00	RES,CHIP 2.2 5%	1/10W (D24)
R657	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R707	1-216-298-00	RES,CHIP 2.2 5%	1/10W (D24)
R658	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R708	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R669	1-216-677-11	METAL CHIP	12K 0.50% 1/10W (D24)	R709	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R670	1-216-682-11	METAL CHIP	20K 0.50% 1/10W (D24)	R710	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R671	1-216-682-11	METAL CHIP	20K 0.50% 1/10W (D24)	R711	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R672	1-216-682-11	METAL CHIP	20K 0.50% 1/10W (D24)	R712	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R673	1-216-682-11	METAL CHIP	20K 0.50% 1/10W (D24)	R714	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R674	1-216-683-11	METAL CHIP	22K 0.50% 1/10W (D24)	R715	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R675	1-216-677-11	METAL CHIP	12K 0.50% 1/10W (D24)	R717	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R676	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R718	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R677	1-216-677-11	METAL CHIP	12K 0.50% 1/10W (D24)	R719	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R678	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R720	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R679	1-216-677-11	METAL CHIP	12K 0.50% 1/10W (D24)	R721	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R680	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R724	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R682	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R725	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R683	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R726	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R684	1-216-675-91	METAL CHIP	10K 0.50% 1/10W (D24)	R727	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R685	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D24)	R728	1-216-298-00	RES,CHIP 2.2 5%	1/10W (D24)
R686	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D24)	R729	1-216-298-00	RES,CHIP 2.2 5%	1/10W (D24)
R687	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D24)	R730	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R688	1-216-681-11	METAL CHIP	18K 0.50% 1/10W (D24)	R731	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R689	1-216-683-11	METAL CHIP	22K 0.50% 1/10W (D24)	R732	1-216-073-00	RES,CHIP 10K 5%	1/10W (D24)
R690	1-216-127-11	RES,CHIP	1.8M 5% 1/10W (D24)	R733	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R691	1-216-651-11	METAL CHIP	1K 0.50% 1/10W (D24)	R734	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R692	1-216-683-11	METAL CHIP	22K 0.50% 1/10W (D24)	R735	1-249-383-11	CARBON 1.5 5%	1/4W F (D24)
R693	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W (D24)	R736	1-249-441-11	CARBON 100K 5%	1/4W F (D24)
R694	1-216-691-11	METAL CHIP	47K 0.50% 1/10W (D24)	R737	1-215-882-00	METAL OXIDE 22 5%	2W F (D24)

Ref.No.	Part No.	Description	Remark
R738	1-249-441-11	CARBON 100K	5% 1/4W F (D24)
R739	1-215-882-00	METAL OXIDE 22	5% 2W F (D24)
R740	1-249-441-11	CARBON 100K	5% 1/4W F (D24)
R741	1-215-859-00	METAL OXIDE 22	5% 1W F (D24)
R742	1-249-383-11	CARBON 1.5	5% 1/4W F(D24)
R743	1-249-383-11	CARBON 1.5	5% 1/4W F(D24)
R760	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R761	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R762	1-216-033-00	RES,CHIP 220	5% 1/10W (D24)
R763	1-216-033-00	RES,CHIP 220	5% 1/10W (D24)
R764	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R765	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R766	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R767	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R768	1-216-033-00	RES,CHIP 220	5% 1/10W (D24)
R769	1-216-033-00	RES,CHIP 220	5% 1/10W (D24)
R770	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R771	1-216-073-00	RES,CHIP 10K	5% 1/10W (D24)
R772	1-216-679-11	METAL CHIP 15K	0.50% 1/10W (D24)
R773	1-216-679-11	METAL CHIP 15K	0.50% 1/10W (D24)
R774	1-216-679-11	METAL CHIP 15K	0.50% 1/10W (D24)
R775	1-216-679-11	METAL CHIP 15K	0.50% 1/10W (D24)
R776	1-216-679-11	METAL CHIP 15K	0.50% 1/10W (D24)
R801	1-216-097-91	RES,CHIP 100K	5% 1/10W
R802	1-216-295-91	SHORT 0	
R804	1-216-677-11	METAL CHIP 12K	0.50% 1/10W
R811	1-216-097-91	RES,CHIP 100K	5% 1/10W
R812	1-216-025-91	RES,CHIP 100	5% 1/10W
R813	1-216-025-91	RES,CHIP 100	5% 1/10W
R814	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
R815	1-216-105-91	RES,CHIP 220K	5% 1/10W
R816	1-216-073-00	RES,CHIP 10K	5% 1/10W
R853	1-208-612-11	METAL OXIDE 10M	5% 1W (D24)
R901	1-215-902-11	METAL OXIDE 47K	5% 2W F
R902	1-215-902-11	METAL OXIDE 47K	5% 2W F
<VARIABLE RESISTOR>			
RV501	△	RES, ADJ, METAL GLAZE	
RV503	△	RES, ADJ, METAL GLAZE	
<TRANSFORMER>			
T301	1-424-555-11	TRANSFORMER, FERRITE (DFT)	

Ref.No.	Part No.	Description	Remark
<TEST PIN>			
TP600	* 1-537-864-11	PIN, POST (D24)	
TP601	* 1-537-864-11	PIN, POST (D24)	
TP602	* 1-537-864-11	PIN, POST (D24)	
*****			
PC BOARD			
*****			
All the component parts on the PC board are supplied together when you order the FBT block assy.			
<CAPACITOR>			
C801	1-137-150-11	MYLAR 0.01μF	10% 100V
C802	1-137-150-11	MYLAR 0.01μF	10% 100V
<CONNECTOR>			
CN801	* 1-508-766-00	PIN, CONNECTOR (5MM PITCH) 4P	
CN802	1-764-334-11	PLUG, CONNECTOR 11P	
CN803	* 1-573-986-11	PIN, CONNECTOR (PC BOARD) 5P	
CN804	* 1-691-135-11	PIN, CONNECTOR (PC BOARD) 4P (D24)	
<COMPOSITION CIRCUIT BLOCK>			
CP801	1-453-271-11	RESISTER ASSY, HV (WF-722,HK)	(D24)
<DIODE>			
D801	8-719-302-43	DIODE EL1Z	
<NEON LAMP>			
NL801	1-519-526-11	LAMP, NEON	
NL802	1-519-526-11	LAMP, NEON	
<RESISTOR>			
R801	1-215-425-00	METAL 1.5K	1% 1/4W (D20)
R802	1-215-437-00	METAL 4.7K	1% 1/4W (D20)
R803	1-215-437-00	METAL 4.7K	1% 1/4W (D20)
R804	1-215-425-00	METAL 1.5K	1% 1/4W (D20)
R804	1-215-435-00	METAL 3.9K	1% 1/4W (D24)
R805	1-215-437-00	METAL 4.7K	1% 1/4W
R806	1-215-437-00	METAL 4.7K	1% 1/4W
R807	1-215-427-00	METAL 1.8K	1% 1/4W (D24)
R808	1-215-437-00	METAL 4.7K	1% 1/4W (D24)
R809	1-215-444-00	METAL 9.1K	1% 1/4W (D24)
R812	1-249-404-00	CARBON 82	5% 1/4W F
<TRANSFORMER>			
T801	△ X-4033-492-1	FBT ASSY, NX-4201	(D20)
T801	△ X-4560-170-1	FBT ASSY, NX-4202	(D24)
*****			





Ref.No.	Part No.	Description	Remark
V901	△8-733-006-05	PICTURE TUBE M57LRX20X (U/C, D24)	
V901	△8-736-375-05	PICTURE TUBE M49LCB20X (U/C, D20)	
V901	△8-733-005-05	PICTURE TUBE M57LRX21X (AUS, AEP, D24)	
V901	△8-736-374-05	PICTURE TUBE M49LCB21X (AUS, AEP, D20)	

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ACCESSORIES

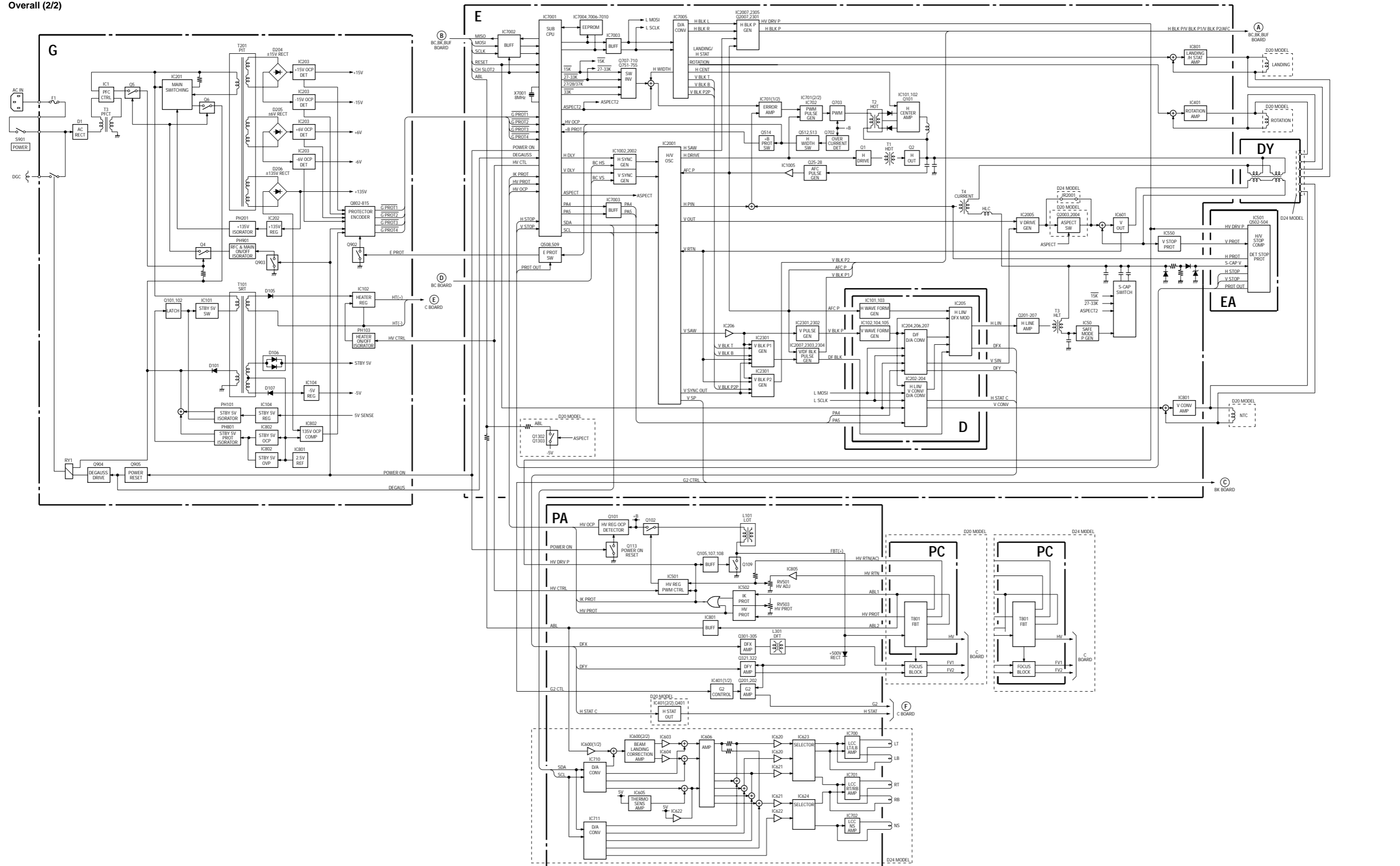
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- X-4033-112-1 MASK (4:3) ASSY (D20)
- △1-534-827-14 CORD, POWER 10A/125V (U/C)
- △1-576-231-11 FUSE (H.B.C.) 4A/250V
- △1-590-151-11 CORD, SET POWER 10A/250V (AEP, AUS)
- 2-990-242-01 HOLDER (B), PLUG
  
- 3-867-719-11 MANUAL, OPERATION (ENGLISH)
- 4-051-484-01 LABEL, TALLY (D20)
- \*4-058-814-01 HOLDER (D20)
- 4-072-655-01 CARD, QUICK REFERENCE





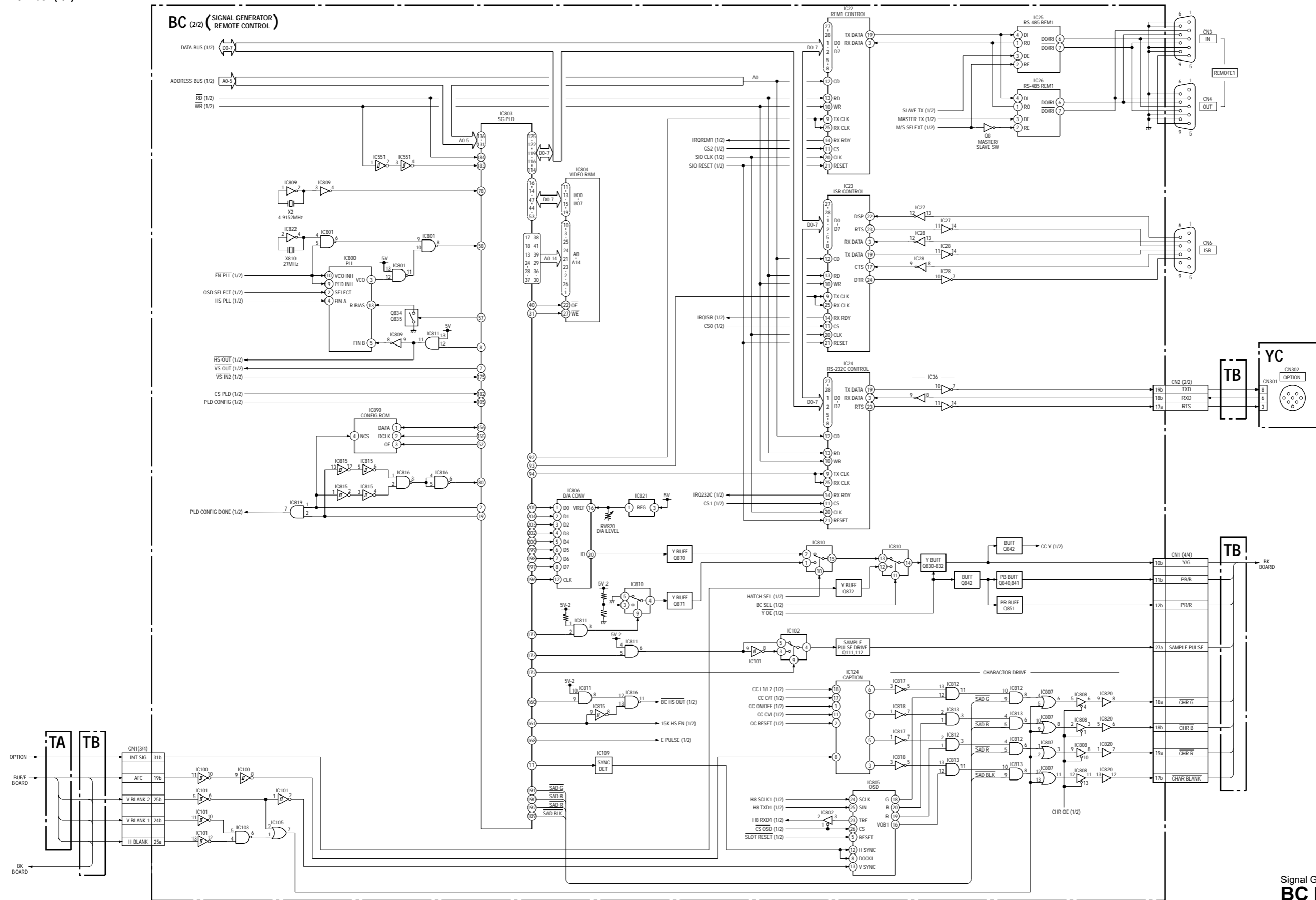
Overall (2/2)



Overall (2/2)

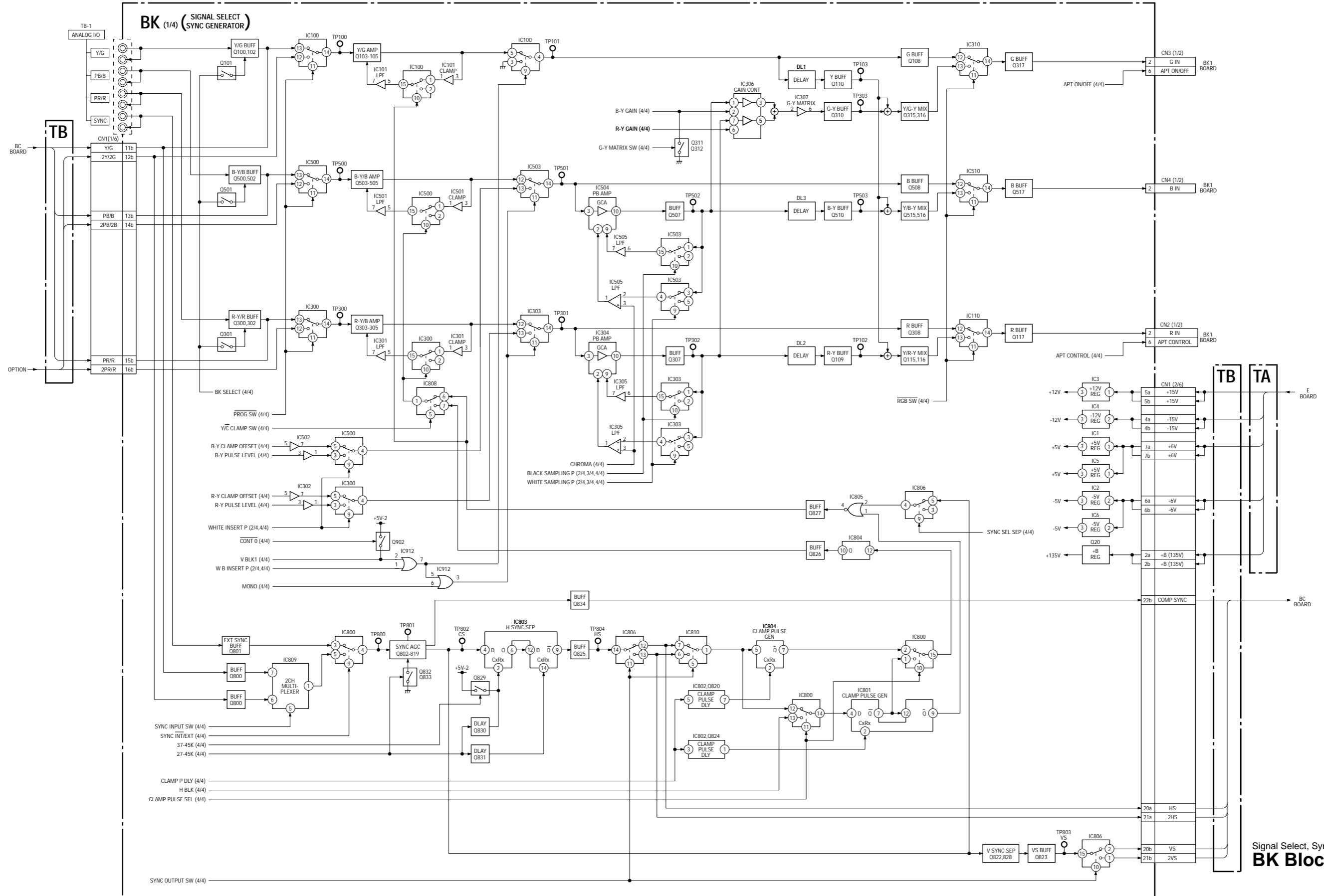


BC Block (2/2)



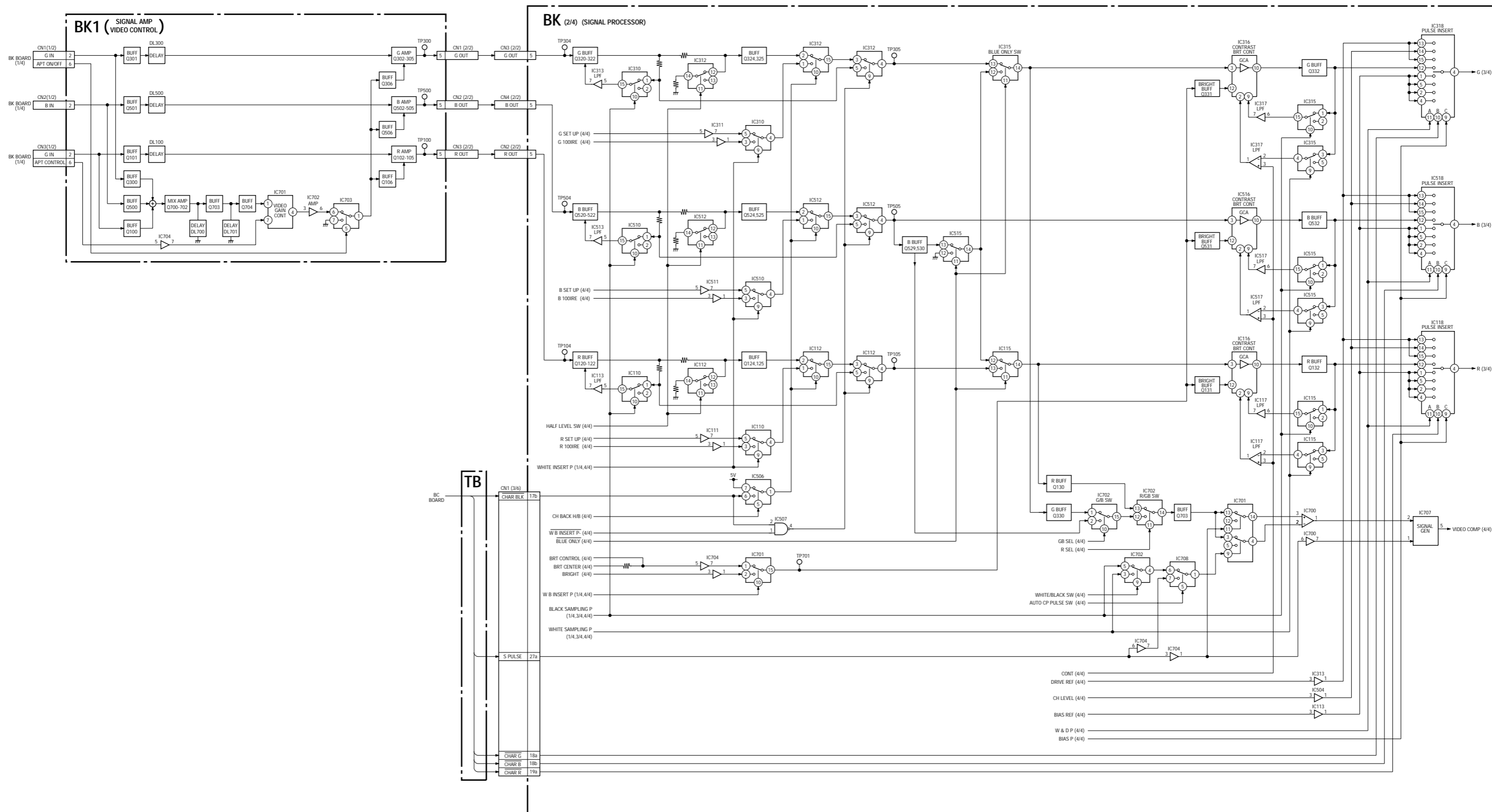
Signal Generator, Remote Control  
BC Block (2/2)

BK Block (1/4)



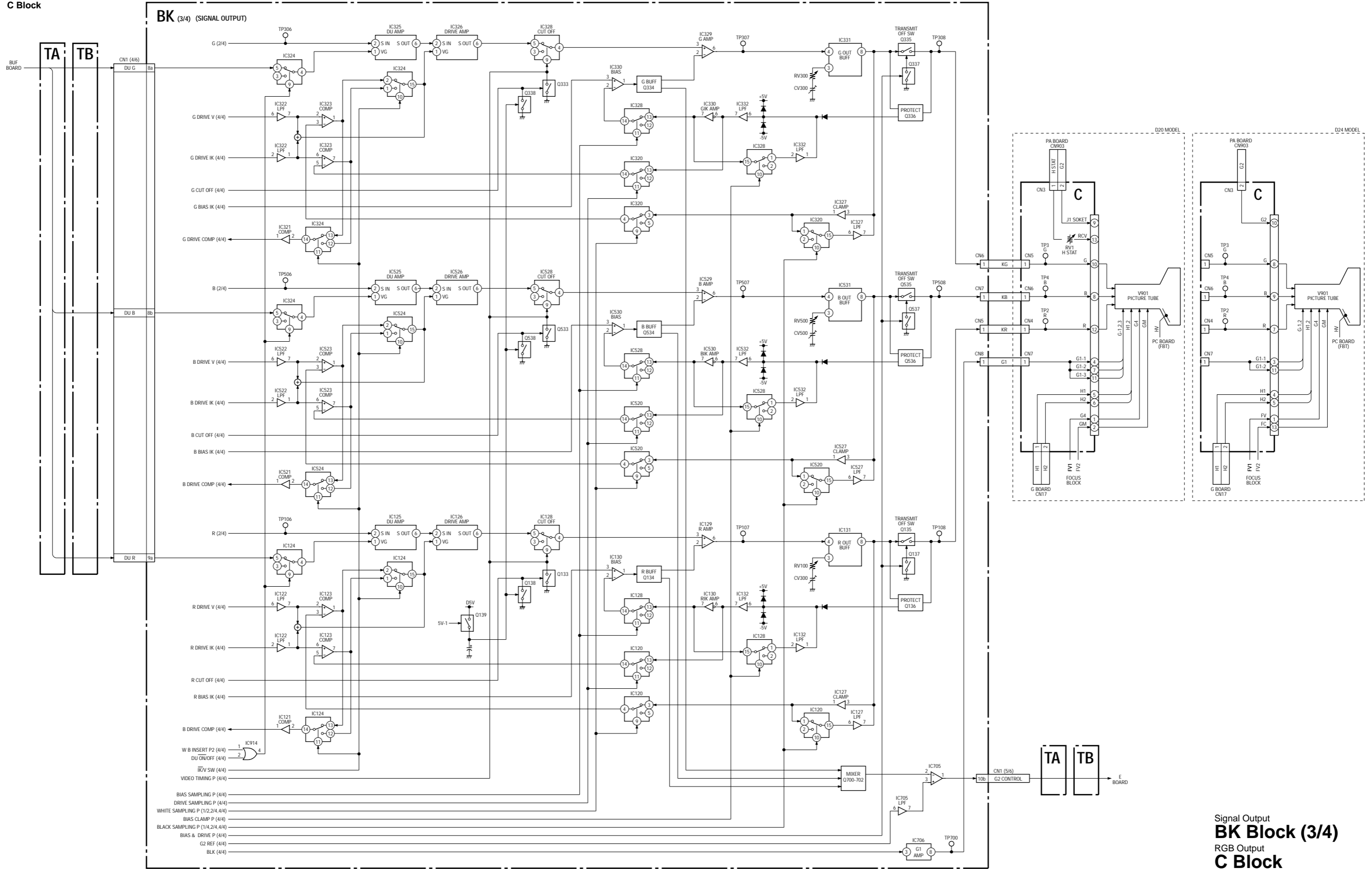
Signal Select, Sync Generator  
**BK Block (1/4)**

BK Block (2/4)  
BK1 Block

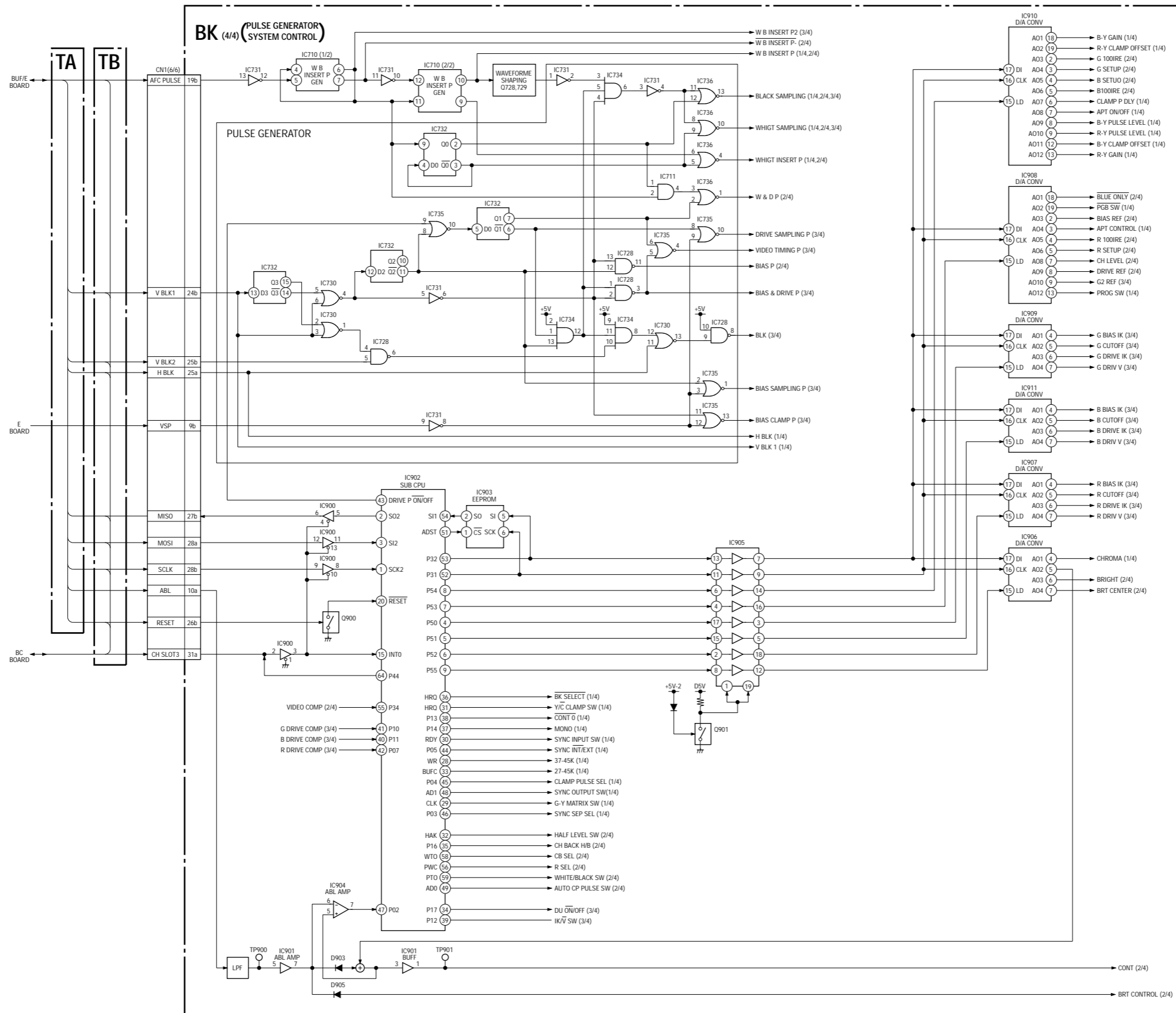


Signal Processor  
**BK Block (2/4)**  
Signal Amp, Video Control  
**BK1 Block**

BK Block (3/4)  
C Block



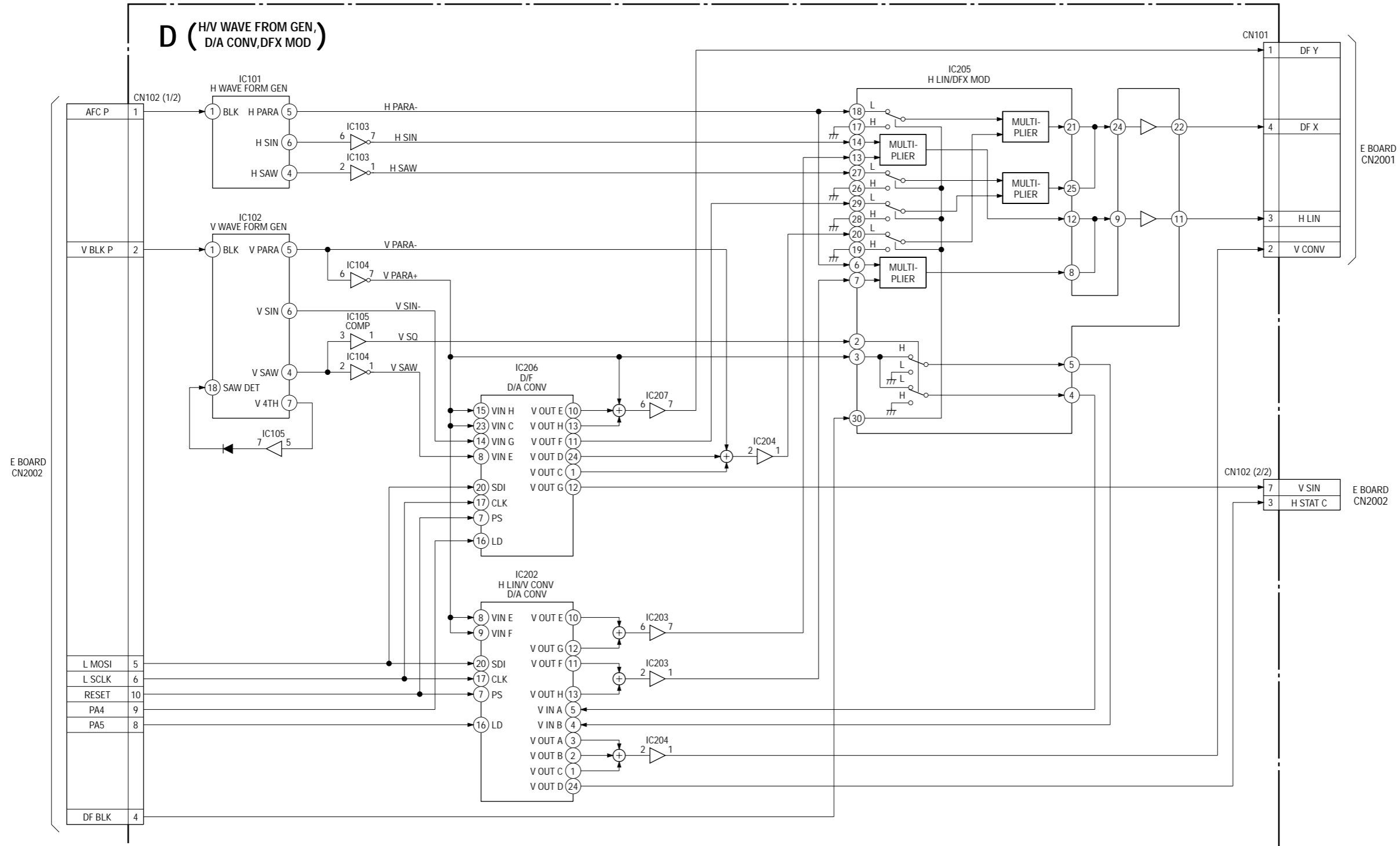
BK Block (4/4)



Pulse Generator, System Control  
BK Block (4/4)

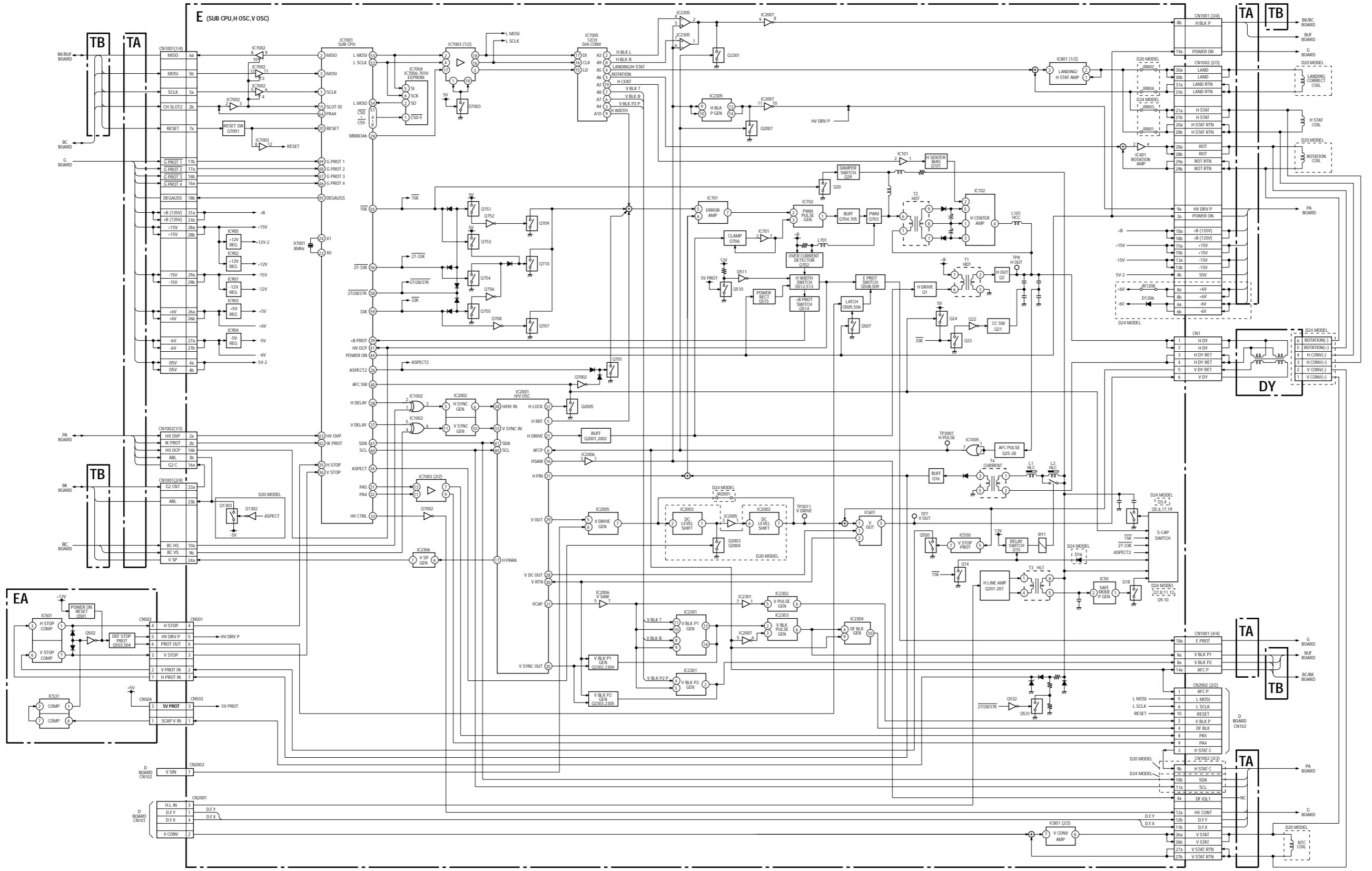






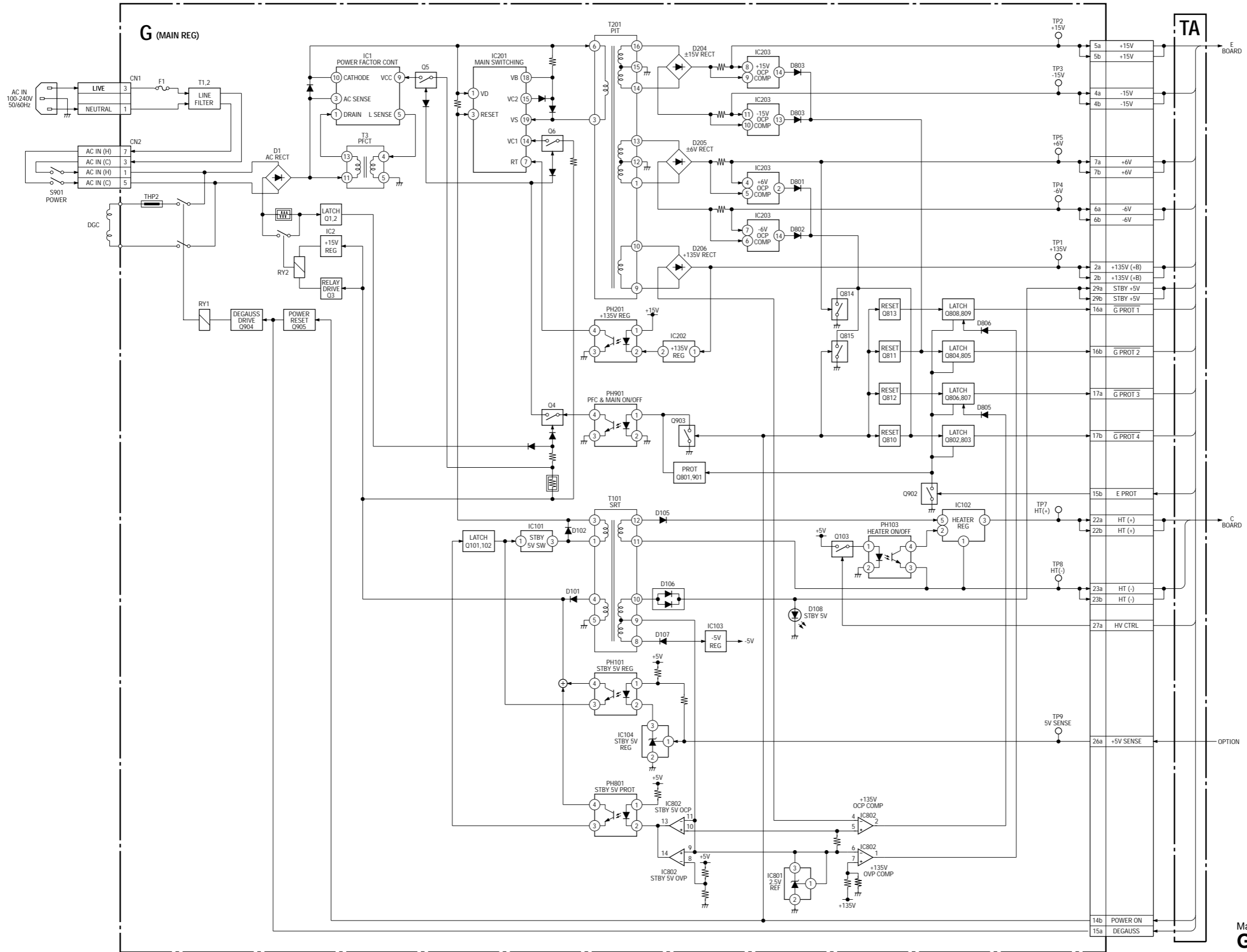
H/V Wave Form Generator, D/A Converter, DFX Mod. **D Block**

E Block



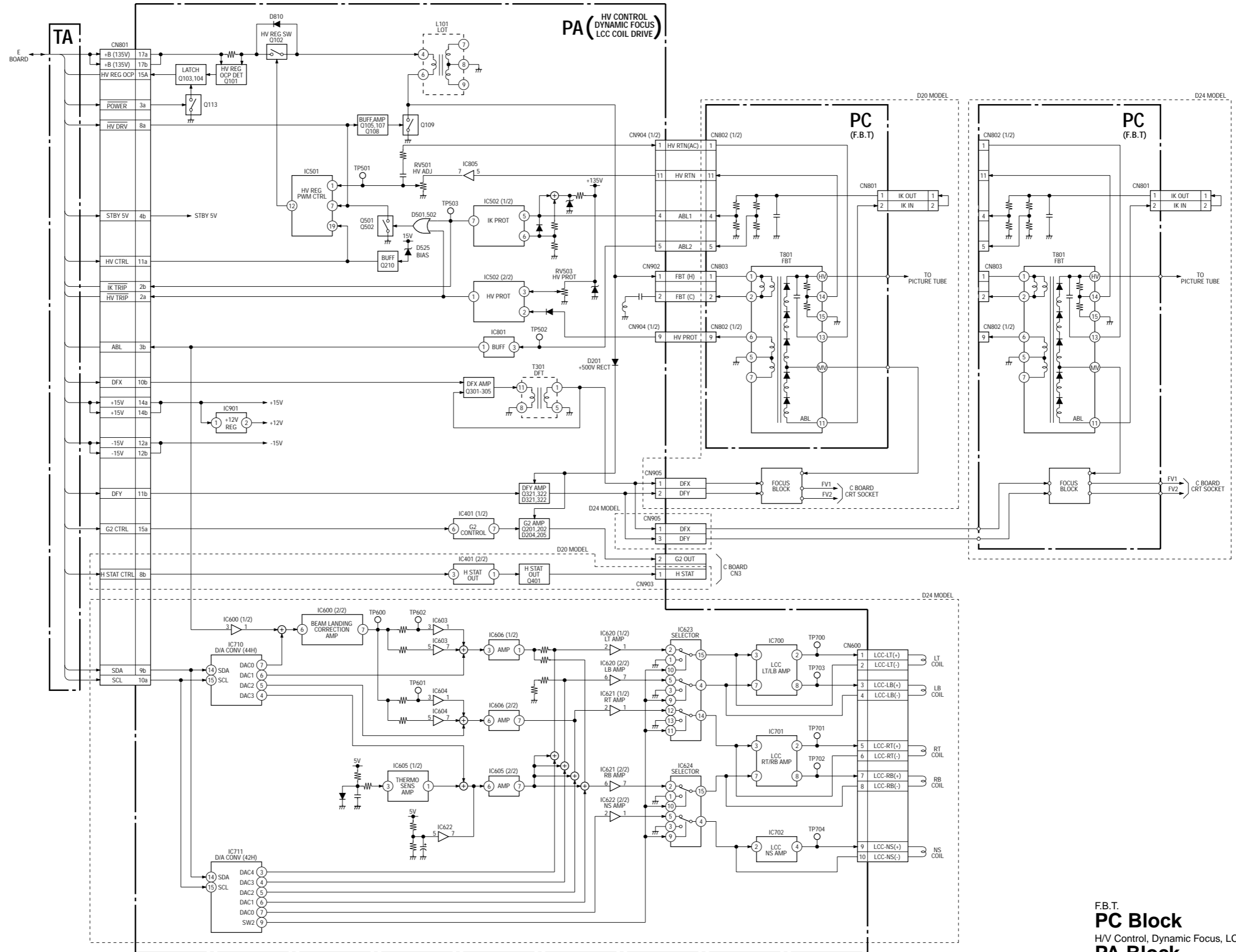
Sub CPU, H/V Osc.  
**E Block**

G Block



Main Regulator  
G Block

PA Block  
PC Block







F.B.T.  
**PC Block**  
H/V Control, Dynamic Focus, LCC Coil Drive  
**PA Block**



## Section 11 Diagrams





### Note:


- Parts marked “ \* ” differ according to the model/destination. Refer to the mount table for each function.
- The parts marked “ # ” on schematic diagrams are not mounted.
- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\mu\text{F}$  50WV or less are not indicated except for electrolytics.
- All electrolytics are in 50 V unless otherwise specified.
-  : fusible resistor
-  : nonflammable resistor
-  : internal component
-  : panel designation and adjustment for repair
- Caution when replacing chip parts  
New parts must be attached after removal of the chip.  
Be careful not to heat the minus side of a tantalum capacitor, because it is easily damaged by the heat.


