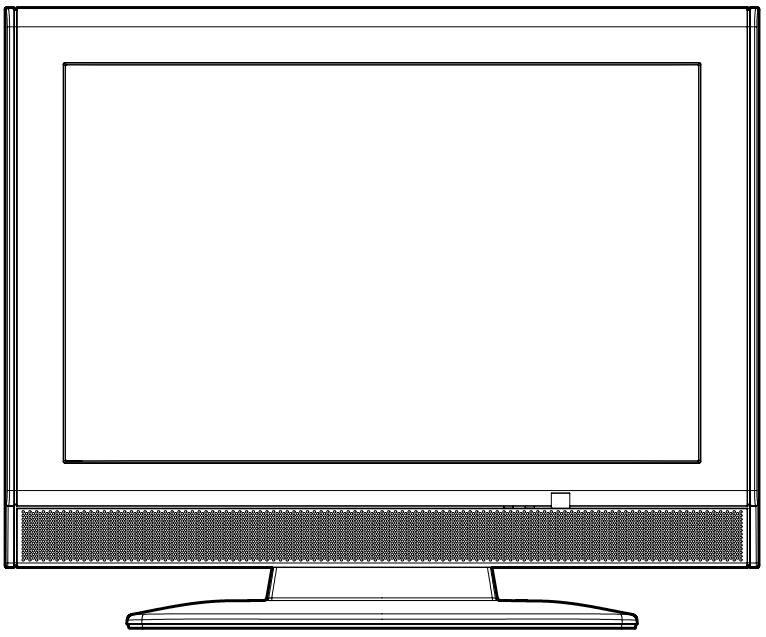
Emerson™

SERVICE MANUAL

19″ COLOR LCD TELEVISION

LC195EM82/LC195EM87



IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

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The LCD panel is manufactured to provide many years of useful life. Occasionally a few non active pixels may appear as a tiny spec of color. This is not to be considered a defect in the LCD screen.

SPECIFICATIONS

< TUNER / NTSC >

ANT. Input ---------- 75 ohm Unbal., F type

Description	Condition	Unit	Nominal	Limit
1. AFT Pull-In Range	---	MHz	±2.3	±2.1
2. Syncronizing Sens.	TV.ch.4 CA.ch.31 CA.ch.87	dBμ dBμ dBμ	--- --- ---	20 20 23

< TUNER / ATSC >

Description	Condition	Unit	Nominal	Limit
1. Received Freq. Range (-28dBm)	---	kHz	---	±100
2. ATSC Dynamic Range (min / max)	ch.4 ch.10 ch.41	dBm dBm dBm	--- --- ---	-76/0 -76/0 -74/+4

< LCD PANEL >

Description	Condition	Unit	Nominal	Limit
1. Native Pixel Resolusion	Horizontal Vertical	pixels pixels	1440 900	--- ---
2. Brightness (w / filter)	---	cd/m^2	250	---
3. Viewing Angle	Horizontal Vertical	° °	--- ---	-75 to 75 -70 to 70

< VIDEO >

Description	Condition	Unit	Nominal	Limit
1. Over Scan	Horizontal Vertical	% %	5 5	--- ---
2. Color Temperature	--- x y	°K	11000 0.279 0.272	--- ±5% ±5%
3. Resolution (composite video)	Horizontal Vertical	line line	400 350	--- ---

< AUDIO >

All items are measured across 8 Ω load at speaker output terminal with L.P.F. / Video1 Input.

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power	10% THD: Lch/Rch	W	1.0/1.0	0.9/0.9
2. Audio Distortion	500mW: Lch/Rch	%	0.5/0.5	2.0/2.0
3. Audio Freq. Response (NTSC)	–6dB: Lch –6dB: Rch	Hz Hz	100 to 11 k 100 to 11 k	--- ---

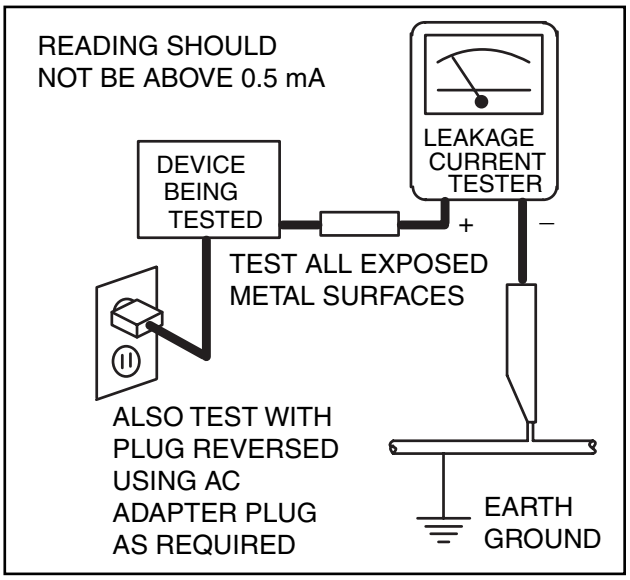
Note: Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for LCD TV Circuit

1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:
   - **a.** Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
   - **b.** Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the Liquid Crystal Panel and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
   - **c. Antenna Cold Check -** With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
   - **d. Leakage Current Hot Check -** With the instrument completely reassembled, plug the AC line cord directly into a 120 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the Liquid Crystal Panel.

3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.
4. **Hot Chassis Warning -**
   a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and maybe safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0 V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.
   b. Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.
   c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.
5. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and, e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.
6. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.
7. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The product's safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm they comply with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety.
Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation Tape
2) PVC tubing
3) Spacers
4) Insulators for transistors.

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)

G. Check that replaced wires do not contact sharp edged or pointed parts.

H. When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC supply outlet.

L. When installing parts or assembling the cabinet parts, be sure to use the proper screws and tighten certainly.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d), (d')
110 to 130 V	U.S.A. or Canada	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

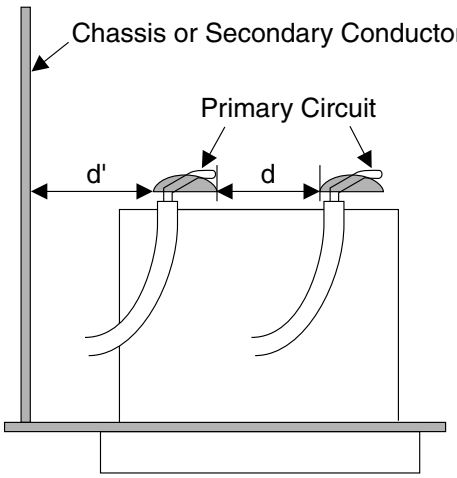


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method: (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

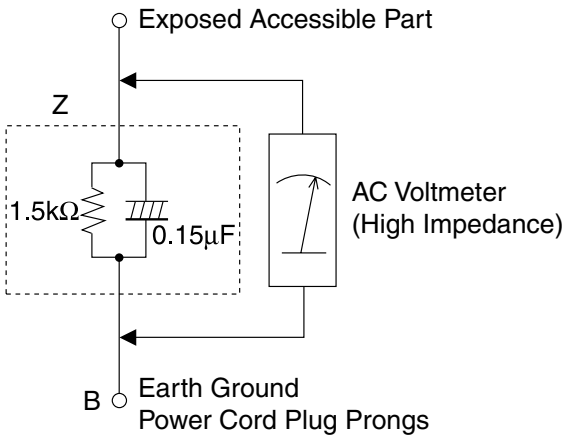


Fig. 2

Table 2: Leakage current ratings for selected areas

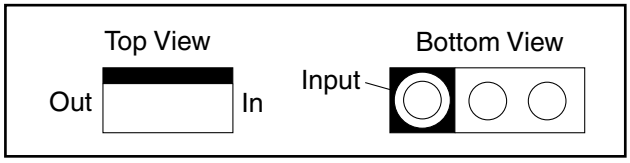
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	U.S.A. or Canada	0.15 μF CAP. & 1.5 kΩ RES. Connected in parallel	i ≤ 0.5 mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

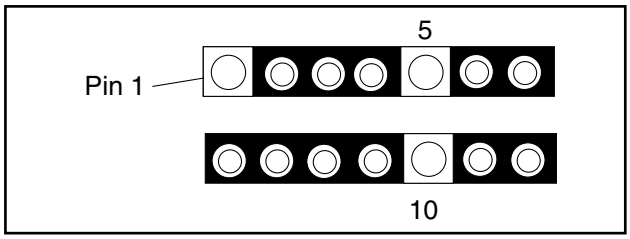
STANDARD NOTES FOR SERVICING

Circuit Board Indications

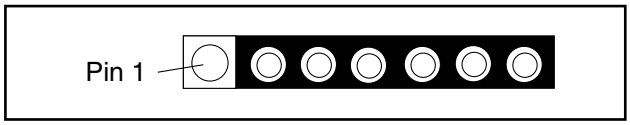
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



2. For other ICs, pin 1 and every fifth pin are indicated as shown.

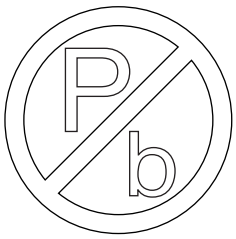


3. The 1st pin of every male connector is indicated as shown.



Pb (Lead) Free Solder

Pb free mark will be found on PCBs which use Pb free solder. (Refer to figure.) For PCBs with Pb free mark, be sure to use Pb free solder. For PCBs without Pb free mark, use standard solder.