### Reference information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NONFLAMMABLE CARBON
	FUSE	: NONFLAMMABLE FUSIBLE
	RS	: NONFLAMMABLE METAL OXIDE
	RB	: NONFLAMMABLE CEMENT
	RW	: NONFLAMMABLE WIREWOUND
	※	: ADJUSTMENT RESISTOR
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

### [Measuring conditions, voltage and waveform]

- A voltage value is the reference value between the measurement point and the earth, when the NTSC color bar signal and RGB color bar signal are received from the HD color bar generator (digital multi-meter used: 10 M ohms/V DC).
- Unit of voltage is V (volt).
-  : B+line
-  : B- line
- Voltage variations may occur due to normal production tolerances.
- RGB color bar signal.
-  : Measurement disabled.
- Circled numbers indicate the reference waveform.
-  : Signal path.




The components identified marked  are critical for safety.  
Replace only with the part number specified.

Les composants identifiés par la marque  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.



### NOTE:

The circuit indicated as shown on the left contains high voltages of over 600 Vp-p. Take care to avoid electric shock during inspection or repair work.

- The components marked  in this schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.
- When replacing components marked , make the necessary adjustments indicated. If results do not meet the specified value, change the component marked  and repeat the adjustment until the specified value is achieved.
- When replacing a part shown in the table below, be sure to perform the related adjustment. (Refer to Section 4.)

11-1. Frame Schematic Diagrams

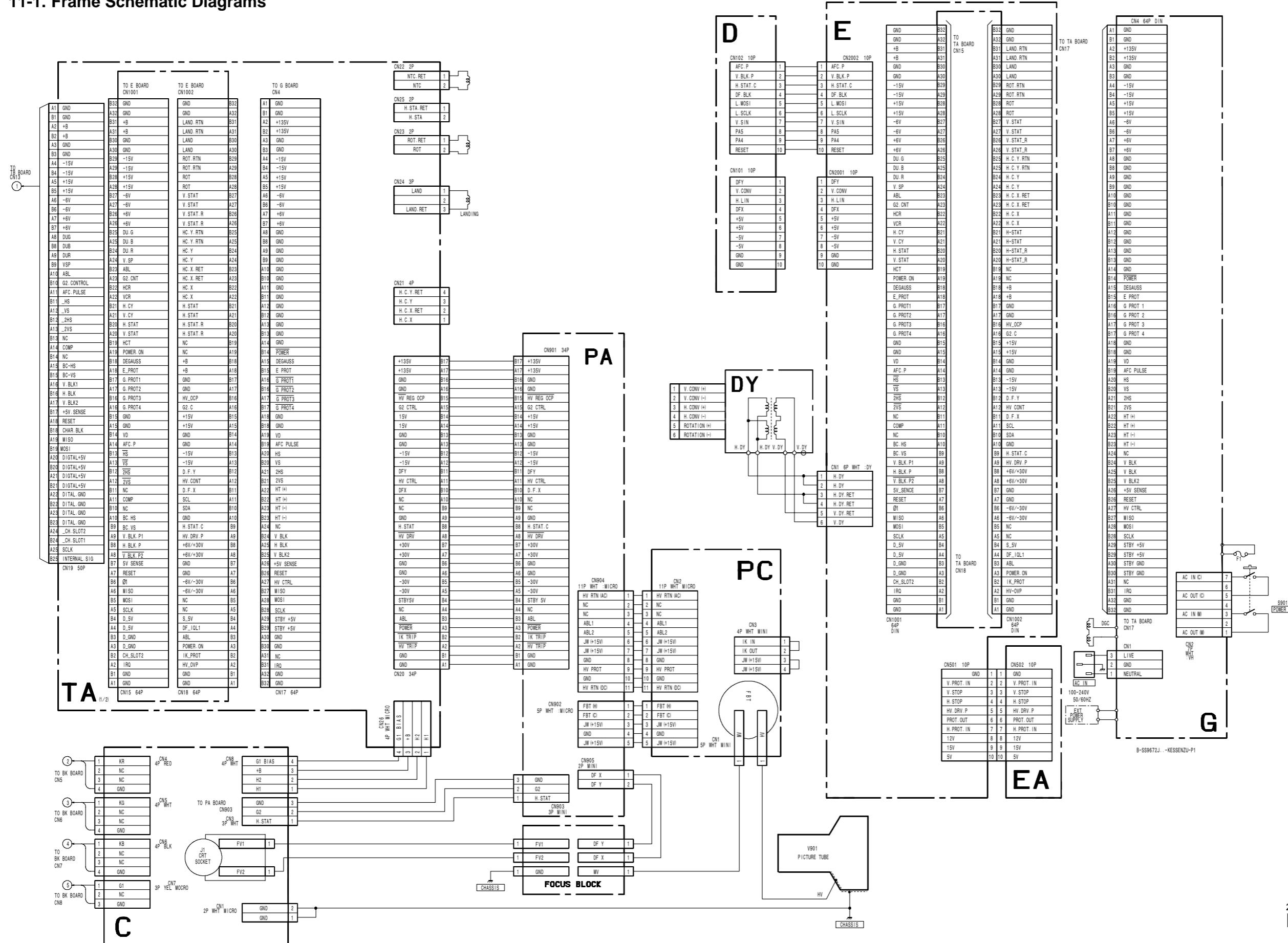
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2

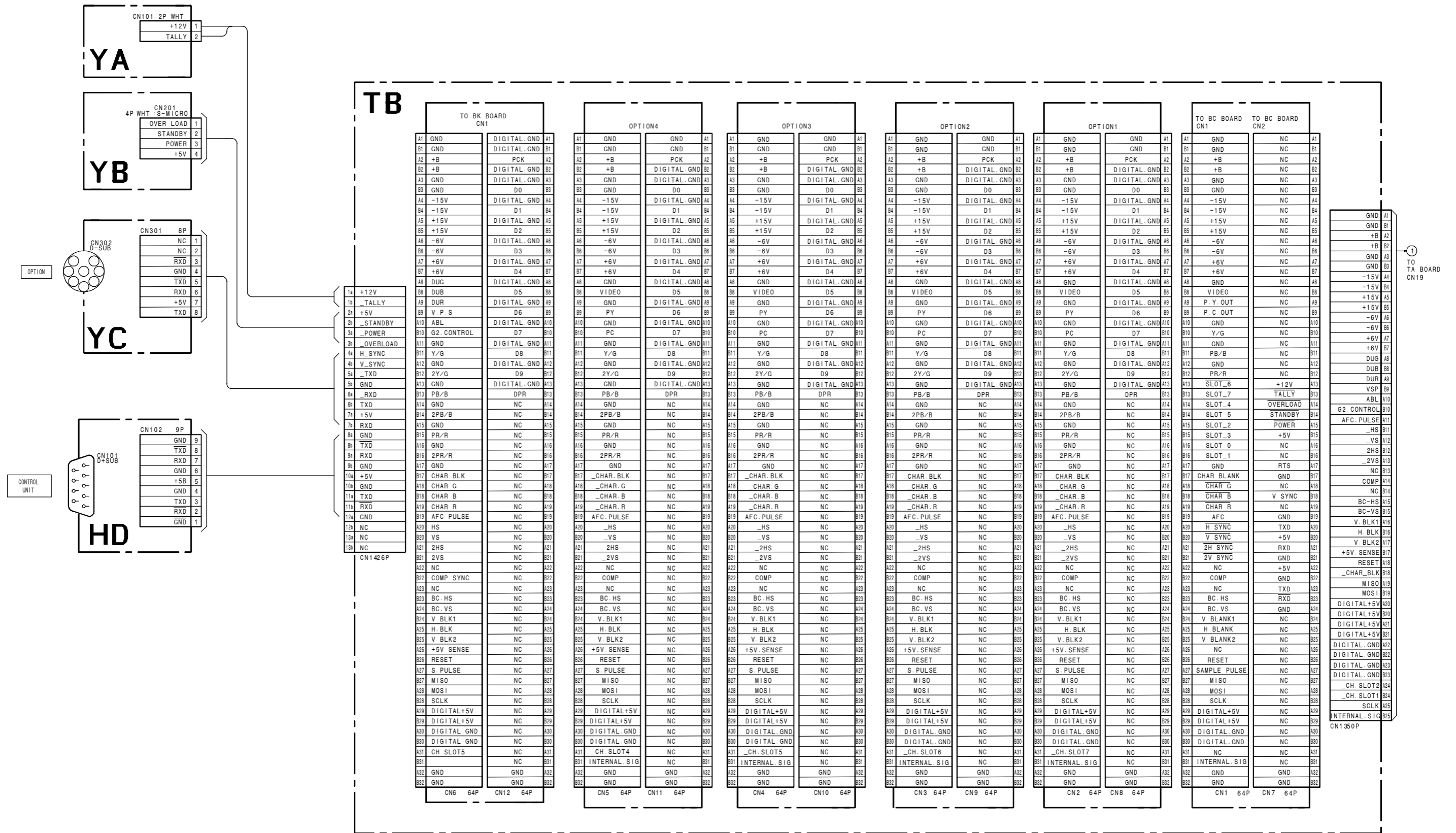
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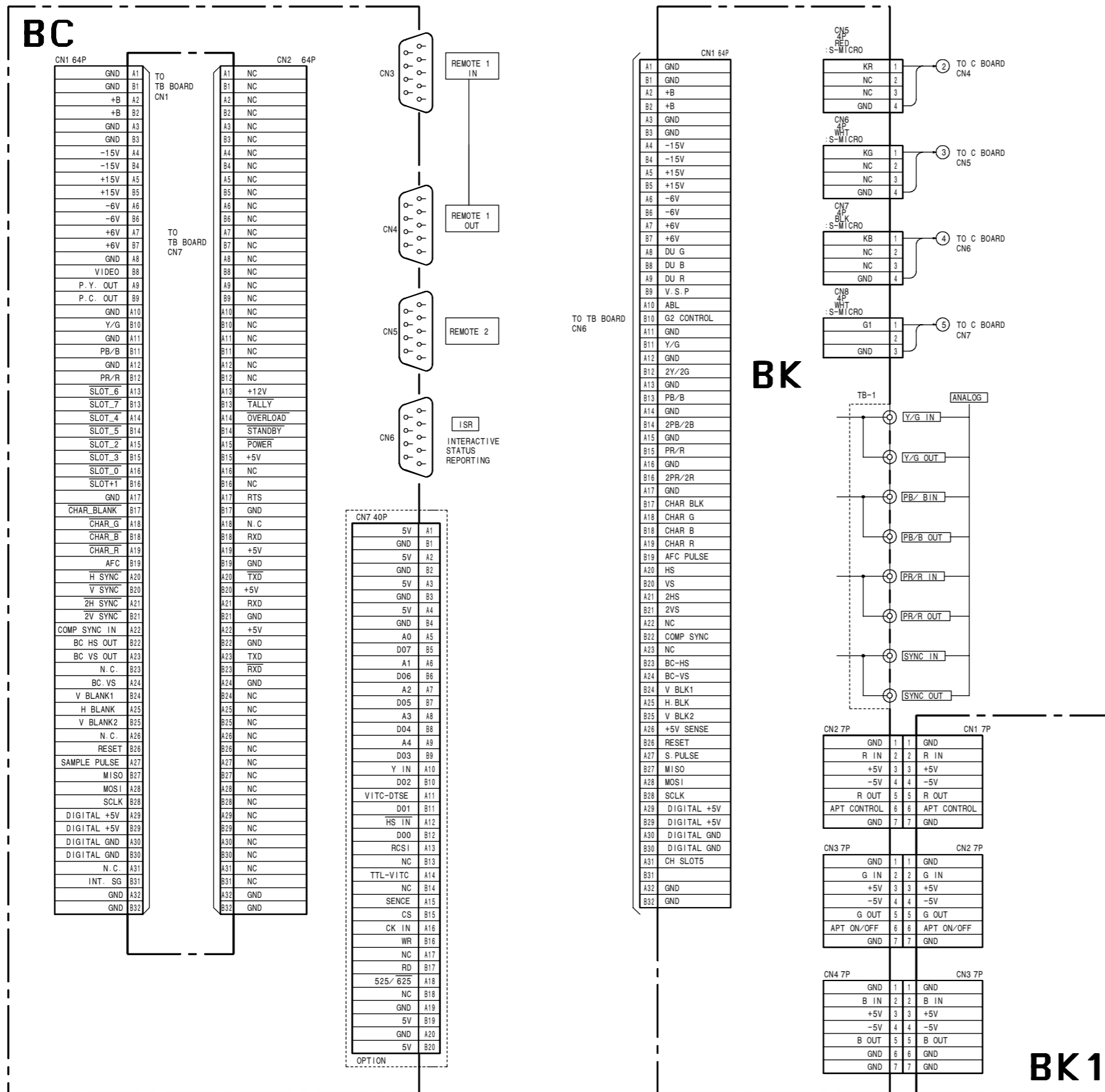
20 inch model  
FRAME (1/3)



B-SS9672J...-KESSENZU-P2

20 inch model  
**FRAME (2/3)**





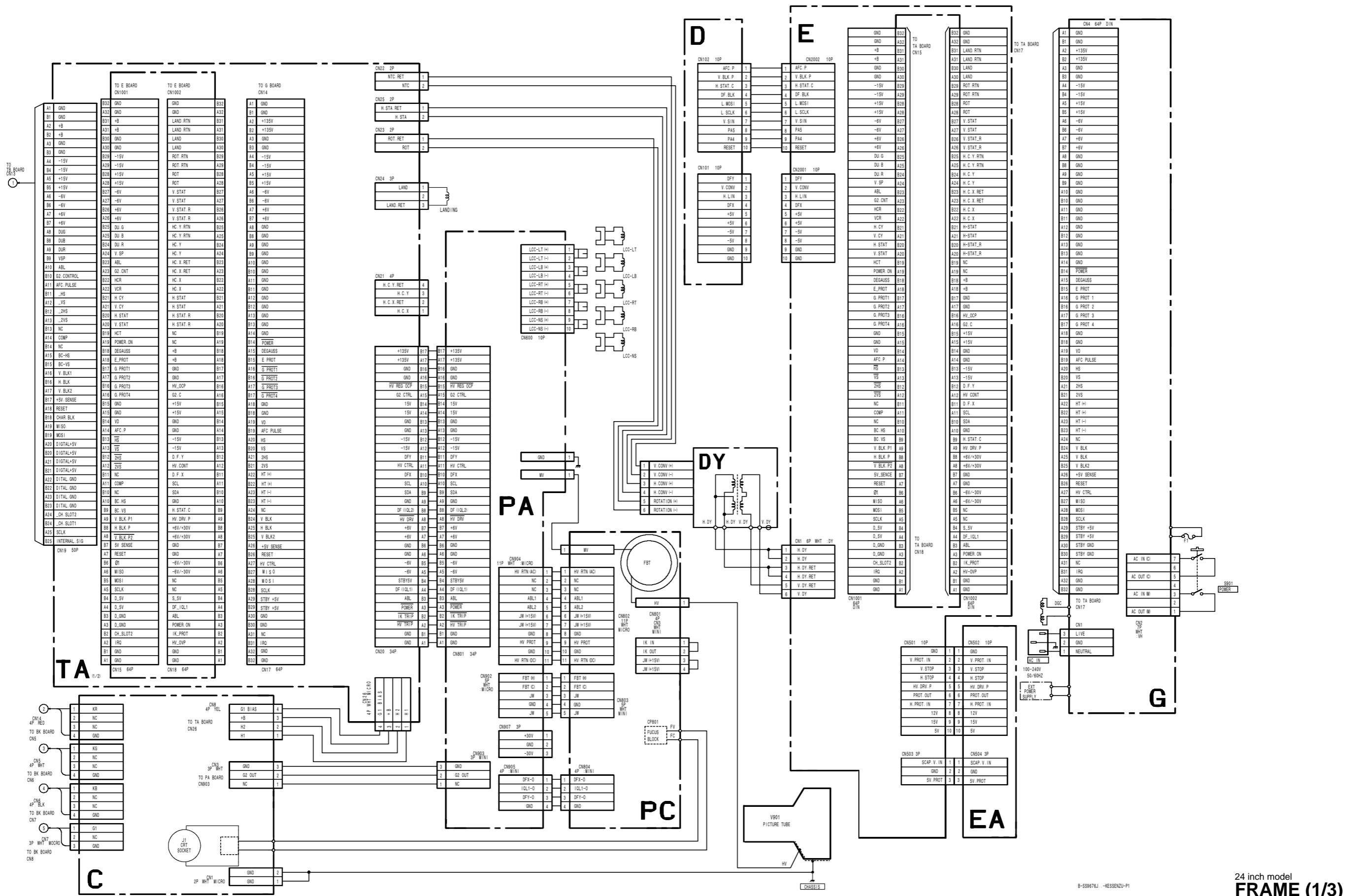
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A

B

C

D

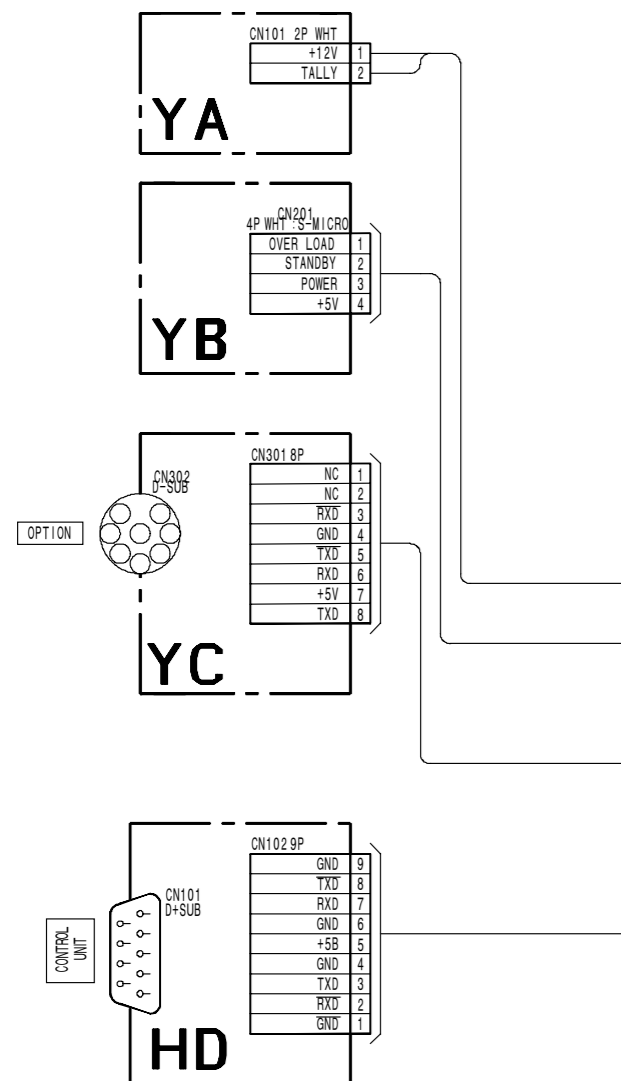
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F

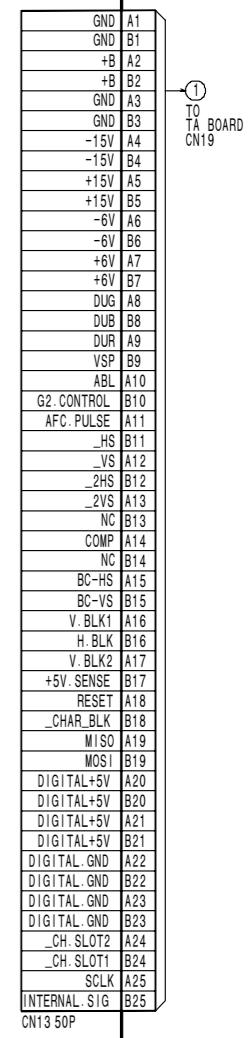
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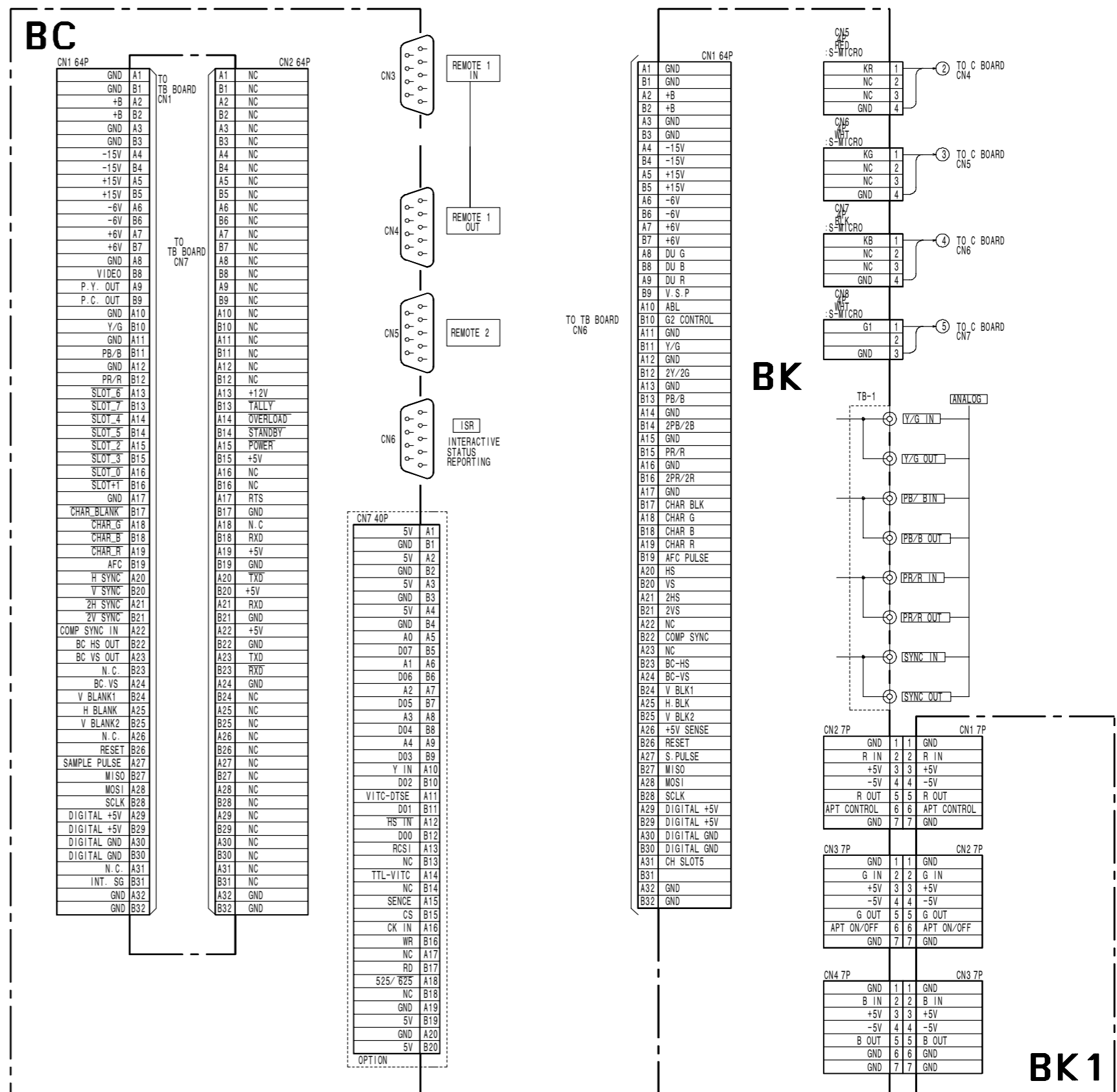
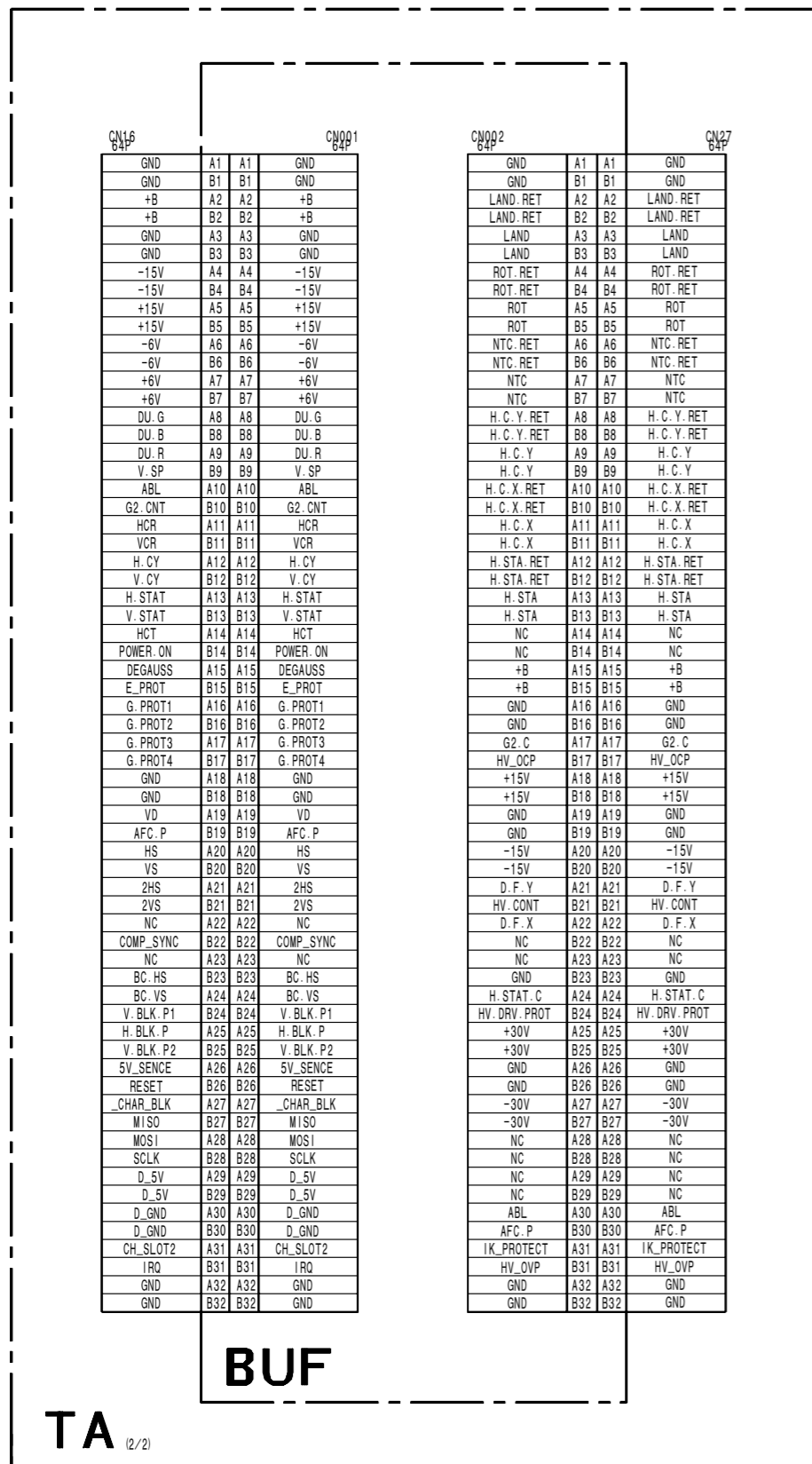
H

1  
2  
3  
4  
5



TO BK BOARD CN1		OPTION4		OPTION3		OPTION2		OPTION1		TO BC BOARD CN1		TO BC BOARD CN2	
A1	GND	DIGITAL_GND	A1	A1	GND	GND	A1	A1	GND	A1	A1	GND	A1
B1	GND	DIGITAL_GND	B1	B1	GND	GND	B1	B1	GND	B1	B1	GND	B1
A2	+B	PCK	A2	A2	+B	PCK	A2	A2	+B	PCK	A2	+B	A2
B2	+B	DIGITAL_GND	B2	B2	+B	DIGITAL_GND	B2	B2	+B	DIGITAL_GND	B2	+B	B2
A3	GND	DIGITAL_GND	A3	A3	GND	DIGITAL_GND	A3	A3	GND	DIGITAL_GND	A3	GND	A3
B3	GND	DO	B3	B3	GND	DO	B3	B3	GND	DO	B3	GND	B3
A4	-15V	DIGITAL_GND	A4	A4	-15V	DIGITAL_GND	A4	A4	-15V	DIGITAL_GND	A4	-15V	A4
B4	-15V	D1	B4	B4	-15V	D1	B4	B4	-15V	D1	B4	-15V	B4
A5	+15V	DIGITAL_GND	A5	A5	+15V	DIGITAL_GND	A5	A5	+15V	DIGITAL_GND	A5	+15V	A5
B5	+15V	D2	B5	B5	+15V	D2	B5	B5	+15V	D2	B5	+15V	B5
A6	-6V	DIGITAL_GND	A6	A6	-6V	DIGITAL_GND	A6	A6	-6V	DIGITAL_GND	A6	-6V	A6
B6	-6V	D3	B6	B6	-6V	D3	B6	B6	-6V	D3	B6	-6V	B6
A7	+6V	DIGITAL_GND	A7	A7	+6V	DIGITAL_GND	A7	A7	+6V	DIGITAL_GND	A7	+6V	A7
B7	+6V	D4	B7	B7	+6V	D4	B7	B7	+6V	D4	B7	+6V	B7
A8	DUG	DIGITAL_GND	A8	A8	GND	DIGITAL_GND	A8	A8	GND	DIGITAL_GND	A8	GND	A8
B8	DUB	D5	B8	B8	VIDEO	D5	B8	B8	VIDEO	D5	B8	VIDEO	B8
A9	DUR	DIGITAL_GND	A9	A9	GND	DIGITAL_GND	A9	A9	GND	DIGITAL_GND	A9	GND	A9
B9	V.P.S	D6	B9	B9	PY	D6	B9	B9	PY	D6	B9	P.C. OUT	B9
A10	ABL	DIGITAL_GND	A10	A10	GND	DIGITAL_GND	A10	A10	GND	DIGITAL_GND	A10	GND	A10
B10	G2.CONTROL	D7	B10	B10	PC	D7	B10	B10	PC	D7	B10	Y/G	B10
A11	OVERLOAD	DIGITAL_GND	A11	A11	GND	DIGITAL_GND	A11	A11	GND	DIGITAL_GND	A11	GND	A11
B11	H_SYNC	D8	B11	B11	Y/G	D8	B11	B11	Y/G	D8	B11	PB/B	B11
A12	V_SYNC	DIGITAL_GND	A12	A12	GND	DIGITAL_GND	A12	A12	GND	DIGITAL_GND	A12	GND	A12
B12	TXD	D9	B12	B12	2Y/G	D9	B12	B12	2Y/G	D9	B12	PR/R	B12
A13	GND	DIGITAL_GND	A13	A13	GND	DIGITAL_GND	A13	A13	GND	DIGITAL_GND	A13	GND	A13
B13	RXD	DPR	B13	B13	PB/B	DPR	B13	B13	PB/B	DPR	B13	SLOT_6	B13
A14	TXD	NC	A14	A14	GND	NC	A14	A14	GND	NC	A14	SLOT_7	B13
B14	+5V	2PB/B	B14	B14	2PB/B	NC	B14	B14	2PB/B	NC	B14	SLOT_4	A14
A15	GND	NC	A15	A15	GND	NC	A15	A15	GND	NC	A15	SLOT_5	B14
B15	PR/R	NC	B15	B15	PR/R	NC	B15	B15	PR/R	NC	B15	SLOT_2	A15
A16	GND	NC	A16	A16	GND	NC	A16	A16	GND	NC	A16	SLOT_3	B15
B16	2PR/R	NC	B16	B16	2PR/R	NC	B16	B16	2PR/R	NC	B16	SLOT_0	A16
A17	GND	NC	A17	A17	GND	NC	A17	A17	GND	NC	A17	SLOT_1	B16
B17	+5V	CHAR_BLK	B17	B17	_CHAR_BLK	NC	B17	B17	_CHAR_BLK	NC	B17	SLOT_1	A17
A18	GND	CHAR_G	A18	A18	_CHAR_G	NC	A18	A18	_CHAR_G	NC	A18	RTS	A17
B18	TXD	CHAR_B	B18	B18	_CHAR_B	NC	B18	B18	_CHAR_B	NC	B18	CHAR BLANK	B17
A19	RXD	CHAR_R	A19	A19	_CHAR_R	NC	A19	A19	_CHAR_R	NC	A19	CHAR G	A18
B19	GND	AFC_PULSE	B19	B19	AFC_PULSE	NC	B19	B19	AFC_PULSE	NC	B19	CHAR B	B18
A20	HS	NC	A20	A20	_HS	NC	A20	A20	_HS	NC	A20	CHAR R	A19
B20	VS	NC	B20	B20	_VS	NC	B20	B20	_VS	NC	B20	AFC	B19
A21	2HS	NC	A21	A21	_2HS	NC	A21	A21	_2HS	NC	A21	H SYNC	A20
B21	2VS	NC	B21	B21	_2VS	NC	B21	B21	_2VS	NC	B21	V SYNC	B20
A22	NC	NC	A22	A22	NC	NC	A22	A22	NC	NC	A22	2H SYNC	A21
B22	COMP SYNC	NC	B22	B22	COMP	NC	B22	B22	COMP	NC	B22	2V SYNC	B21
A23	NC	NC	A23	A23	NC	NC	A23	A23	NC	NC	A23	+5V	A22
B23	BC_HS	NC	B23	B23	BC_HS	NC	B23	B23	BC_HS	NC	B23	GND	B22
A24	BC_VS	NC	A24	A24	BC_VS	NC	A24	A24	BC_VS	NC	A24	CHAR_BLK	B18
B24	V_BLK1	NC	B24	B24	V_BLK1	NC	B24	B24	V_BLK1	NC	B24	MISO	B19
A25	H_BLK	NC	A25	A25	H_BLK	NC	A25	A25	H_BLK	NC	A25	DIGITAL+5V	A20
B25	V_BLK2	NC	B25	B25	V_BLK2	NC	B25	B25	V_BLK2	NC	B25	DIGITAL+5V	B20
A26	+5V SENSE	NC	A26	A26	+5V SENSE	NC	A26	A26	+5V SENSE	NC	A26	DIGITAL+5V	A21
B26	RESET	NC	B26	B26	RESET	NC	B26	B26	RESET	NC	B26	DIGITAL+5V	B21
A27	S.PULSE	NC	A27	A27	S.PULSE	NC	A27	A27	S.PULSE	NC	A27	DIGITAL_GND	A22
B27	MISO	NC	B27	B27	MISO	NC	B27	B27	MISO	NC	B27	DIGITAL_GND	B22
A28	MOSI	NC	A28	A28	MOSI	NC	A28	A28	MOSI	NC	A28	DIGITAL_GND	A23
B28	SCLK	NC	B28	B28	SCLK	NC	B28	B28	SCLK	NC	B28	DIGITAL_GND	B23
A29	DIGITAL+5V	NC	A29	A29	DIGITAL+5V	NC	A29	A29	DIGITAL+5V	NC	A29	DIGITAL_GND	A24
B29	DIGITAL+5V	NC	B29	B29	DIGITAL+5V	NC	B29	B29	DIGITAL+5V	NC	B29	DIGITAL_GND	B24
A30	DIGITAL_GND	NC	A30	A30	DIGITAL_GND	NC	A30	A30	DIGITAL_GND	NC	A30	DIGITAL_GND	A25
B30	DIGITAL_GND	NC	B30	B30	DIGITAL_GND	NC	B30	B30	DIGITAL_GND	NC	B30	DIGITAL_GND	B25
A31	CH_SLOTS	NC	A31	A31	_CH_SLOT4	NC	A31	A31	_CH_SLOT6	NC	A31	DIGITAL_GND	A26
B31	INTERNAL_SIG	NC	B31	B31	INTERNAL_SIG	NC	B31	B31	INTERNAL_SIG	NC	B31	DIGITAL_GND	B26
A32	GND	GND	A32	A32	GND	GND	A32	A32	GND	GND	A32	DIGITAL_GND	A27
B32	GND	GND	B32	B32	GND	GND	B32	B32	GND	GND	B32	DIGITAL_GND	B27





11-2. Schematic Diagrams and Printed Wiring Boards

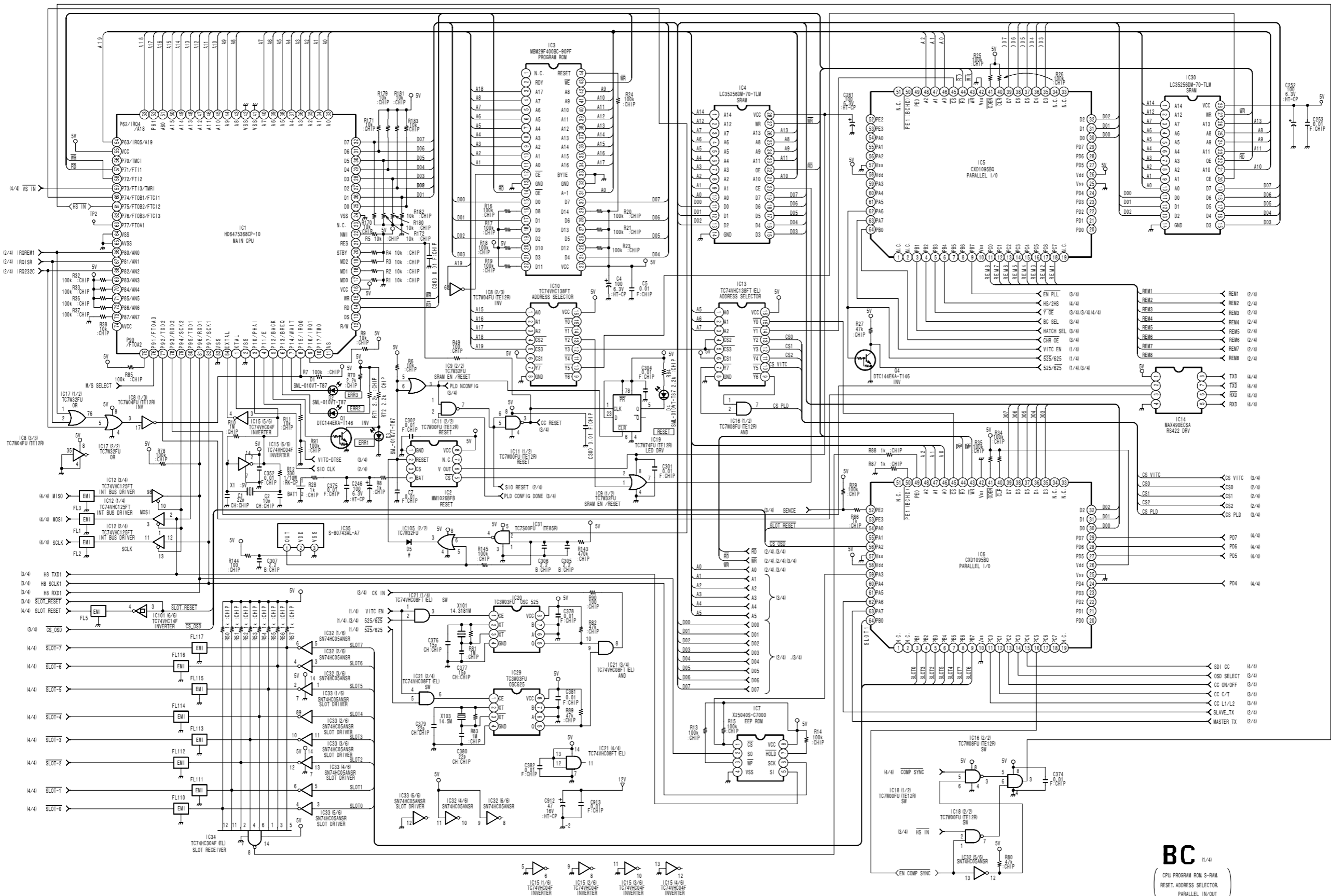
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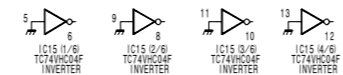
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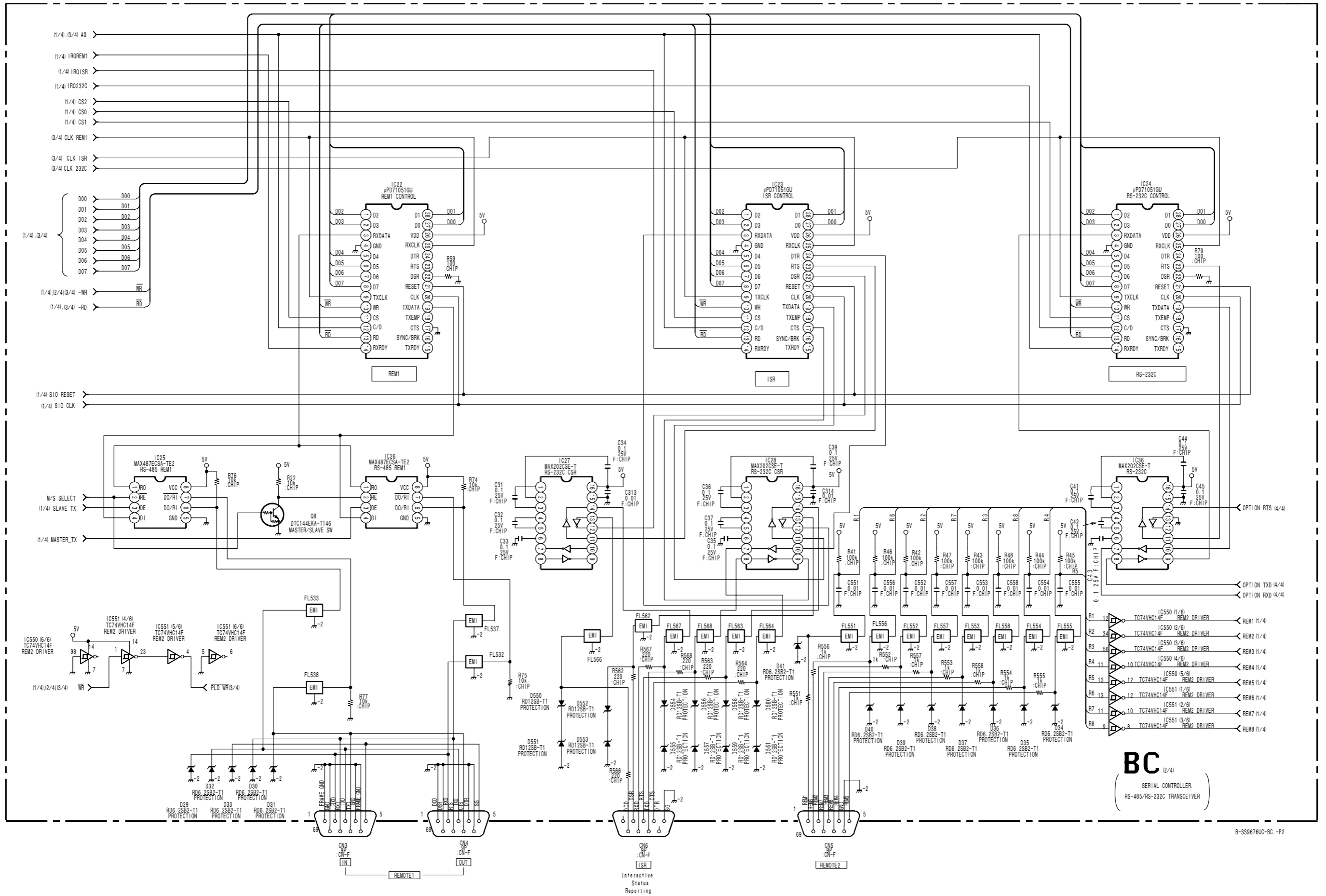
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5



**BC** (1/4)  
 CPU PROGRAM ROM S-RAM  
 RESET ADDRESS SELECTOR  
 PARALLEL I/O UNIT





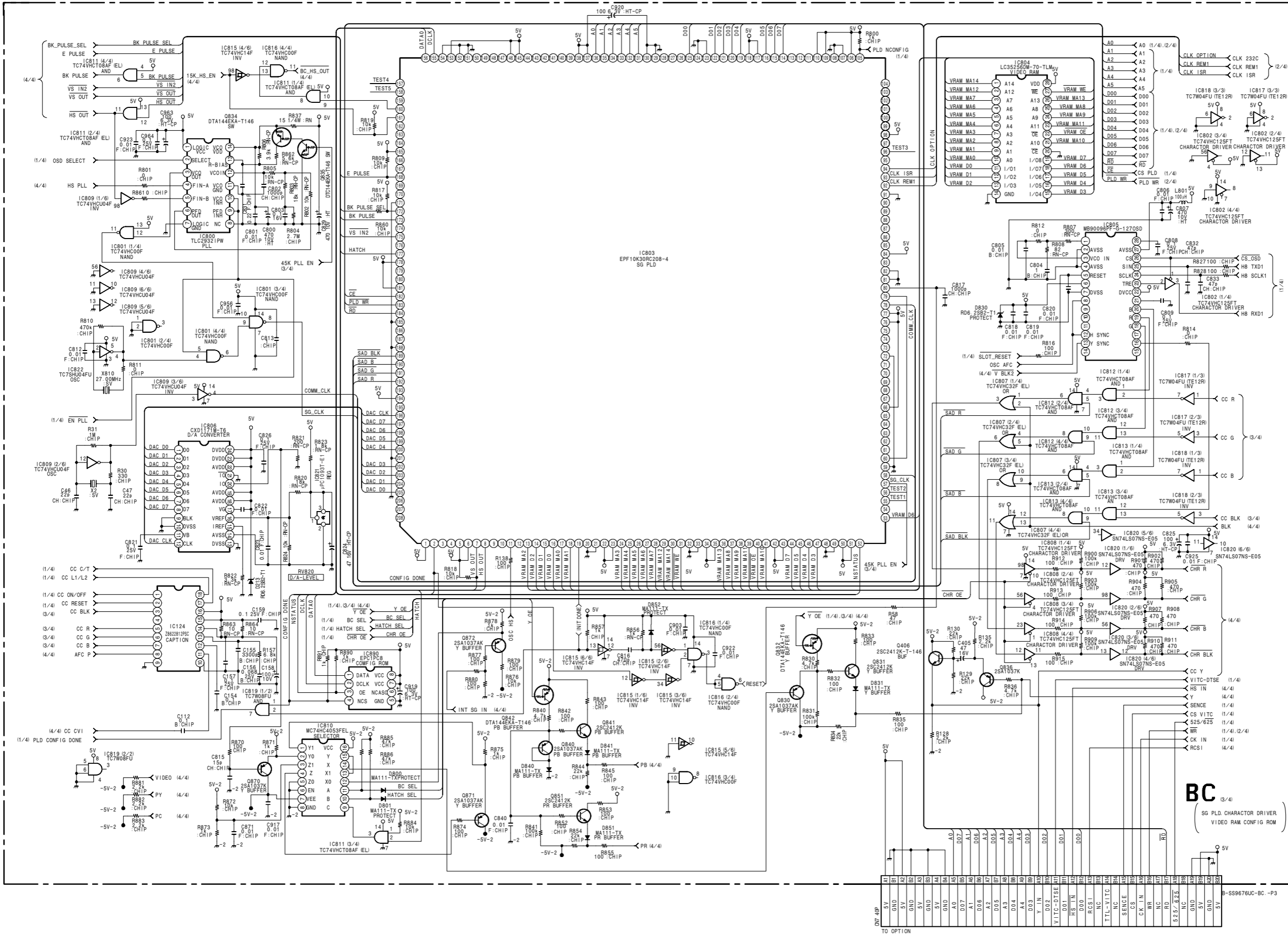
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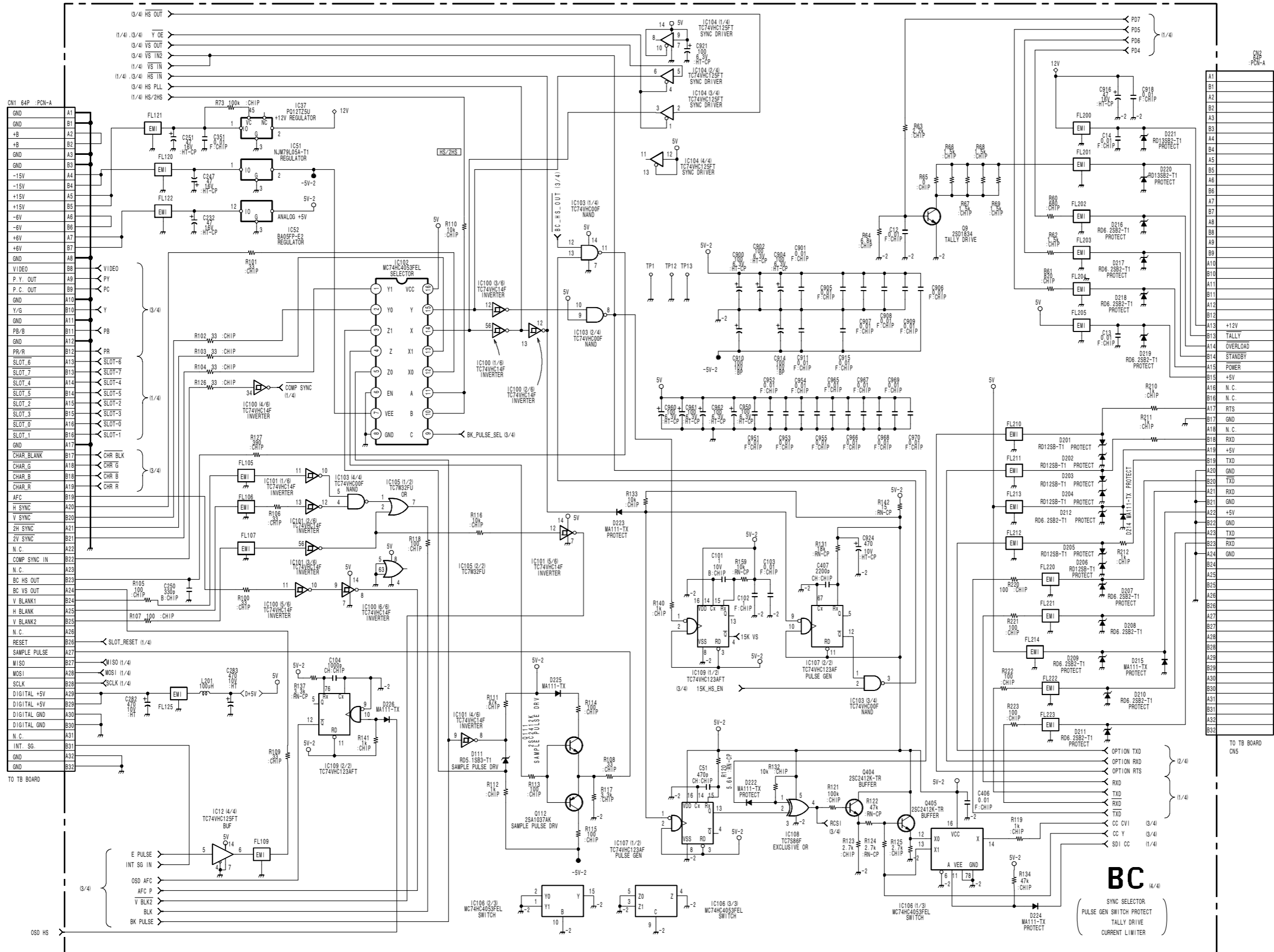
4

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BC (3/4)  
SG PLD CHARACTER DRIVER  
VIDEO RAM CONFIG ROM

BC (4/4) BC (4/4)



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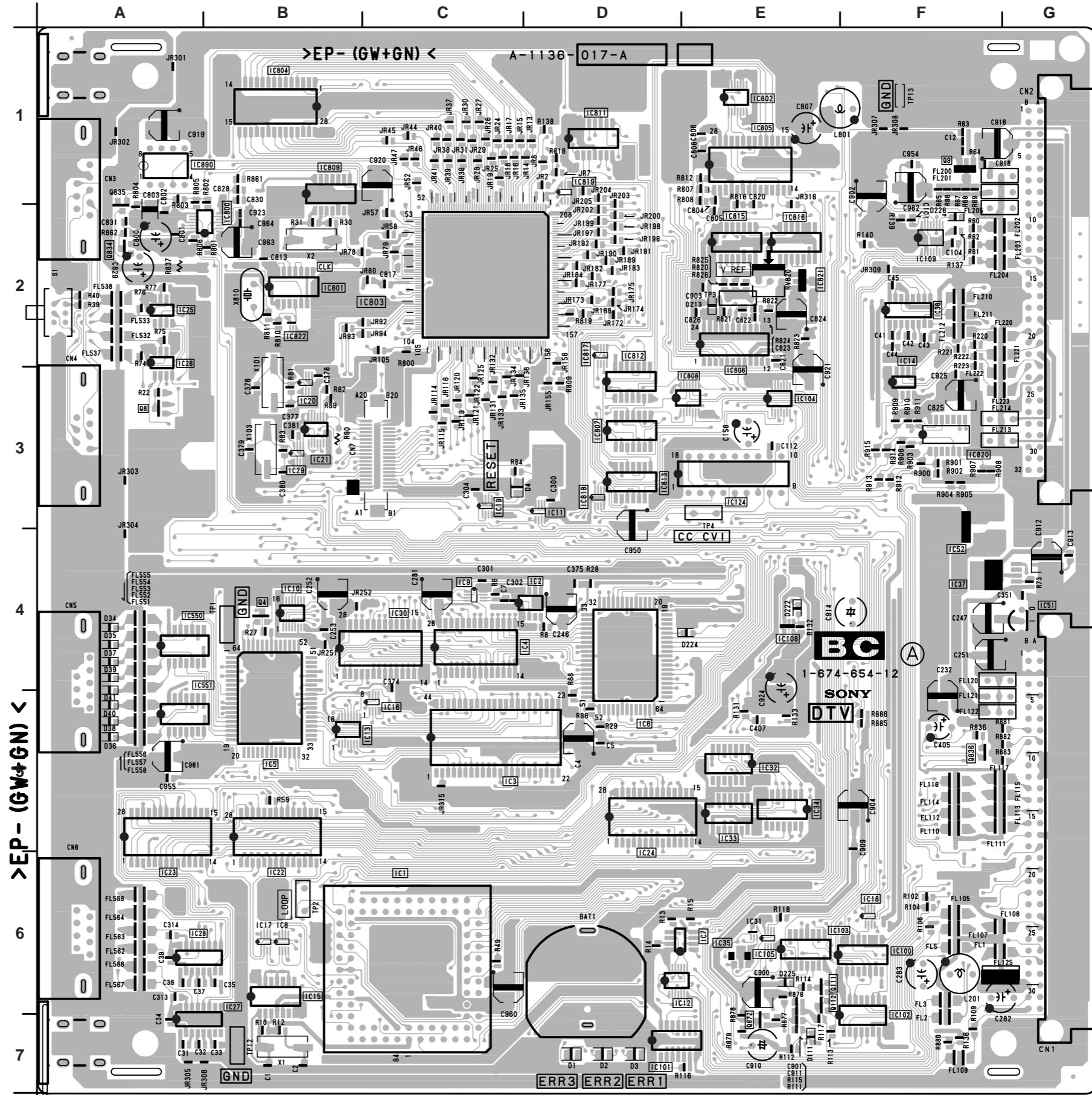


BC BOARD

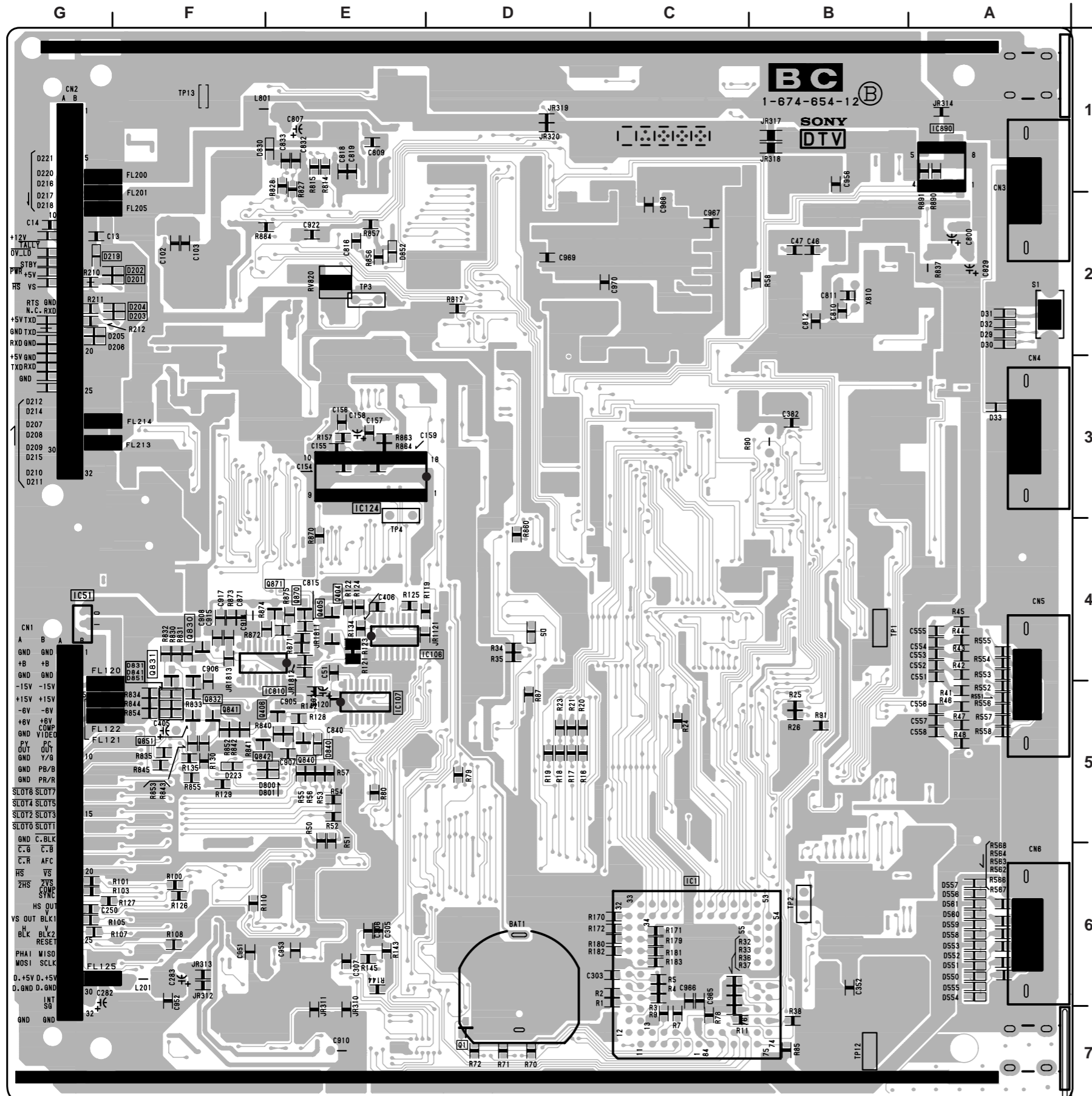
BC BOARD

\*: B SIDE

D1	D-7	IC2	D-4	Q1	* D-7
D2	D-7	IC3	C-5	Q4	B-4
D3	D-7	IC4	C-4	Q8	A-3
D4	C-3	IC5	B-5	Q9	F-1
D29	* A-2	IC6	D-4	Q111	E-6
D30	* A-2	IC7	E-6	Q112	E-6
D31	* A-2	IC8	B-6	Q404	* E-4
D32	* A-2	IC9	C-4	Q405	* E-4
D33	* A-3	IC10	B-4	Q406	* E-5
D34	A-4	IC11	D-3	Q830	* F-4
D35	A-4	IC12	E-6	Q831	* F-4
D36	A-5	IC13	B-5	Q832	* F-4
D37	A-4	IC14	F-3	Q833	
D38	A-5	IC15	B-6	Q834	A-2
D39	A-4	IC16	C-5	Q835	A-2
D40	A-5	IC17	B-6	Q840	* E-5
D41	A-4	IC18	F-6	Q841	* F-5
D111	E-7	IC19	C-3	Q842	* E-5
D201	* F-2	IC20	B-3	Q851	* F-5
D202	* F-2	IC21	B-3	Q870	* E-4
D203	* F-2	IC22	B-5	Q871	* F-4
D204	* F-2	IC23	A-5	Q872	E-7
D205	* G-2	IC24	D-5		
D206	* G-2	IC25	A-2	TP1	B-4
D207	* G-2	IC26	A-2	TP2	B-6
D208	* G-2	IC27	A-7	TP3	E-2
D209	* G-3	IC28	A-6	TP12	B-7
D210	* G-3	IC29	B-3	TP13	F-1
D211	* G-3	IC32	E-5		
D212	* G-2	IC33	E-5		
D213	E-2	IC34	E-5		
D214	* G-2	IC36	F-2		
D215	* G-3	IC37	F-4		
D216	* G-2	IC51	* G-4		
D217	* G-2	IC52	F-3		
D218	* G-2	IC100	F-6		
D219	* G-2	IC101	E-7		
D220	* G-2	IC102	F-7		
D221	* G-2	IC103	E-6		
D222	E-4	IC104	E-3		
D223	* F-5	IC105	E-6		
D224	E-4	IC106	* E-4		
D225	E-6	IC107	* E-5		
D550	* A-6	IC108	E-4		
D551	* A-6	IC124	E-3		
D552	* A-6	IC550	A-4		
D553	* A-6	IC551	A-5		
D554	* A-6	IC800	B-2		
D555	* A-6	IC801	B-2		
D556	* A-6	IC802	E-1		
D557	* A-6	IC804	B-1		
D558	* A-6	IC805	E-1		
D559	* A-6	IC806	E-2		
D560	* A-6	IC807	D-3		
D561	* A-6	IC808	E-3		
D800	* F-5	IC809	B-1		
D801	* F-5	IC810	* F-4		
D830	* E-1	IC811	D-1		
D831	* F-5	IC812	D-3		
D840	* E-5	IC813	D-3		
D841	* F-5	IC815	E-2		
D851	* F-5	IC816	E-2		
D852	* E-2	IC817	D-2		
		IC818	D-3		
		IC819	D-1		
		IC820	F-3		
		IC821	E-2		
		IC822	B-3		

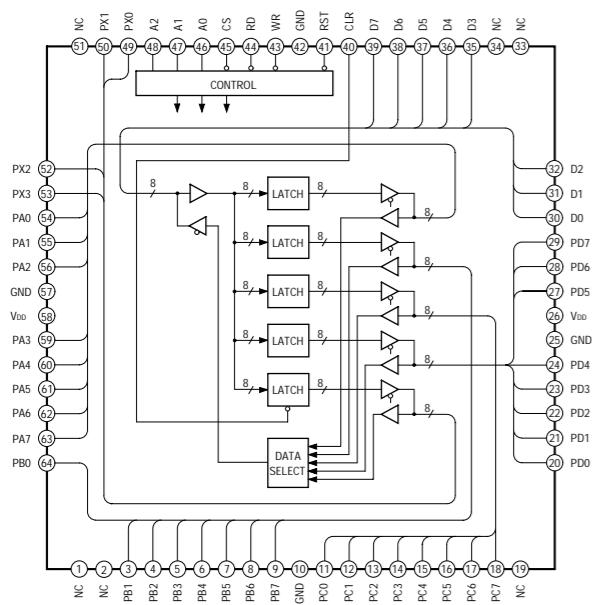


BC -A SIDE-  
SUFFIX: -12

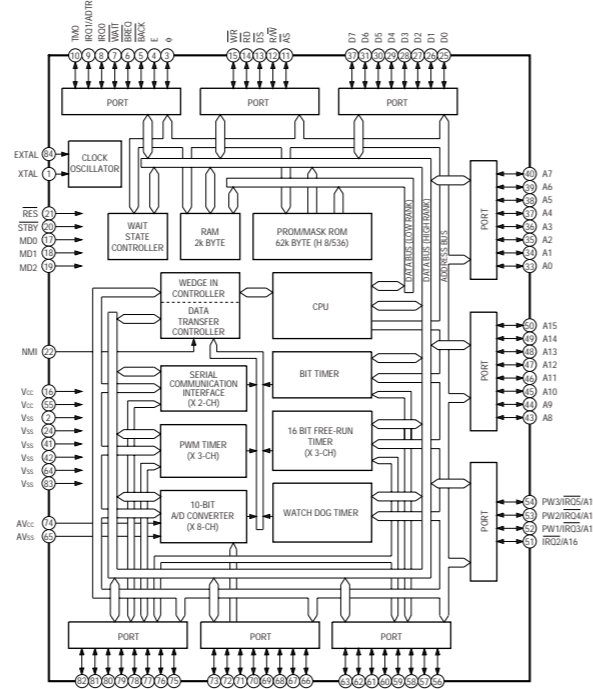


BC -B SIDE-  
SUFFIX: -12

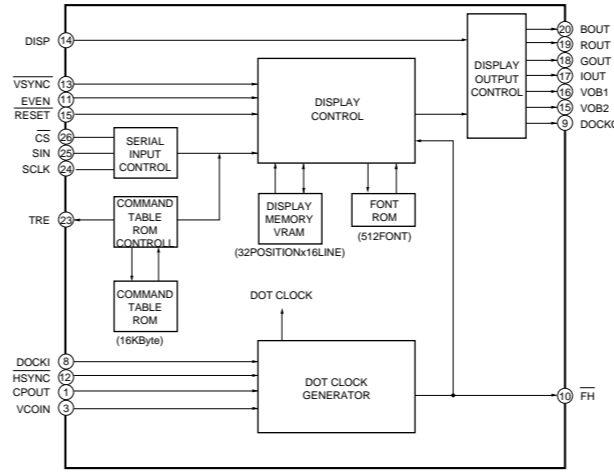
CXD1095BQ (IC5, 6)



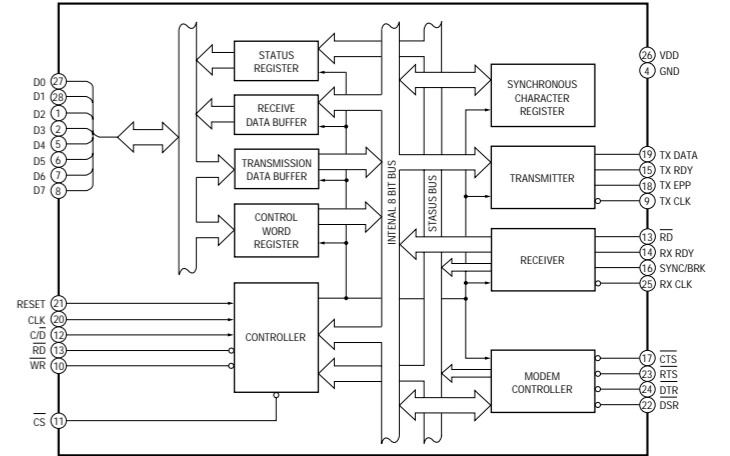
HD6475368CP-10 (IC1)



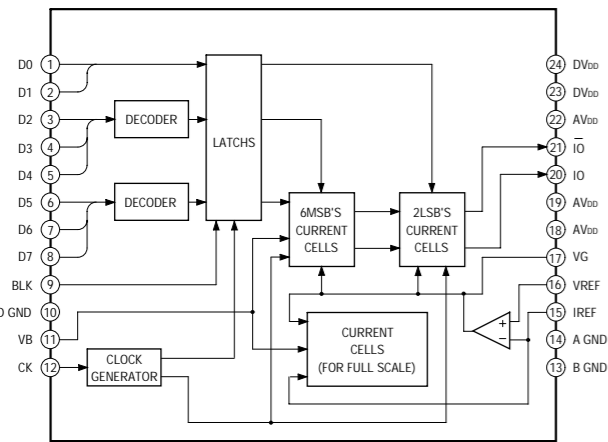
MB90096PF-G-127 (IC805)



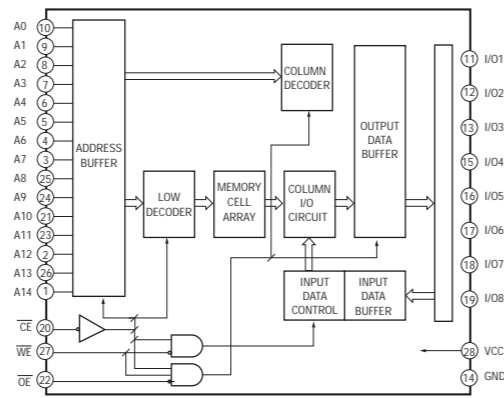
μPD71051GU (IC22, 23, 24)



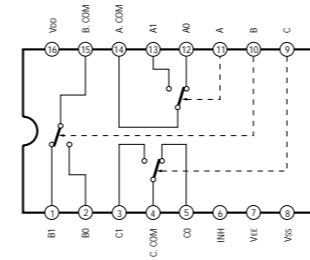
CXD1171M-T6 (IC806)



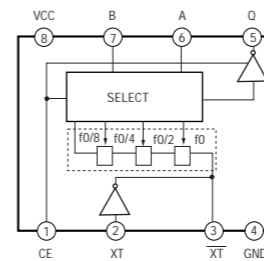
LC35256DM-70-TLM (IC4, 30, 804)



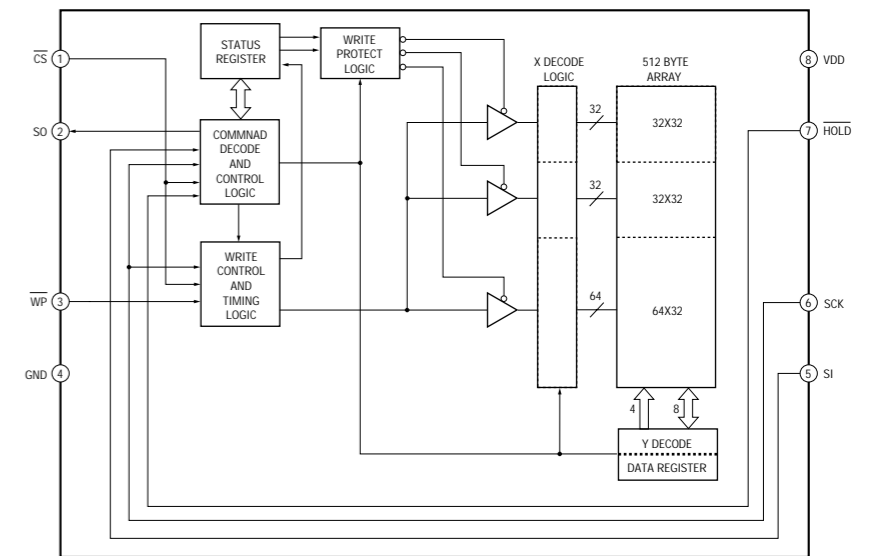
MC74HC4053FEL (IC102, 106, 810)



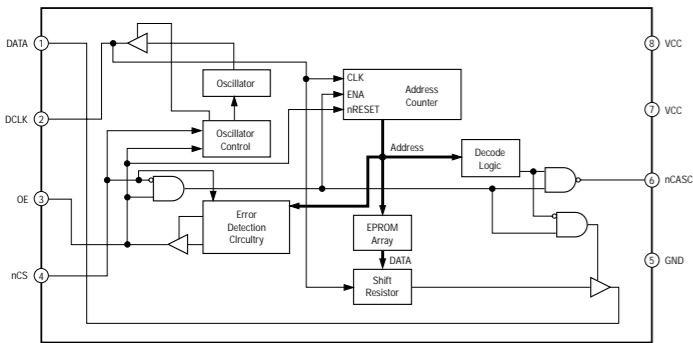
TC3W03FU (IC20, 29)



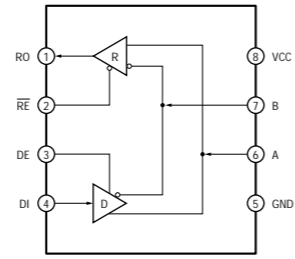
X25040S-C7000 (IC7)



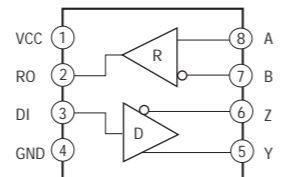
EPC1PC8 (IC890)



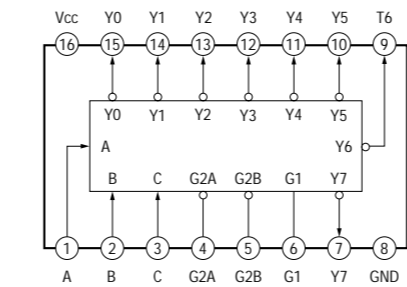
MAX487ECSA-TE2 (IC25, 26)



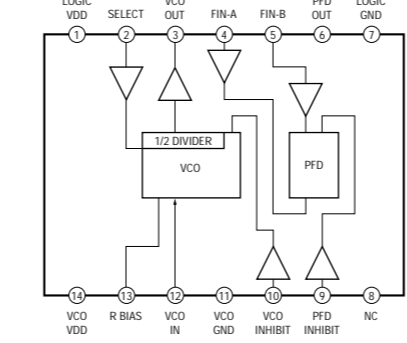
MAX490ECSA (IC14)



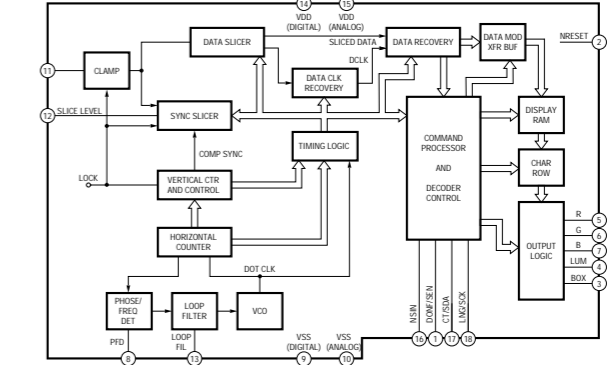
TC74VHC138FT (IC10, 13)

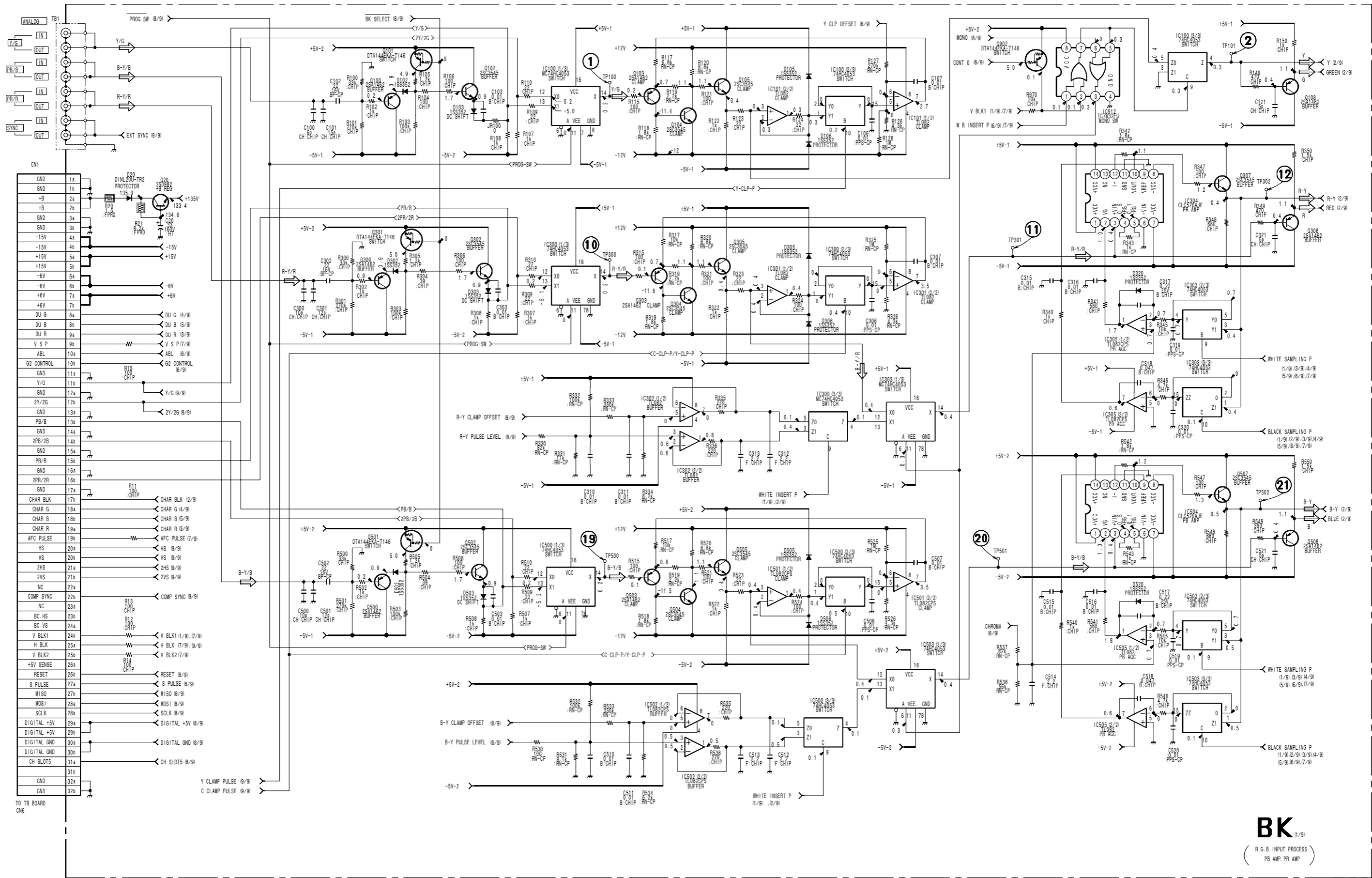


TLC2932IPW (IC800)

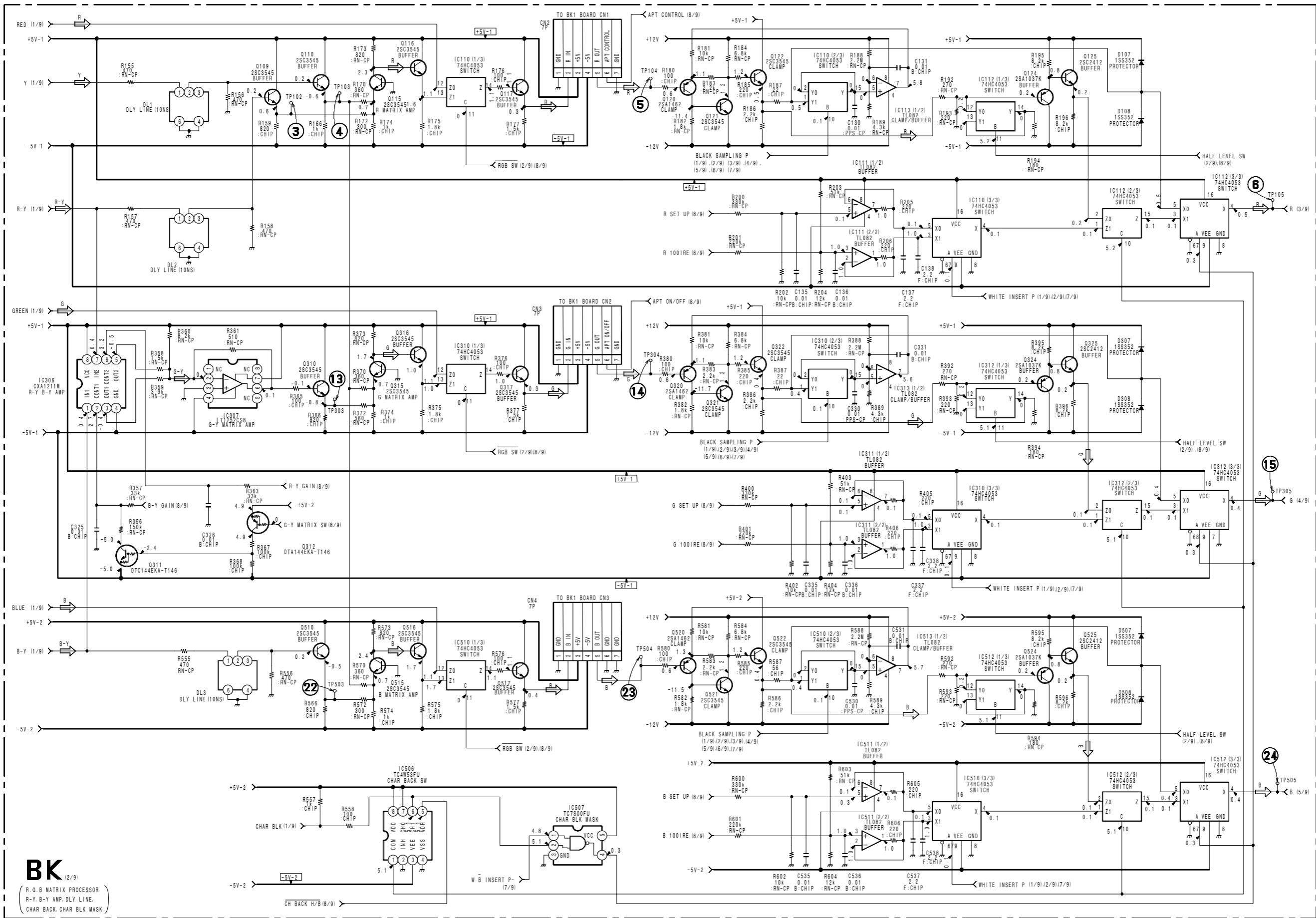


Z8622812PSC (IC124)

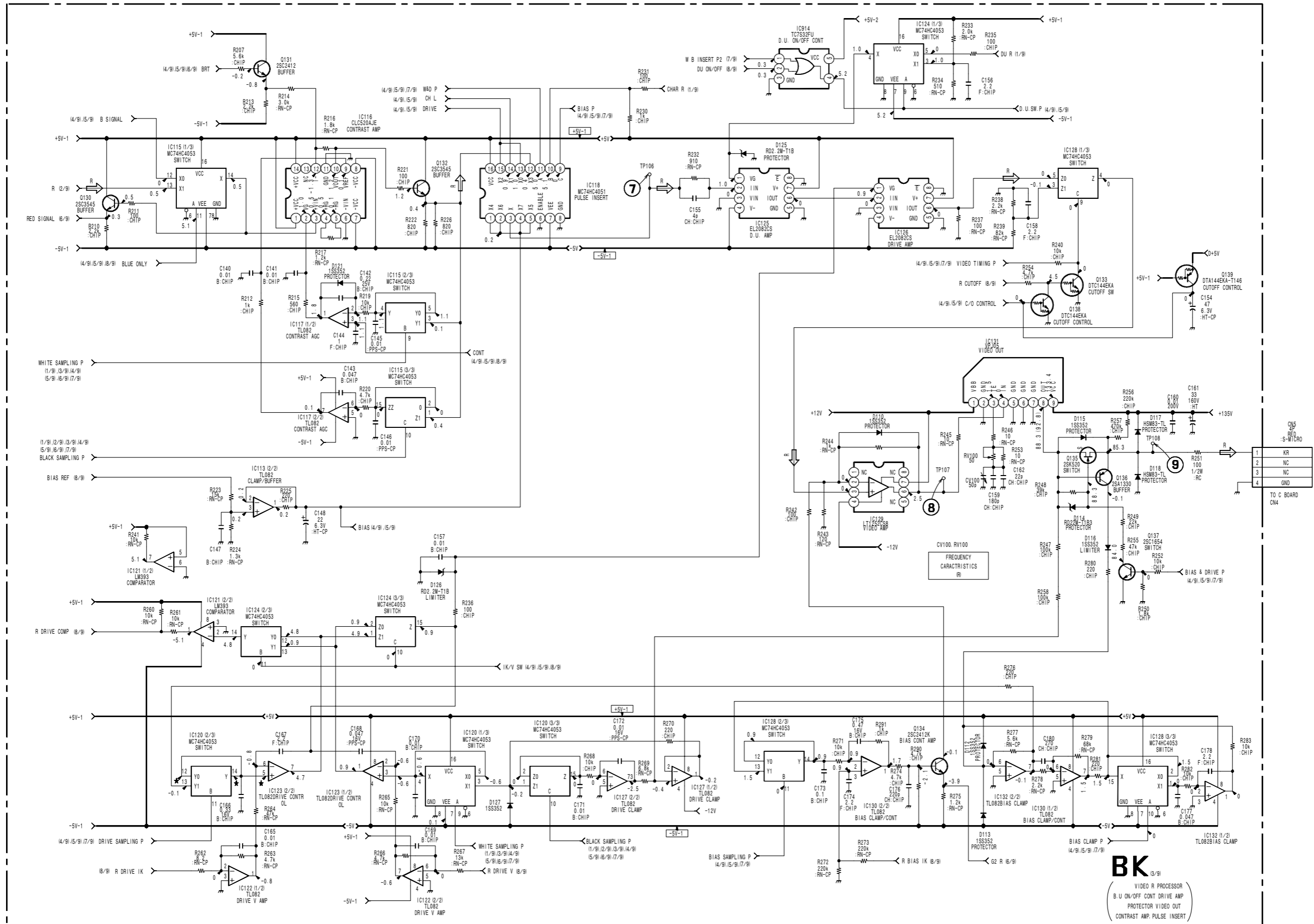




**BK** (1/9)  
 (R.G.B INPUT PROCESS)  
 PB AMP PR AMP



**BK** (2/9)  
 R-G, B MATRIX PROCESSOR  
 R-Y, B-Y AMP, DLY LINE  
 CHAR BACK, CHAR BLK MASK



**BK** (3/9)  
 VIDEO R PROCESSOR  
 B U ON/OFF CONT DRIVE AMP  
 PROTECTOR VIDEO OUT  
 CONTRAST AMP PULSE INSERT

1  
2  
3  
4  
5

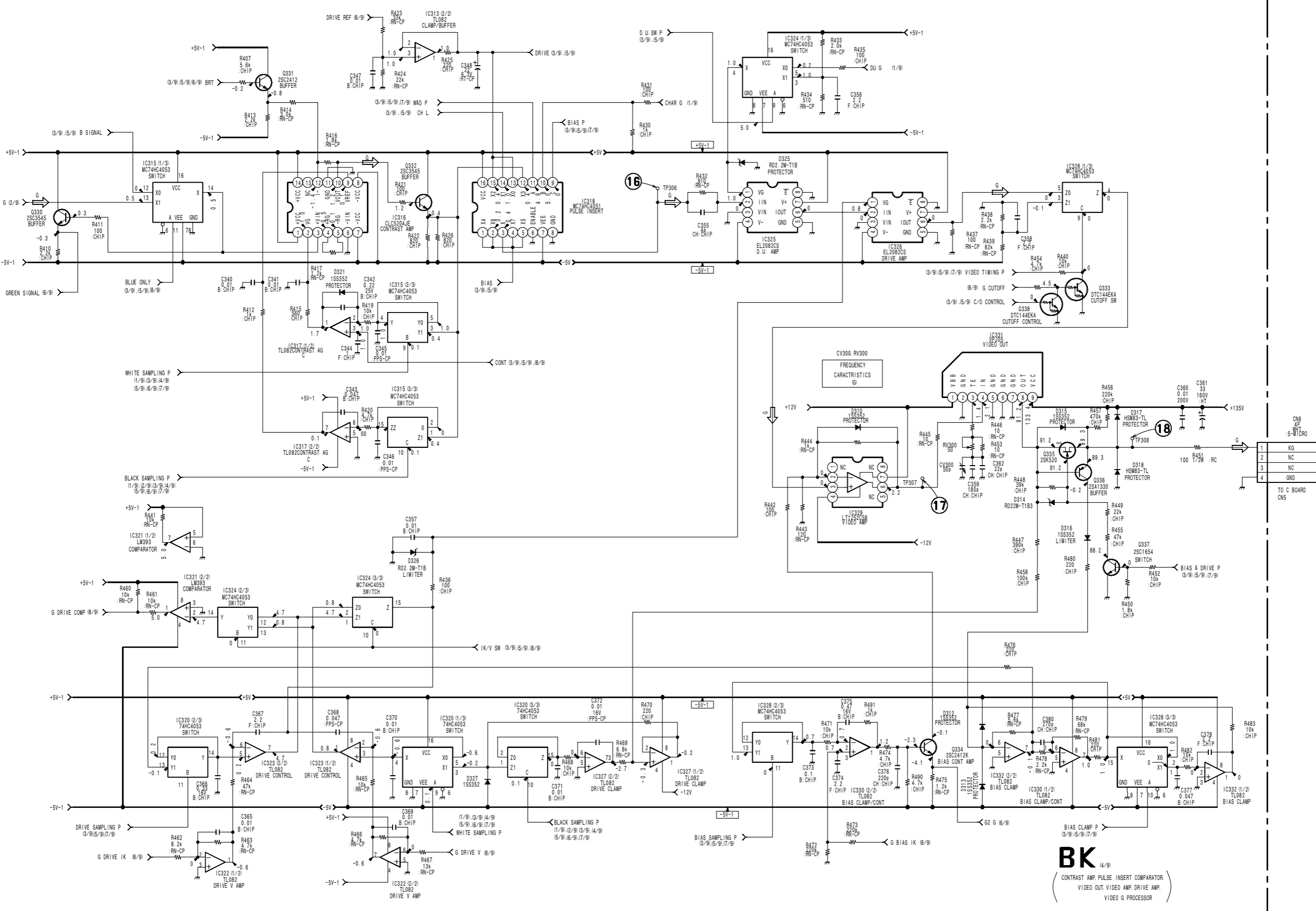
1

2

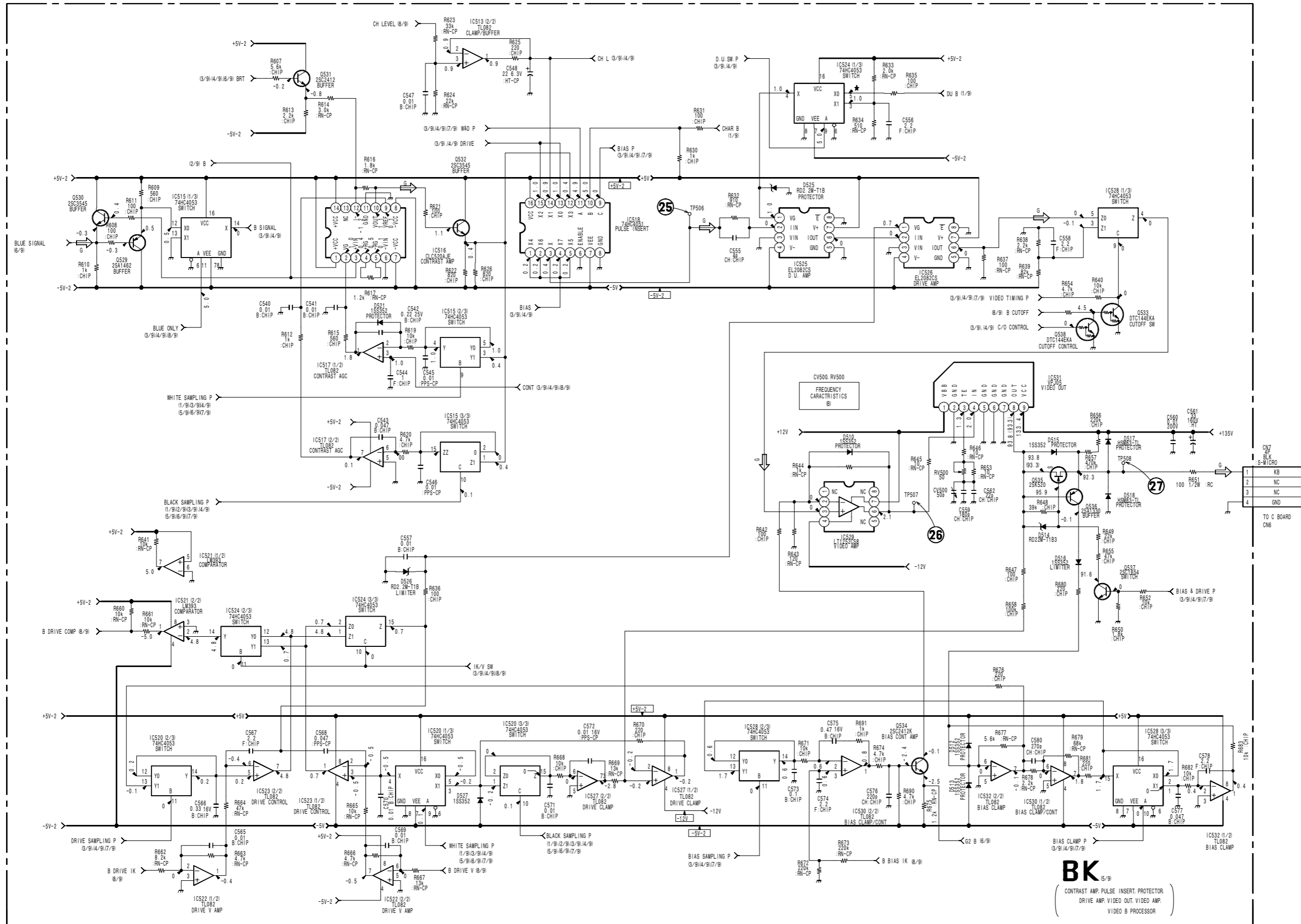
3

4

5



**BK** (4/9)  
 CONTRAST AMP. PULSE INSERT COMP. (1)  
 VIDEO OUT. VIDEO AMP. DRIVE AMP. (2)  
 VIDEO G. PROCESSOR (3)



1

2

3

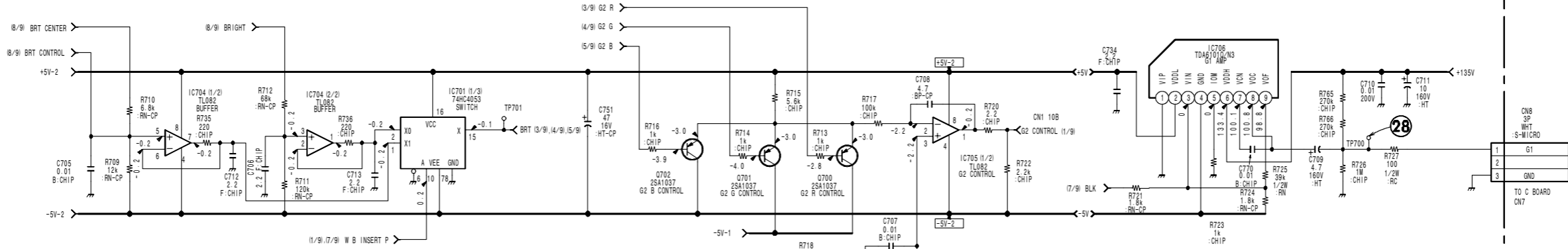
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5