Pb free mark

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

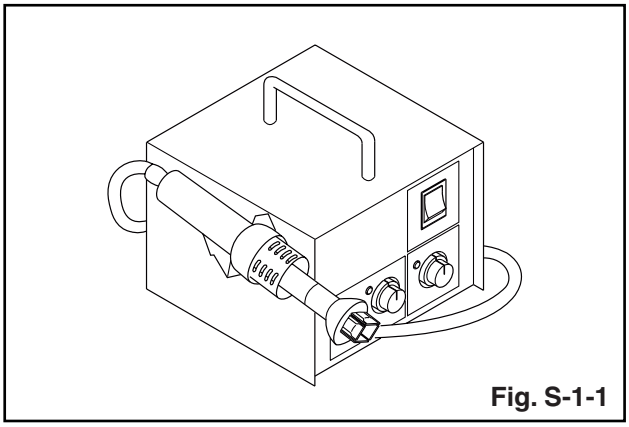


Fig. S-1-1

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

CAUTION:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

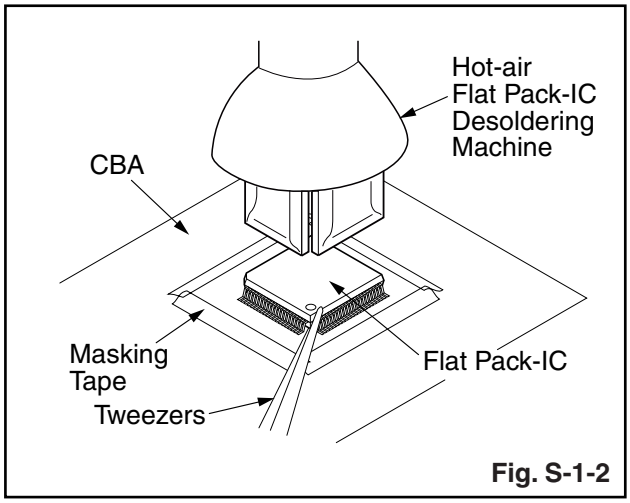


Fig. S-1-2

With Soldering Iron:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

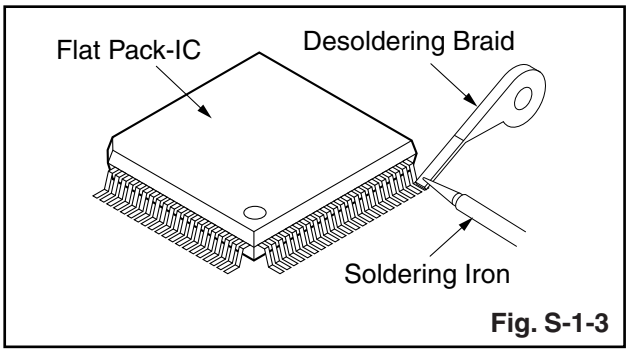


Fig. S-1-3

2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

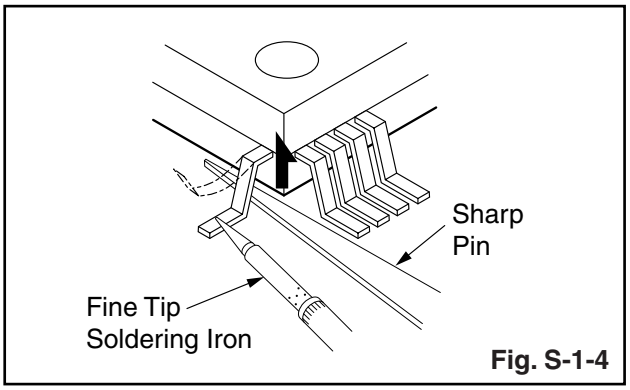


Fig. S-1-4

3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note: When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

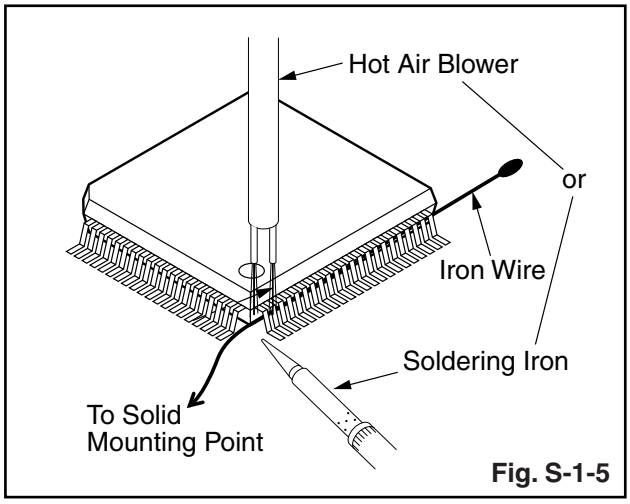


Fig. S-1-5

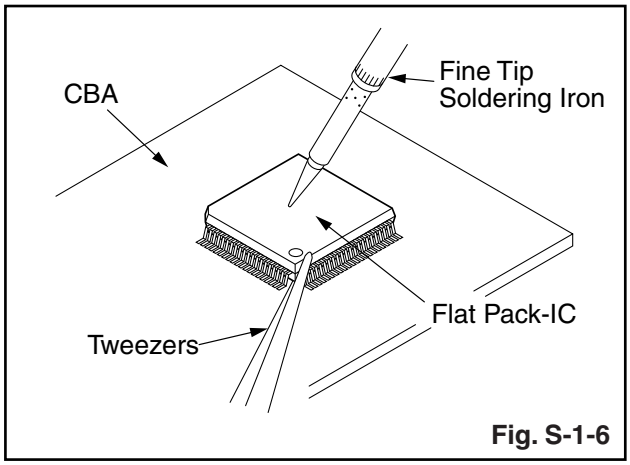


Fig. S-1-6

2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

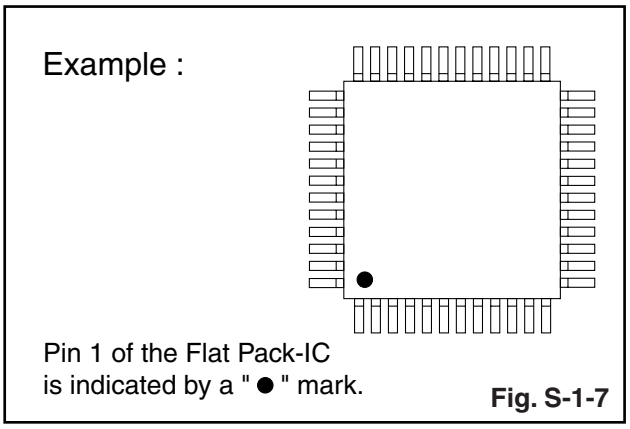


Fig. S-1-7

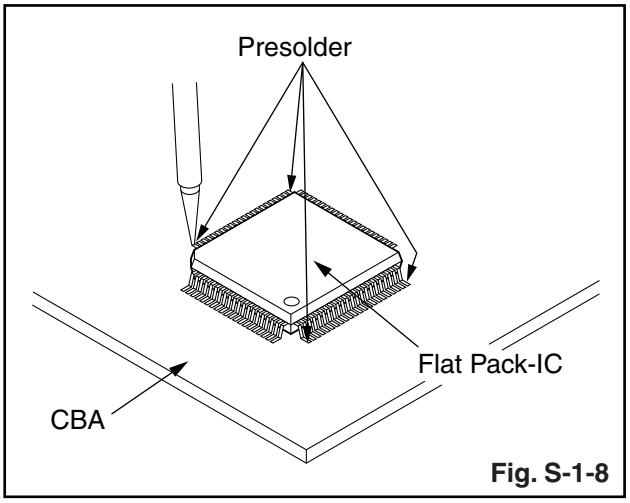


Fig. S-1-8

Instructions for Handling Semi-conductors

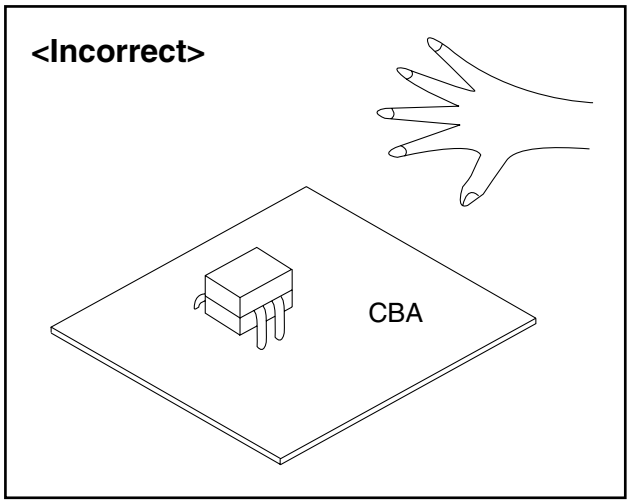
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

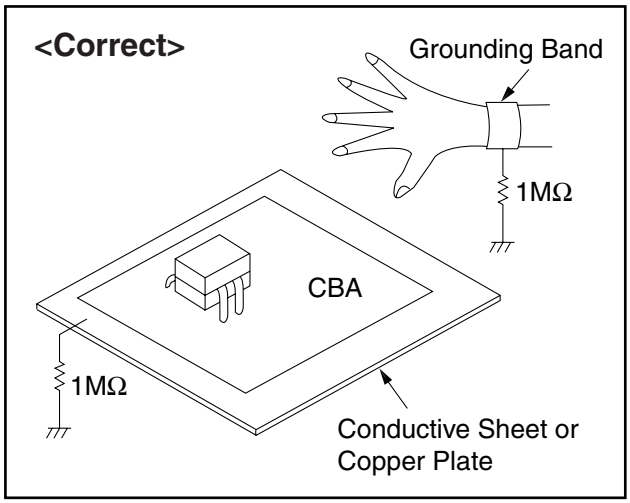
1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.

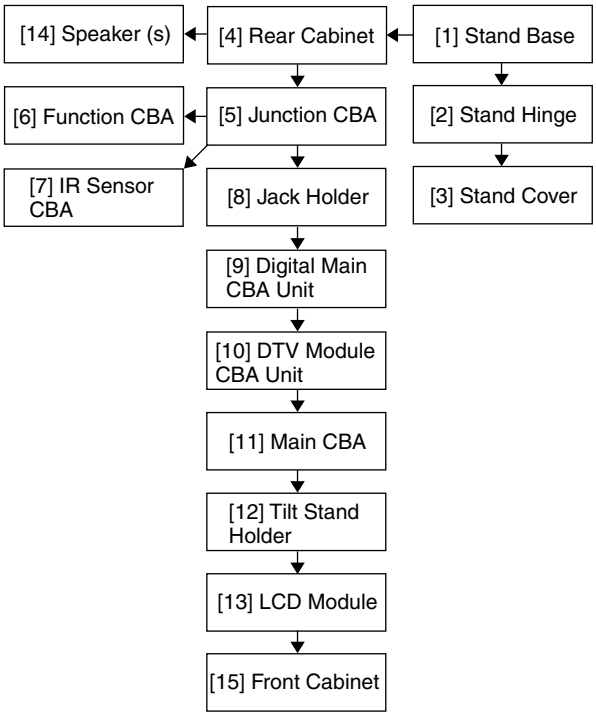




CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.



2. Disassembly Method

Step/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Unclamp/ Desolder	Note
[1]	Stand Base	D1	2(S-1), 2(S-2), 4(S-3)	---
[2]	Stand Hinge	D1	----------	---
[3]	Stand Cover	D1	----------	---
[4]	Rear Cabinet	D1	7(S-4)	---
[5]	Junction CBA	D2 D3	*CN705, *CN706, *WH1101B, *WH1151B	---
[6]	Function CBA	D2 D3	3(S-5)	---
[7]	IR Sensor CBA	D2 D3	2(S-6)	---
[8]	Jack Holder	D2	(S-7)	---
[9]	Digital Main CBA Unit	D2 D3	4(S-8), *CN1501, *CN1502, *CN1503, *CN1504, *CN1901, *CN1902	---
[10]	DTV Module CBA Unit	D2 D3	7(S-9), *CN61, *CN401, *CN402, *CN801A, *CN802A, Module PCB Holder	---
[11]	Main CBA	D2 D3	----------	---
[12]	Tilt Stand Holder	D2	(S-10)	---
[13]	LCD Module	D2	6(S-11)	---
[14]	Speaker (s)	D2	4(S-12)	---
[15]	Front Cabinet	D2	----------	---
		↓ (3)	↓ (4)	↓ (5)

Note:

(1) Order of steps in procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the Identification (location) No. of parts in figures.

(2) Parts to be removed or installed.

(3) Fig. No. showing procedure of part location

(4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P = Spring, L = Locking Tab, S = Screw,
CN = Connector
* = Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5) Refer to the following "Reference Notes in the Table."

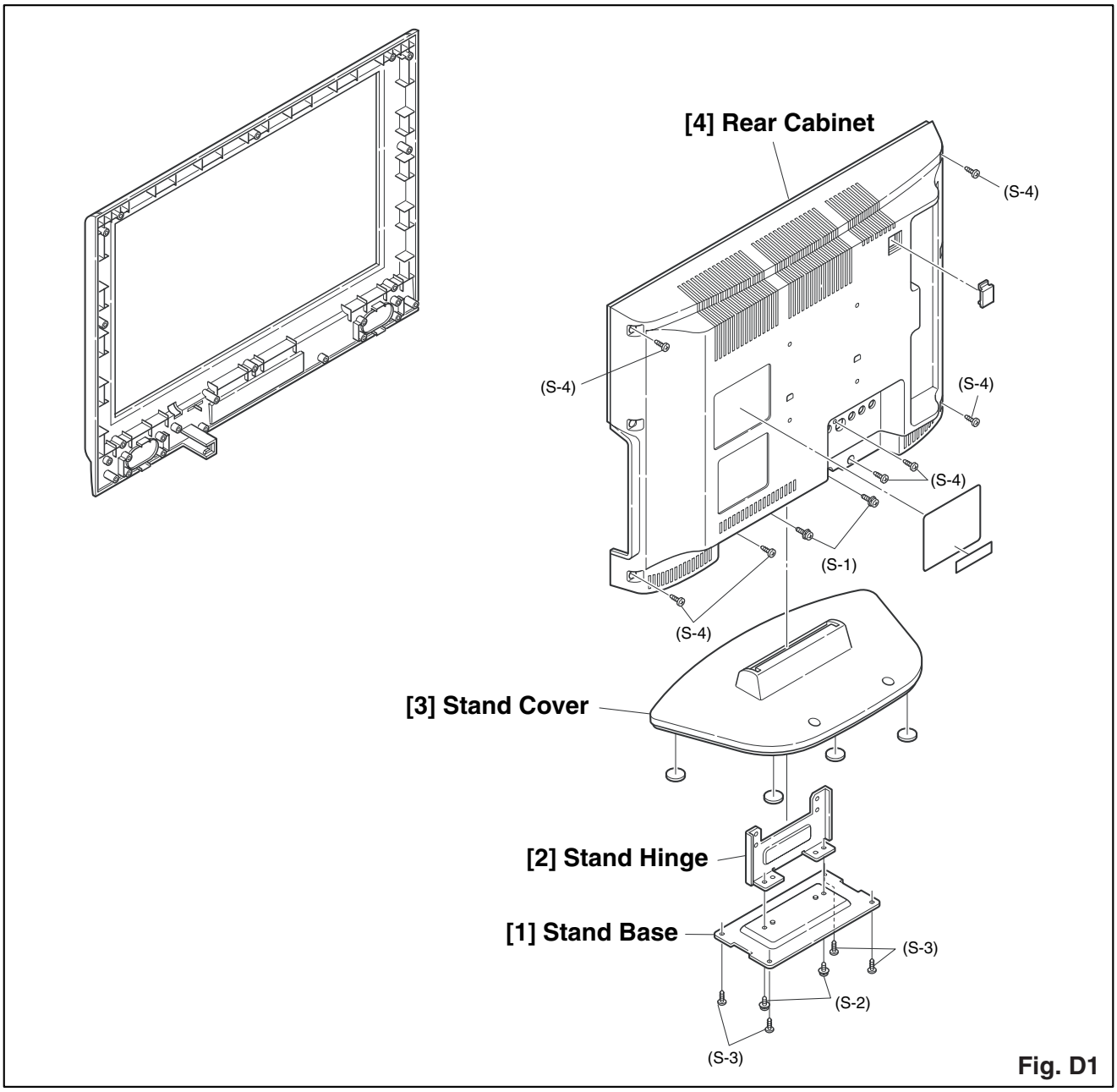

[4] Rear Cabinet
(S-4)
(S-4)
(S-4)
(S-4)
(S-1)
(S-4)
[3] Stand Cover
[2] Stand Hinge
[1] Stand Base
(S-3)
(S-2)
(S-3)

Fig. D1

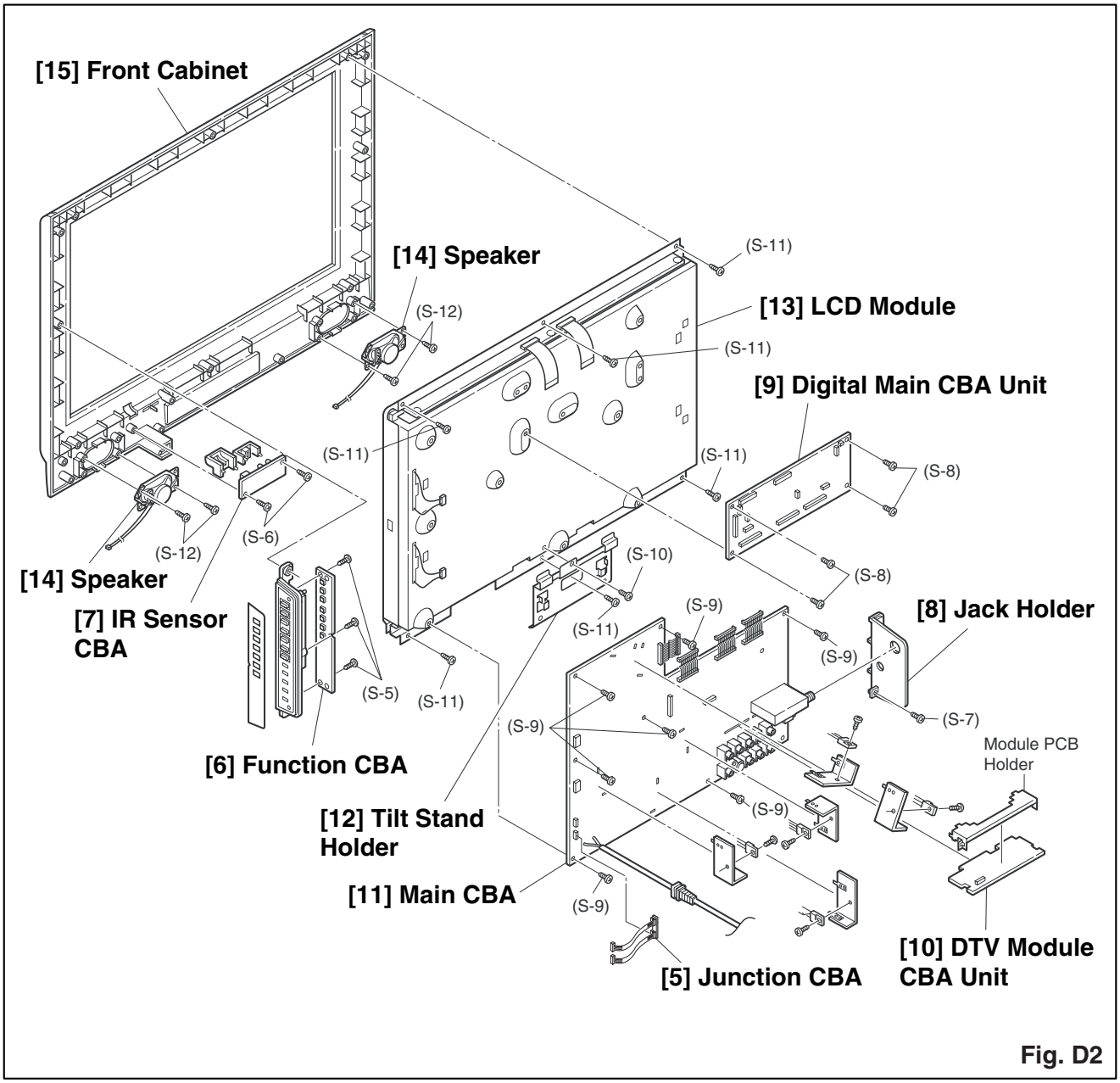

[15] Front Cabinet
[14] Speaker
(S-12)
(S-11)
[13] LCD Module
(S-11)
[9] Digital Main CBA Unit
(S-11)
(S-11)
(S-8)
(S-12)
(S-6)
[14] Speaker
(S-10)
(S-8)
[7] IR Sensor CBA
(S-11)
(S-9)
[8] Jack Holder
(S-9)
(S-5)
(S-11)
(S-9)
(S-7)
Module PCB Holder
[6] Function CBA
(S-9)
[12] Tilt Stand Holder
[11] Main CBA
(S-9)
[10] DTV Module CBA Unit
[5] Junction CBA