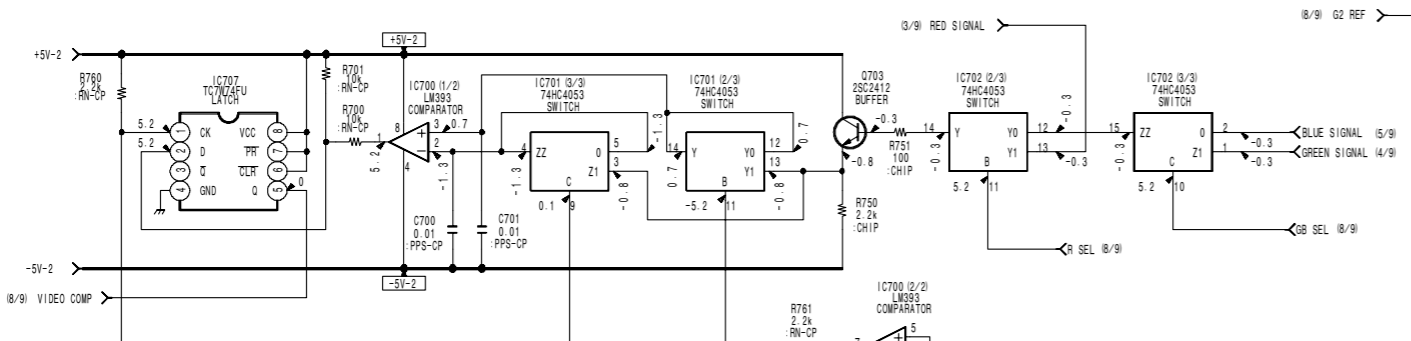


BK (6/9) BK (6/9)

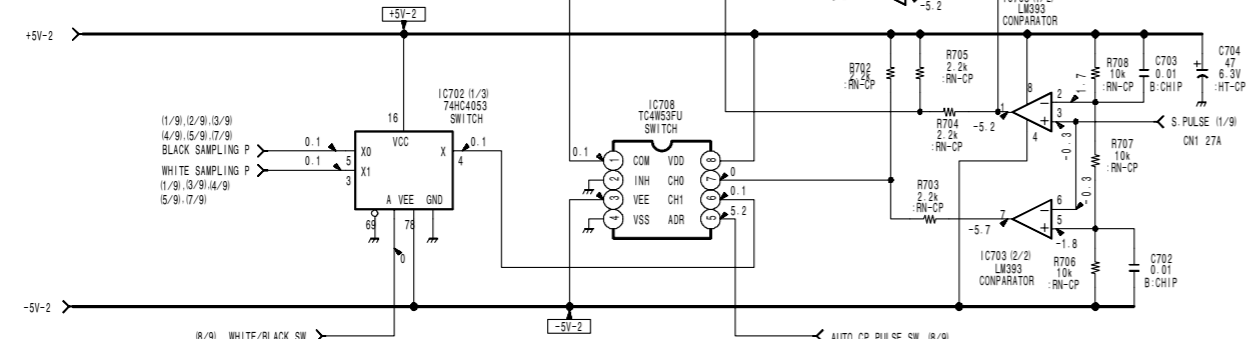
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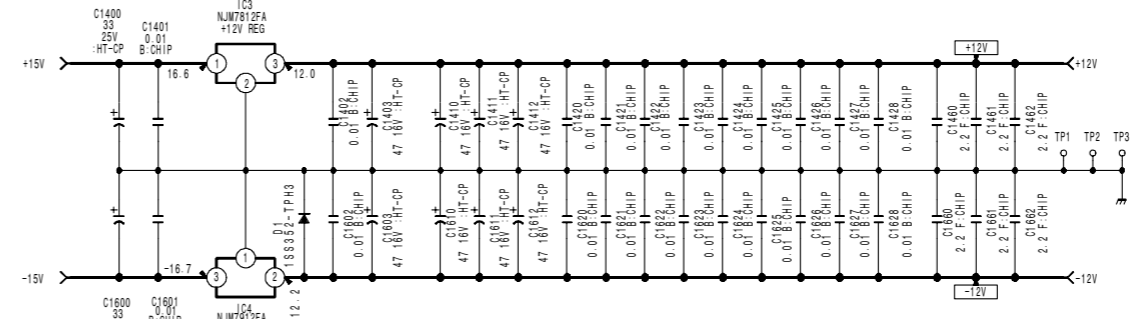
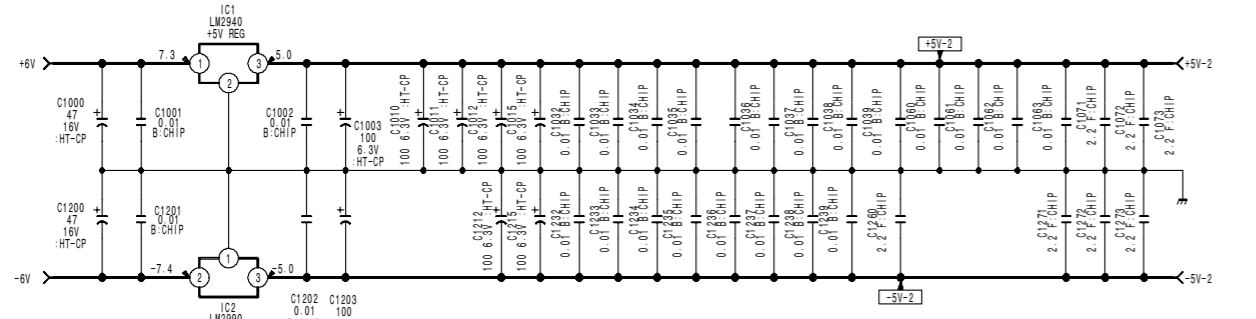
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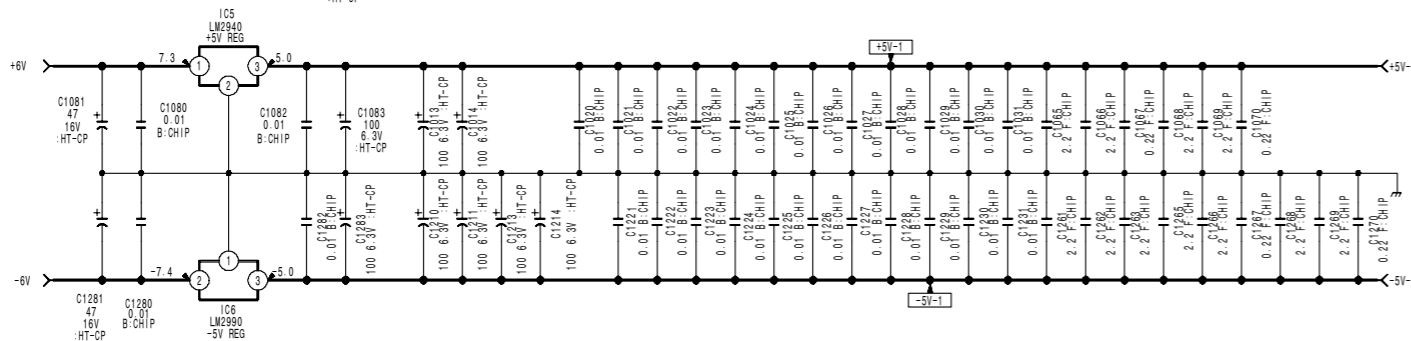
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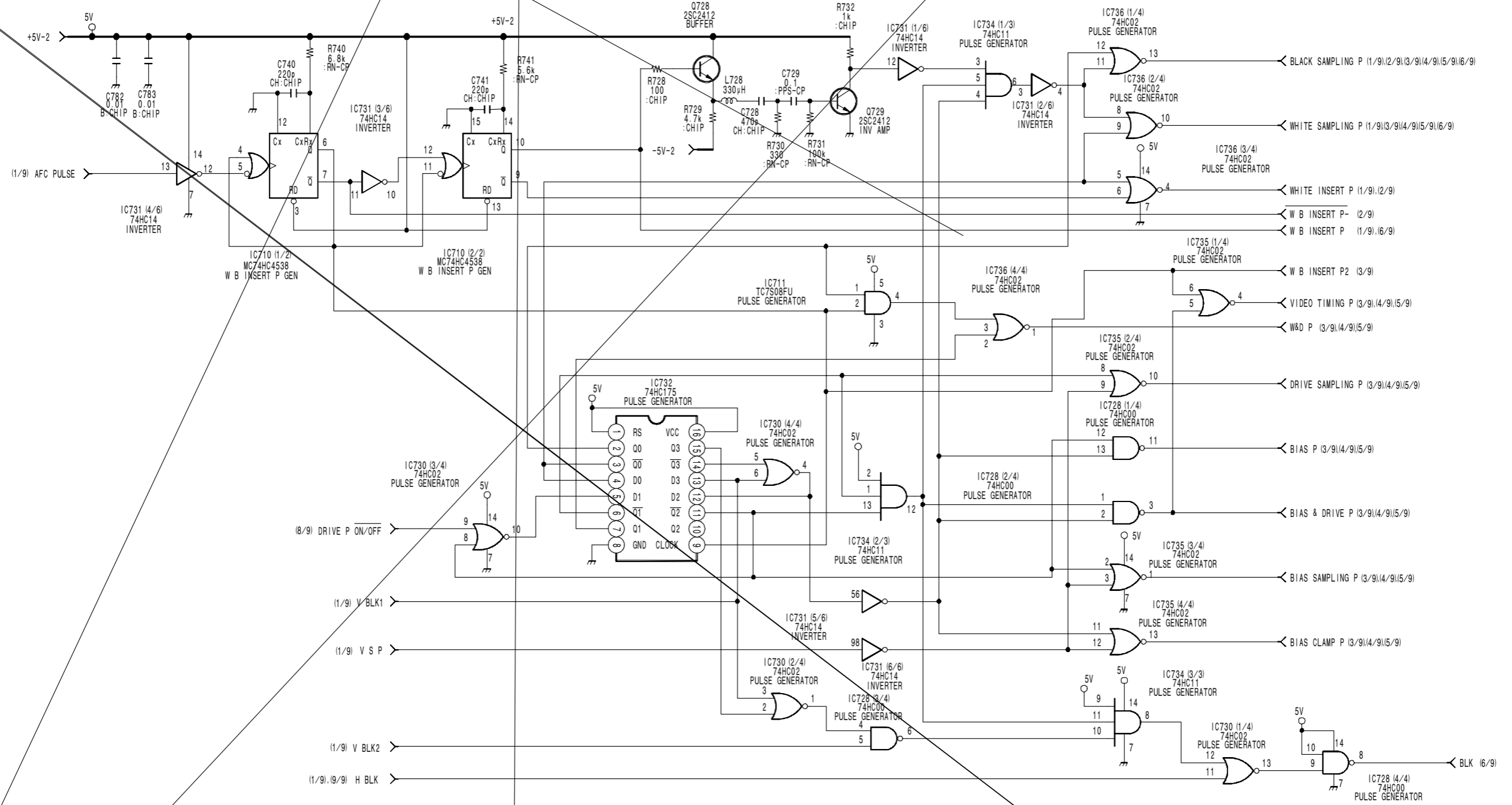
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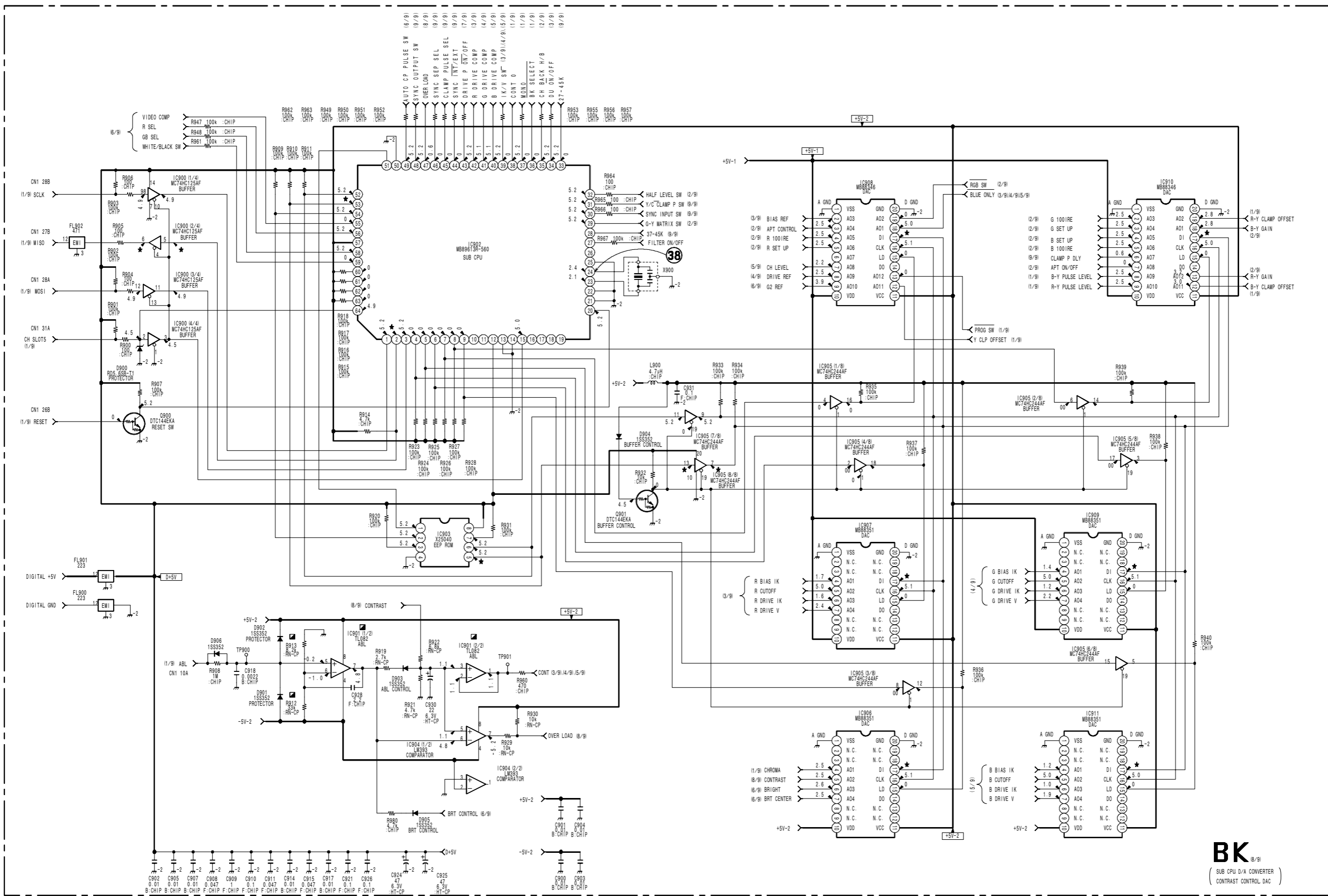
5



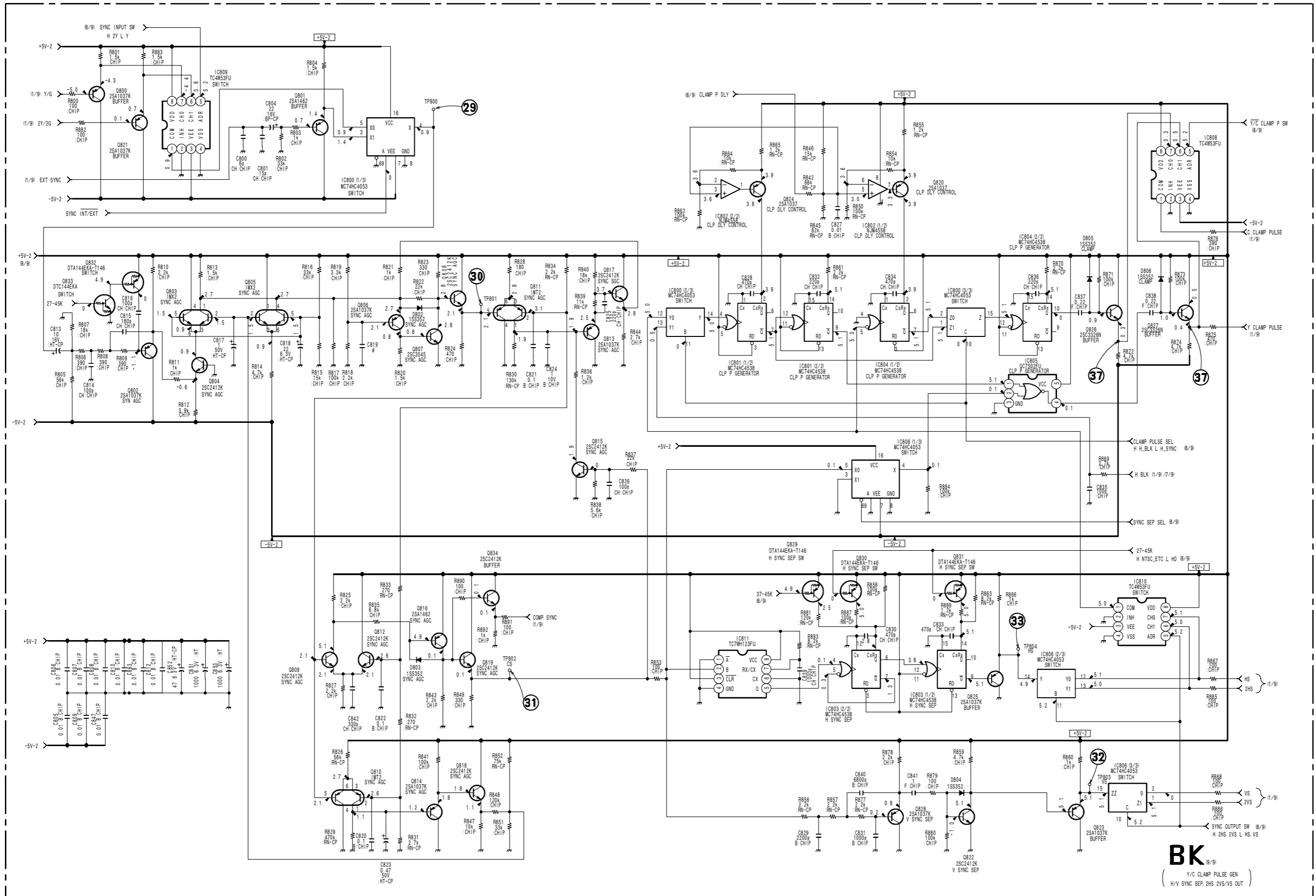
**BK** (6/9)  
BRIGHT/G2 CONTROL  
G1 OUTPUT, VIDEO COMP  
+5V/+12V REGULATOR  
LATCH G1 AMP



**BK** (7/9)  
PULSE GENERATOR  
W B INSERT P GEN



**BK** (8/9)  
 (SUB CPU D/A CONVERTER)  
 CONTRAST CONTROL DAC



**BK**  
 (9/9)  
 Y/C CLAMP PULSE GEN  
 H/V SYNC SEP, 2HS, 2VS/VS OUT

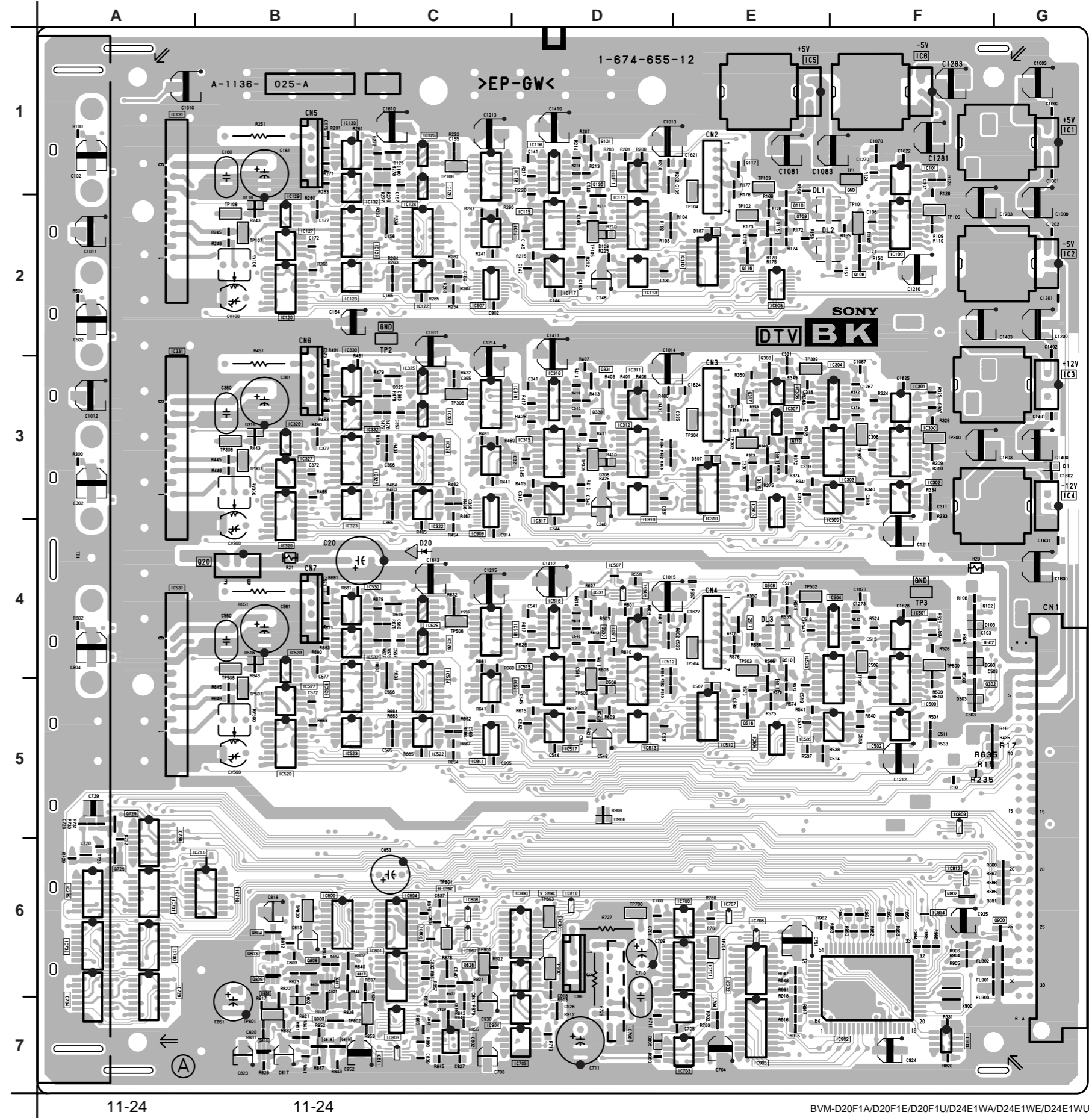
BK BOARD

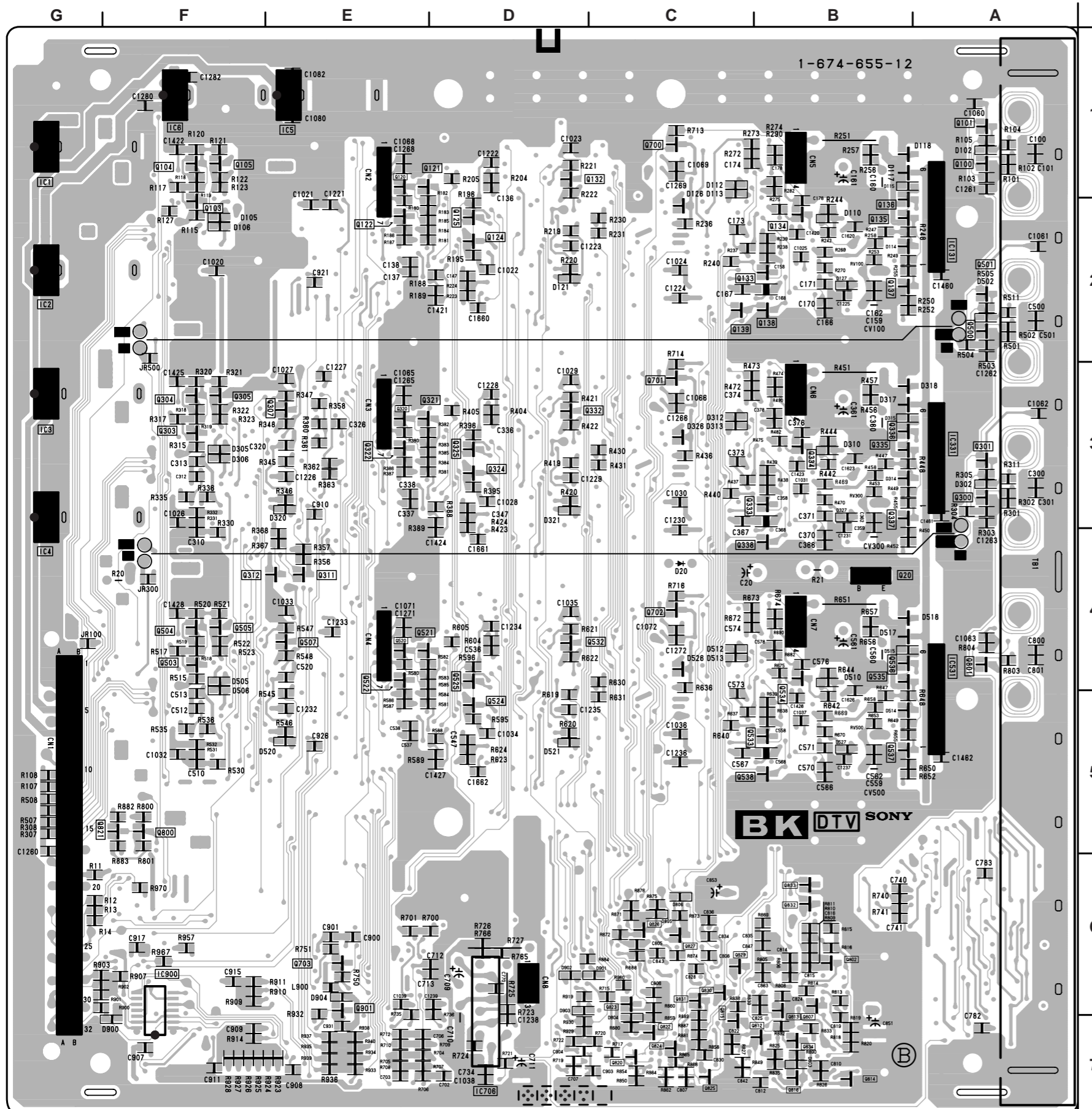
BK BOARD

\*: B SIDE

D1	G-3	IC124	C-2	IC806	D-6	Q525	* D-4
D20	C-4	IC125	C-6	IC808	C-6	Q529	D-5
D102	* A-1	IC126	C-1	IC809	F-5	Q530	D-4
D103	F-4	IC127	B-2	IC810	D-6	Q531	D-4
D105	* F-2	IC128	B-2	IC900	* F-6	Q532	* D-4
D106	* F-2	IC129	B-2	IC901	D-6	Q533	* B-5
D107	E-2	IC130	B-1	IC902	F-6	Q534	* B-4
D108	D-2	IC131	A-1	IC903	F-7	Q535	* A-4
D110	* B-2	IC132	B-1	IC904	D-7	Q536	* A-4
D112	* C-1	IC300	F-3	IC905	E-7	Q537	* A-5
D113	* C-2	IC301	F-3	IC906	E-5	Q538	* B-5
D114	* B-2	IC302	F-3	IC907	C-2	Q700	* C-1
D115	* B-1	IC303	F-3	IC908	E-2	Q701	* C-3
D116	* B-2	IC304	F-3	IC909	C-3	Q702	* C-4
D117	* B-1	IC305	F-3	IC910	E-3	Q703	* E-6
D118	* B-1	IC306	E-3	IC911	C-5	Q728	A-6
D121	* D-2	IC307	E-3	IC912	F-6	Q729	A-5
D125	C-1	IC310	E-3	IC914	F-6	Q800	* F-5
D126	* C-2	IC311	D-3			Q801	* A-4
D127	* B-2	IC312	D-3	Q20	B-4	Q802	* B-6
D302	* A-3	IC313	D-3	Q100	* A-1	Q803	B-6
D303	F-5	IC315	D-3	Q101	* A-1	Q804	B-6
D305	* F-3	IC316	D-3	Q102	F-4	Q805	B-6
D306	* F-3	IC317	D-3	Q103	* F-1	Q806	B-7
D307	E-3	IC318	C-3	Q104	* F-1	Q807	* B-7
D308	D-3	IC320	B-3	Q105	* F-1	Q808	B-6
D310	* B-3	IC321	C-3	Q108	F-2	Q809	B-7
D312	* C-3	IC322	C-3	Q109	E-2	Q810	B-7
D313	* C-3	IC323	B-3	Q110	E-1	Q811	B-6
D314	* B-3	IC324	C-3	Q115	E-2	Q812	* B-7
D315	* B-3	IC325	C-3	Q116	E-2	Q813	* B-7
D316	B-3	IC326	C-3	Q117	E-2	Q814	* B-7
D317	* B-3	IC327	B-3	Q120	* E-1	Q815	* C-7
D318	* B-3	IC328	B-3	Q121	* D-1	Q816	* B-7
D320	* E-3	IC329	B-3	Q122	* E-2	Q817	C-6
D321	* D-3	IC330	B-3	Q124	* D-2	Q818	C-7
D325	C-3	IC331	A-3	Q125	* D-2	Q819	C-7
D326	* C-3	IC332	B-3	Q130	D-1	Q820	* C-7
D327	* B-3	IC500	F-4	Q131	D-1	Q821	* F-5
D502	* A-2	IC501	F-4	Q132	* D-1	Q822	* C-7
D503	F-4	IC502	F-5	Q133	* C-2	Q823	* C-6
D505	* F-5	IC503	F-5	Q134	* B-2	Q824	* C-7
D506	* F-5	IC504	F-4	Q135	* A-2	Q825	* C-7
D507	E-5	IC505	F-5	Q136	* A-1	Q826	* C-6
D508	D-5	IC506	D-4	Q137	* A-2	Q827	* C-6
D510	* B-4	IC507	D-4	Q138	* B-2	Q828	C-6
D512	* C-4	IC510	E-5	Q139	* C-2	Q829	* B-6
D513	* C-4	IC511	D-4	Q300	* A-3	Q830	* C-6
D514	* B-5	IC512	D-5	Q301	* A-3	Q831	* C-6
D515	* B-4	IC513	D-5	Q302	F-5	Q832	* B-6
D516	B-4	IC515	D-5	Q303	* F-3	Q833	* B-6
D517	* B-4	IC516	D-4	Q304	* F-3	Q834	B-7
D518	* B-4	IC517	D-5	Q305	* F-3	Q900	G-6
D520	* E-5	IC518	C-4	Q307	* E-3	Q901	E-6
D521	* D-5	IC520	B-5	Q308	E-3	Q902	F-6
D525	C-4	IC521	C-5	Q310	E-3		
D526	* C-4	IC522	C-5	Q311	* E-4		
D527	* B-5	IC523	B-5	Q312	* E-4		
D802	B-7	IC524	C-5	Q315	E-3		
D803	* B-7	IC525	C-4	Q316	E-3		
D804	* C-6	IC526	C-4	Q317	E-3		
D805	* C-6	IC527	B-5	Q320	* E-3		
D806	* C-6	IC528	B-5	Q321	* D-3		
D900	* F-6	IC529	B-4	Q322	* E-3		
D901	* D-6	IC530	B-4	Q324	* D-3		
D902	* D-6	IC531	A-4	Q325	* D-3		
D903	* D-6	IC532	B-4	Q330	D-3		
D904	* E-6	IC700	E-6	Q331	D-3		
D905	E-7	IC701	E-6	Q332	* D-3		
D906	D-5	IC702	E-6	Q333	* B-3		
		IC703	E-7	Q334	* B-3		
		IC704	E-7	Q335	* B-3		
		IC705	D-7	Q336	* A-3		
		IC706	* D-7	Q337	* A-3		
		IC707	E-6	Q338	* B-4		
		IC708	E-6	Q500	* A-2		
		IC710	B-6	Q501	* A-2		
		IC711	B-6	Q502	F-4		
		IC712	A-7	Q503	* F-4		
		IC730	A-6	Q504	* F-4		
		IC731	A-6	Q505	* F-4		
		IC732	A-6	Q507	* E-4		
		IC734	A-6	Q508	E-4		
		IC735	A-6	Q510	E-5		
		IC736	A-6	Q515	E-5		
		IC800	B-6	Q516	E-5		
		IC801	C-6	Q517	E-4		
		IC802	C-7	Q520	* D-4		
		IC803	C-7	Q521	* D-4		
		IC804	C-6	Q522	* D-4		
		IC805	C-6	Q524	* D-4		

BK -A SIDE-  
SUFFIX: -12





1-674-655-12

BK DTV SONY

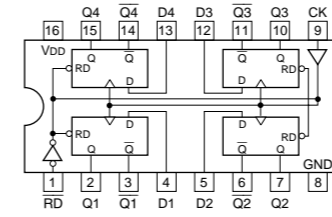
BK -B SIDE-  
SUFFIX: -12

BK BOARD WAVEFORMS

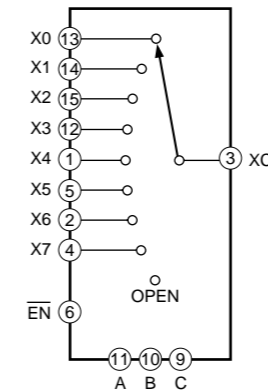
①  940.0mVp-p (H)	②  1.1Vp-p (H)	③ (D20)  1.0Vp-p (H)	③ (D24)  0.5Vp-p (H)
④ (D20)  540.0mVp-p (H)	④ (D24)  400mVp-p (H)	⑤  800.0mVp-p (H)	⑥  960.0mVp-p (H)
⑦ (D20)  1.2Vp-p (H)	⑦ (D24)  0.85Vp-p (H)	⑧ (D20)  1.3Vp-p (H)	⑧ (D24)  1.15Vp-p (H)
⑨ (D20)  38.0Vp-p (H)	⑨ (D24)  33.4Vp-p (H)	⑩  660.0mVp-p (H)	⑪  800.0mVp-p (H)
⑫  1.1Vp-p (H)	⑬  400.0mVp-p (H)	⑭  800.0mVp-p (H)	⑭  920.0mVp-p (H)
⑯  1.0Vp-p (H)	⑰  1.3Vp-p (H)	⑱ (D20)  36.0Vp-p (H)	⑱ (D24)  38.8Vp-p (H)
⑲  660.0mVp-p (H)	⑳  800.0mVp-p (H)	㉑  1.3Vp-p (H)	㉒  600.0mVp-p (H)
㉓  800.0mVp-p (H)	㉔  960.0mVp-p (H)	㉕  1.0Vp-p (H)	㉖  1.4Vp-p (H)
㉗  33.0Vp-p (H)	㉘  104.0Vp-p (H)	㉙  920.0Vp-p (H)	㉚  1.4Vp-p (H)

⑳  4.1Vp-p (H)	㉑  4.4Vp-p (V)
㉓  4.3Vp-p (H)	㉔  4.8Vp-p (V)
㉕  5.0Vp-p (H)	㉖  5.0Vp-p (H)
㉗  4.4Vp-p (H)	㉘  5.7Vp-p (8MHz)

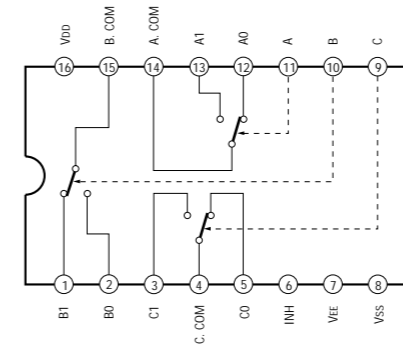
74HC175 (IC732)



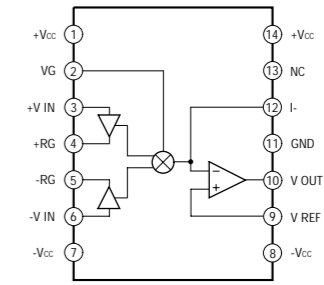
MC74HC4051 (IC118, 318, 518)



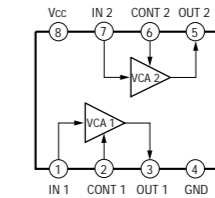
74HC4053 (IC100, 110, 112, 115, 120, 124, 128, 300, 303, 310, 312, 315, 320, 324, 328, 500, 503, 510, 512, 515, 520, 524, 528, 701, 702)



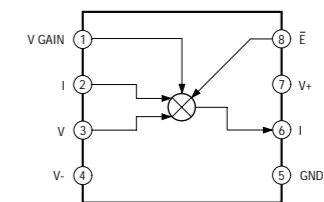
CLC520AJE (IC116, 304, 316, 504, 516)



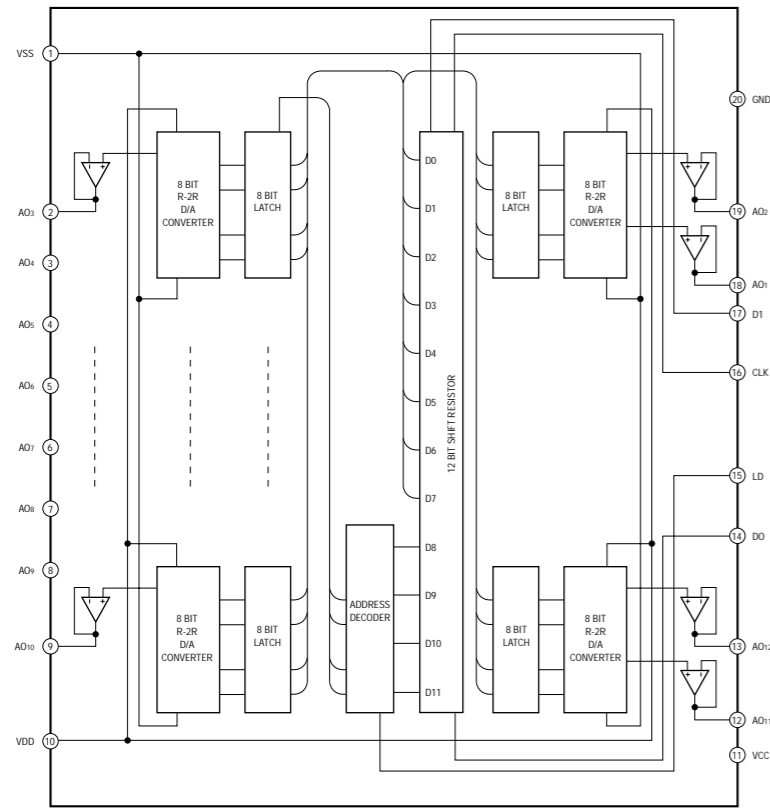
CXA1211M (IC306)



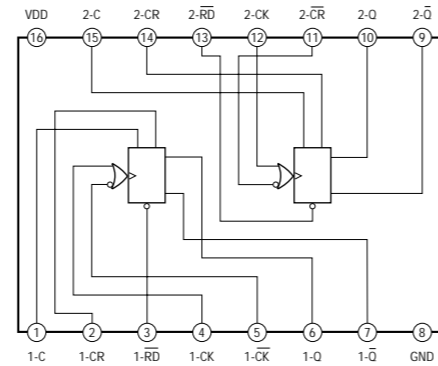
EL2082CS (IC125, 126, 325, 326, 525, 526)



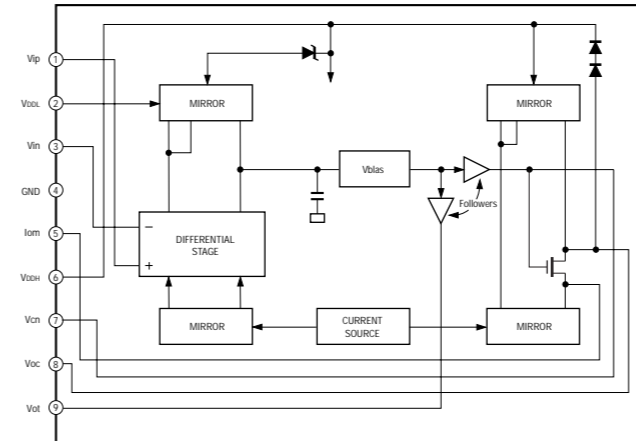
MB88346 (IC908, 910)



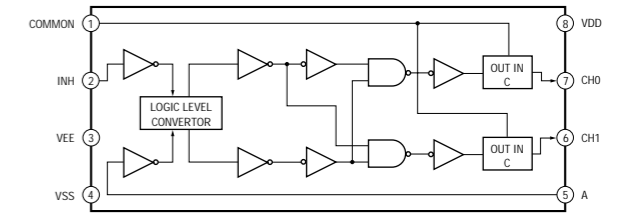
MC74HC4538 (IC710, 801, 803, 804)



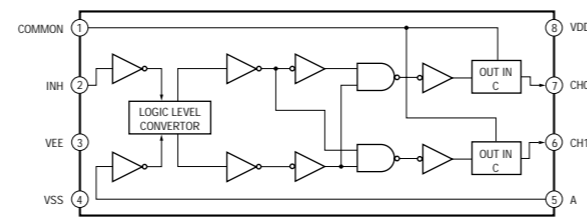
TDA6101Q/N3 (IC706)



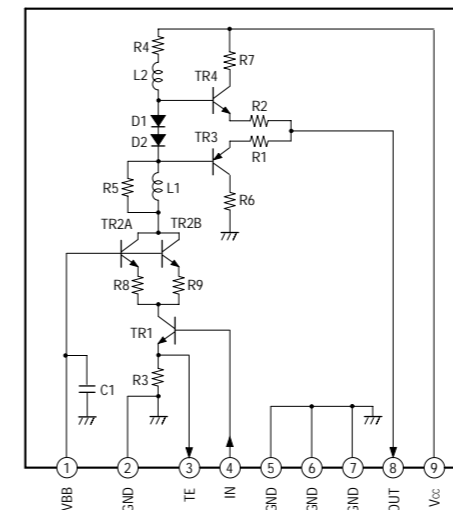
BK1 BOARD  
TC4W53FU (IC100, 300, 500, 703)



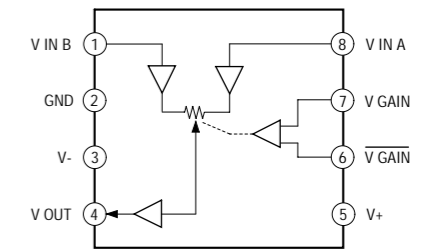
TC4W53FU (IC506, 708, 808, 809, 810)



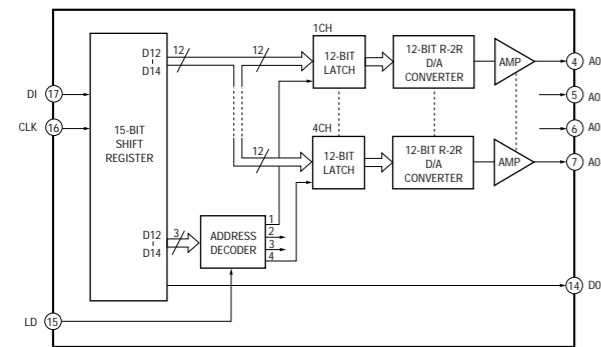
VPJ05 (IC131, 331, 531)



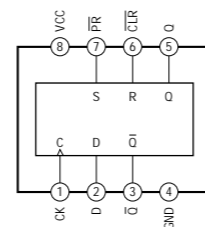
EL4094 (IC701)



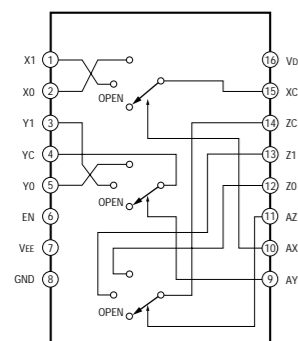
MB88351 (IC906, 907, 909, 911)



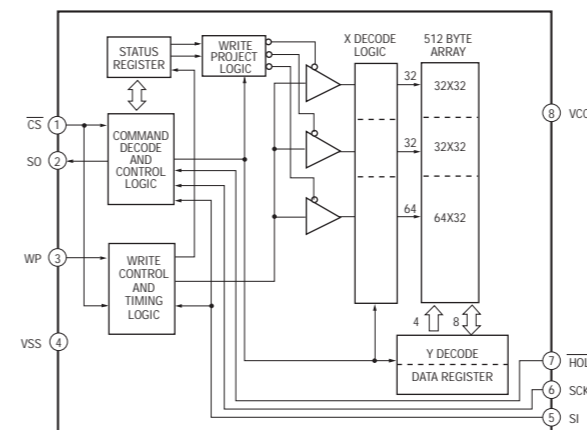
TC7W74FU (IC707)



MC74HC4053 (IC800, 806)



X25040 (IC903)