Fig. D2

TV Cable Wiring Diagram

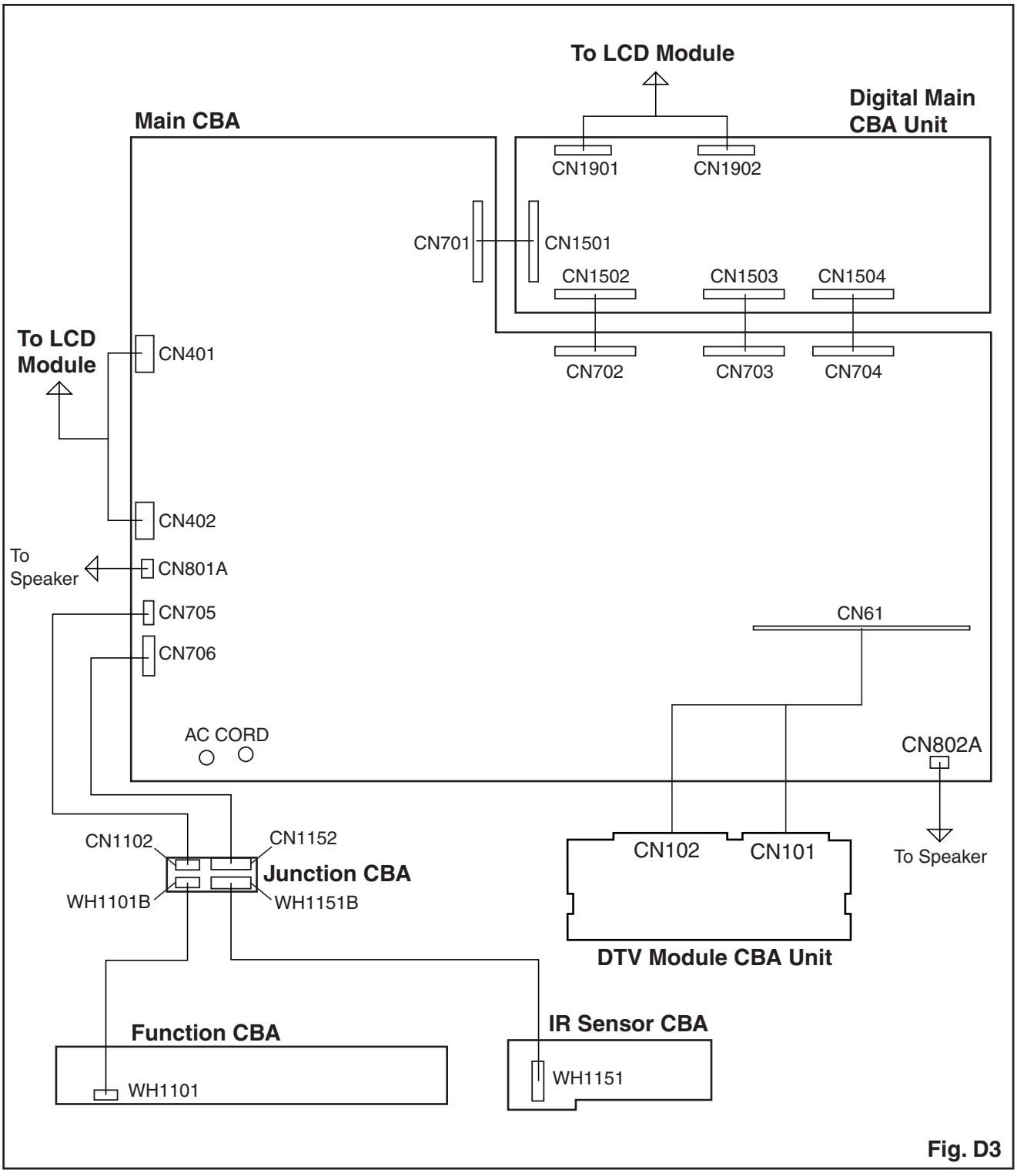


Fig. D3

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is abbreviation for "Circuit Board Assembly."

Note: Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. DC Voltmeter
2. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
3. Remote control unit
4. Color Analyzer

How to make the Service remote control unit:

Cut "A" portion of the attached remote control unit as shown in Fig. 1.

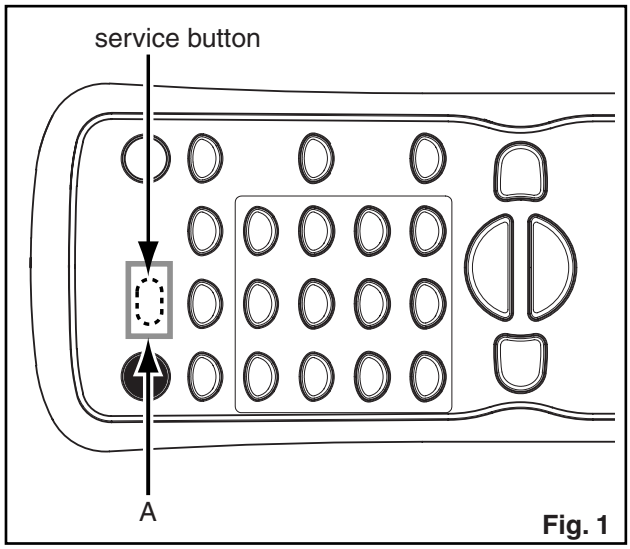


Fig. 1

How to set up the service mode:

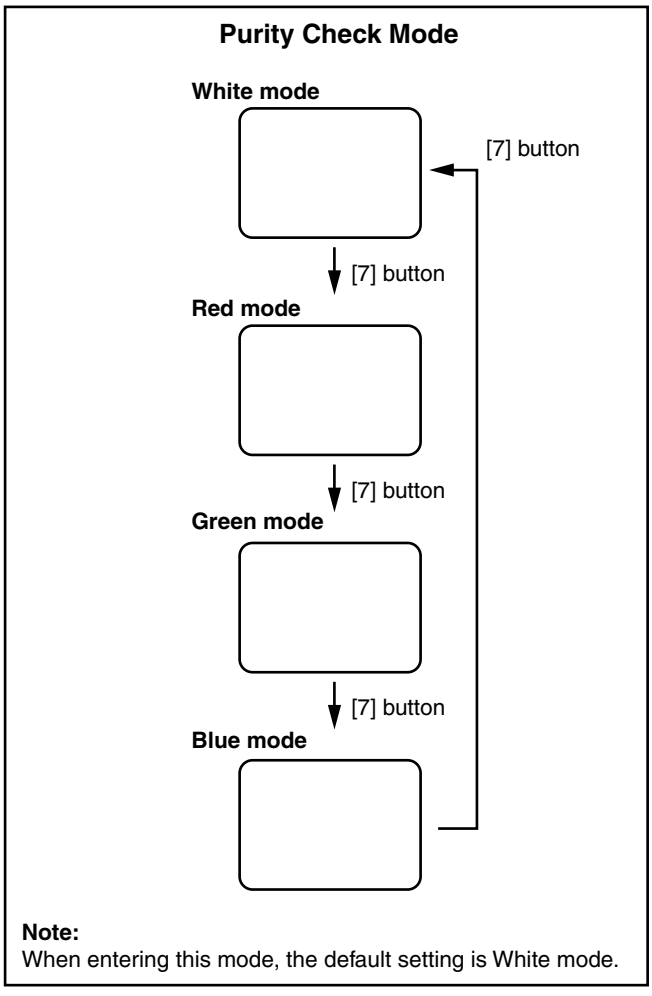
Service mode:

1. Use the service remote control unit.
2. Turn the power on.
3. Press the service button on the service remote control unit as shown in Fig. 1.

1. Purity Check Mode

This mode cycles through full-screen displays of red, green, blue, and white to check for non-active pixels.

1. Enter the Service mode.
2. Each time pressing [7] button on the service remote control unit, the display changes as follows.



Note:
When entering this mode, the default setting is White mode.

2. Auto Calibration [Component]

Purpose: To bring the color adjustment of each component into standard alignment.

Symptom of Misadjustment: If this adjustment is incorrect, component signals do not reproduce the corresponding color.

1. Input 1080i 100% Color Bar signal.
2. Enter the service mode.
3. To enter the Auto Calibration adjustment mode, press [6] button on service the remote control unit.
4. To start auto adjustment, press [1] button on the service remote control unit.
   - In the auto adjustment mode, “Please wait” appears on the screen.
   - Upon completion, “OK” appears on the screen.

3. Auto Calibration [DTV]

Purpose: To bring the color adjustment of DTV into standard alignment.

Symptom of Misadjustment: If this adjustment is incorrect, DTV signals do not reproduce the corresponding color.

1. Enter the service mode.
2. To enter the Auto Calibration adjustment mode, press [6] button on the service remote control unit.
3. To start auto adjustment, press [2] button on the service remote control unit.
   - In the auto adjustment mode, “Please wait” appears on the screen.
   - Upon completion, “OK” appears on the screen.

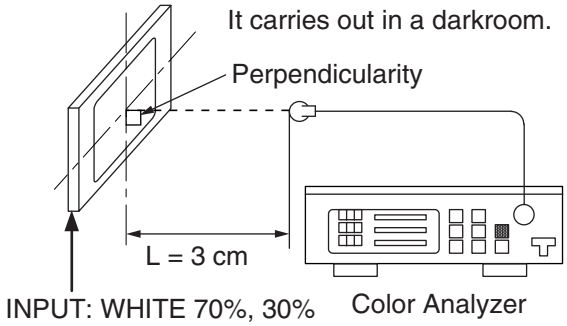
The following adjustment normally are not attempted in the field. Only when replacing the LCD Panel then adjust as a preparation.

4. White Balance Adjustment [Video]

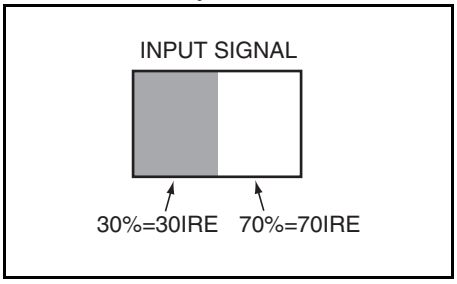
Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test Point	Adj. Point	Mode	Input
Screen	[CH. ▲/▼] buttons	**[VIDEO]** C/D1	White Purity (APL 70%) or (APL 30%)
M. EQ.		**Spec.**	
Pattern Generator, Color analyzer		x= 0.279 ± 0.005 y= 0.272 ± 0.005	
Figure			



1. Operate the unit for more than 20 minutes.
2. Input the White Purity.



3. Set the color analyzer to the CHROMA mode and bring the optical receptor to the center on the LCD-Panel surface after zero point calibration as shown above.
   Note: The optical receptor must be set perpendicularly to the LCD Panel surface.
4. Enter the Service mode. Press [VOL. ▽] button on the service remote control unit and select “C/D1” mode.

5. **[CUTOFF]**
   Press [1] button to select “COR” for Red Cutoff adjustment. Press [3] button to select “COB” for Blue Cutoff adjustment.
   [DRIVE]
   Press [4] button to select “DR” for Red Drive adjustment. Press [6] button to select “DB” for Blue Drive adjustment.
6. In each color mode, press [CH. ▲ / ▼] buttons to adjust the values of color.
7. Adjust Cutoff and Drive so that the color temperature becomes 11000K (x= 0.279 / y= 0.272 ±0.005).

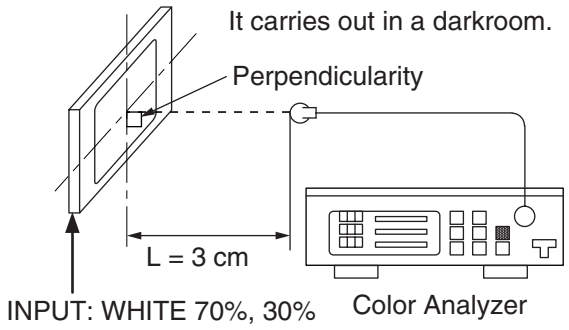
The following adjustment normally are not attempted in the field. Only when replacing the LCD Panel then adjust as a preparation.

5. White Balance Adjustment [Component / DTV]

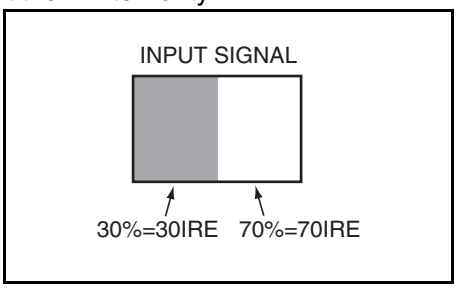
Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test Point	Adj. Point	Mode	Input
Screen	[CH. ▲/▼] buttons	**[VIDEO]** C/D2	White Purity (APL 70%) or (APL 30%)
M. EQ.		**Spec.**	
Pattern Generator, Color analyzer		x= 0.279 ± 0.005 y= 0.272 ± 0.005	
Figure			



1. Operate the unit for more than 20 minutes.
2. Input the White Purity.



3. Set the color analyzer to the CHROMA mode and bring the optical receptor to the center on the LCD-Panel surface after zero point calibration as shown above.
   Note: The optical receptor must be set perpendicularly to the LCD Panel surface.
4. Enter the Service mode. Press [VOL. ▽] button on the service remote control unit and select “C/D2” mode.
5. **[CUTOFF]**
   Press [1] button to select “COR” for Red Cutoff adjustment. Press [3] button to select “COB” for Blue Cutoff adjustment.
   [DRIVE]
   Press [4] button to select “DR” for Red Drive adjustment. Press [6] button to select “DB” for Blue Drive adjustment.
6. In each color mode, press [CH. ▲ / ▼] buttons to adjust the values of color.
7. Adjust Cutoff and Drive so that the color temperature becomes 11000K (x= 0.279 / y= 0.272 ±0.005).

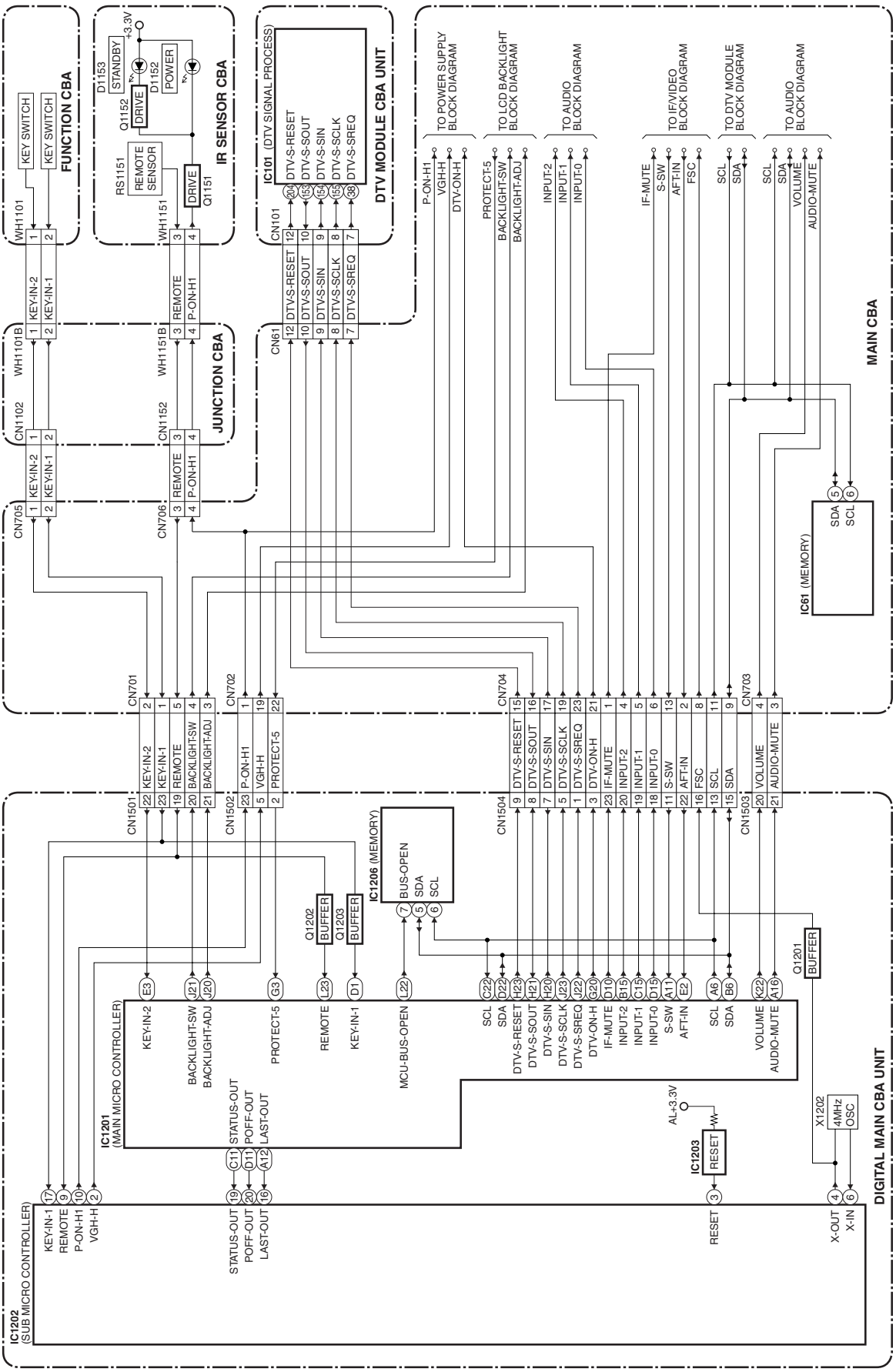
HOW TO INITIALIZE THE LCD TELEVISION

How to initialize the LCD television:

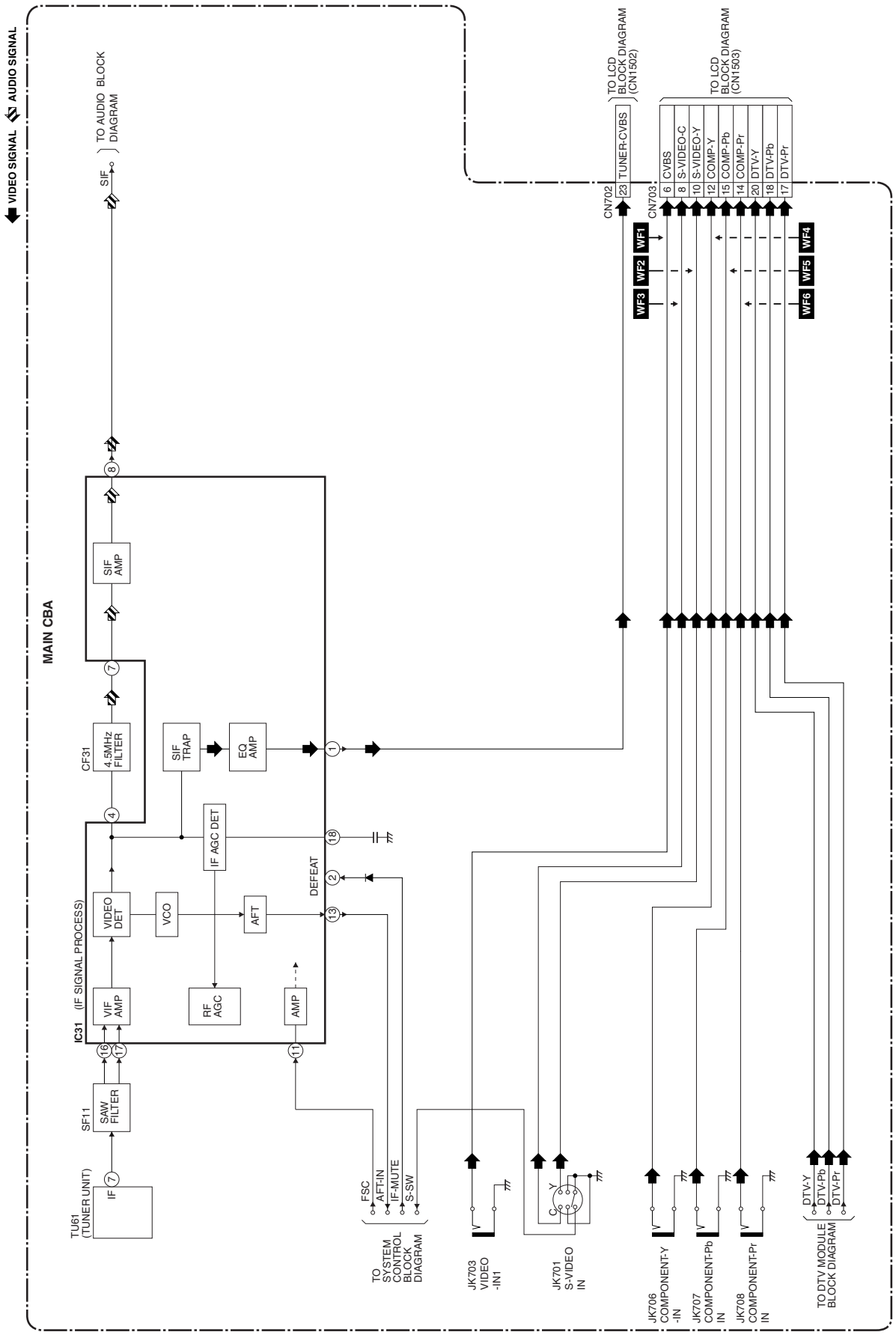
1. Turn the power on.
2. To enter the service mode, press the service button on the service remote control unit. (Refer to page 5-1.)
   - To cancel the service mode, press [POWER] button on the service remote control unit.
3. Press [DISPLAY] button on the service remote control unit to initialize the LCD television.
4. "FF" will appear in the upper left of the screen. "FF" color will change to red from white when initialzing is complete.