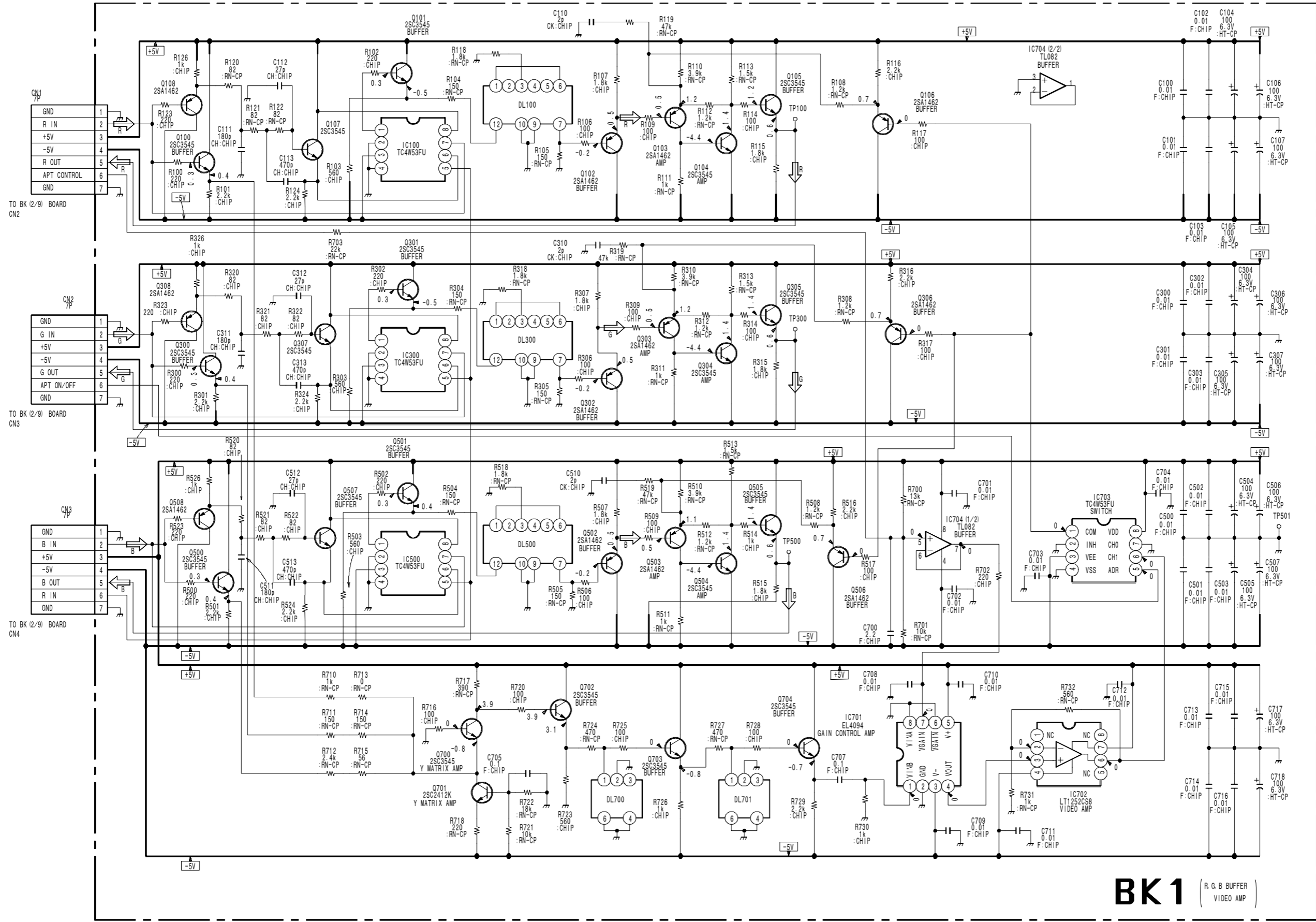
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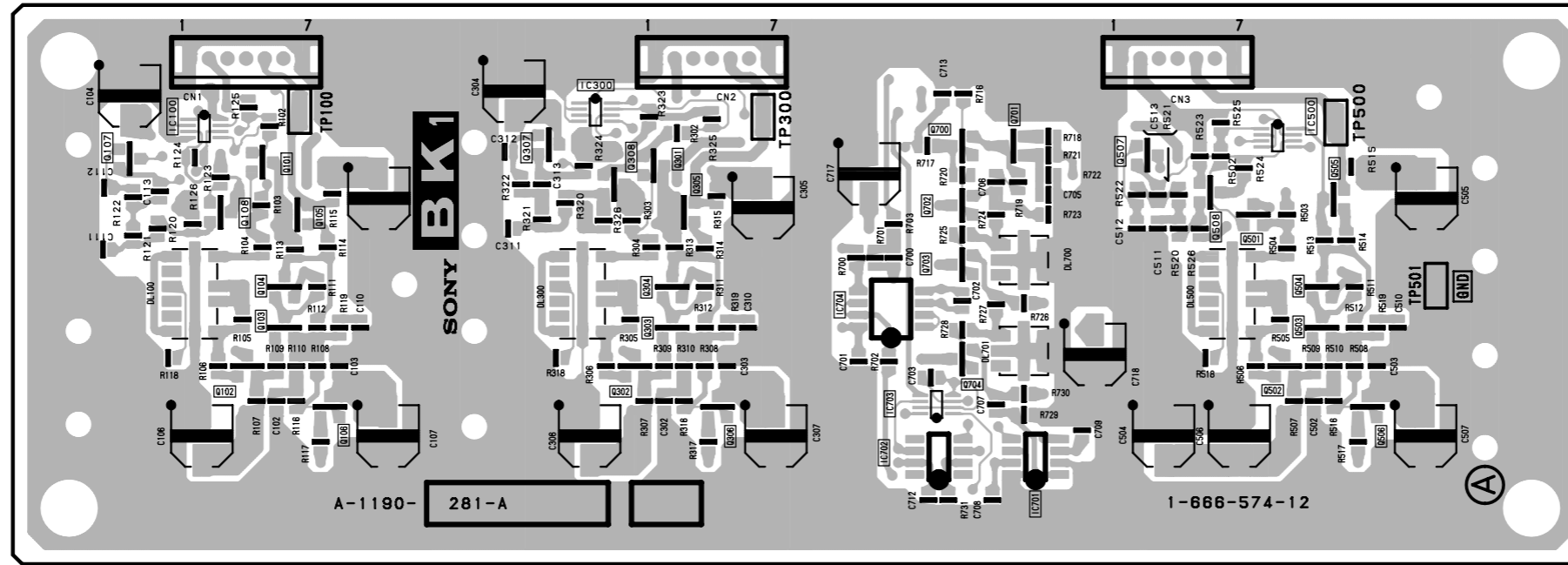
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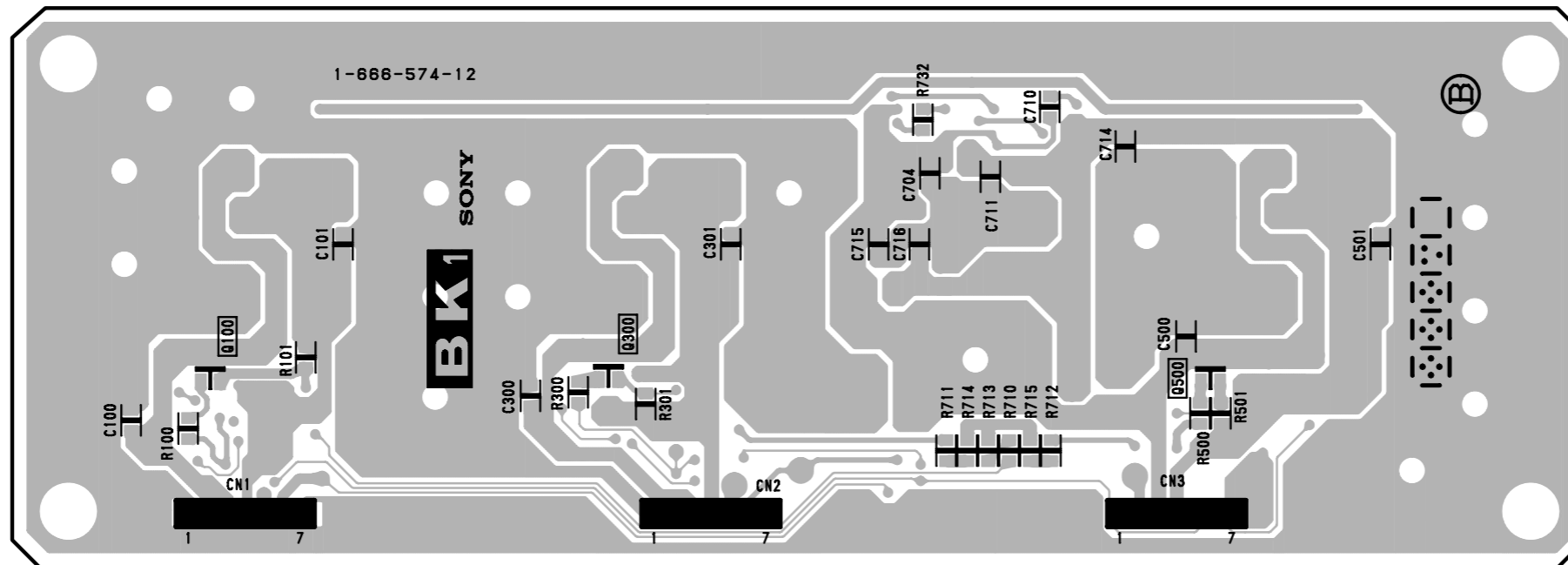
# BK1 (R, G, B BUFFER) VIDEO AMP

B-S9676UC-BK1

BK1 BOARD

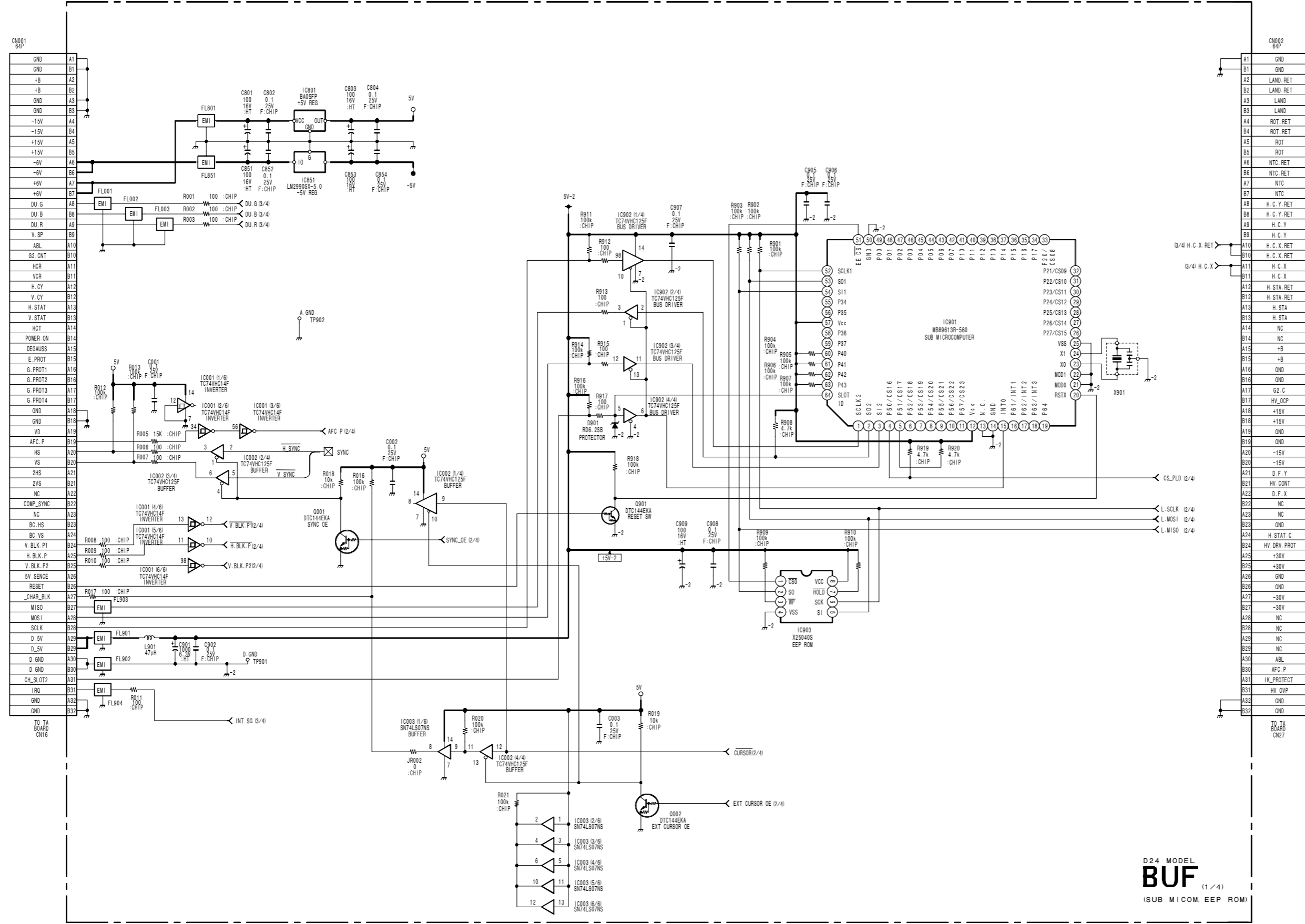


**BK1 -A SIDE-**  
SUFFIX: -12



**BK1 -B SIDE-**  
SUFFIX: -12

24 inch model



D24 MODEL  
**BUF**  
(1/4)  
(SUB MICOM. EEP ROM)

B-SS9676UC-BUF-P1

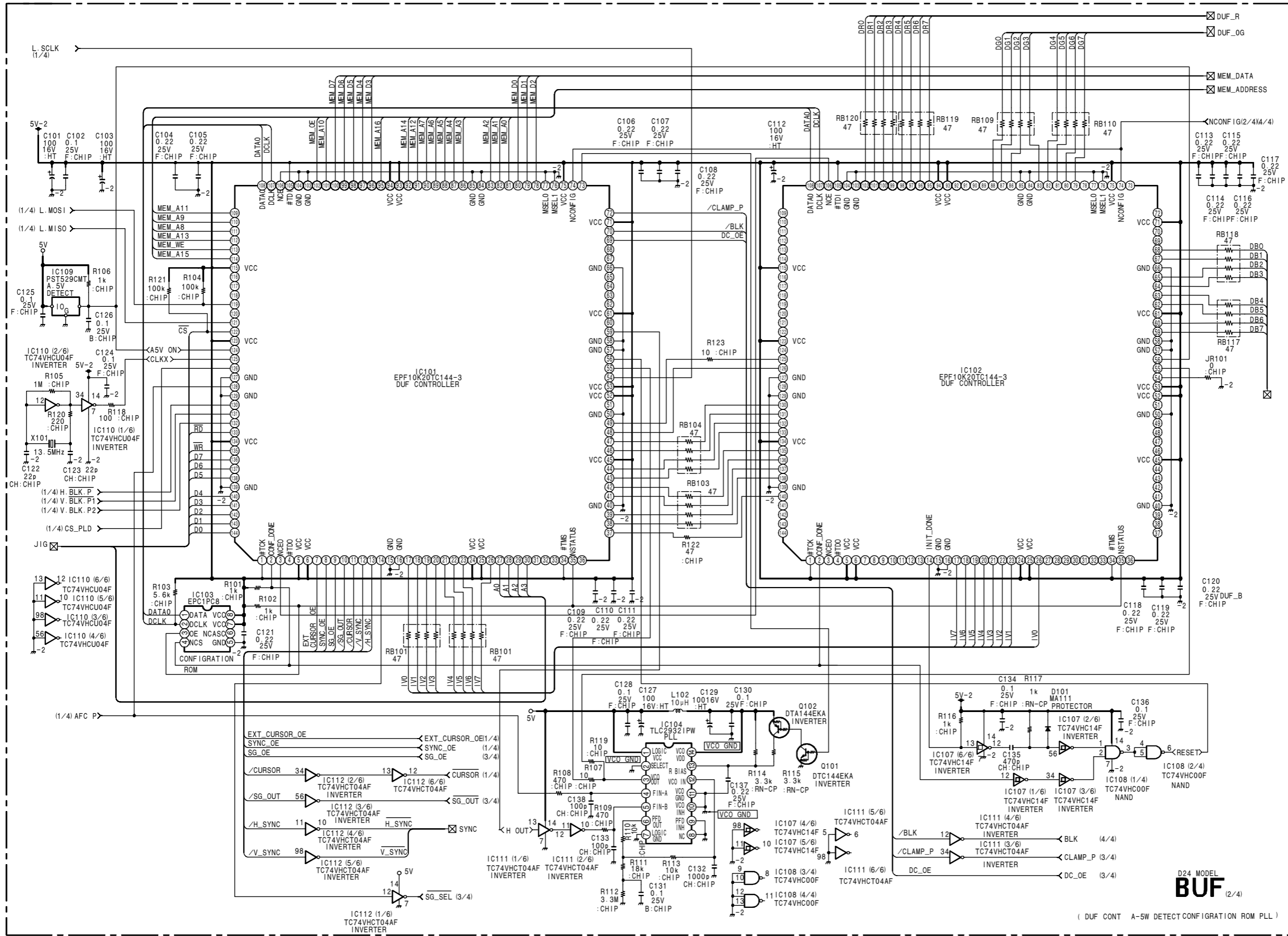
1

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**BUF** (2/4)

( DUF CONT A-5W DETECT CONFIGURATION ROM PLL )

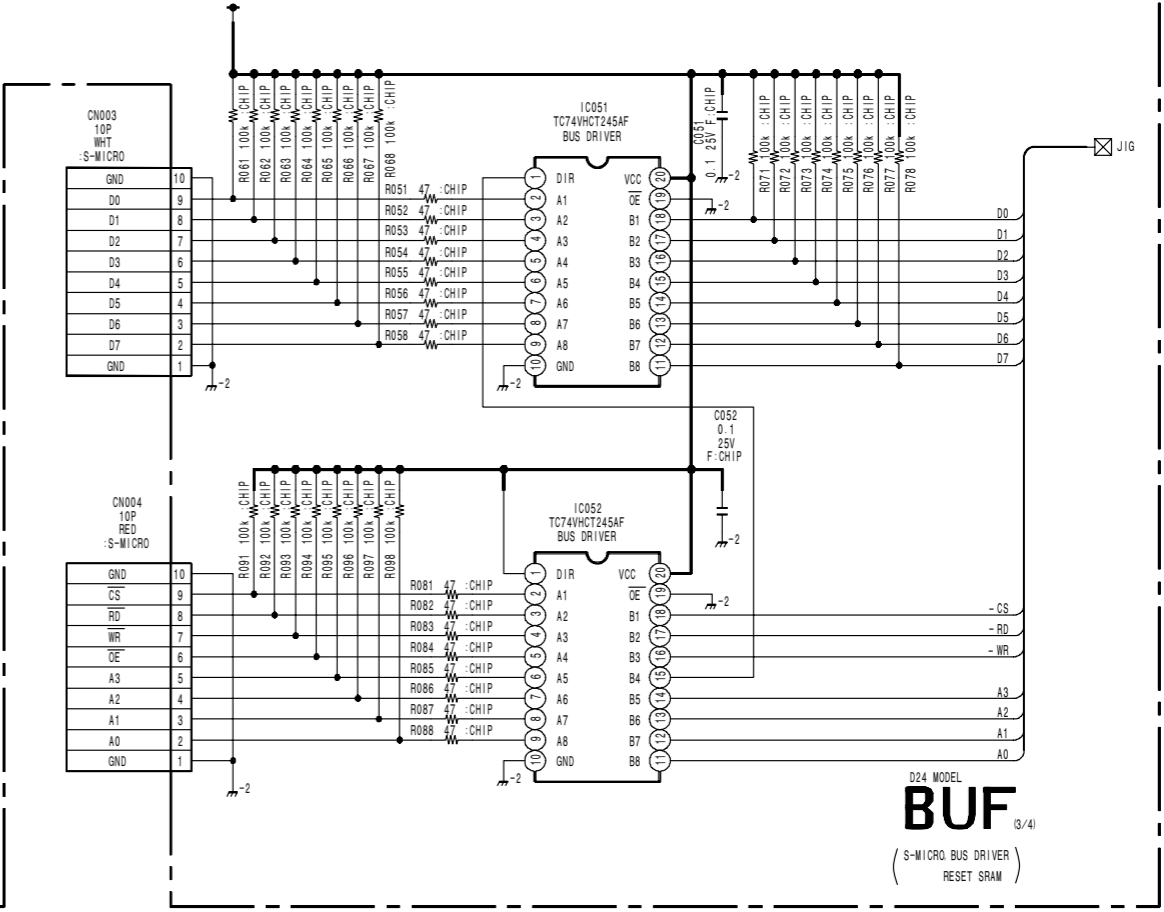
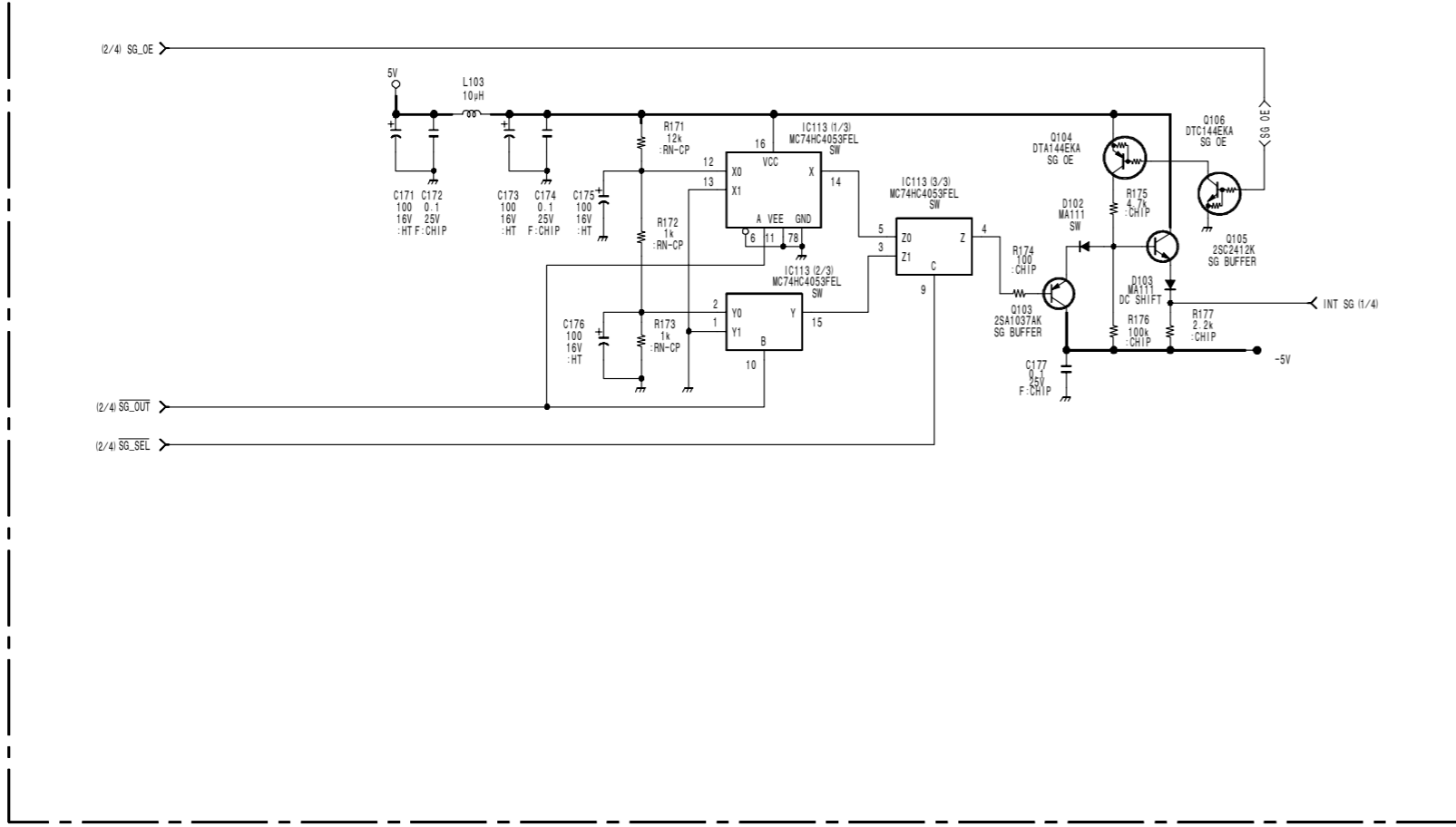
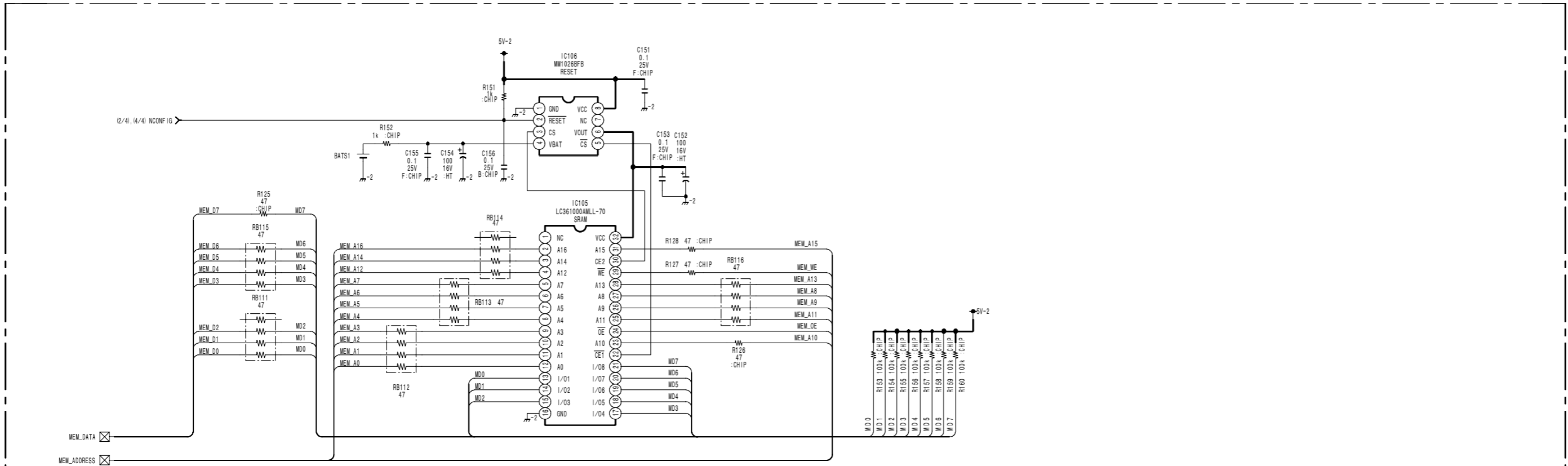
1

2

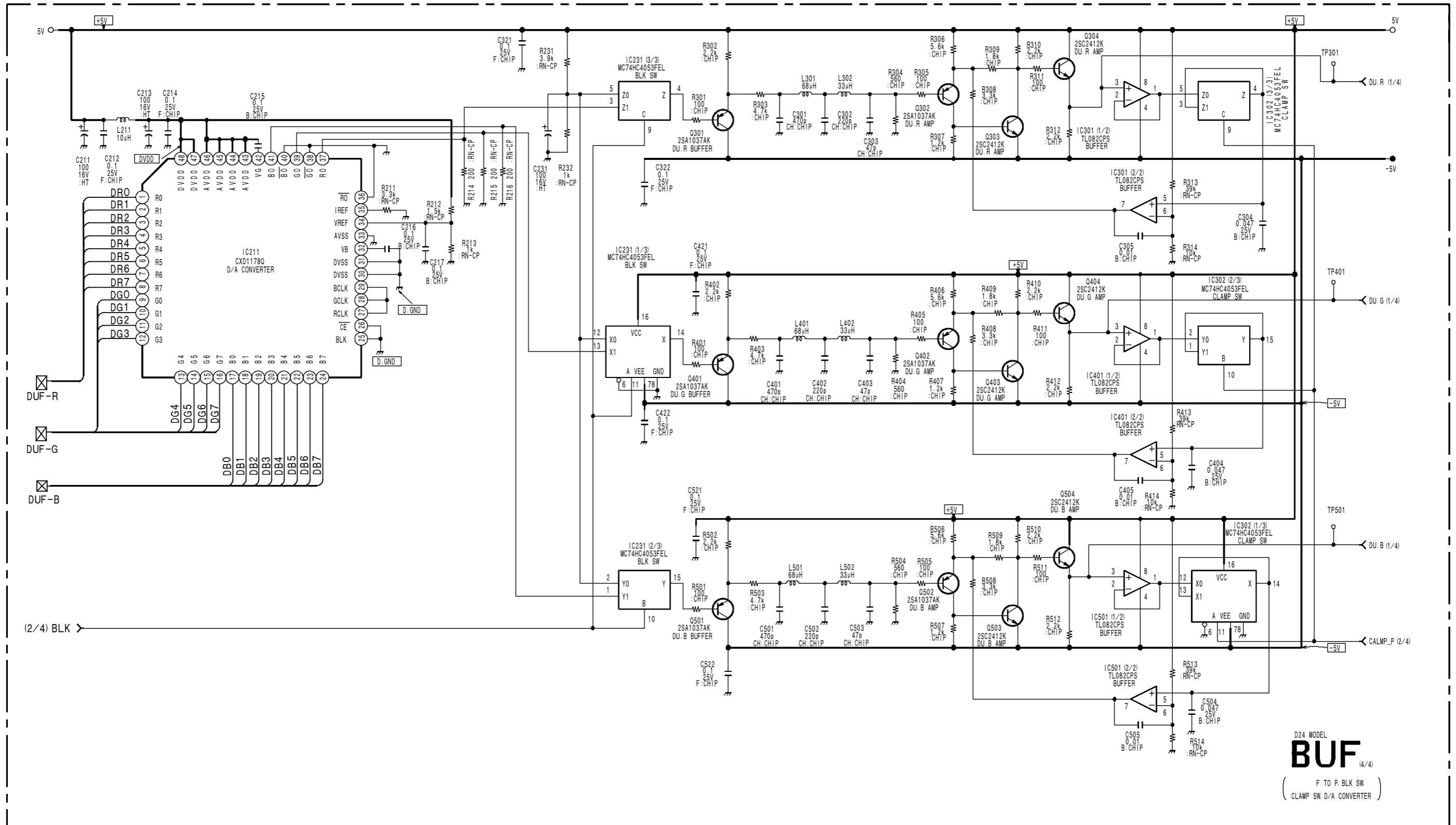
3

4

5



**BUF**<sup>(3/4)</sup>  
 (S-MICRO BUS DRIVER)  
 RESET SRAM



D24 MODEL  
**BUF** (4/4)  
 ( F TO P, BLK SW )  
 ( CLAMP SW, D/A CONVERTER )

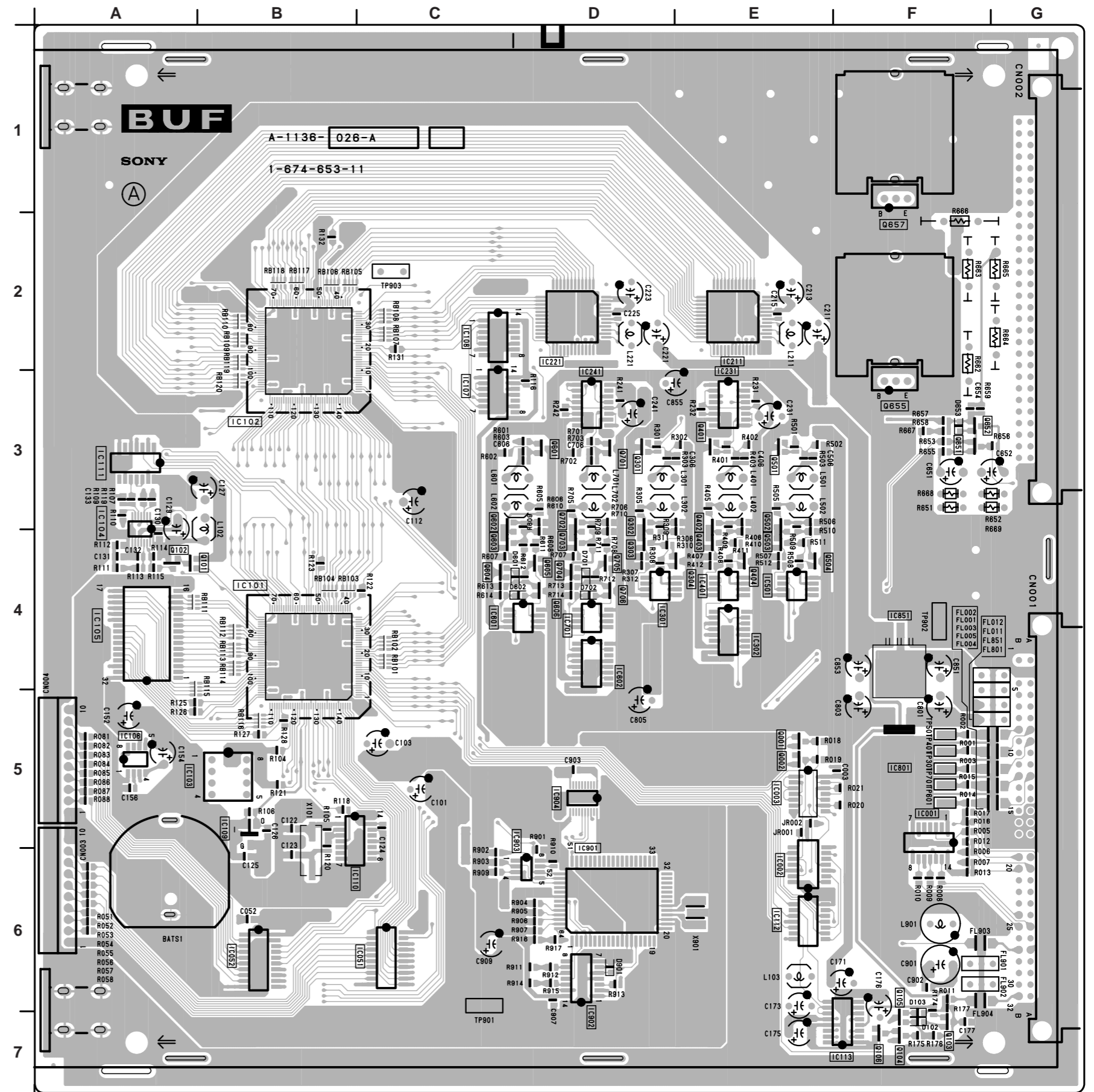
24 inch model

**BUF BOARD**

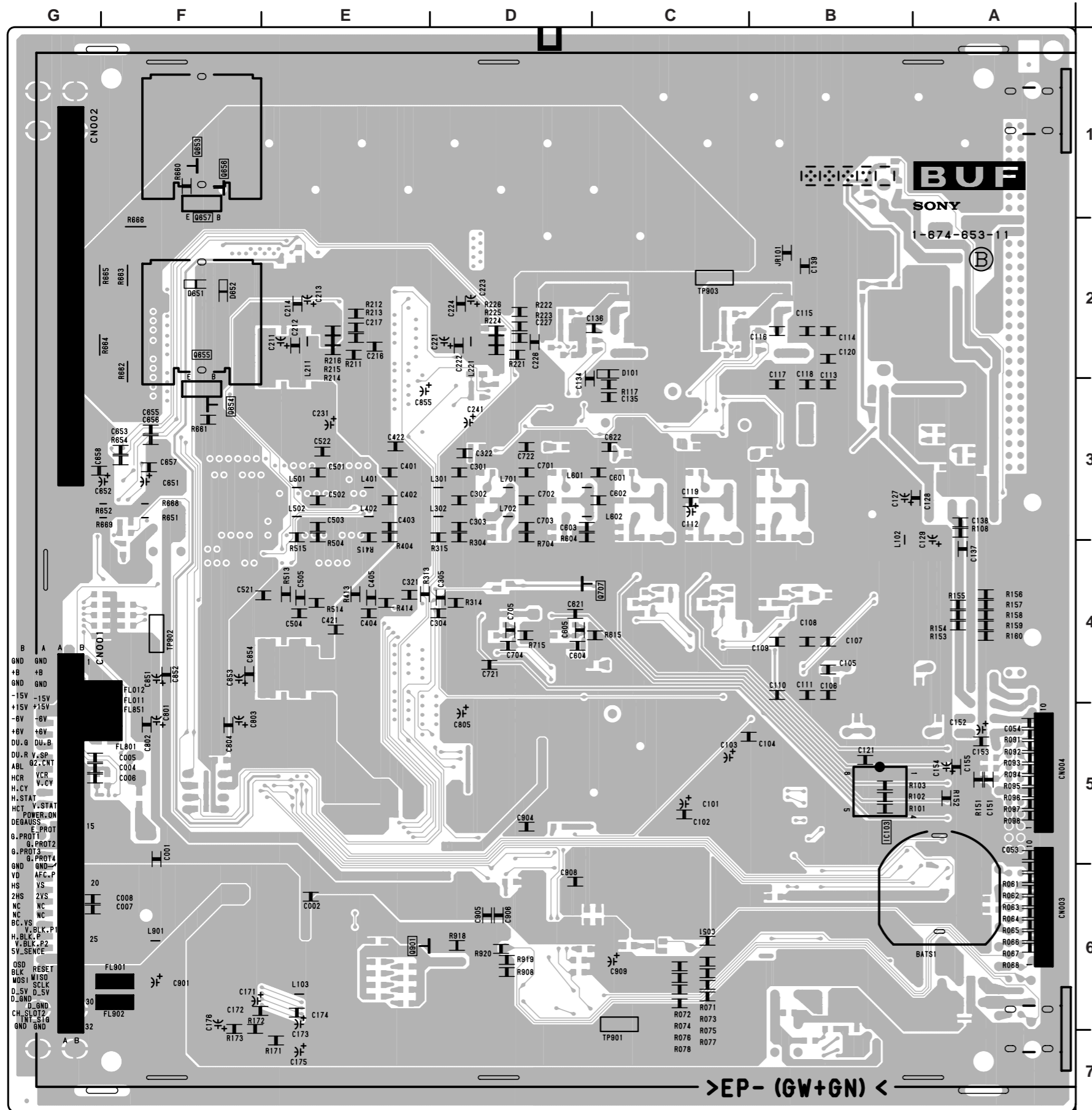
\*: B SIDE

D101	* C-3	Q001	E-5
D102	F-6	Q002	E-5
D103	F-6	Q101	A-4
D601	C-4	Q102	A-4
D701	C-4	Q103	B-7
D702	D-4	Q104	F-7
D901	D-4	Q105	F-6
	D-6	Q106	F-7
		Q301	D-3
IC001	F-5	Q302	D-3
IC002	E-5	Q303	D-4
IC003	E-5	Q304	E-4
IC051	C-6	Q401	E-3
IC052	B-6	Q402	E-3
IC104	A-3	Q403	E-4
IC105	A-4	Q404	E-4
IC106	A-5	Q501	E-3
IC107	C-3	Q502	E-3
IC108	C-2	Q503	E-4
IC109	B-5	Q504	E-4
IC110	C-6	Q601	D-3
IC111	A-3	Q602	C-3
IC112	E-6	Q603	C-4
IC113	F-7	Q604	C-4
IC201		Q605	D-4
IC202		Q606	D-4
IC203		Q701	D-3
IC204		Q702	D-3
IC205		Q703	D-4
IC211	E-2	Q704	D-4
IC221	D-2	Q705	D-4
IC231	E-3	Q706	D-4
IC241	D-3	Q707	D-4
IC301	D-4	Q901	* E-6
IC302	E-4		
IC401	E-4	TP901	C-6
IC501	E-4	TP902	F-4
IC601	D-4		
IC602	D-4		
IC701	D-4		
IC801	F-5		
IC851	F-4		
IC901	D-6		
IC902	D-6		
IC903	D-6		

**BUF BOARD**



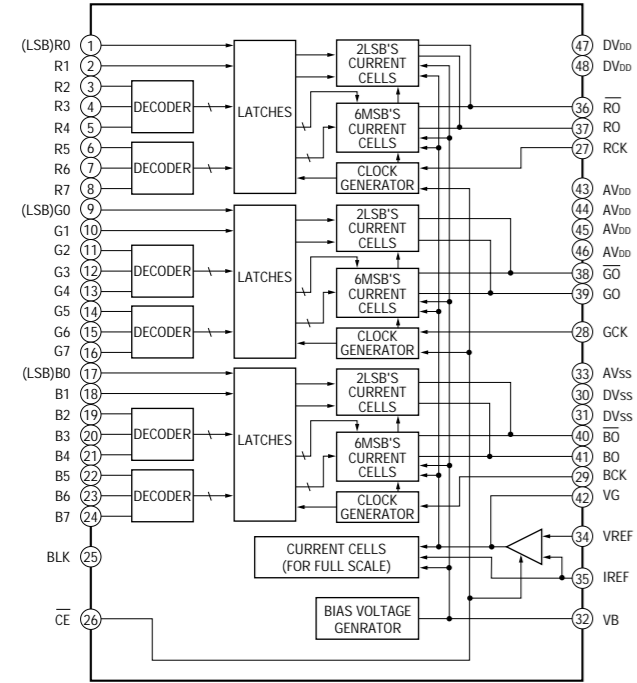
**BUF -A SIDE-**  
SUFFIX: -11



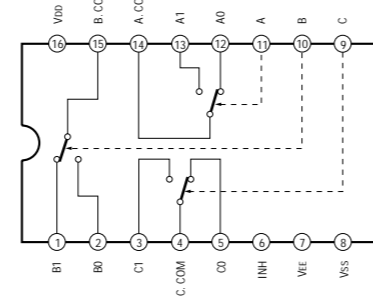
BUF -B SIDE-  
SUFFIX: -11



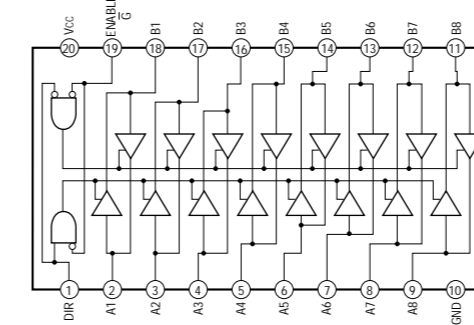
**CXD1178Q (IC211, 221)**



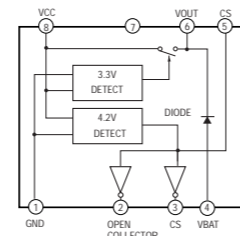
**MC74HC4053F (IC113, 231, 241, 302, 602)**



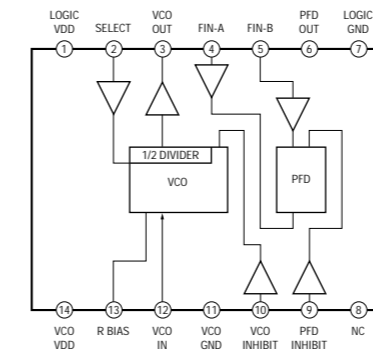
**TC74VHCT245AF (IC051, 052, 201, 202, 203, 204, 205)**



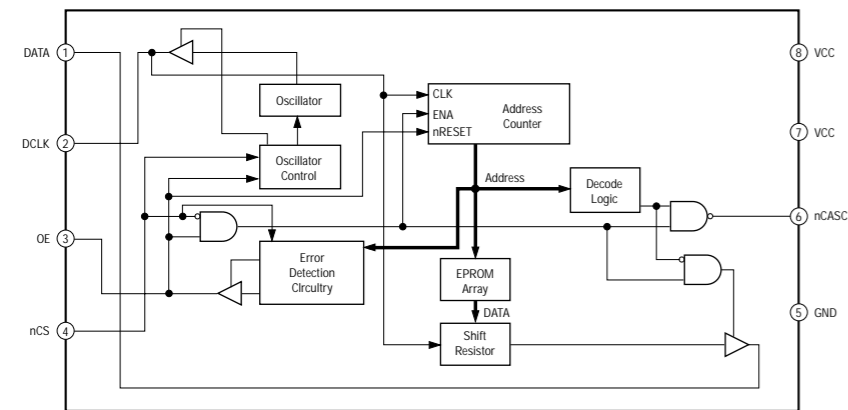
**MM1026BFB (IC106)**



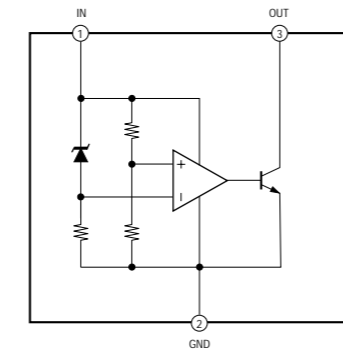
**TLC2932IPW (IC104)**



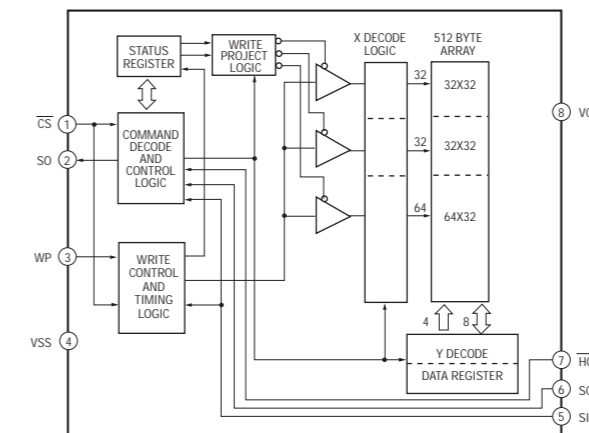
**EPC1PC8 (IC103)**



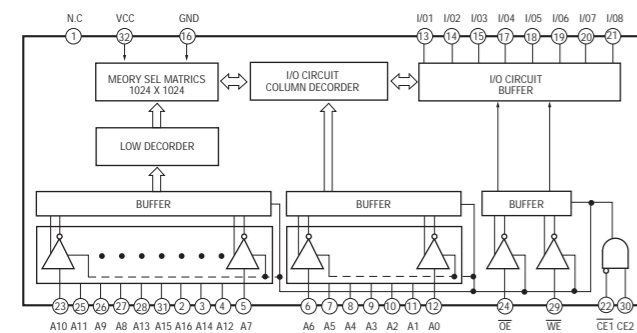
**PST529CMT (IC109)**

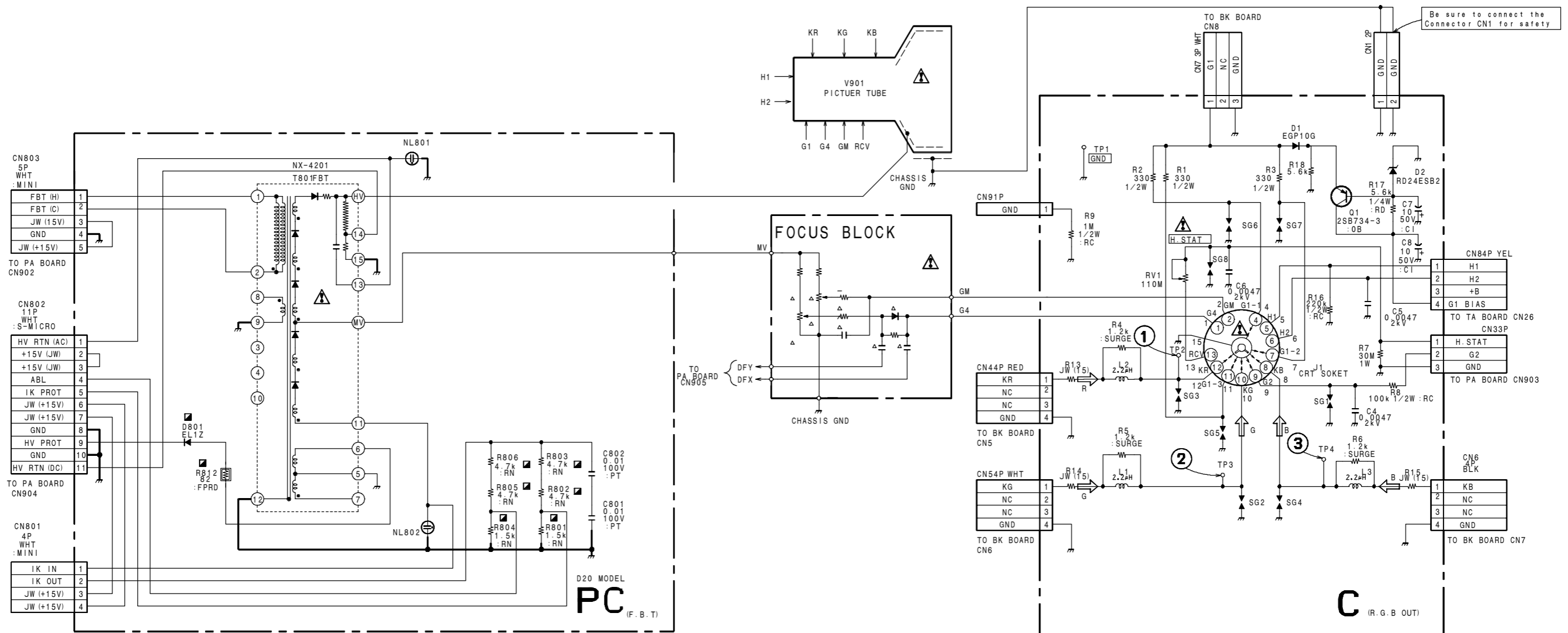


**X25040S (IC903)**

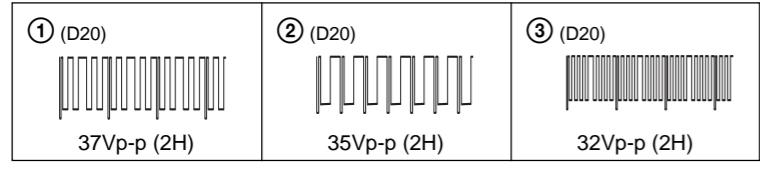


**LC361000AMLL-70 (IC105)**

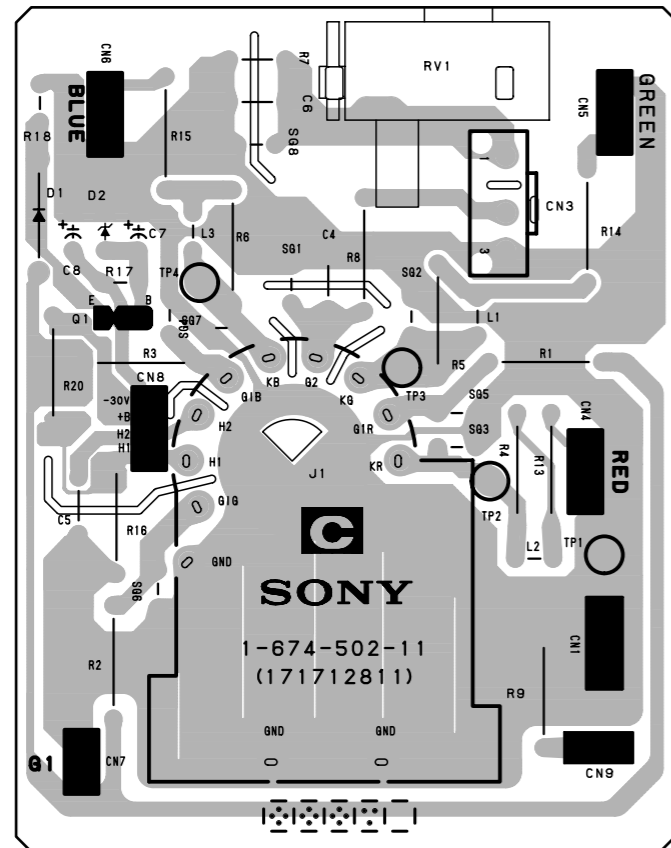




**C BOARD WAVEFORMS (20 inch)**

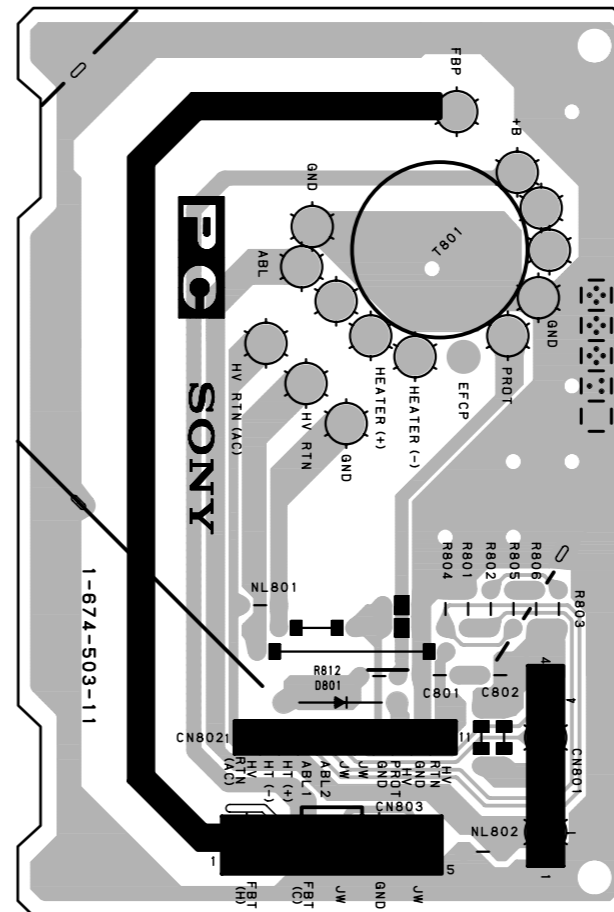


C BOARD (20 inch model)