BLOCK DIAGRAMS

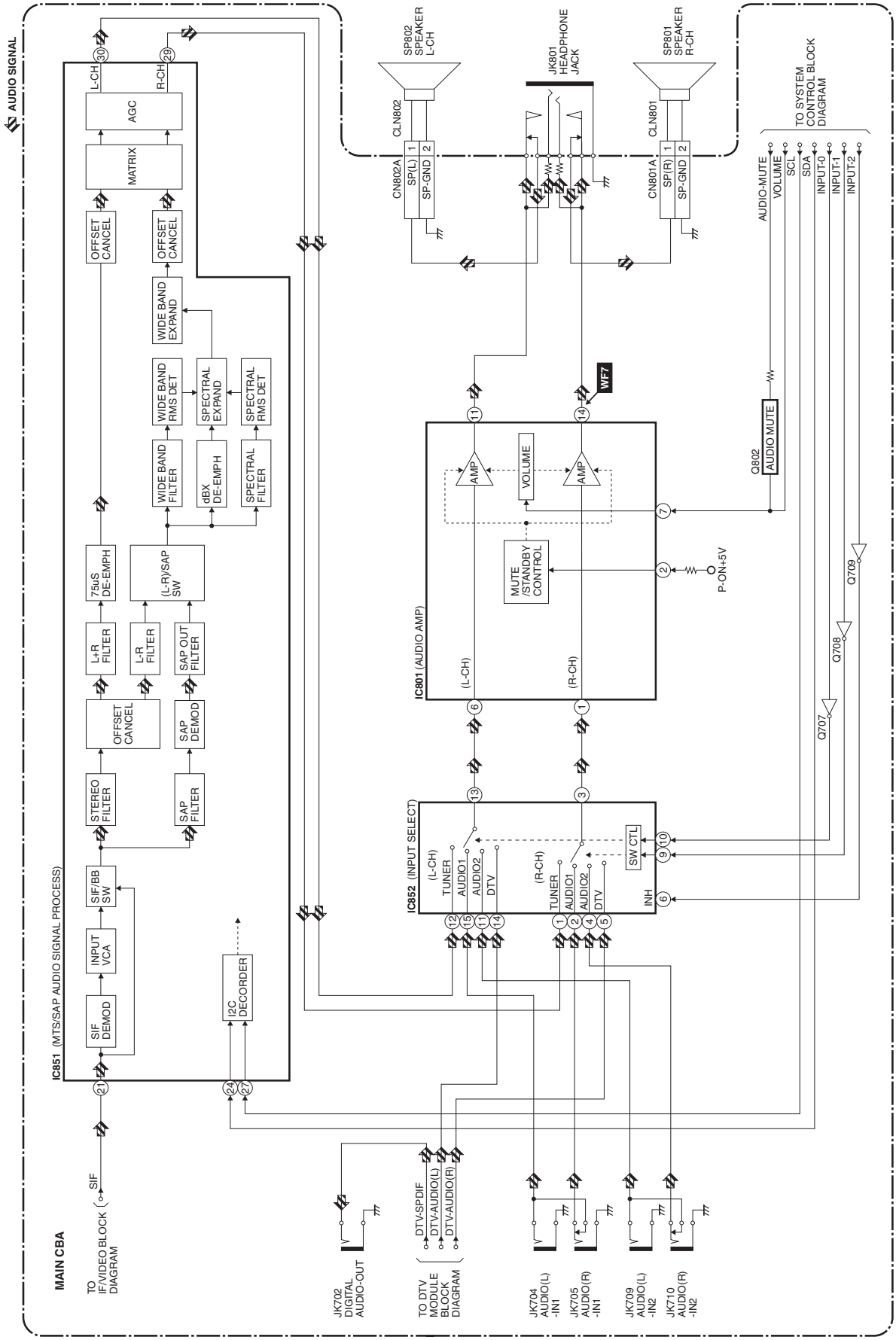
System Control Block Diagram



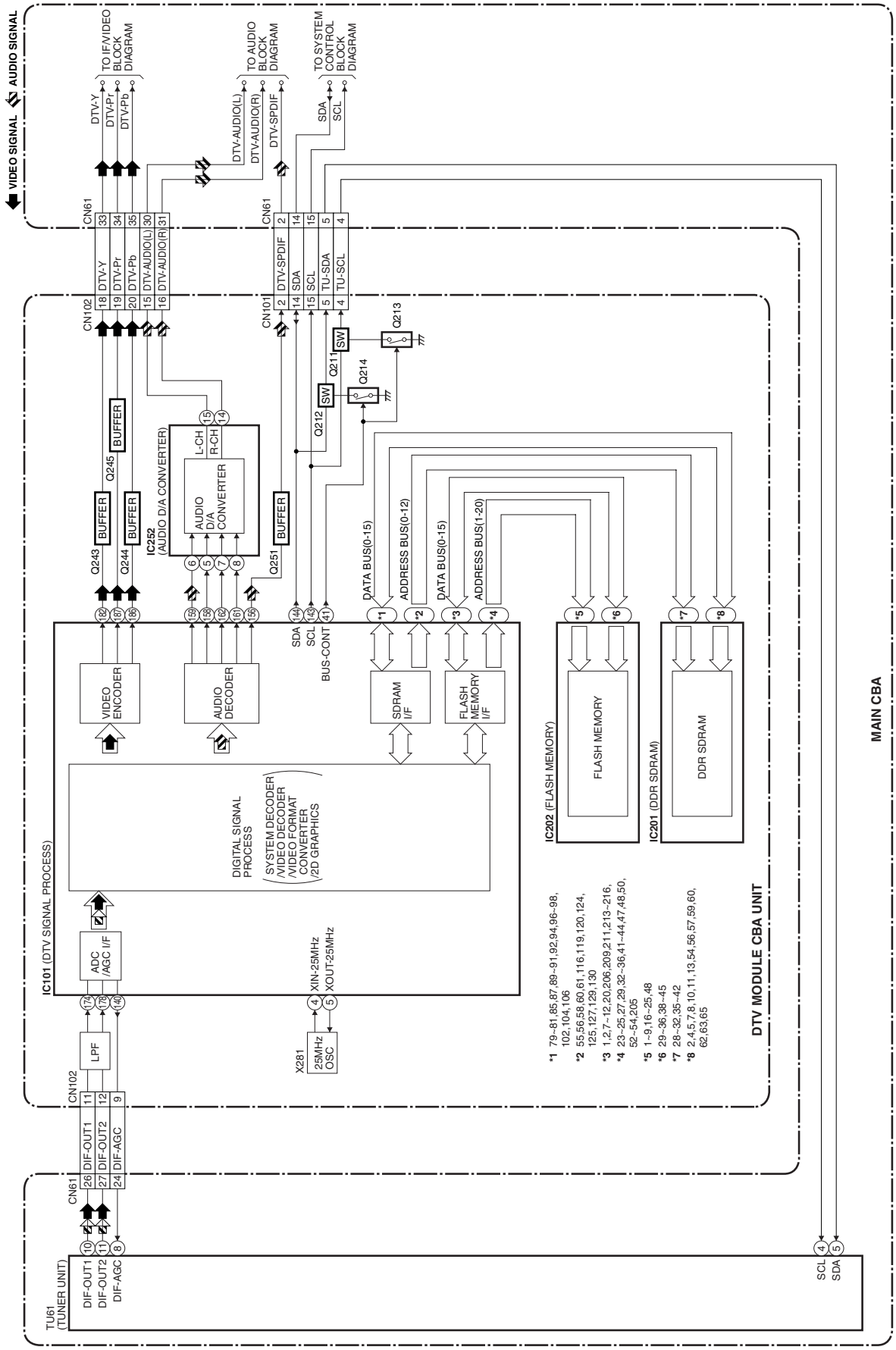
IF/Video Block Diagram



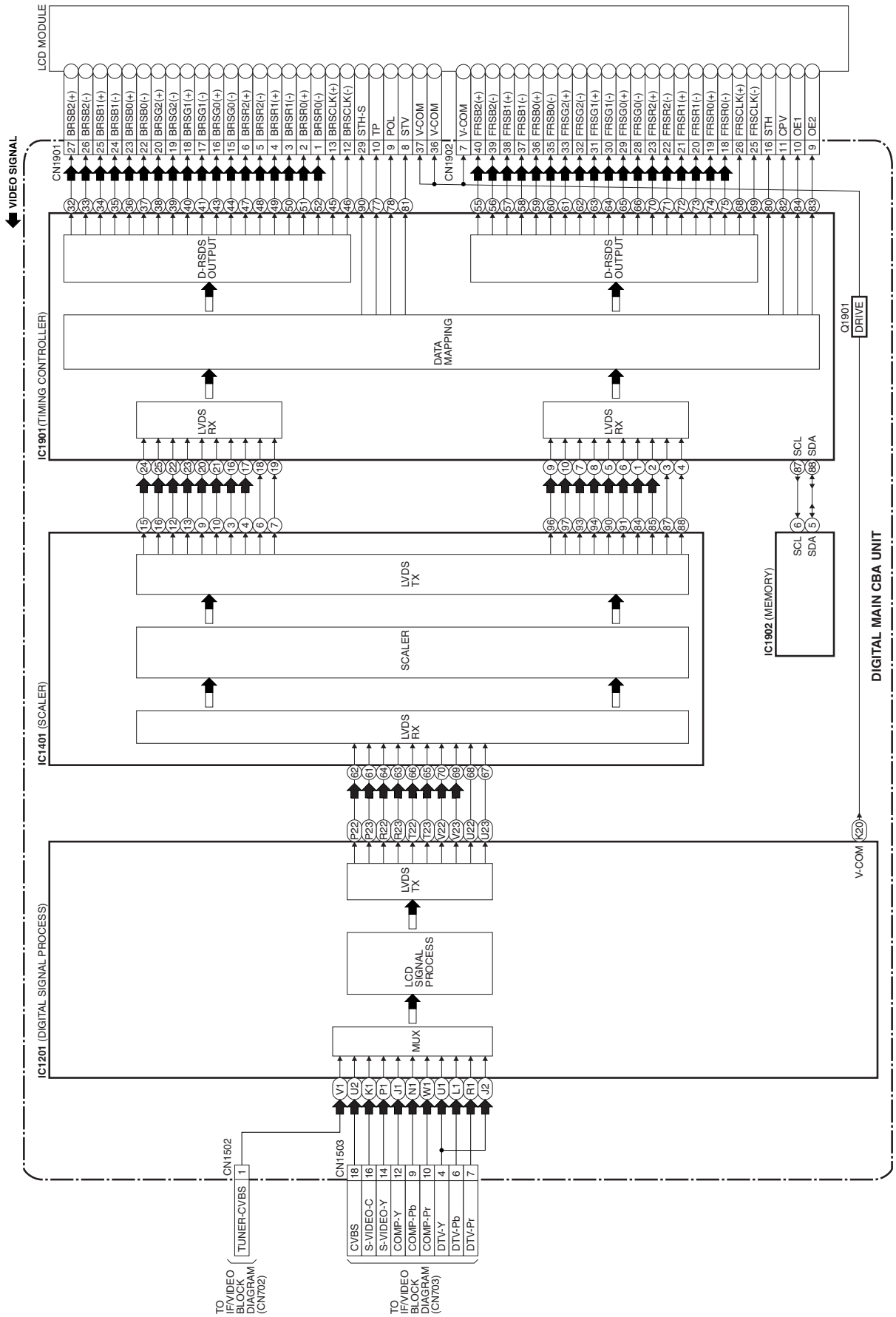
Audio Block Diagram



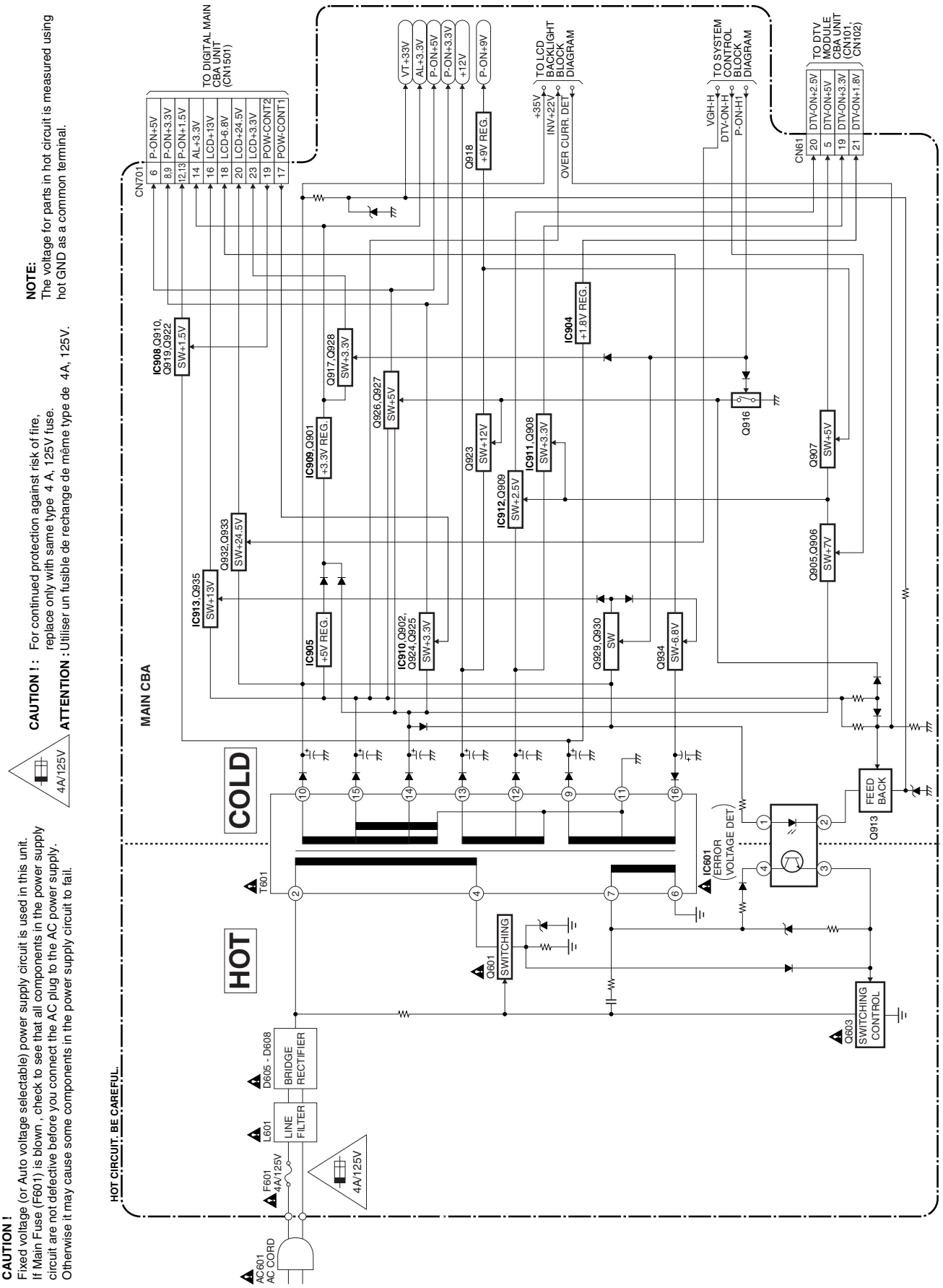
DTV Module Block Diagram



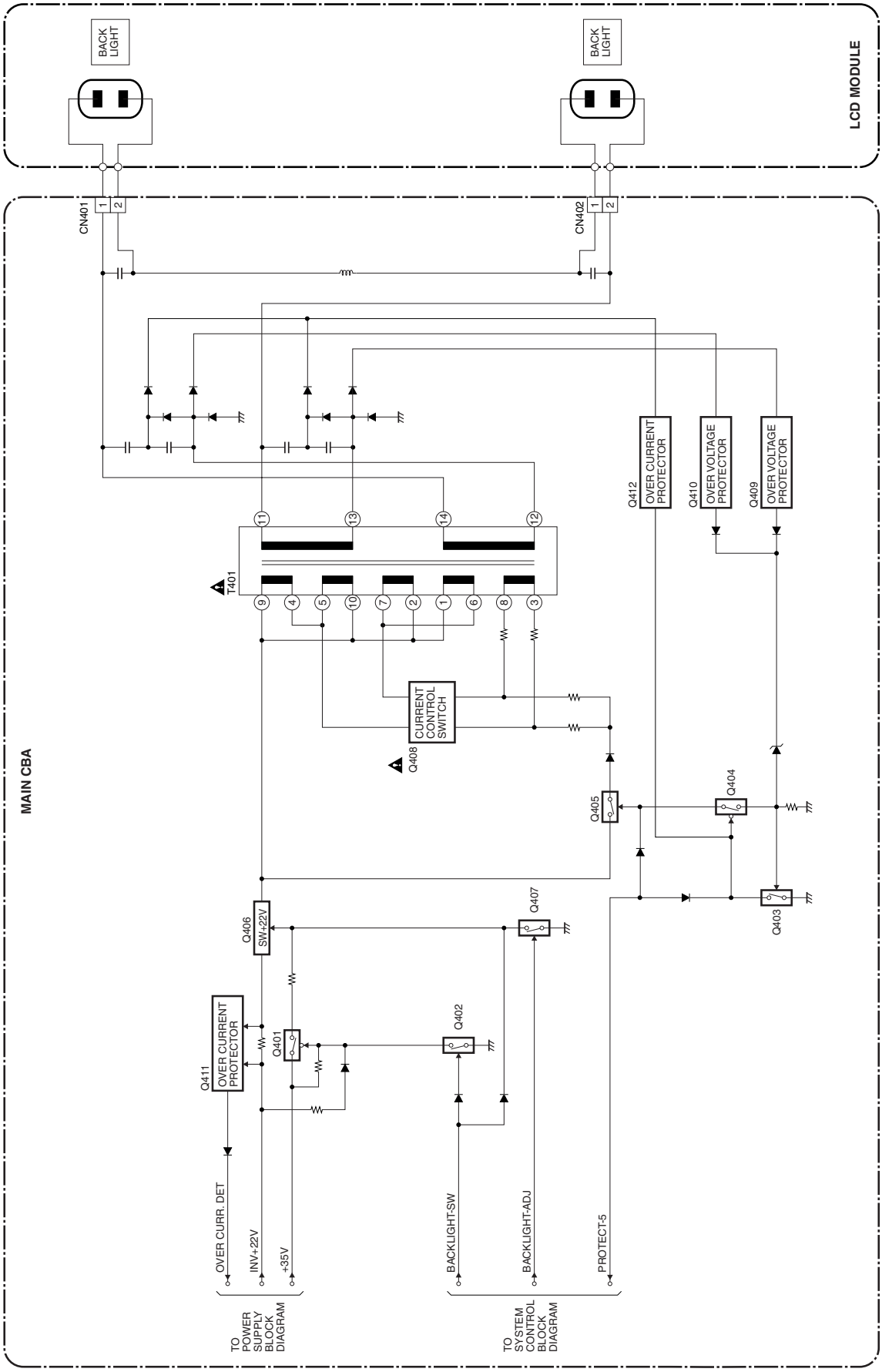
LCD Block Diagram



Power Supply Block Diagram



LCD Backlight Block Diagram



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K = 10^3$, $M = 10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P = 10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION:

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE_A,_V FUSE.

ATTENTION: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE_A,_V.

2. CAUTION:

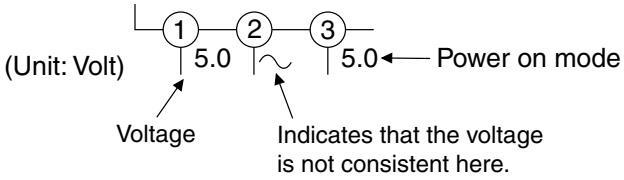
Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. Note:

1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

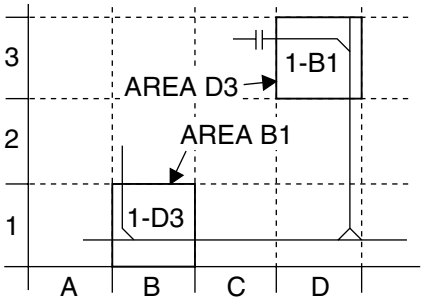
4. Voltage indications on the schematics are as shown below:

Plug the TV power cord into a standard AC outlet.:



5. How to read converged lines

Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".



6. Test Point Information

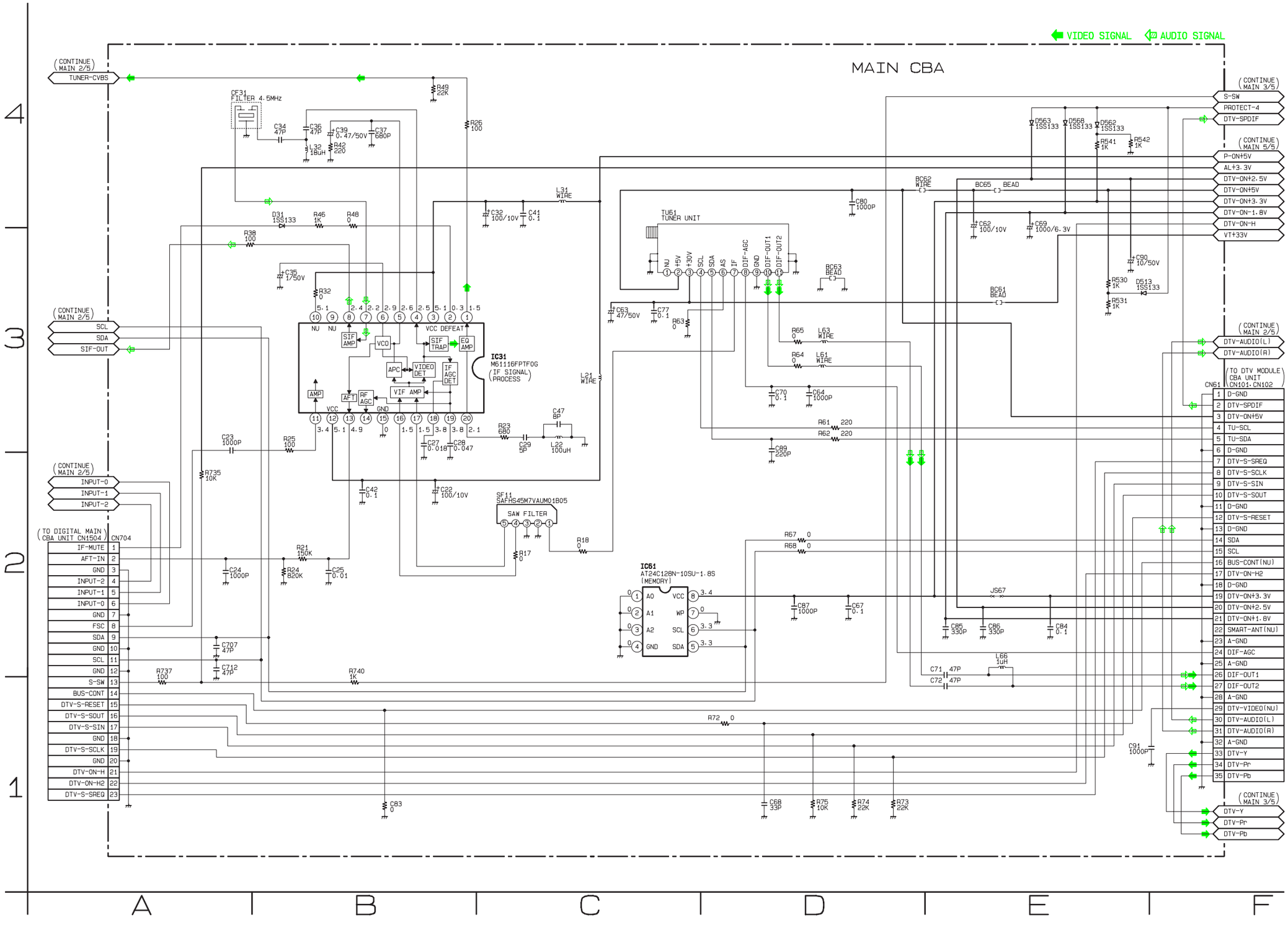
 : Indicates a test point with a jumper wire across a hole in the PCB.