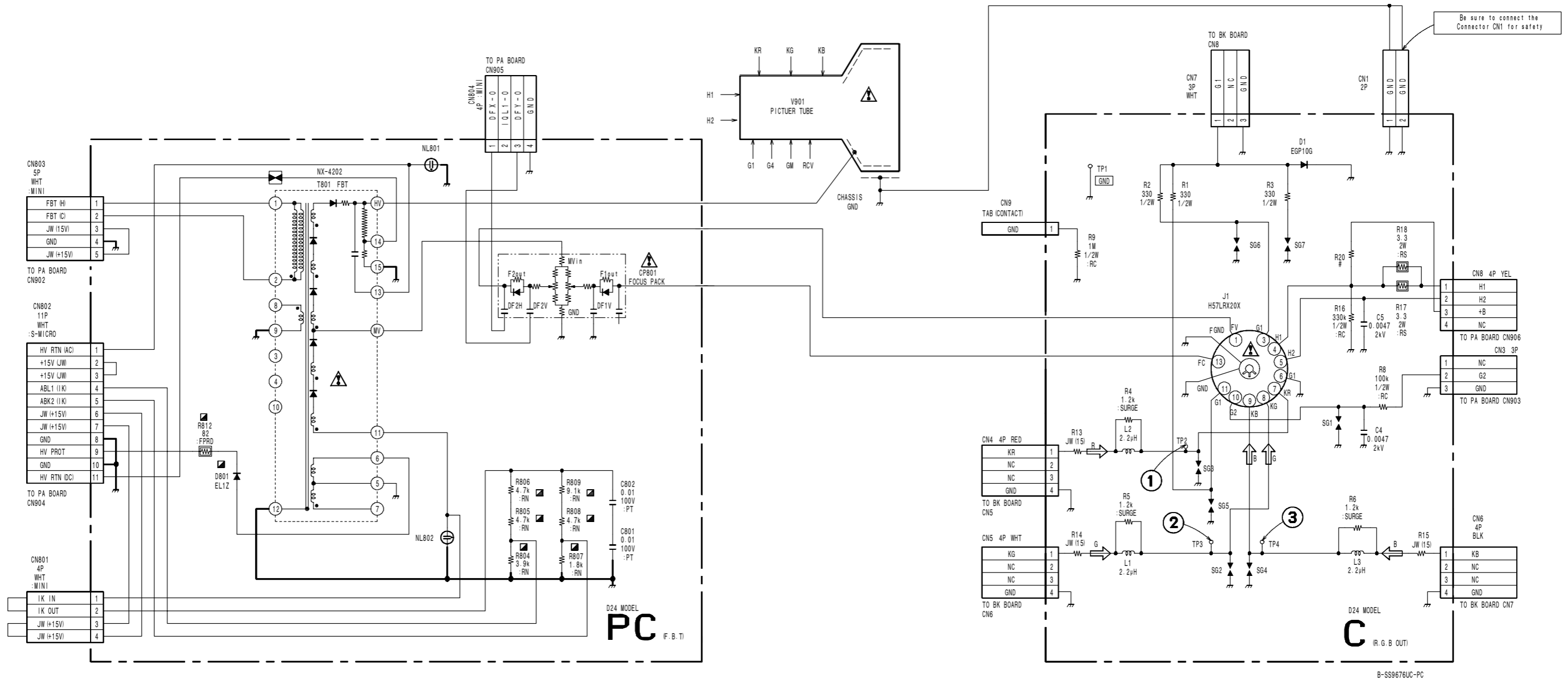


20 inch model  
C -B SIDE-  
SUFFIX: -11

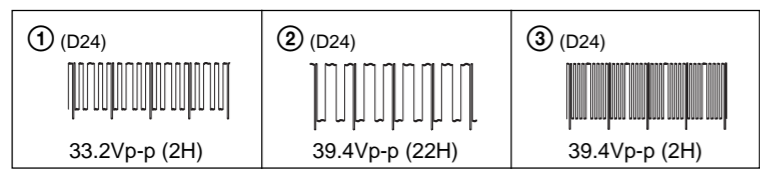
PC BOARD (20 inch model)



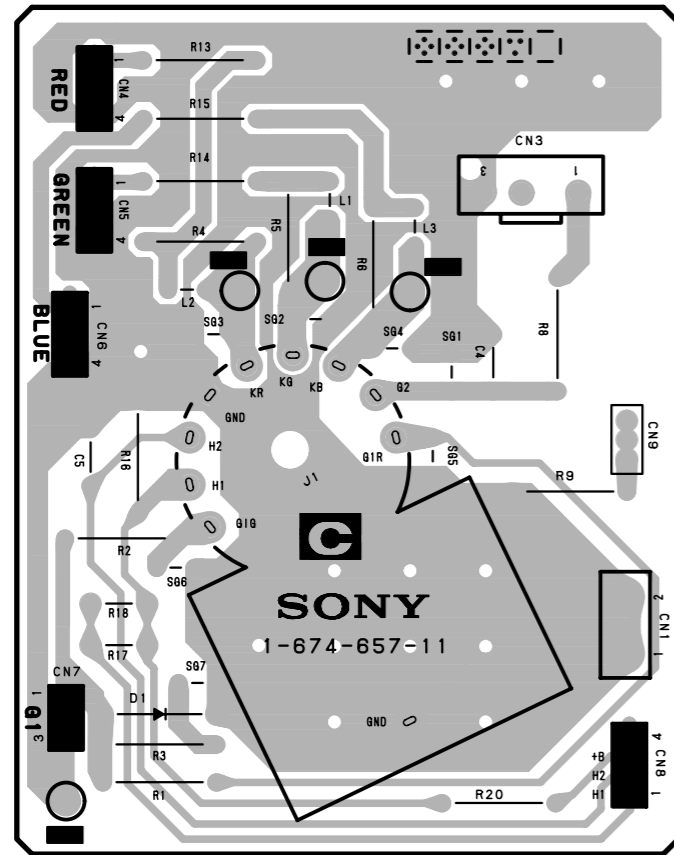
20 inch model  
PC -B SIDE-  
SUFFIX: -11



**C BOARD WAVEFORMS (24 inch)**

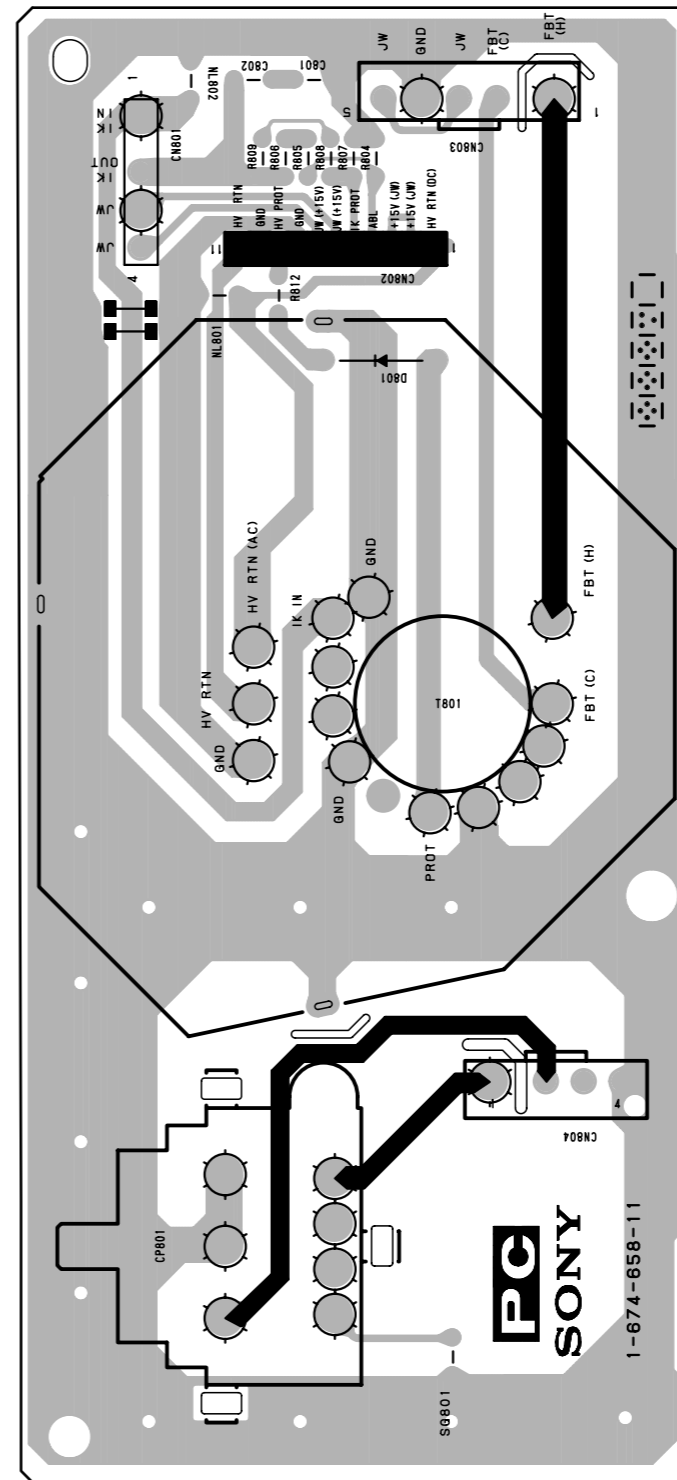


C BOARD (24 inch model)

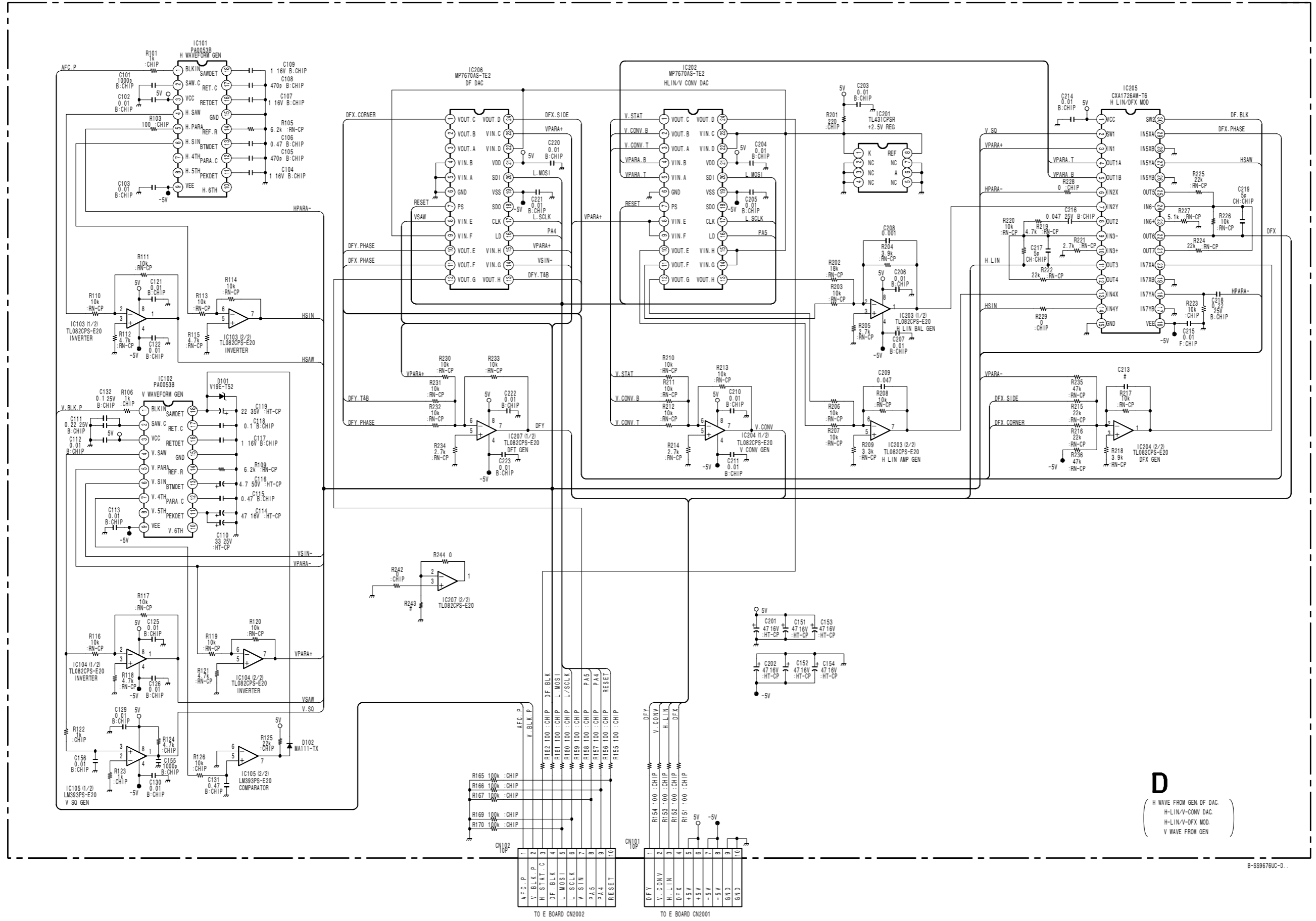


24 inch model  
**C -B SIDE-**  
SUFFIX: -11

PC BOARD (24 inch model)



24 inch model  
**PC -B SIDE-**  
SUFFIX: -11



**D**  
 ( H WAVE FROM GEN DF DAC.  
 H-LIN/V-CONV DAC  
 H-LIN/V-DFX MOD.  
 V WAVE FROM GEN )

B-SS9676UC-D..

1

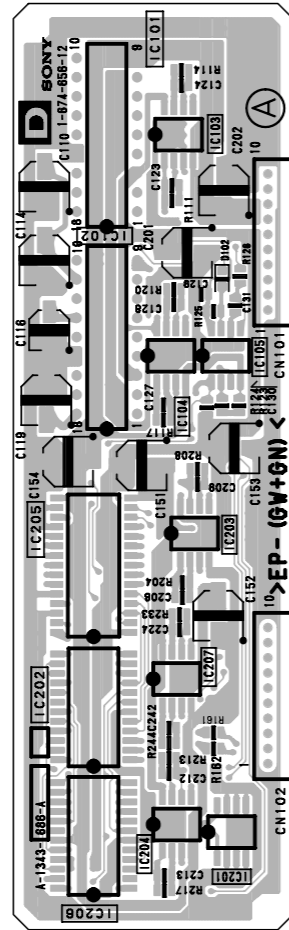
2

3

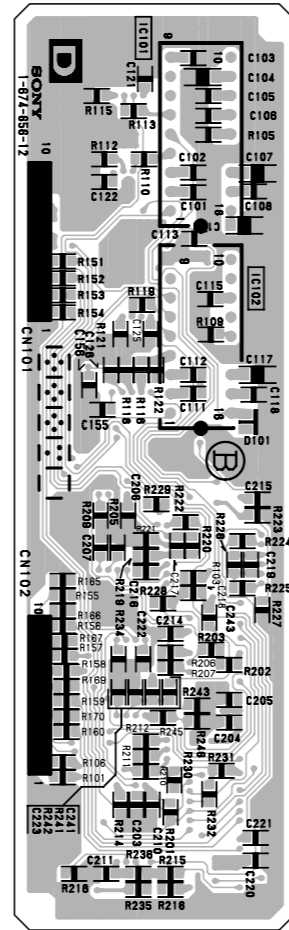
4

5

D BOARD

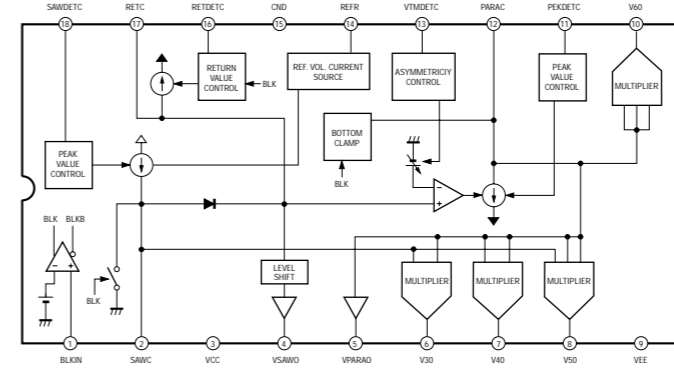


D -A SIDE-  
SUFFIX: -12

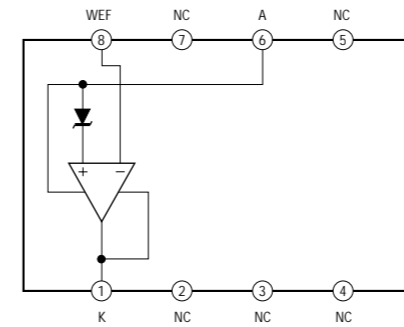


D -B SIDE-  
SUFFIX: -12

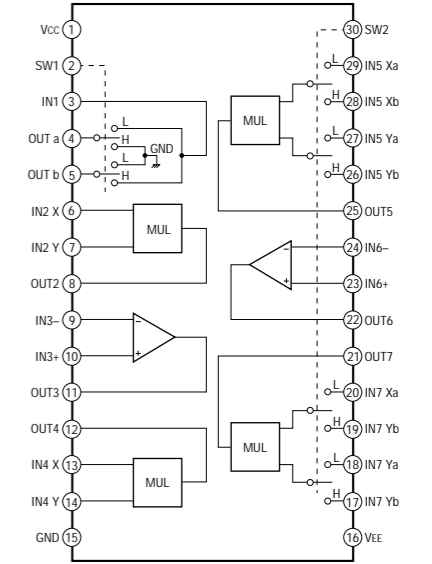
PA0053B (IC101, 102)



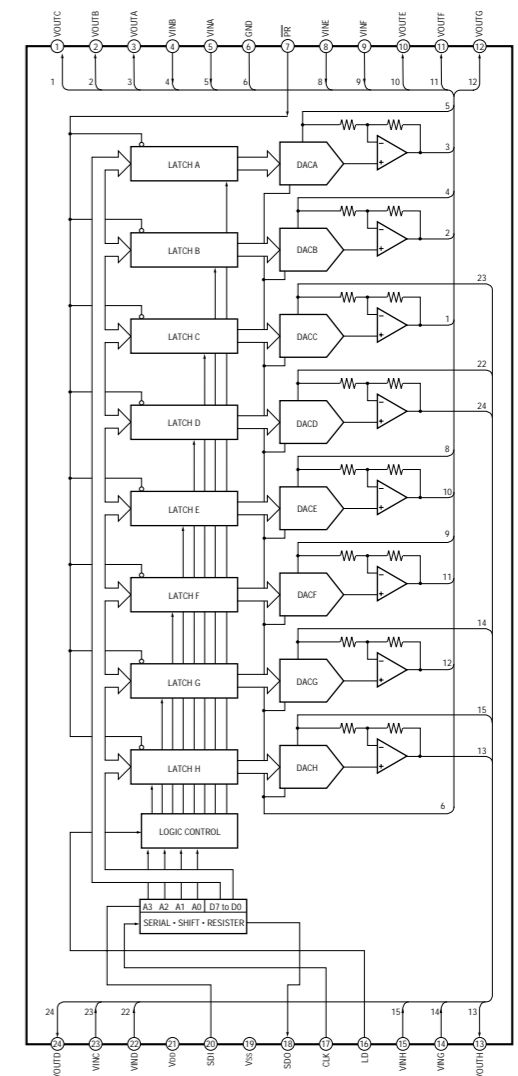
TL431CPSR (IC201)

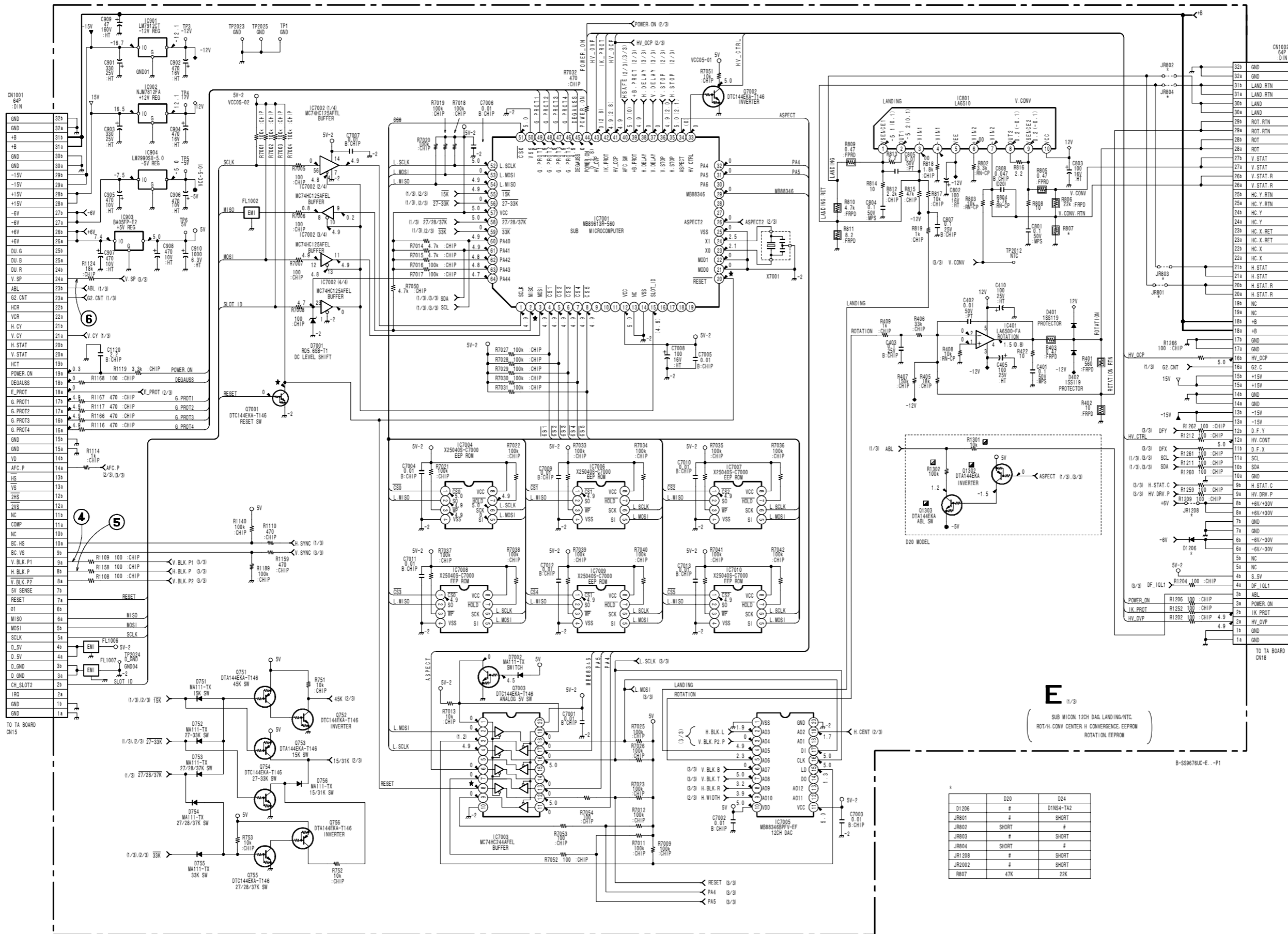


CXA1726AM-T6 (IC205)



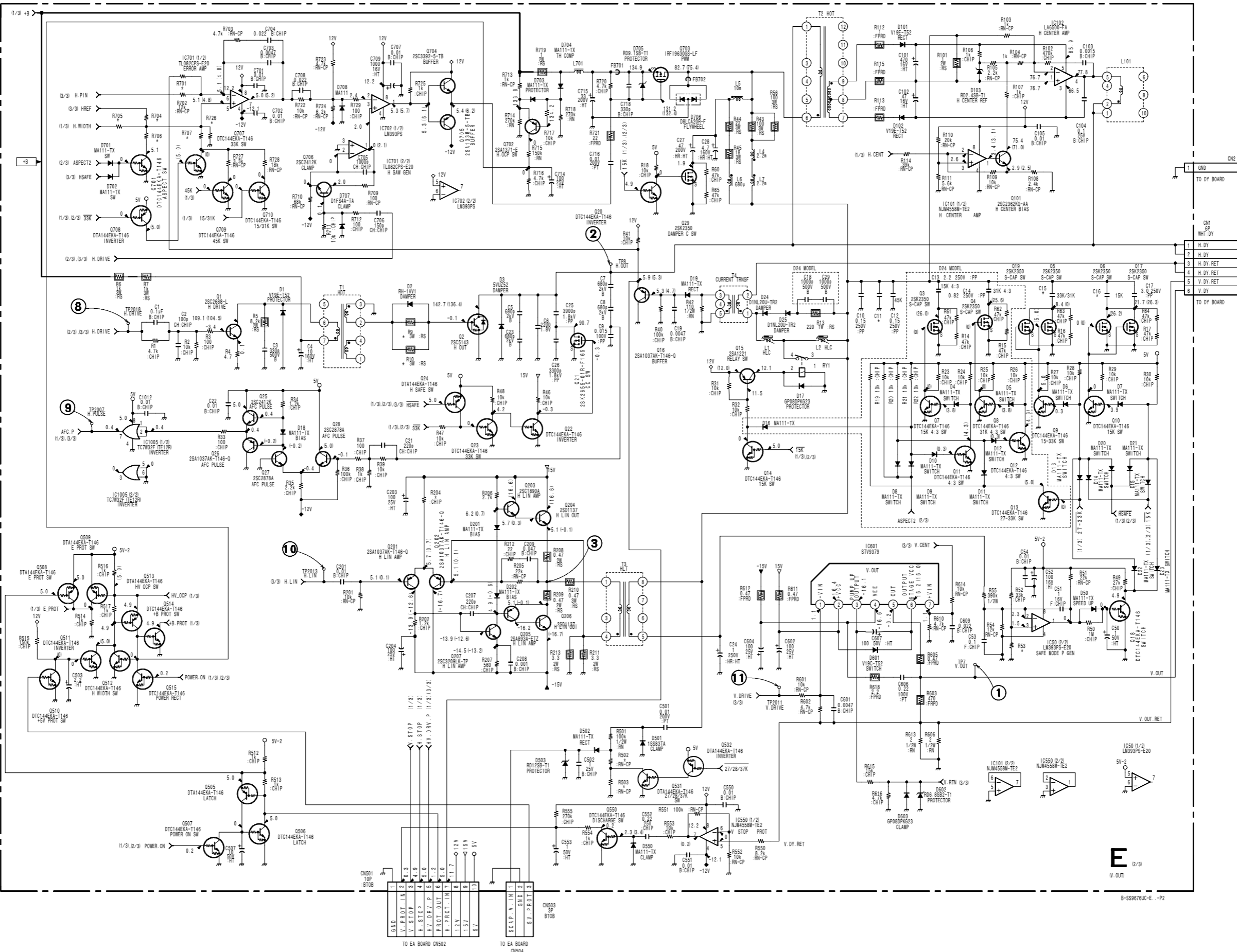
MP7670AS-TE2 (IC202, 206)

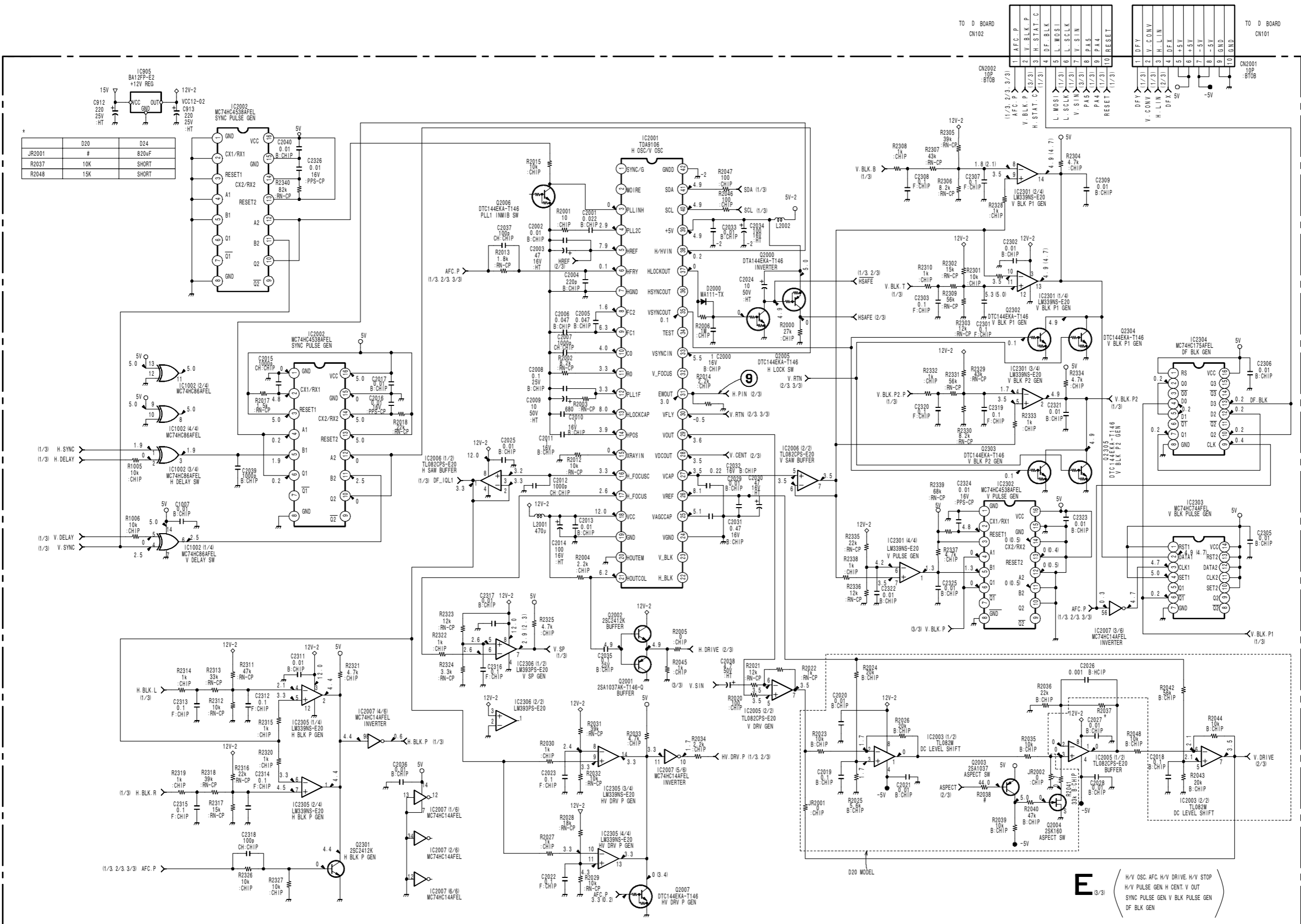




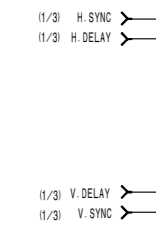


	D20	D24
C8	2700uF	2200uF
C11	0.27uF	0.15uF
C15	0.82uF	0.47uF
C16	3uF	0.47
CN2	#	1P-TAB
R9	0.33	0.47
R10	0.33	0.47
R53	15K	12K
R54	3.3K	2.7K
R52	10K	7.5K
R53	6.8K	9.3K
R701	4.7K	3K
R704	3.9K	10K
R705	10K	22K
R706	15K	47K
R707	15K	47K
R726	18K	33K





JR2001	#	820F
R2037	10K	SHORT
R2048	15K	SHORT



**E** (3/3)

H/V OSC. AFC. H/V DRIVE. H/V STOP  
H/V PULSE GEN. H. CENT. V. OUT  
SYNC PULSE GEN. V. BLK PULSE GEN  
DF. BLK GEN

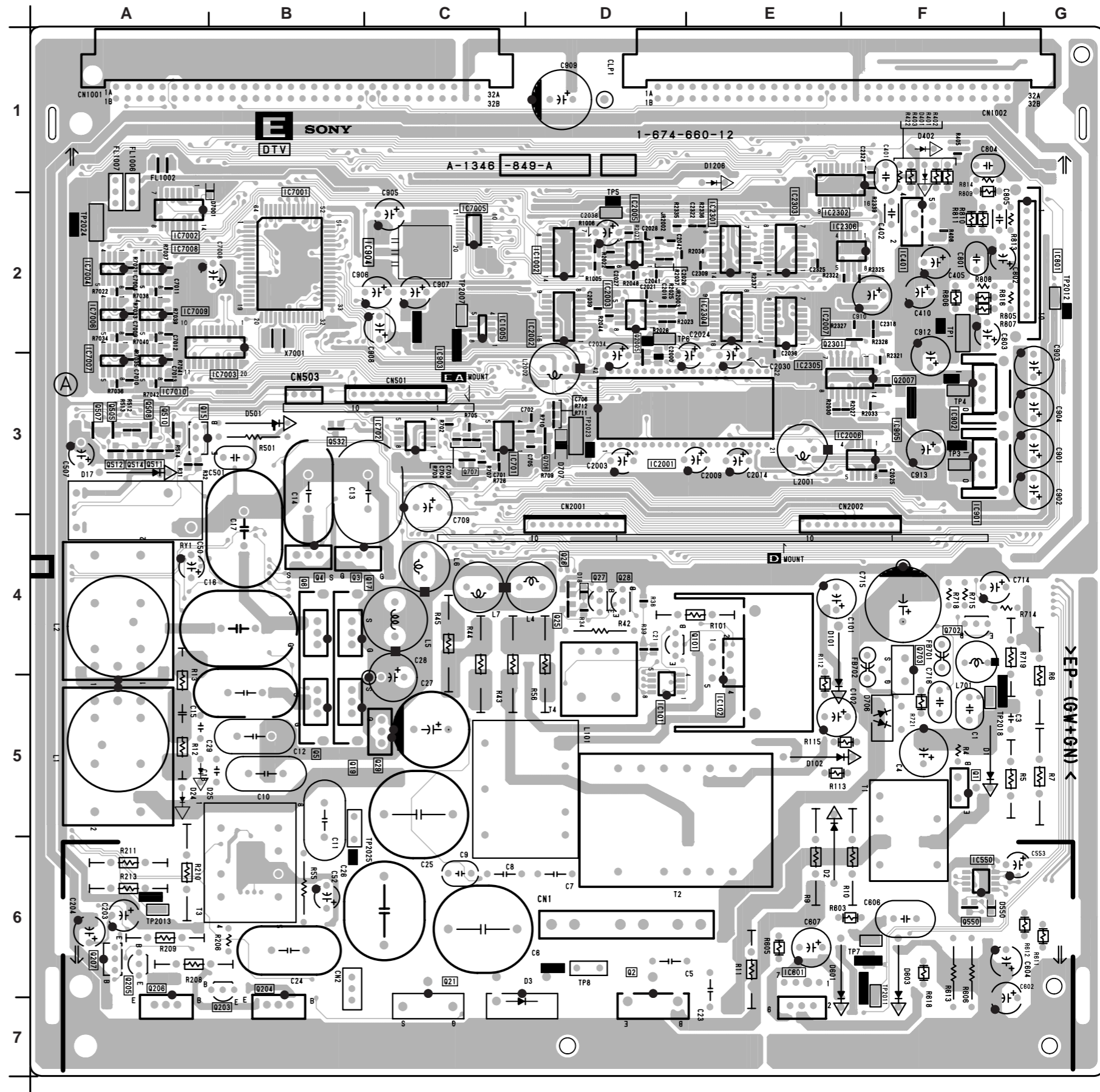
E BOARD

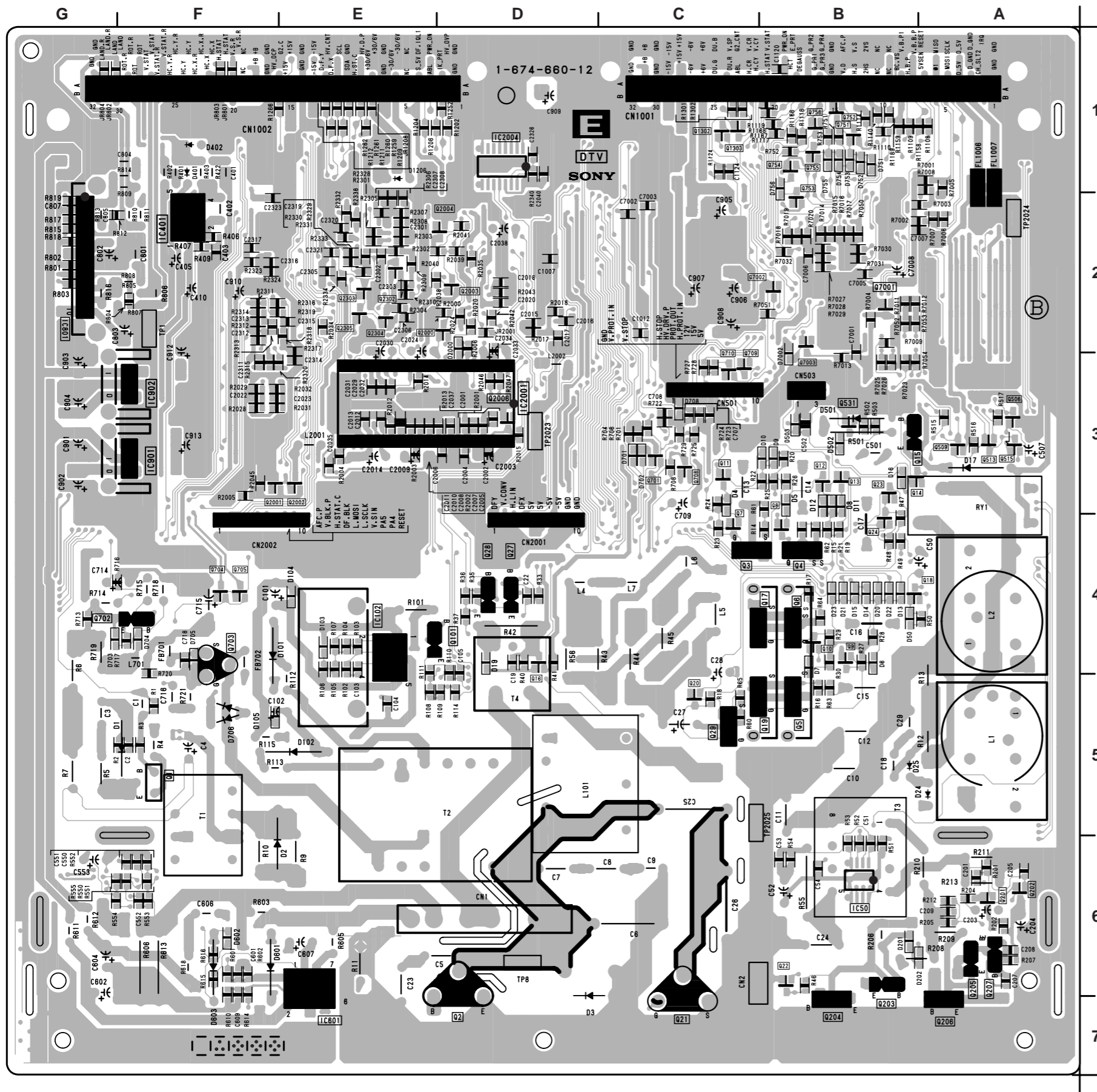
E BOARD

\*: B SIDE

D1	G-5	IC7004	A-2	TP1	F-2
D2	F-5	IC7005	C-2	TP8	D-6
D3	D-6	IC7006	A-2	TP2023	D-3
D4	* C-3	IC7007	A-3	TP2024	A-2
D5	* B-3	IC7008	A-2	TP2025	C-5
D6	* B-4	IC7009	A-2		
D7	* B-4	IC7010	A-3		
D8	* B-3				
D9	* B-3	Q1	F-5		
D10	* B-3	Q2	D-6		
D11	* B-3	Q3	C-4		
D12	* B-3	Q4	B-4		
D13	* B-4	Q5	B-5		
D14	* B-4	Q6	B-4		
D15	* B-5	Q7	* C-4		
D16	B-3	Q8	* B-4		
D17	A-3	Q9	* B-4		
D18	D-4	Q10	* B-4		
D19	* D-4	Q11	* C-3		
D20	* B-4	Q12	* B-3		
D21	* B-4	Q13	* B-3		
D22	* B-4	Q14	B-3		
D23	* B-4	Q15	A-3		
D24	B-5	Q16	* D-4		
D50	* A-4	Q17	C-4		
D101	F-4	Q18	* B-4		
D102	F-5	Q19	C-5		
D103	* E-4	Q20	* C-5		
D201	* B-6	Q21	C-6		
D202	* B-6	Q22	B-6		
D401	F-1	Q23	* B-3		
D402	F-1	Q24	* B-4		
D501	B-3	Q25	D-4		
D502	B-3	Q26	D-4		
D503	* B-3	Q27	D-4		
D550	G-6	Q28	D-4		
D601	F-6	Q29	C-5		
D602	* F-6	Q101	E-4		
D603	F-6	Q201	* A-6		
D701	* C-3	Q202	* A-6		
D702	* C-3	Q203	B-6		
D703	* F-4	Q204	B-7		
D704	* F-4	Q205	B-6		
D705	* F-4	Q206	A-7		
D706	F-5	Q207	A-6		
D707	D-3	Q505	A-3		
D751	* B-1	Q506	* A-3		
D752	* B-1	Q507	A-3		
D753	* B-1	Q508	A-3		
D754	* B-1	Q509	* A-3		
D755	* B-1	Q510	A-3		
D756	* B-1	Q511	A-3		
D1206	E-1	Q512	A-3		
D2000	* D-3	Q513	* A-3		
D7001	B-1	Q514	A-3		
D7002	* B-2	Q515	* A-3		
		Q550	F-6		
IC50	* B-6	Q701	* C-3		
IC101	D-4	Q702	F-4		
IC102	E-4	Q703	F-4		
IC401	F-2	Q704	* F-4		
IC550	F-6	Q705	* F-4		
IC601	E-6	Q706	D-3		
IC701	D-3	Q707	* C-3		
IC702	C-3	Q708	* C-3		
IC801	G-2	Q709	* C-3		
IC901	F-3	Q710	* C-3		
IC902	F-3	Q751	* B-1		
IC903	C-2	Q752	* B-1		
IC904	C-2	Q753	* B-2		
IC905	F-3	Q754	* B-1		
IC1002	D-2	Q755	* B-1		
IC1005	C-2	Q756	* B-1		
IC2001	D-3	Q2000	* D-2		
IC2002	D-2	Q2001	* E-3		
IC2005	D-2	Q2002	* E-3		
IC2006	F-3	Q2005	D-3		
IC2007	E-2	Q2006	* D-3		
IC2301	E-2	Q2007	F-3		
IC2302	F-1	Q2301	F-2		
IC2303	E-2	Q2302	* E-2		
IC2304	E-2	Q2303	* E-2		
IC2305	F-3	Q2304	* E-2		
IC2306	F-2	Q2305	* E-2		
IC7001	B-2	Q7001	* B-2		
IC7002	A-2	Q7002	* B-2		
IC7003	B-2	Q7003	* B-2		

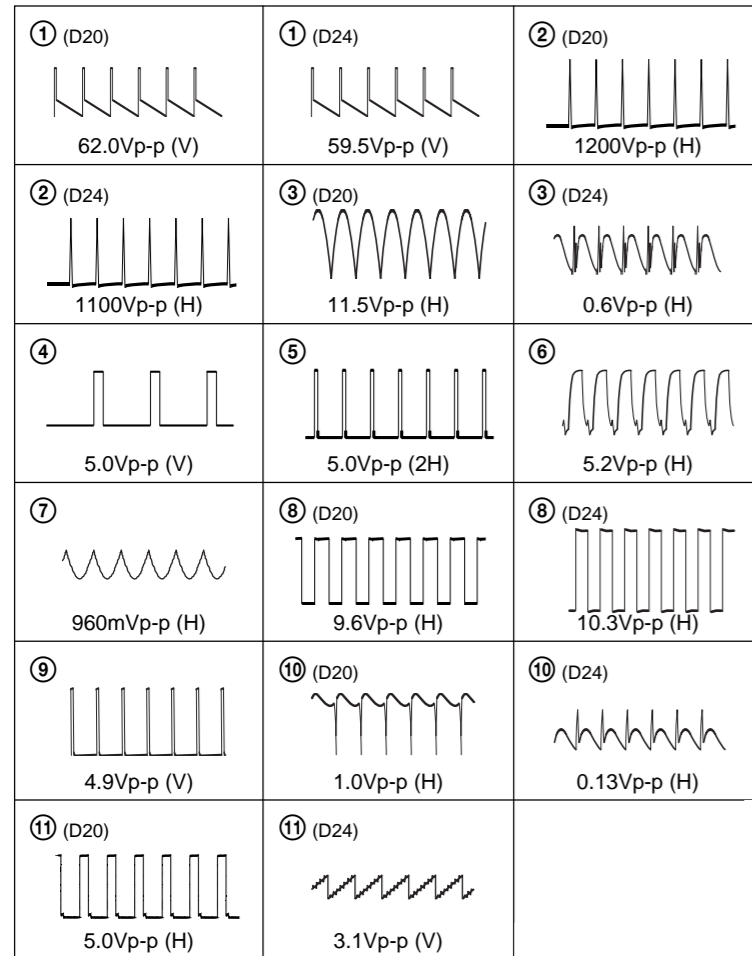
E -A SIDE-  
SUFFIX: -12



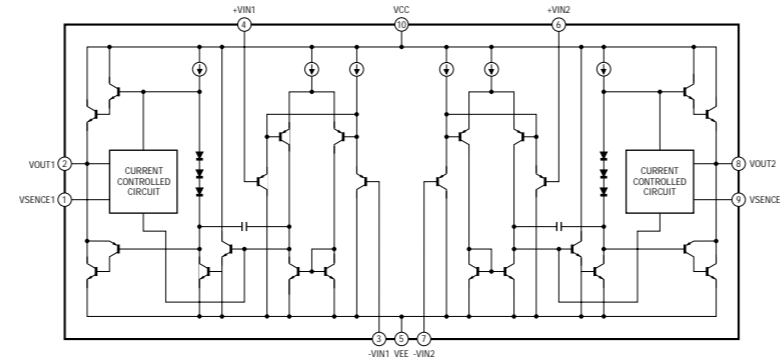


E -B SIDE-  
SUFFIX: -12

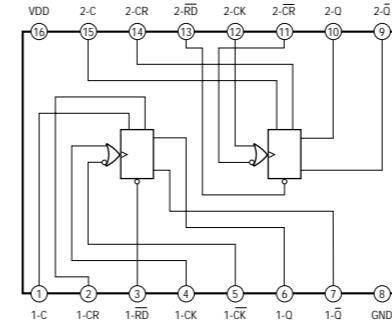
E BOARD WAVEFORMS



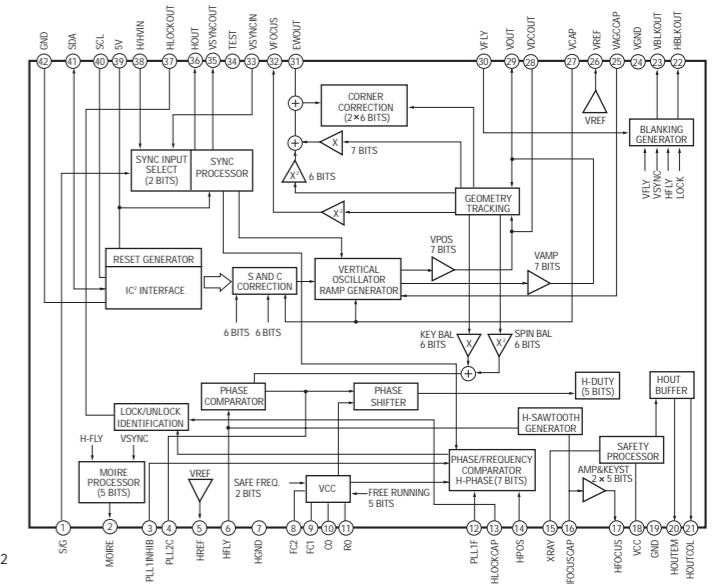
LA6510 (IC801)



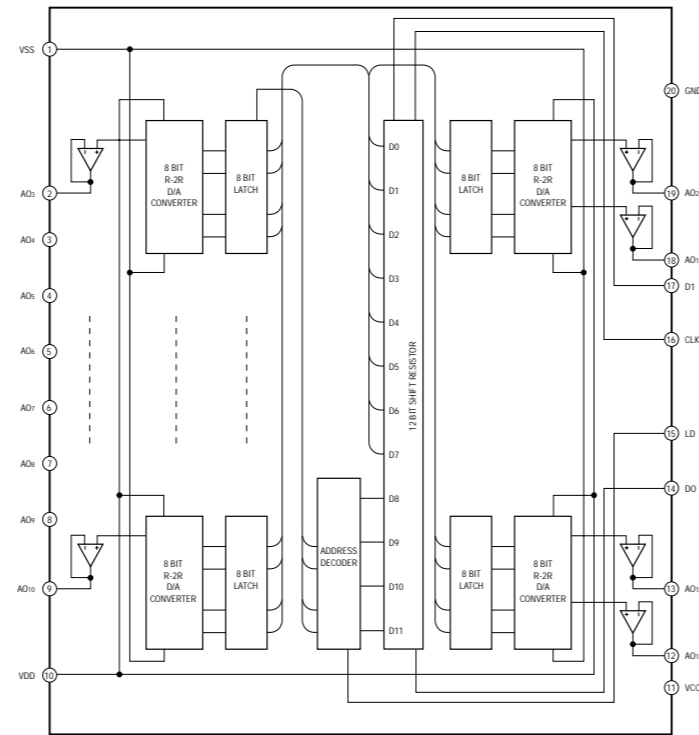
MC74HC4538AFEL (IC2002, 2302)



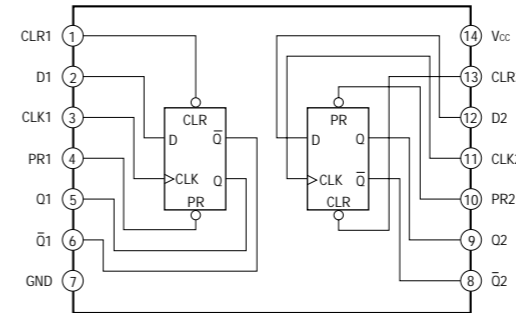
TDA9106 (IC2001)



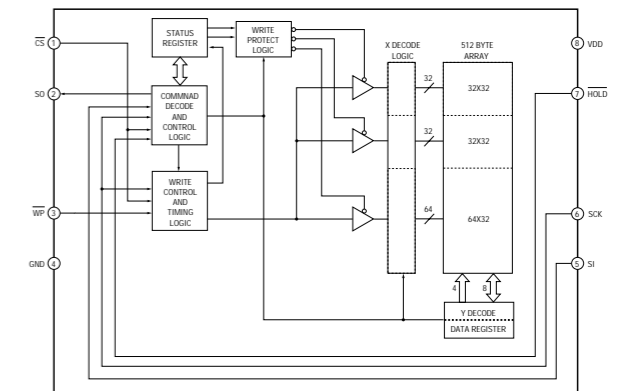
MB88346BPFV-EF (IC7005)



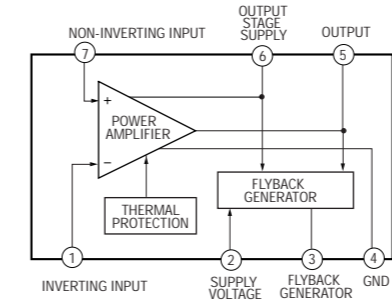
MC74HC74AFEL (IC2303)



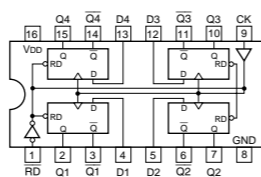
X25040S-C7000 (IC7004, 7006, 7007, 7008, 7009, 7010)

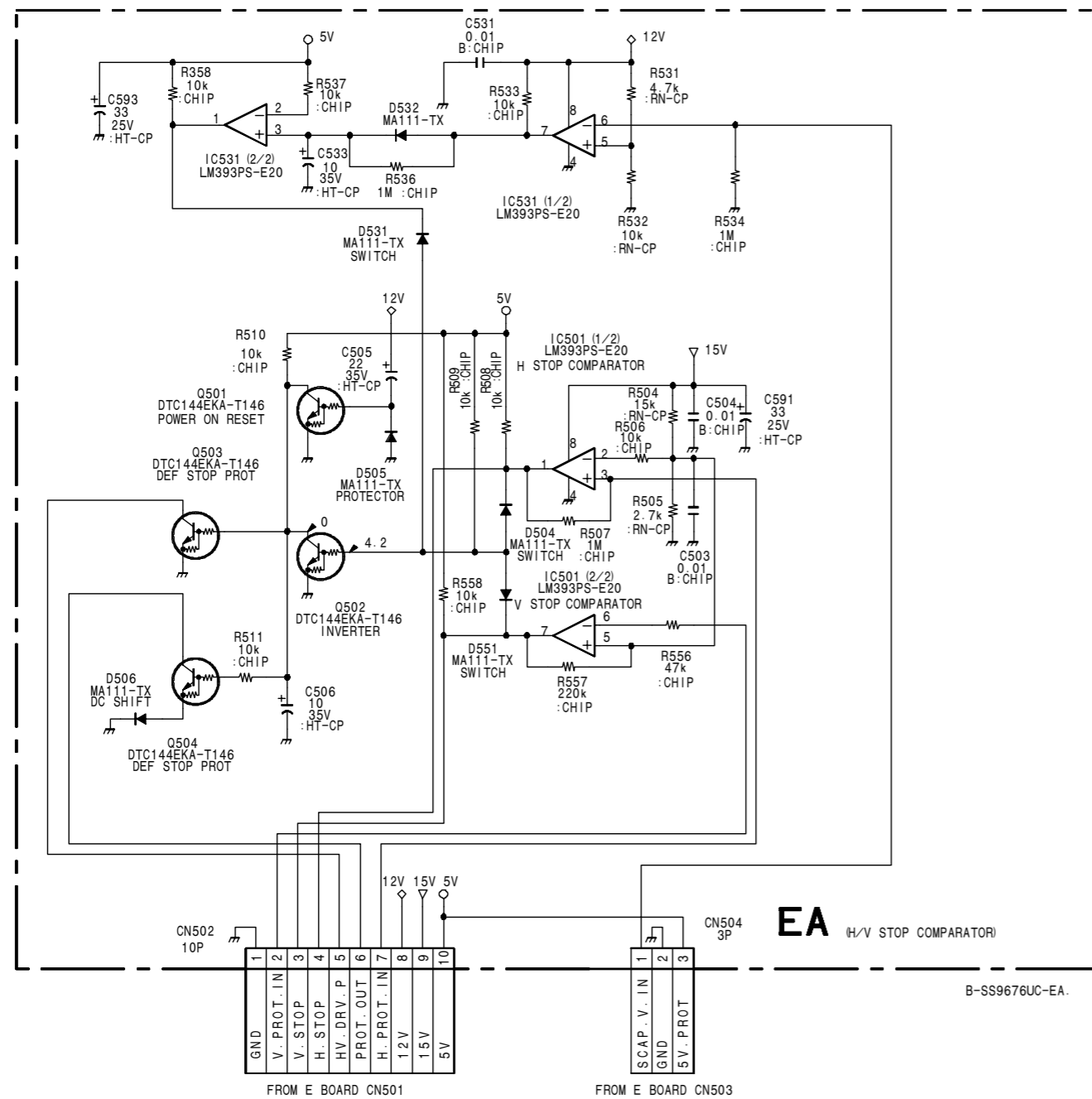


STV9379 (IC601)

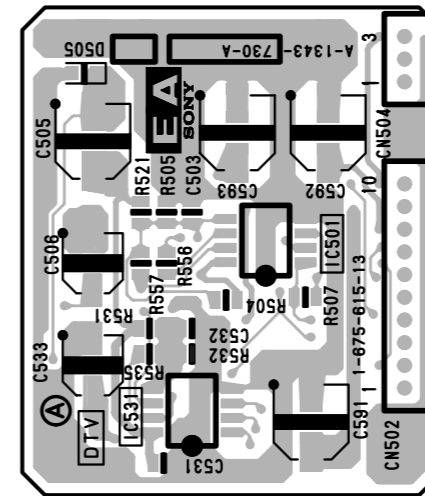


MC74HC175FEL (IC2304)

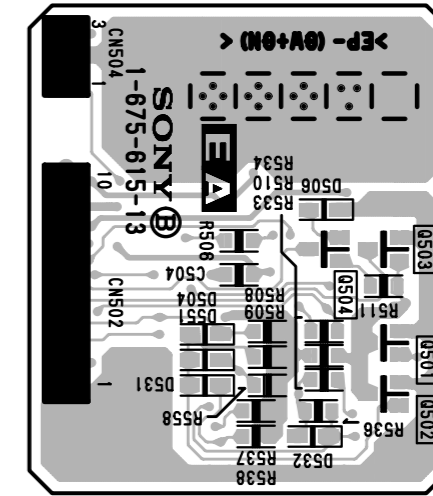




EA BOARD



**EA -A SIDE-**  
SUFFIX: -13



**EA -B SIDE-**  
SUFFIX: -13

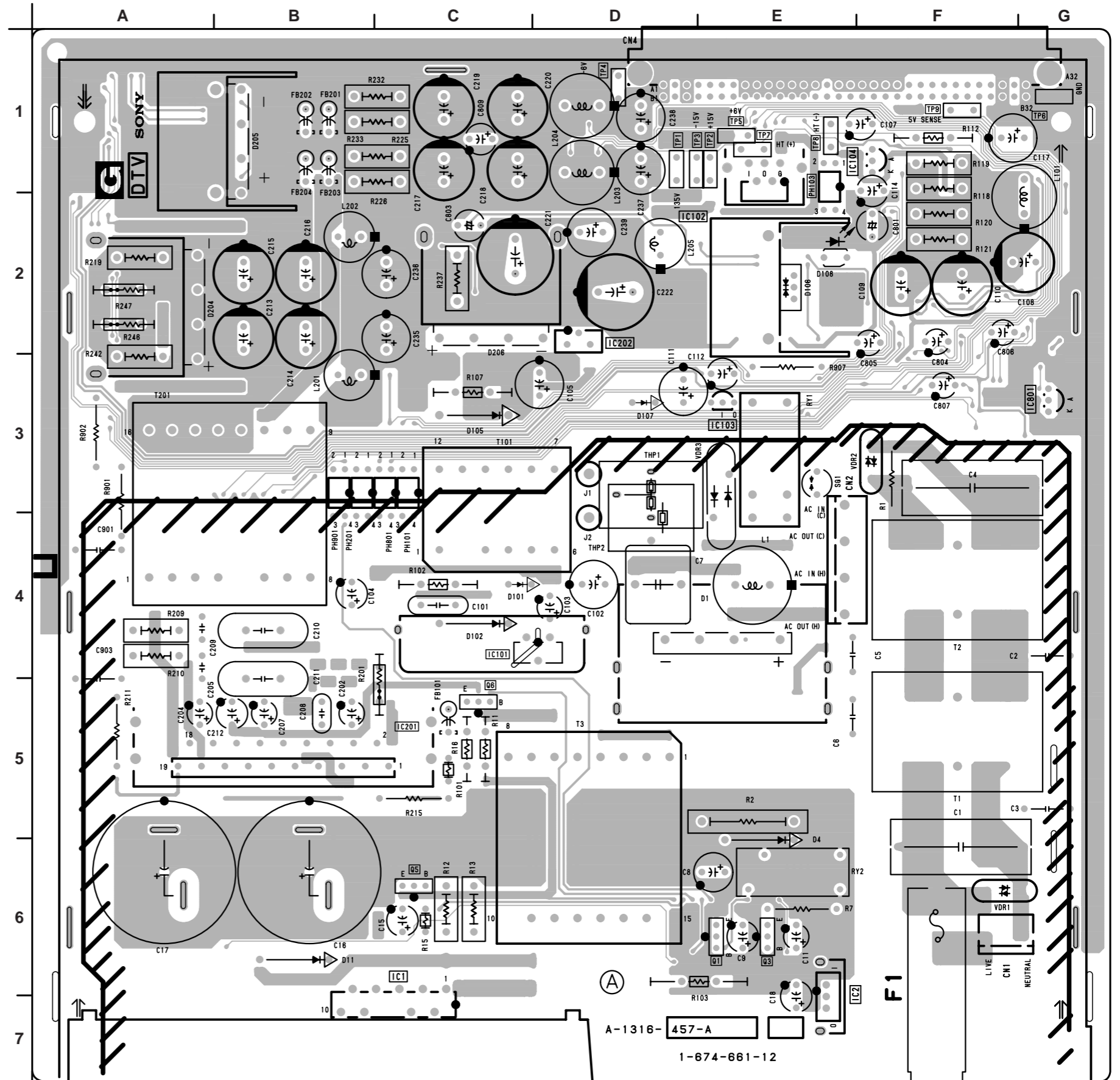
G BOARD

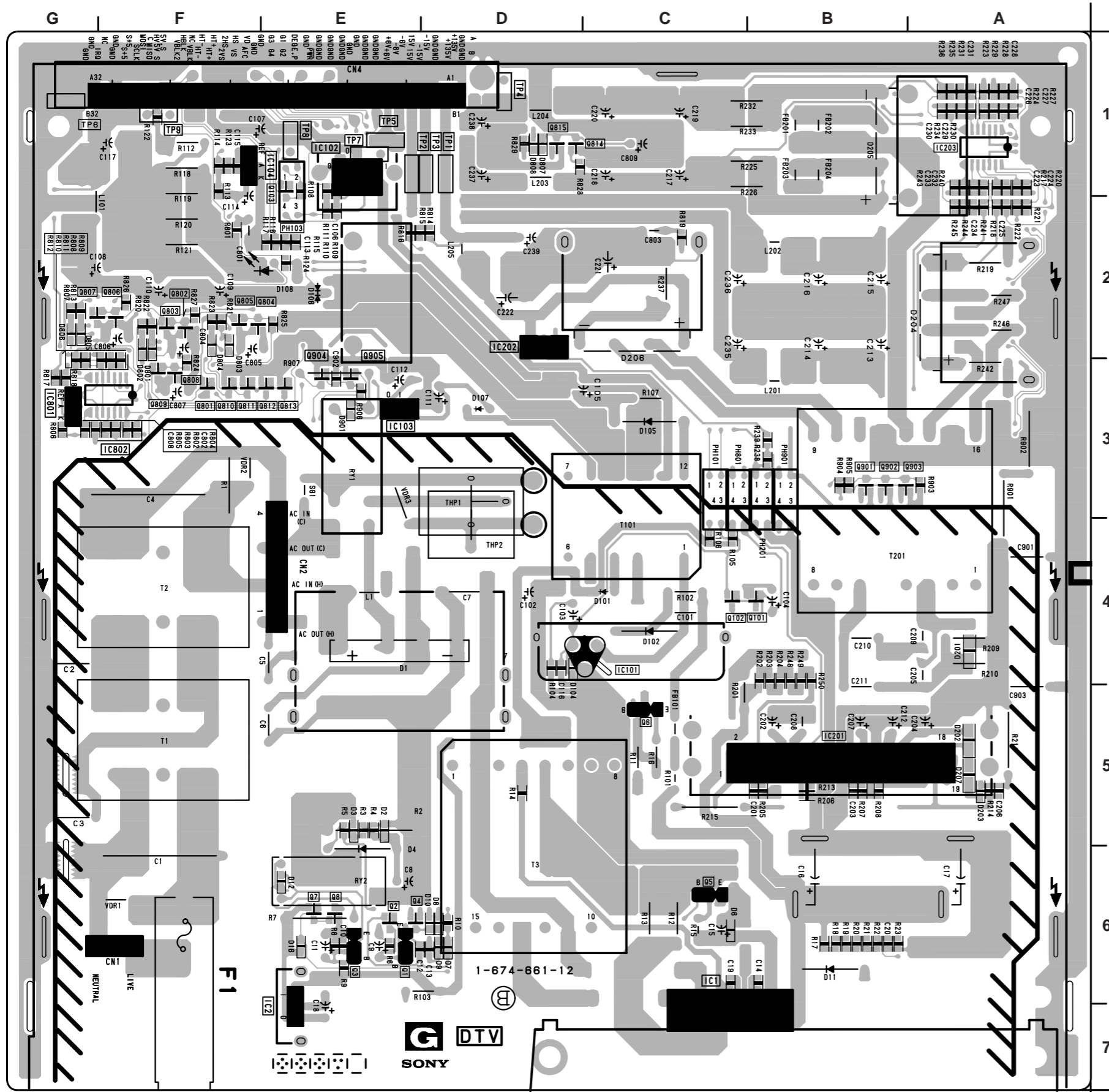
G BOARD

\*: B SIDE

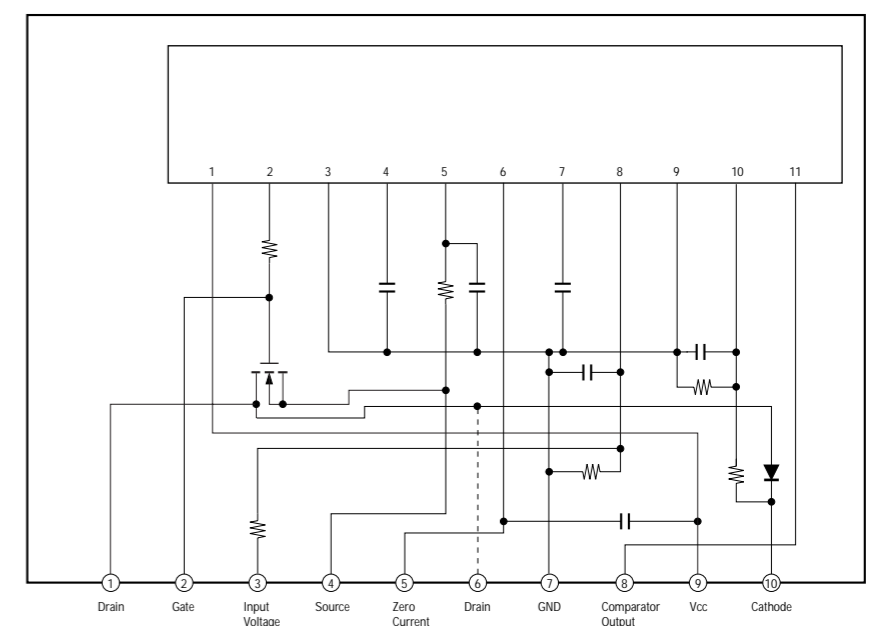
D1	E-4	Q1	E-6
D2	*E-5	Q2	*E-6
D3	*E-5	Q3	*E-6
D4	*E-6	Q4	*E-6
D5	*E-6	Q5	C-6
D6	*C-6	Q6	C-5
D7	*D-6	Q101	*B-4
D8	*D-6	Q102	*C-4
D9	*D-6	Q103	*E-1
D10	*D-6	Q801	F-3
D11	*B-6	Q802	*F-2
D12	*E-6	Q803	*F-2
D101	C-4	Q804	*E-2
D102	C-4	Q805	*F-2
D104	*C-4	Q806	*F-2
D105	C-3	Q807	*G-2
D106	E-2	Q808	*F-3
D107	D-3	Q809	*F-3
D108	E-2	Q810	*F-3
D201	*A-4	Q811	*F-3
D202	*A-5	Q812	*E-3
D203	*A-5	Q813	*E-3
D204	A-2	Q814	*D-1
D205	B-1	Q815	*D-1
D206	C-2	Q901	*B-3
D207	*A-5	Q902	*B-3
D801	*F-2	Q903	*B-3
D802	*F-2	Q904	*E-3
D803	*F-2	Q905	*E-3
D804	*F-2	TP1	D-1
D805	*G-2	TP2	E-1
D806	*G-2	TP3	D-1
D807	*D-1	TP4	D-1
D808	*D-1	TP5	E-1
D901	E-3	TP6	G-1
		TP7	E-1
IC1	C-6	TP8	E-1
IC2	E-6	TP9	F-1
IC101	D-4		
IC102	E-2		
IC103	E-3		
IC104	F-1		
IC201	B-5		
IC202	D-2		
IC203	*A-1		
IC801	G-3		
IC802	*F-3		

G -A SIDE-  
SUFFIX: -12





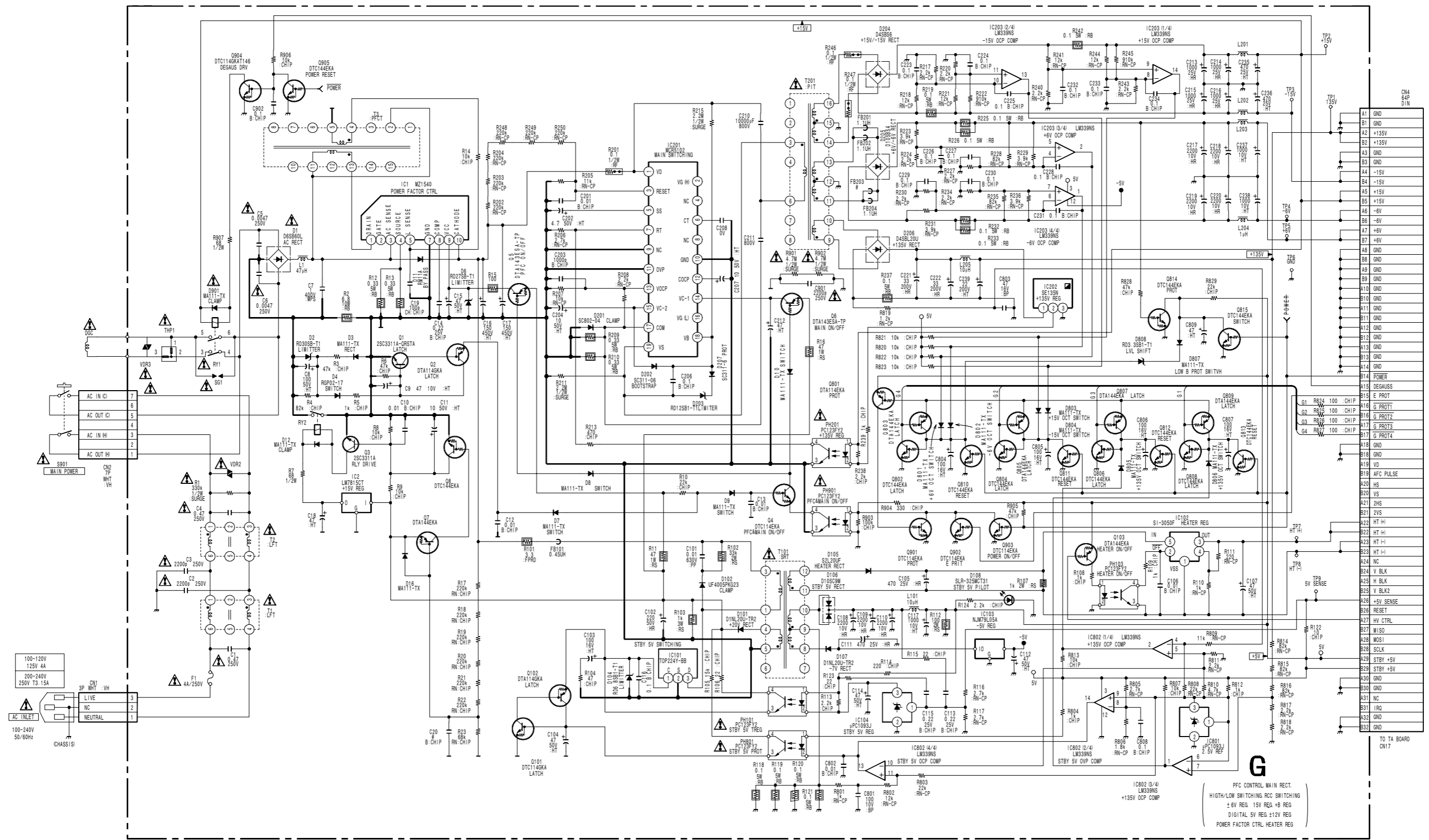
MZ1540 (IC1)



G -B SIDE-  
SUFFIX: -12



1  
2  
3  
4  
5



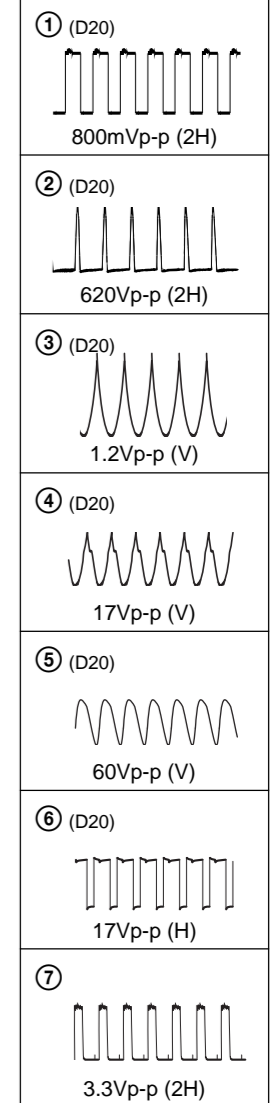
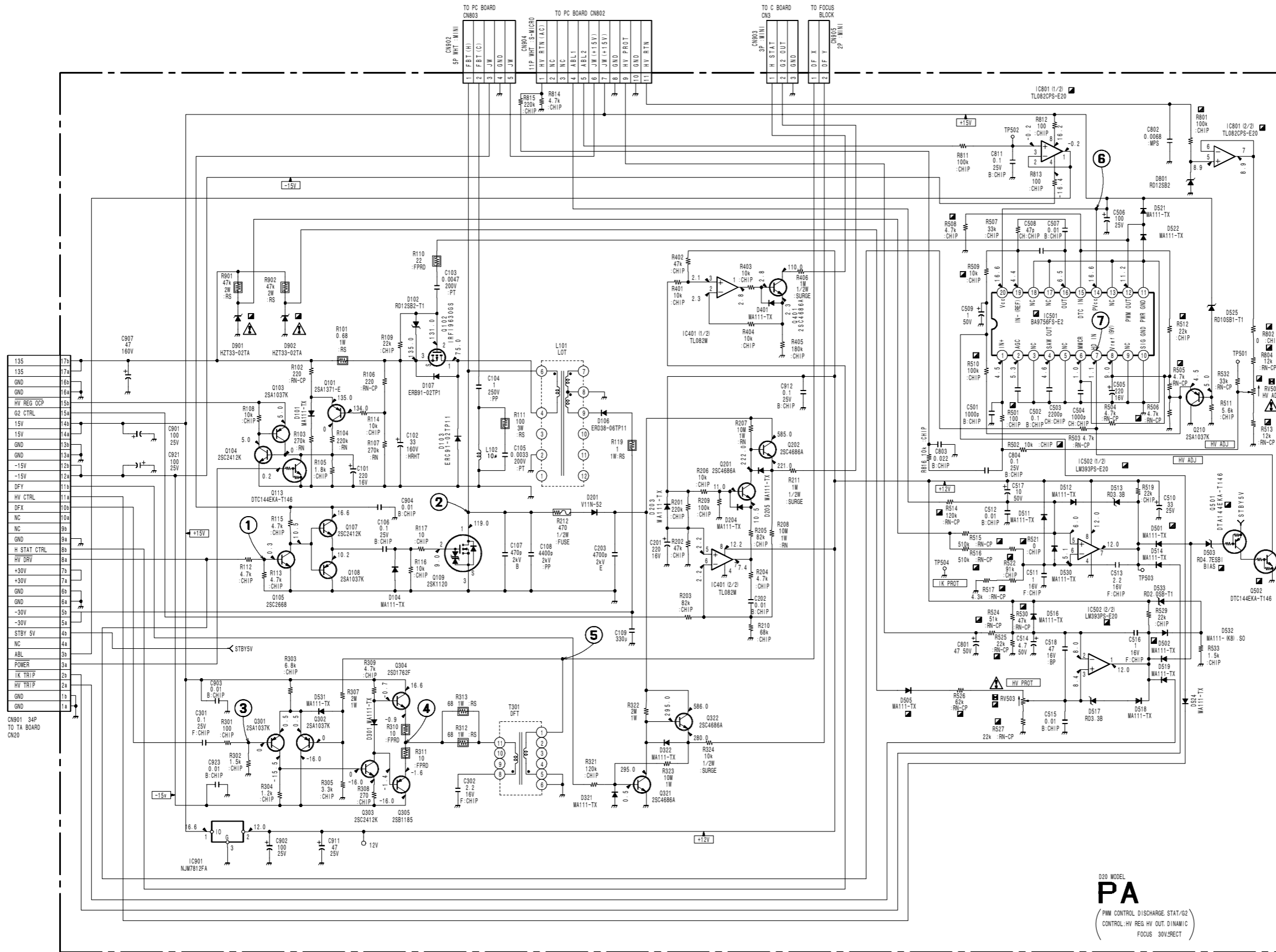
**G**

PFC CONTROL MAIN RECT.  
 HIGH/LOW SWITCHING RCC SWITCHING  
 ± 6V REG. 15V REG. +8 REG.  
 DIGITAL 5V REG. ±12V REG.  
 POWER FACTOR CTRL HEATER REG.

8-5996780C-G..

A B C D E F G H

PA BOARD WAVEFORMS (20 inch)



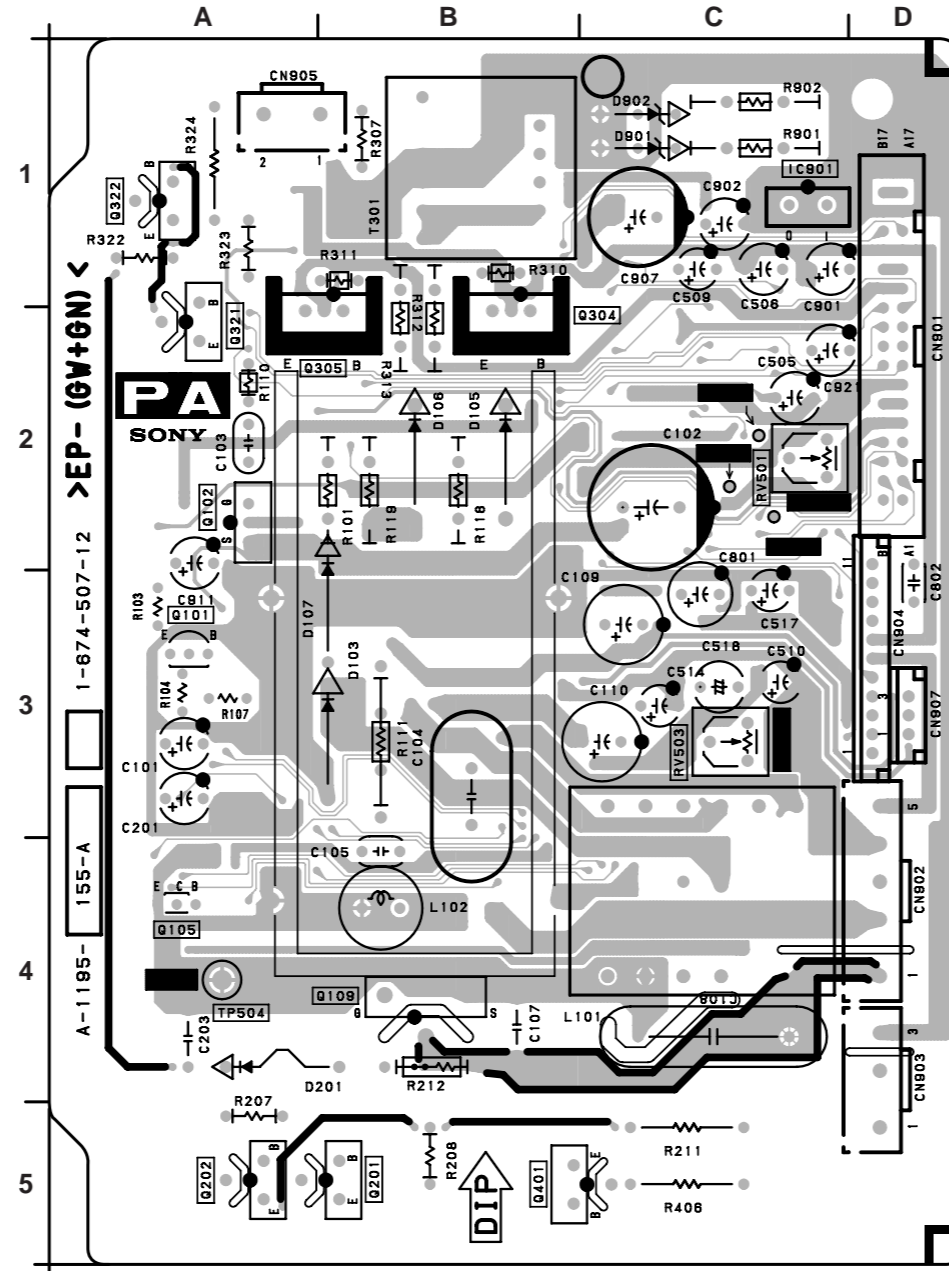
**D20 MODEL**  
**PA**  
 (PWM CONTROL, DISCHARGE, STAT/G2)  
 CONTROL: HV REG, HV OUT, DYNAMIC  
 FOCUS: 30V/RECT

PA BOARD

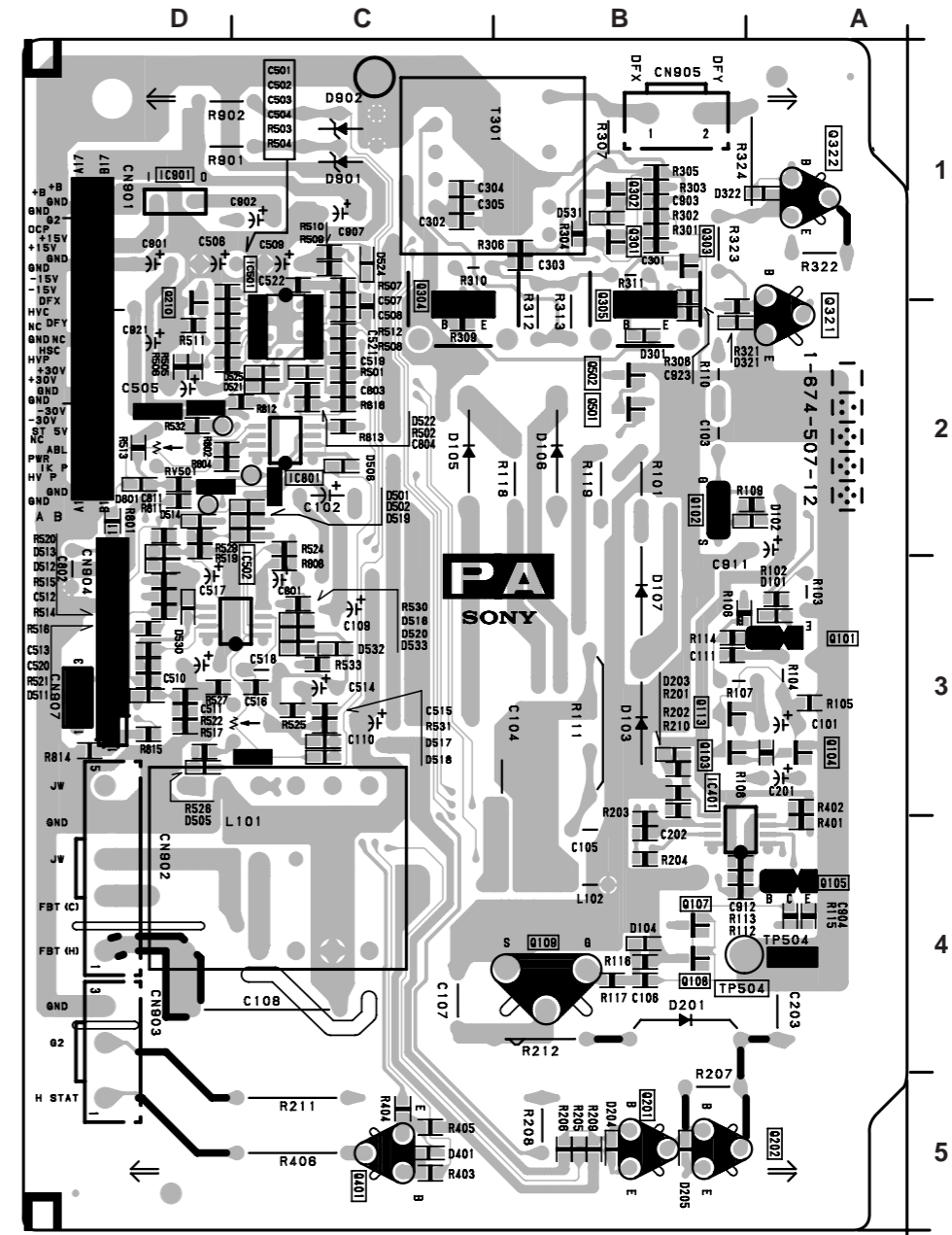
PA BOARD (D20)

\*: B SIDE

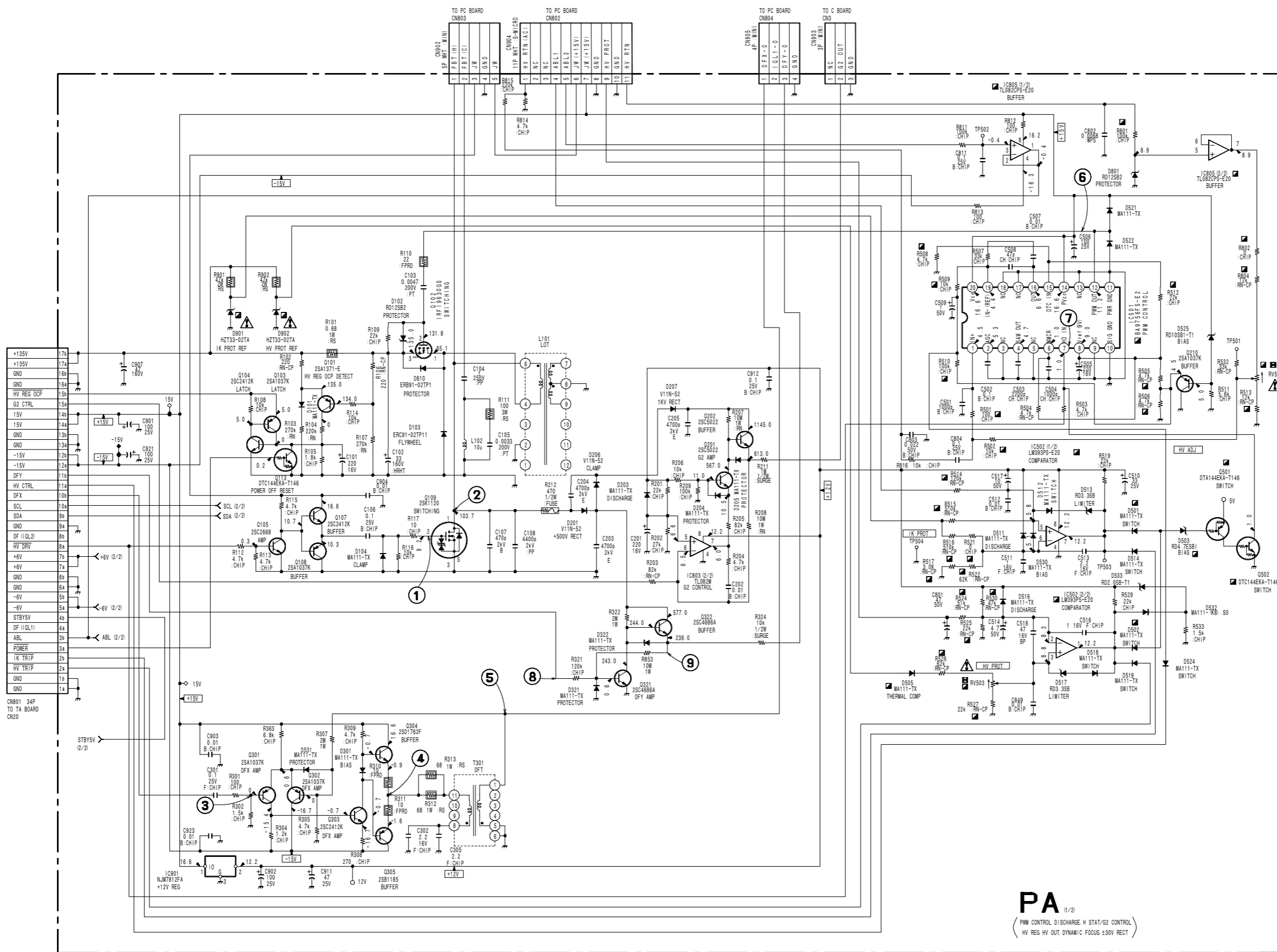
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|-------|-------|
| D101  | * A-3 |
| D102  | * A-2 |
| D103  | A-3   |
| D104  | * B-4 |
| D105  | B-2   |
| D106  | B-2   |
| D107  | A-2   |
| D201  | A-4   |
| D203  | * A-3 |
| D204  | * B-5 |
| D205  | * A-5 |
| D301  | * B-2 |
| D321  | * A-2 |
| D322  | * A-1 |
| D401  | * B-5 |
| D501  | * C-2 |
| D502  | * C-2 |
| D505  | * C-3 |
| D511  | * D-3 |
| D512  | * D-3 |
| D513  | * D-3 |
| D514  | * C-2 |
| D516  | * C-3 |
| D517  | * C-3 |
| D518  | * C-3 |
| D519  | * C-3 |
| D521  | * C-2 |
| D522  | * C-2 |
| D524  | * C-1 |
| D525  | * C-2 |
| D530  | * C-3 |
| D531  | * B-1 |
| D801  | * C-2 |
| D901  | C-1   |
| D902  | C-1   |
|       |       |
| IC401 | * A-4 |
| IC501 | * C-2 |
| IC502 | * C-3 |
| IC801 | * C-2 |
| IC901 | C-1   |
|       |       |
| Q101  | A-3   |
| Q102  | A-2   |
| Q103  | * A-3 |
| Q104  | * A-3 |
| Q105  | A-4   |
| Q107  | * A-4 |
| Q108  | * A-4 |
| Q109  | B-4   |
| Q113  | * A-3 |
| Q201  | B-5   |
| Q202  | A-5   |
| Q210  | * C-2 |
| Q301  | * B-1 |
| Q302  | * B-1 |
| Q303  | * A-1 |
| Q304  | B-2   |
| Q305  | A-2   |
| Q321  | A-2   |
| Q322  | A-1   |
| Q401  | B-5   |
| Q501  | * B-2 |
| Q502  | * B-2 |
|       |       |
| RV501 | C-2   |
| RV503 | C-3   |
|       |       |
| TP504 | A-4   |



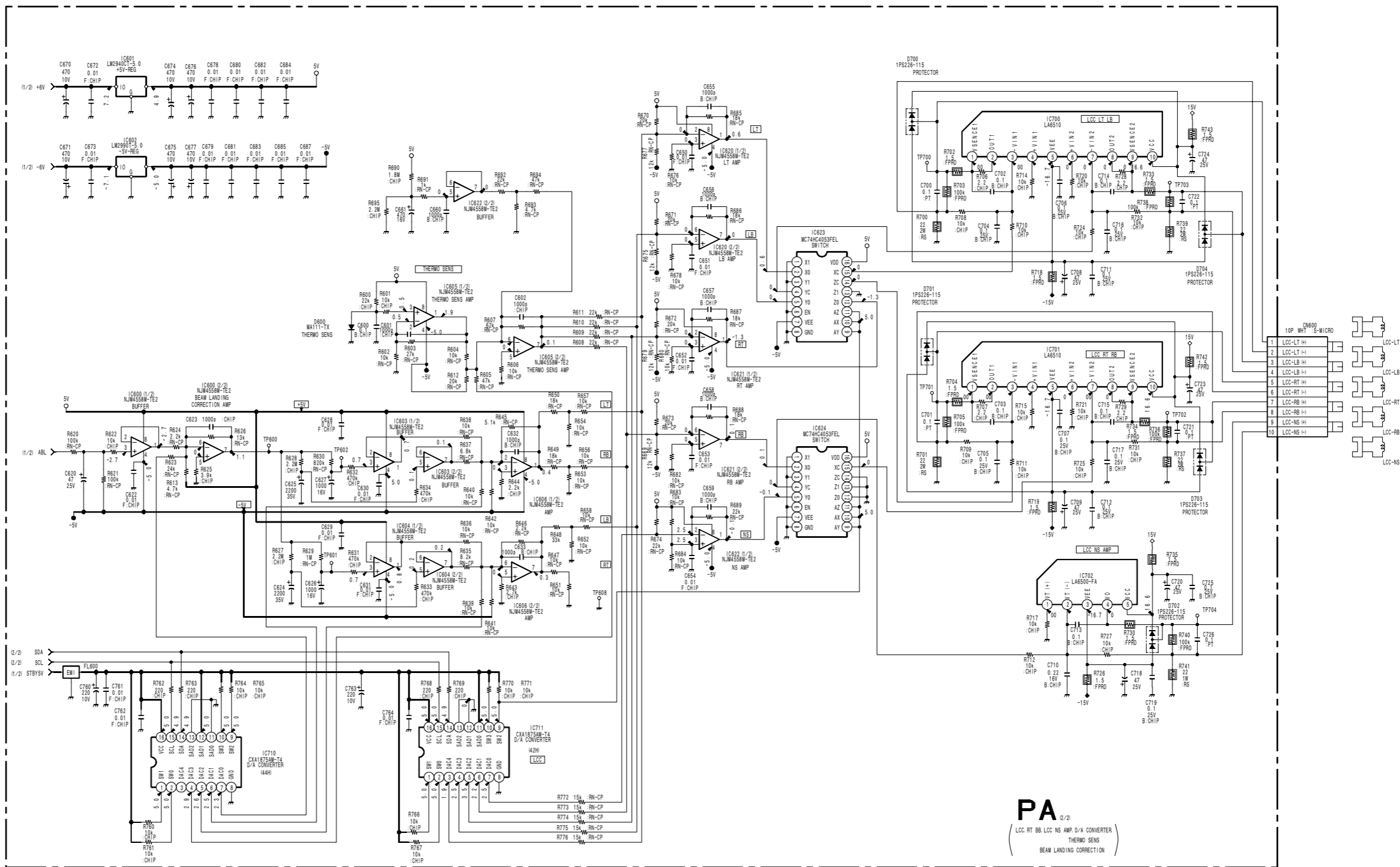
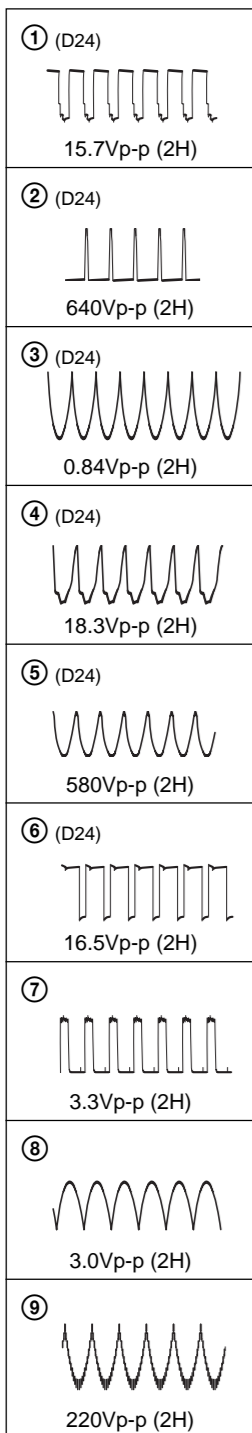
20 inch model  
PA -A SIDE-  
SUFFIX: -12



20 inch model  
PA -B SIDE-  
SUFFIX: -12



PA BOARD WAVEFORMS  
(24 inch)



**PA**  
LCC RT BB LCC NS AMP D/A CONVERTER  
THERMO SENS  
BEAM LANDING CORRECTION

B-SS9678UC-PA -P2

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D

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G

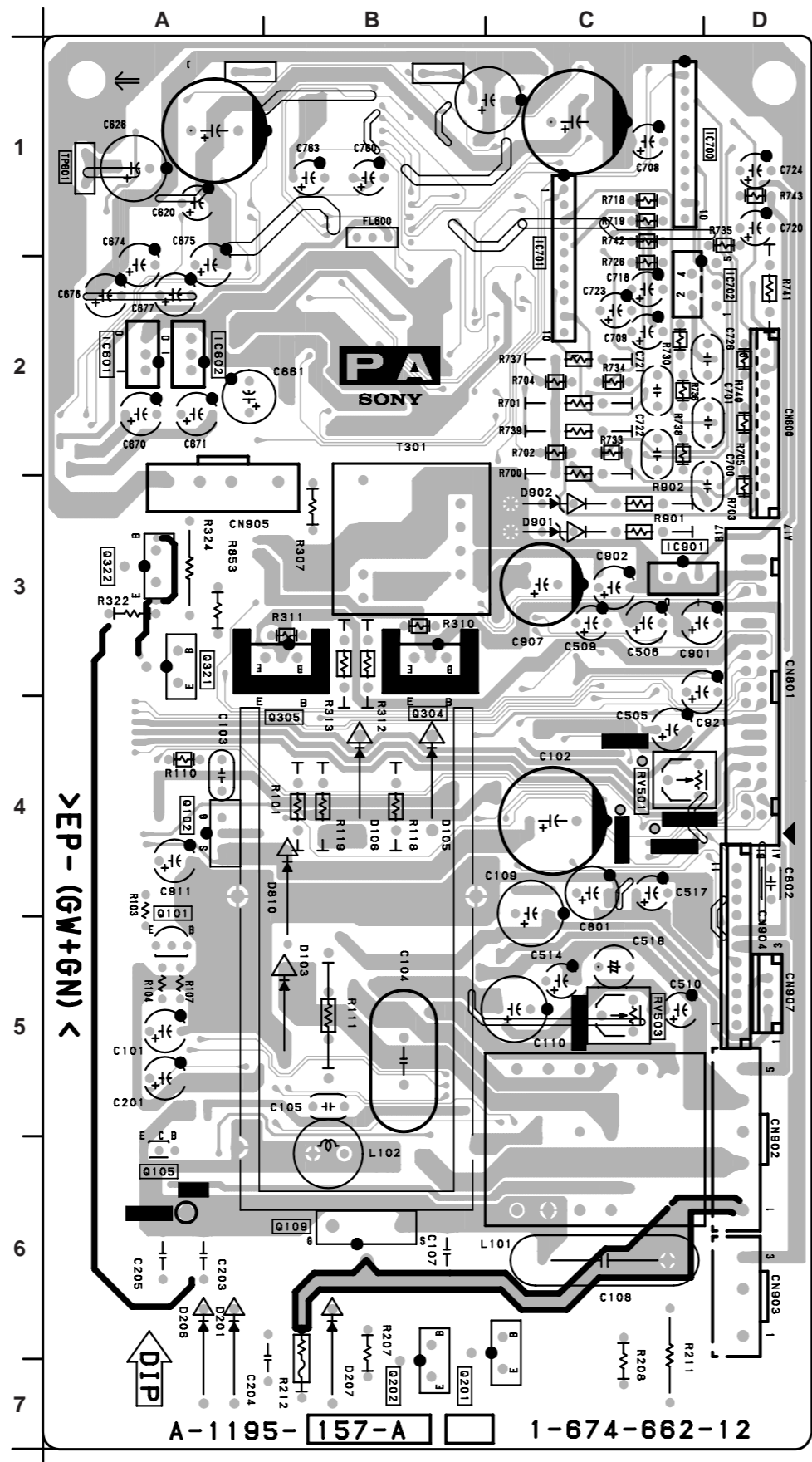
H

PA BOARD

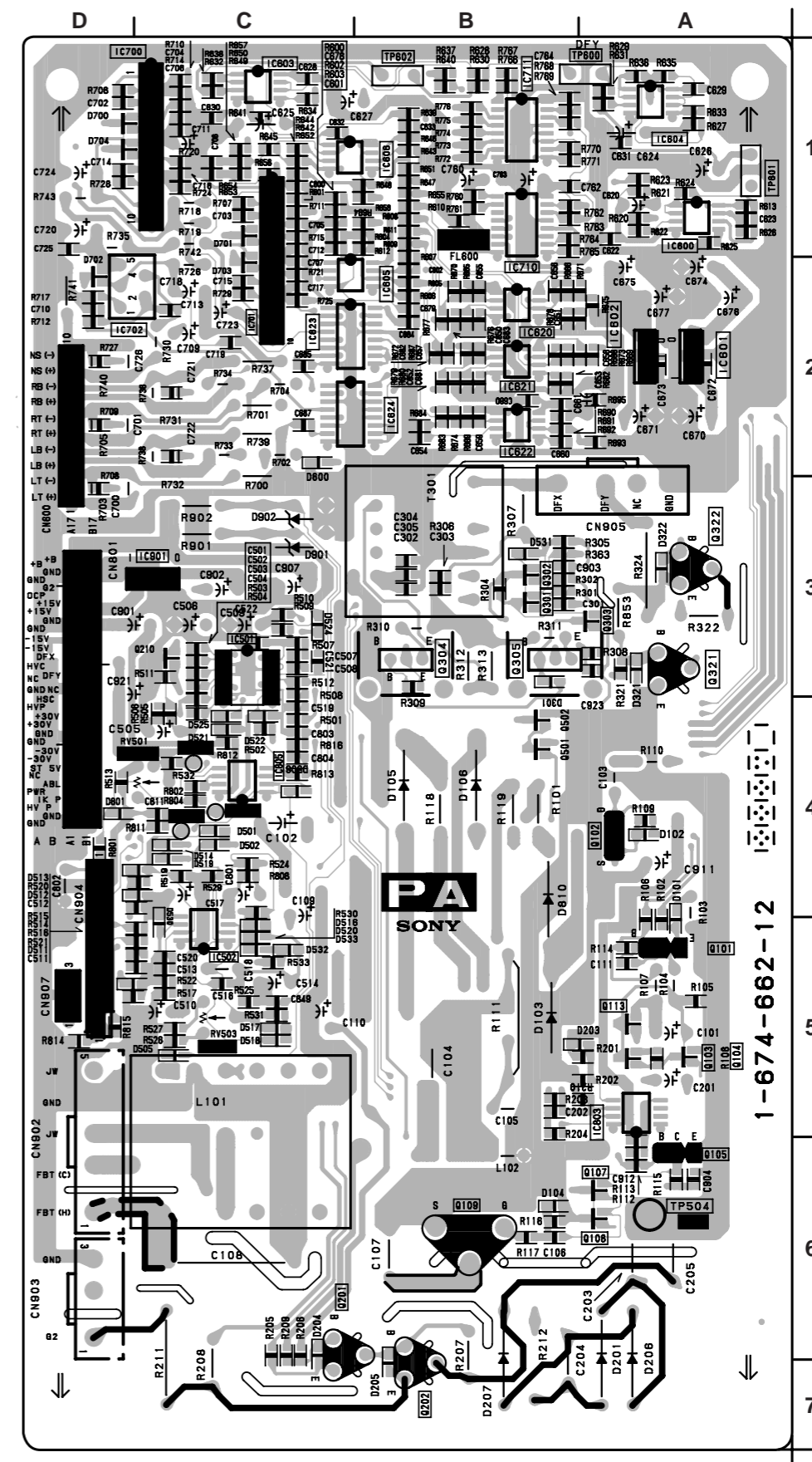
PA BOARD (D24)

\*: B SIDE

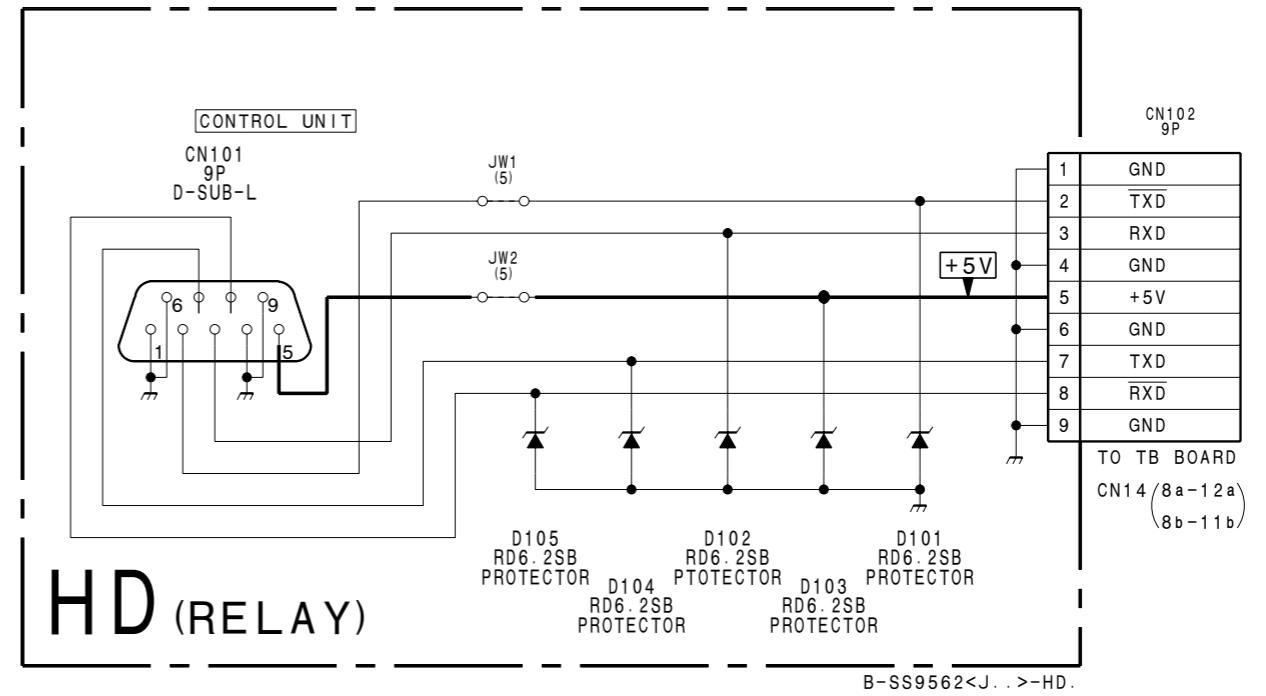
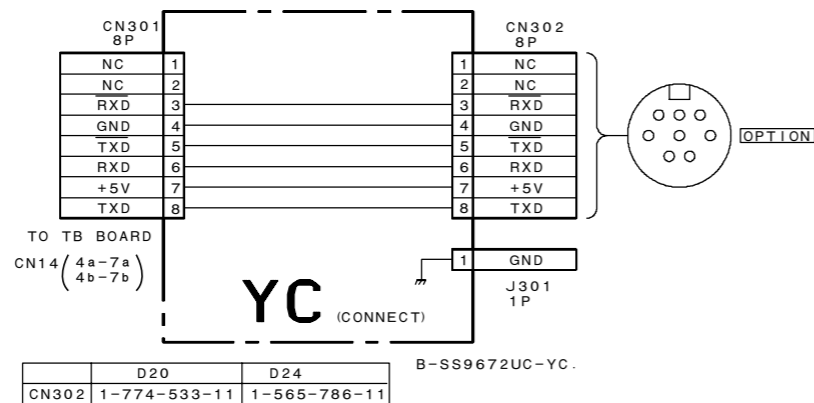
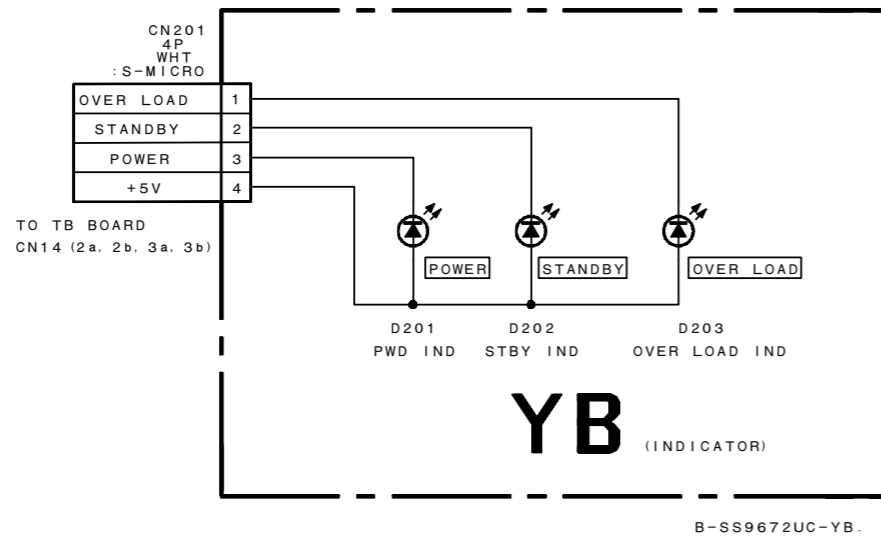
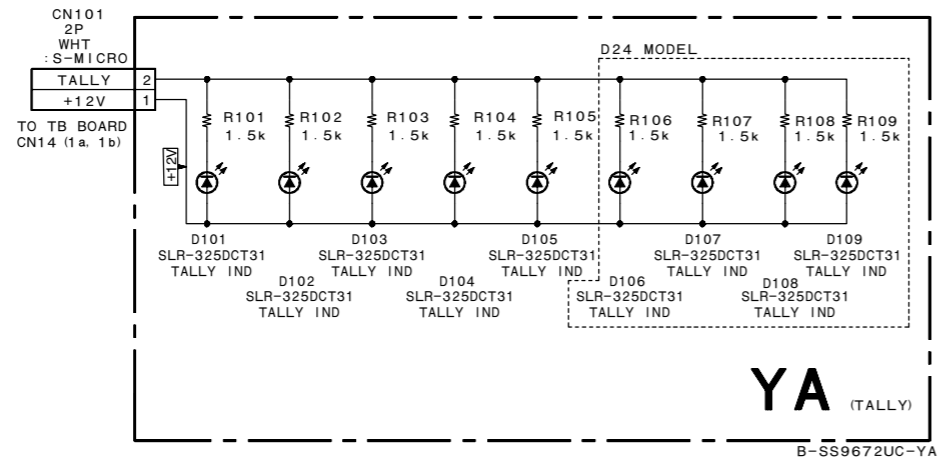
D101	* A-4	Q101	A-5
D102	* A-4	Q102	* A-4
D103	B-5	Q103	* A-5
D104	* A-6	Q104	* A-5
D105	B-4	Q105	A-6
D106	B-4	Q107	* A-6
D201	B-6	Q108	* A-6
D203	* A-5	Q109	* B-6
D204	* C-6	Q113	* A-5
D205	* B-6	Q201	C-7
D206	A-6	Q202	B-7
D207	B-6	Q210	* C-3
D301	* B-3	Q301	* B-3
D321	* A-3	Q302	* B-3
D322	* A-3	Q303	* A-3
D501	* C-4	Q304	* B-3
D502	* C-4	Q305	* B-3
D505	* C-5	Q321	A-3
D511	* C-5	Q322	A-3
D512	* C-4	Q501	* B-4
D513	* C-4	Q502	* B-4
D514	* C-4		
D516	* C-4	RV501	C-4
D517	* C-5	RV503	C-5
D518	* C-5		
D519	* C-4	TP600	A-1
D521	* C-4	TP601	A-1
D522	* C-4	TP602	B-1
D524	* C-3		
D525	* C-4		
D530	* C-4		
D531	* B-3		
D600	* C-2		
D700	* D-1		
D701	* C-1		
D702	* D-2		
D703	* C-2		
D704	* D-1		
D801	* D-4		
D810	B-4		
D901	C-3		
D902	C-3		
IC501	* C-3		
IC502	* C-5		
IC600	* A-1		
IC601	A-2		
IC602	A-2		
IC603	* C-1		
IC604	* A-1		
IC605	* C-2		
IC606	* C-1		
IC620	* B-2		
IC621	* B-2		
IC622	* B-2		
IC623	* C-2		
IC624	* C-2		
IC700	C-1		
IC701	* C-2		
IC702	* D-2		
IC710	* B-1		
IC711	* B-1		
IC803	* A-5		
IC805	* C-4		
IC901	C-3		

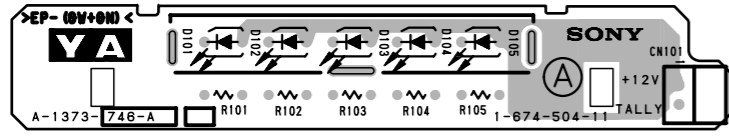


PA -A SIDE-  
SUFFIX: -12

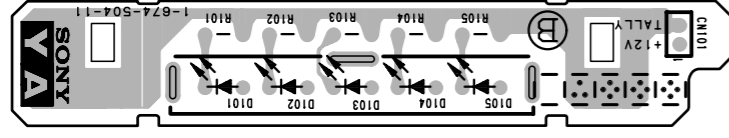


PA -B SIDE-  
SUFFIX: -12

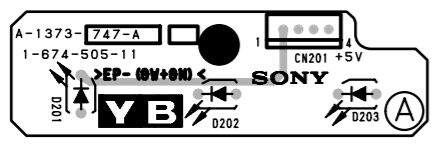




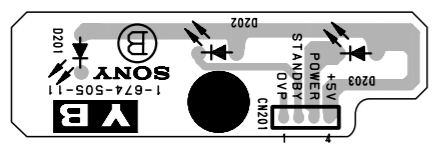
20 inch model  
**YA -A SIDE-**  
SUFFIX: -11



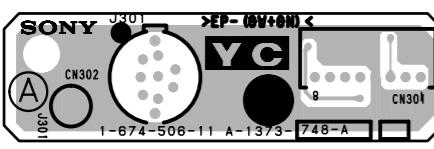
20 inch model  
**YA -B SIDE-**  
SUFFIX: -11



20 inch model  
**YB -A SIDE-**  
SUFFIX: -11



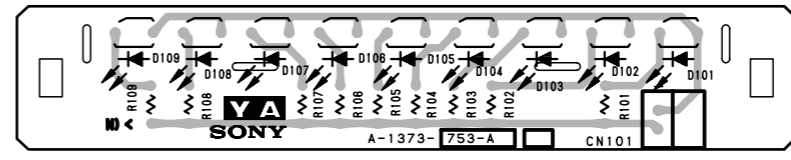
20 inch model  
**YB -B SIDE-**  
SUFFIX: -11



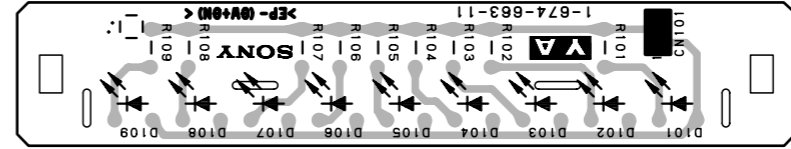
20 inch model  
**YC -A SIDE-**  
SUFFIX: -11



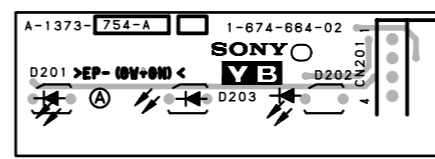
20 inch model  
**YC -B SIDE-**  
SUFFIX: -11



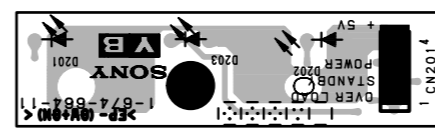
24 inch model  
**YA -A SIDE-**  
SUFFIX: -11



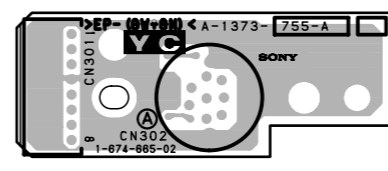
24 inch model  
**YA -B SIDE-**  
SUFFIX: -11



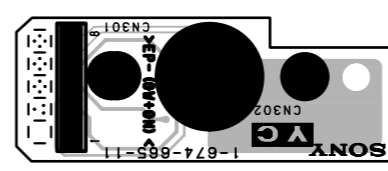
24 inch model  
**YB -A SIDE-**  
SUFFIX: -11



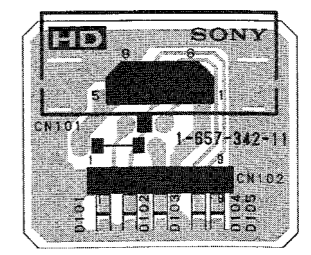
24 inch model  
**YB -B SIDE-**  
SUFFIX: -11



24 inch model  
**YC -A SIDE-**  
SUFFIX: -11



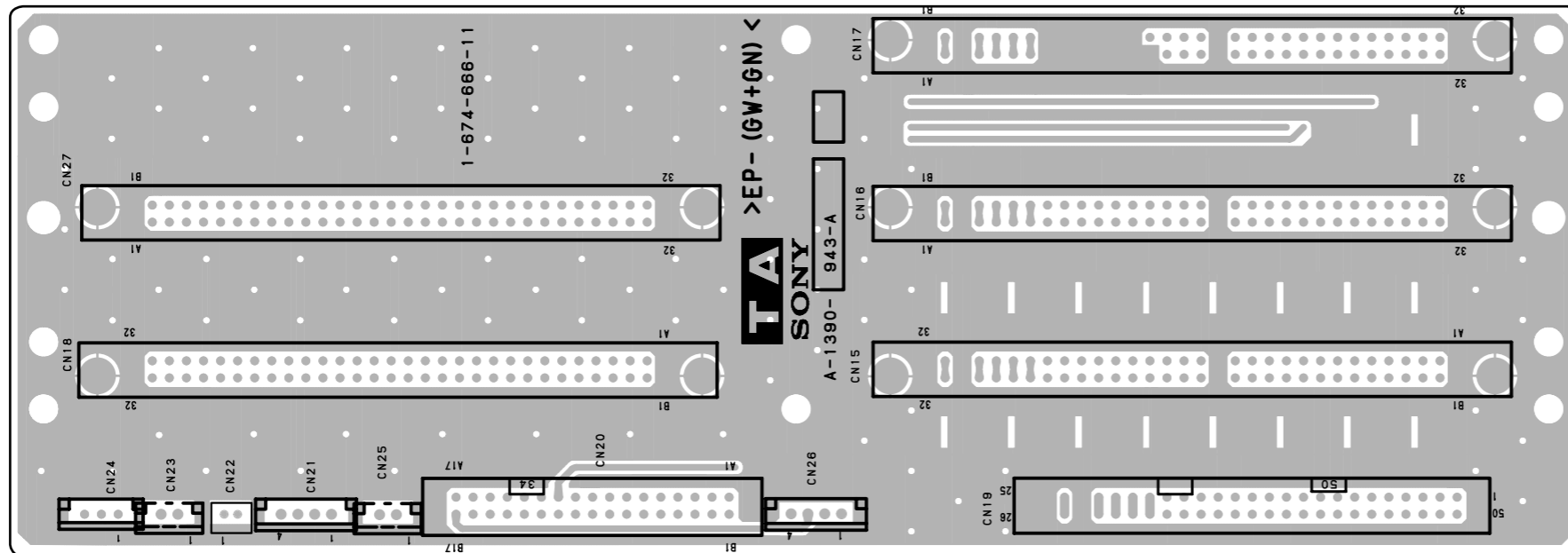
24 inch model  
**YC -B SIDE-**  
SUFFIX: -11



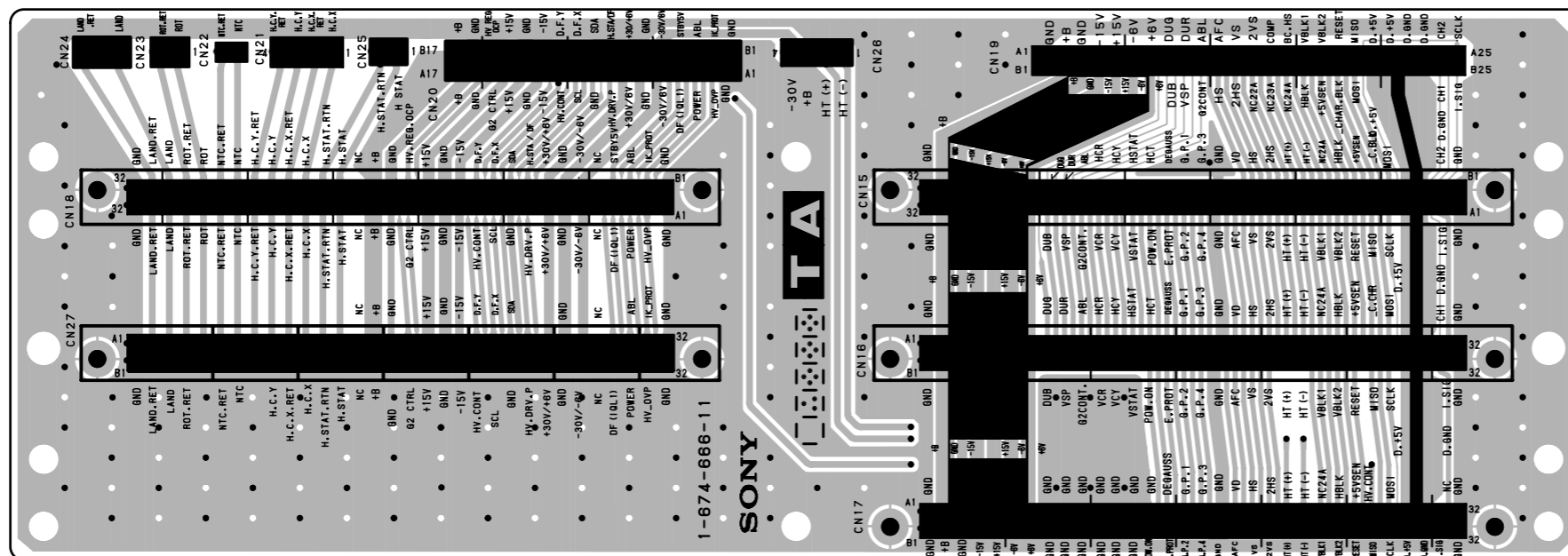
**HD -B SIDE-**  
SUFFIX: -11



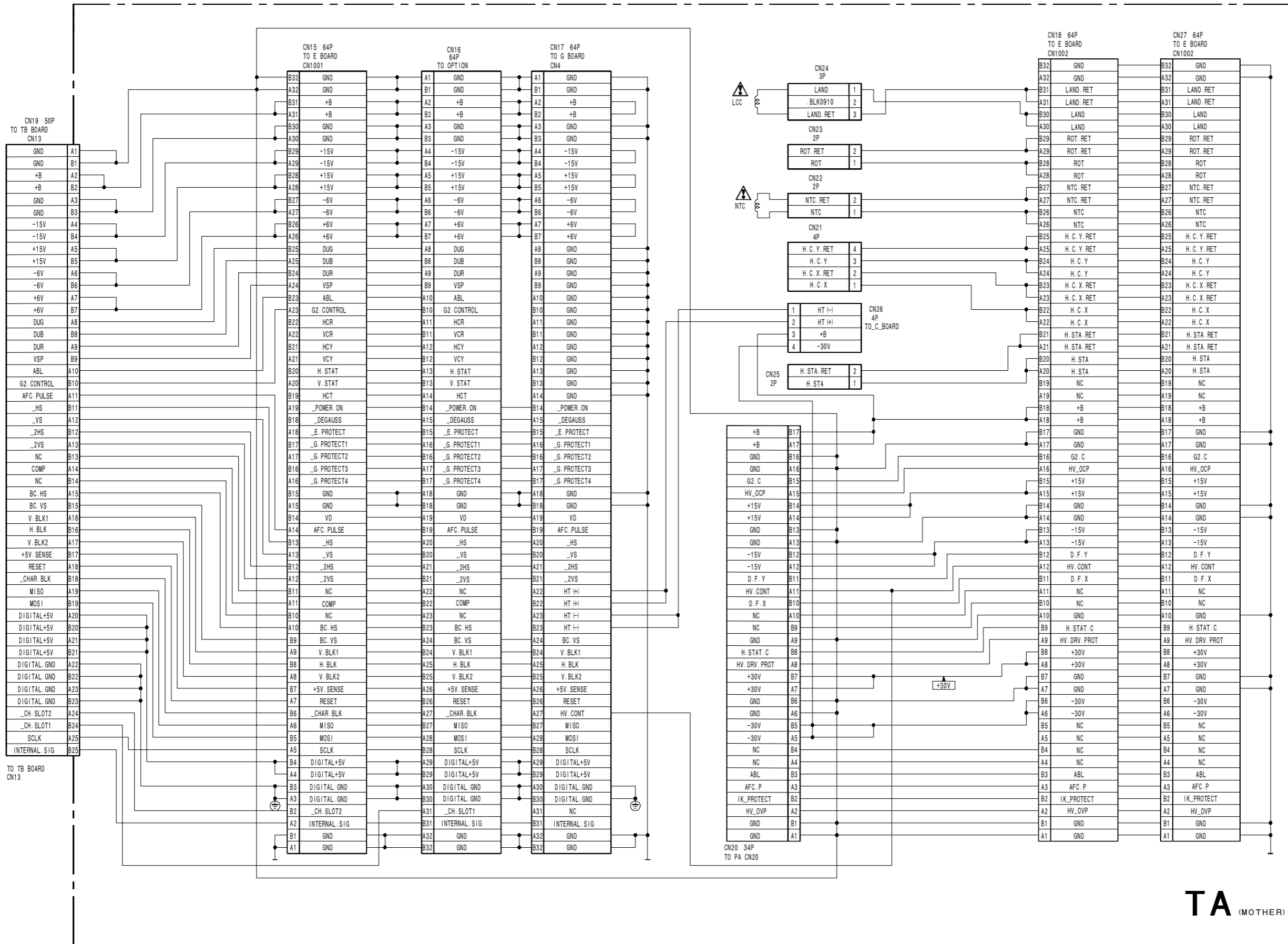
TA BOARD



TA -A SIDE-  
SUFFIX: -11



TA -B SIDE-  
SUFFIX: -11



TA (MOTHER)

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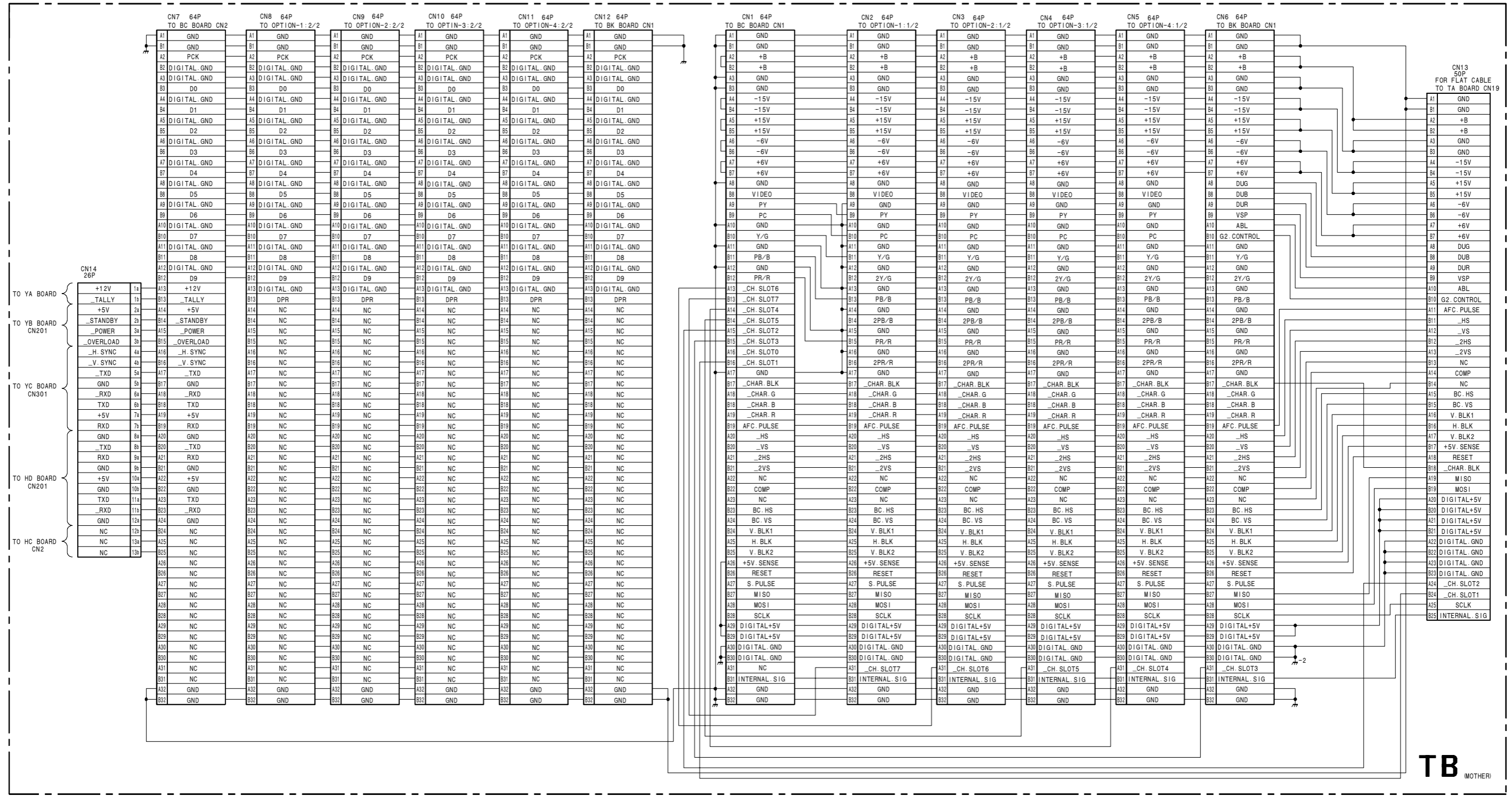
1

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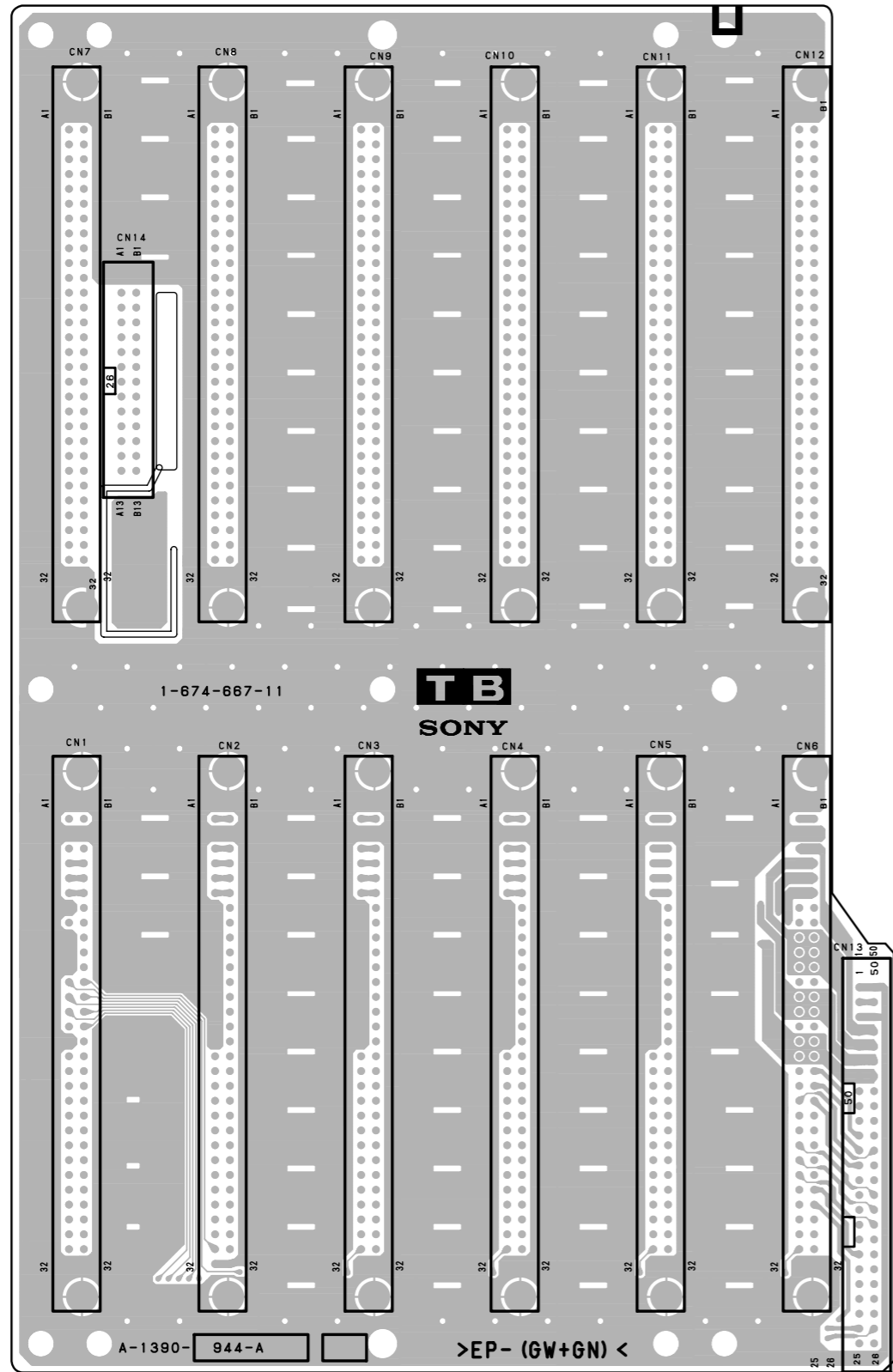
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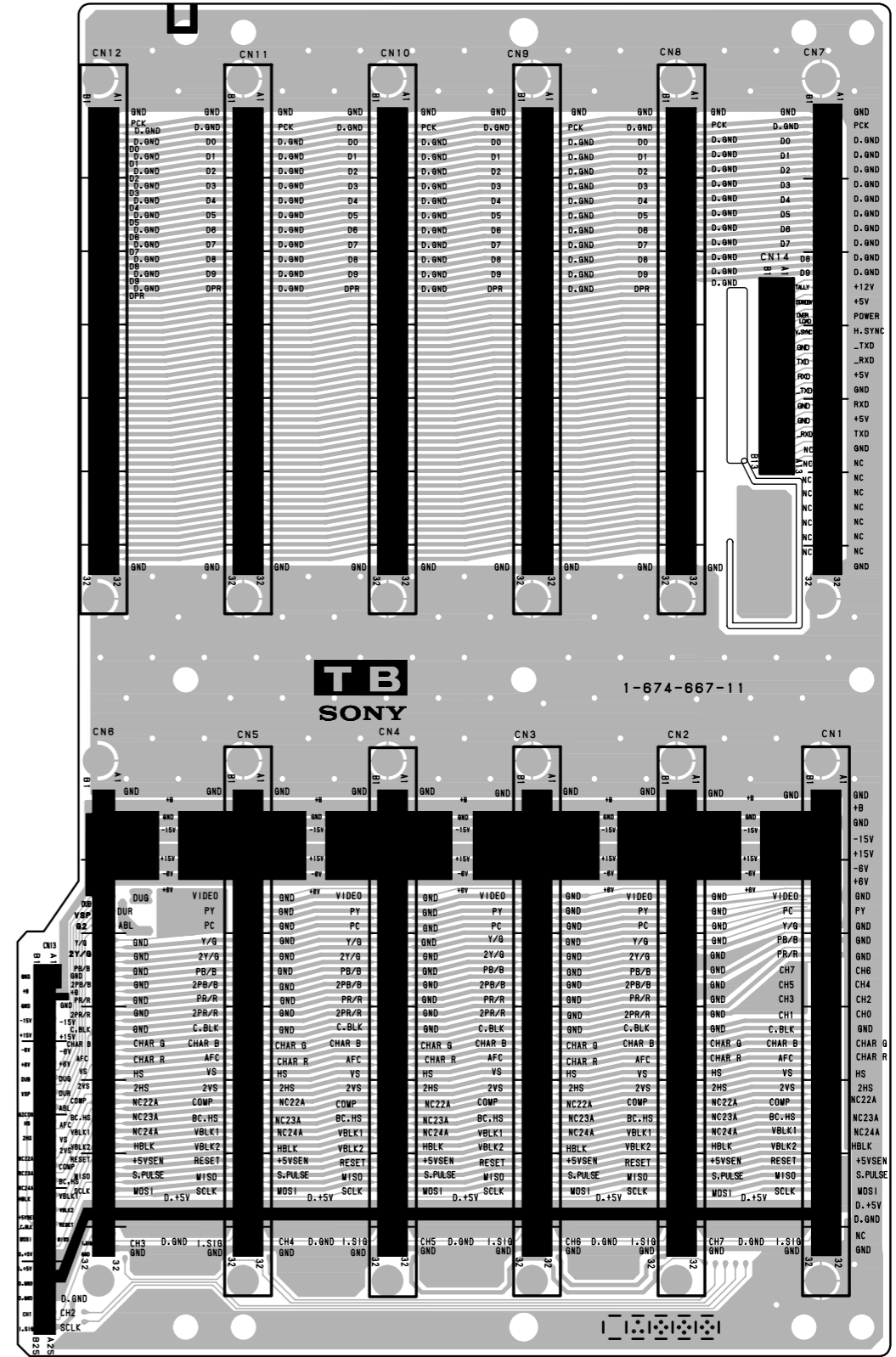


TB (MOTHER)

TB BOARD



TB BOARD



TB -A SIDE-  
SUFFIX: -11

TB -B SIDE-  
SUFFIX: -11



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