 : Used to indicate a test point with a component lead on foil side.

 : Used to indicate a test point with no test pin.

 : Used to indicate a test point with a test pin.

Main 1/5 Schematic Diagram



VOLTAGE CHART

CN61

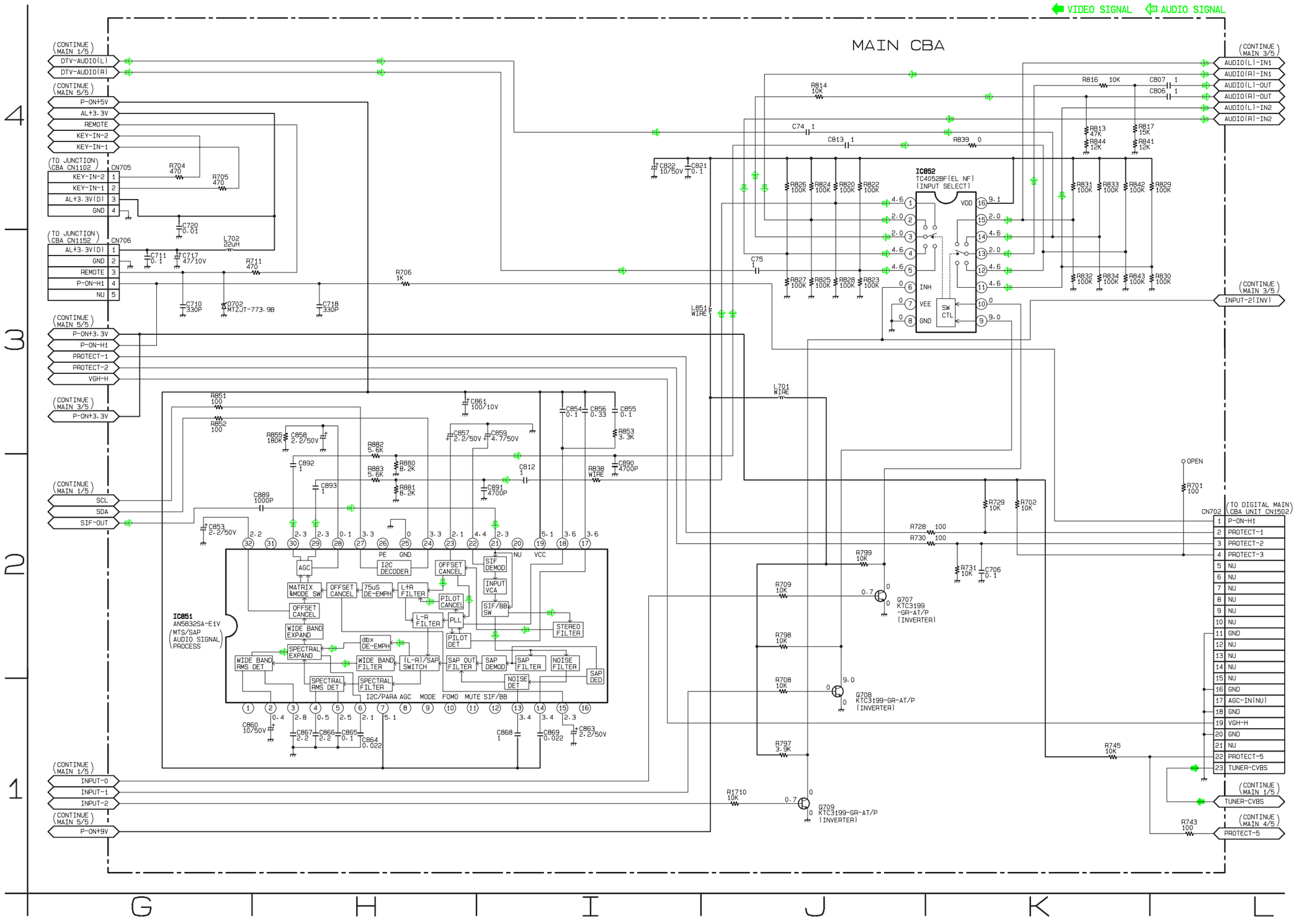
Pin No.	Voltage
1	0
2	1.0
3	5.0
4	3.3
5	3.3
6	0
7	2.8
8	3.2
9	1.5
10	0.2
11	0
12	3.3
13	0
14	3.3
15	3.3
16	---
17	3.2
18	0
19	3.4
20	2.6
21	1.9
22	---
23	0
24	0
25	0
26	0
27	0
28	0
29	---
30	2.5
31	2.5
32	0
33	~
34	~
35	~

VOLTAGE CHART

CN704

Pin No.	Voltage
1	3.3
2	2.1
3	0
4	3.3
5	0
6	3.3
7	0
8	1.0
9	3.3
10	0
11	3.3
12	0
13	3.3
14	0
15	3.3
16	0.2
17	1.5
18	0
19	3.2
20	0
21	3.3
22	3.2
23	2.8

Main 2/5 Schematic Diagram

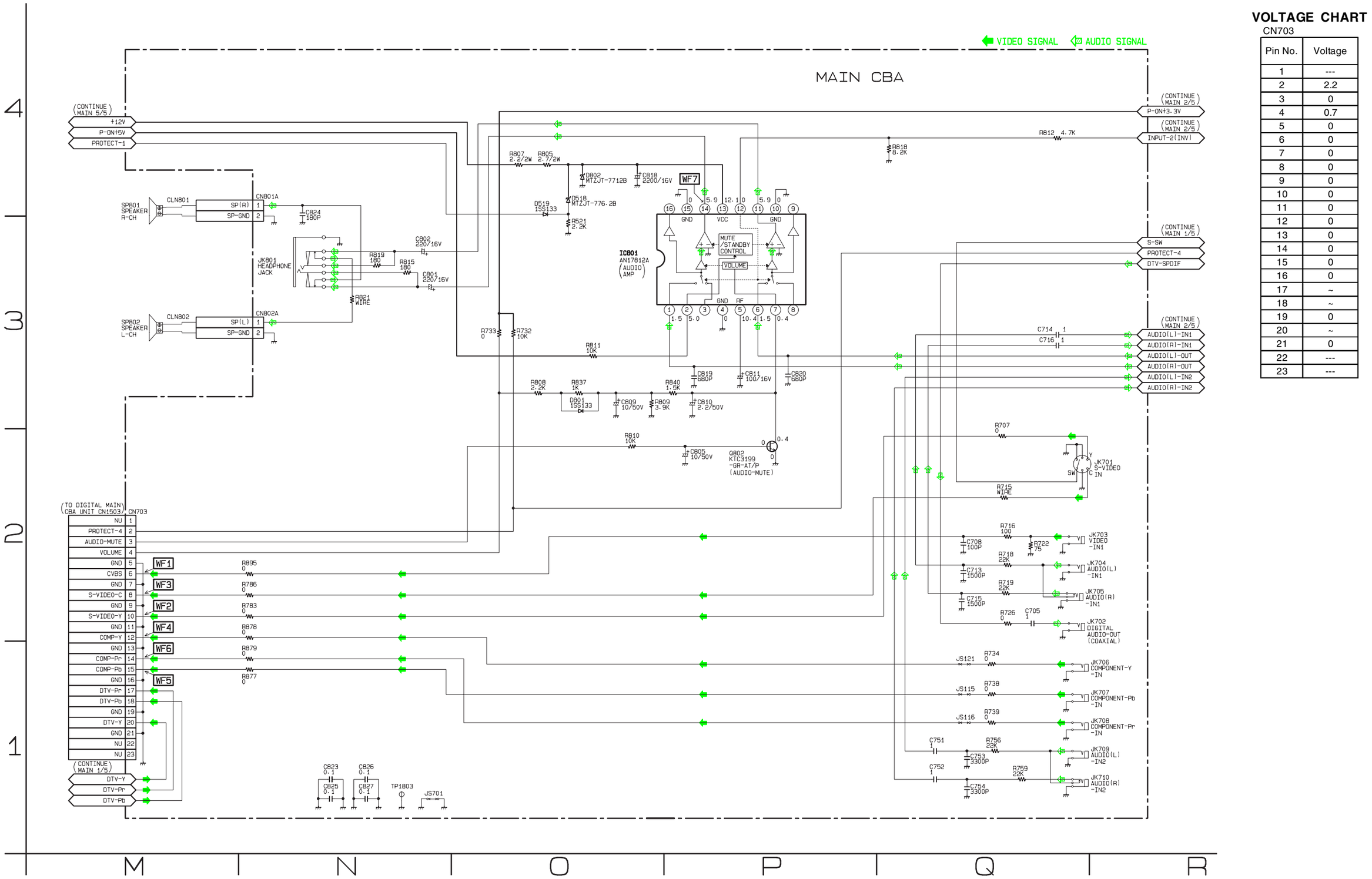


VOLTAGE CHART

CN702

Pin No.	Voltage
1	3.1
2	2.4
3	1.8
4	3.3
5	0
6	---
7	---
8	---
9	---
10	---
11	0
12	---
13	---
14	---
15	---
16	0
17	---
18	0
19	3.3
20	0
21	---
22	3.3
23	0.2

Main 3/5 Schematic Diagram

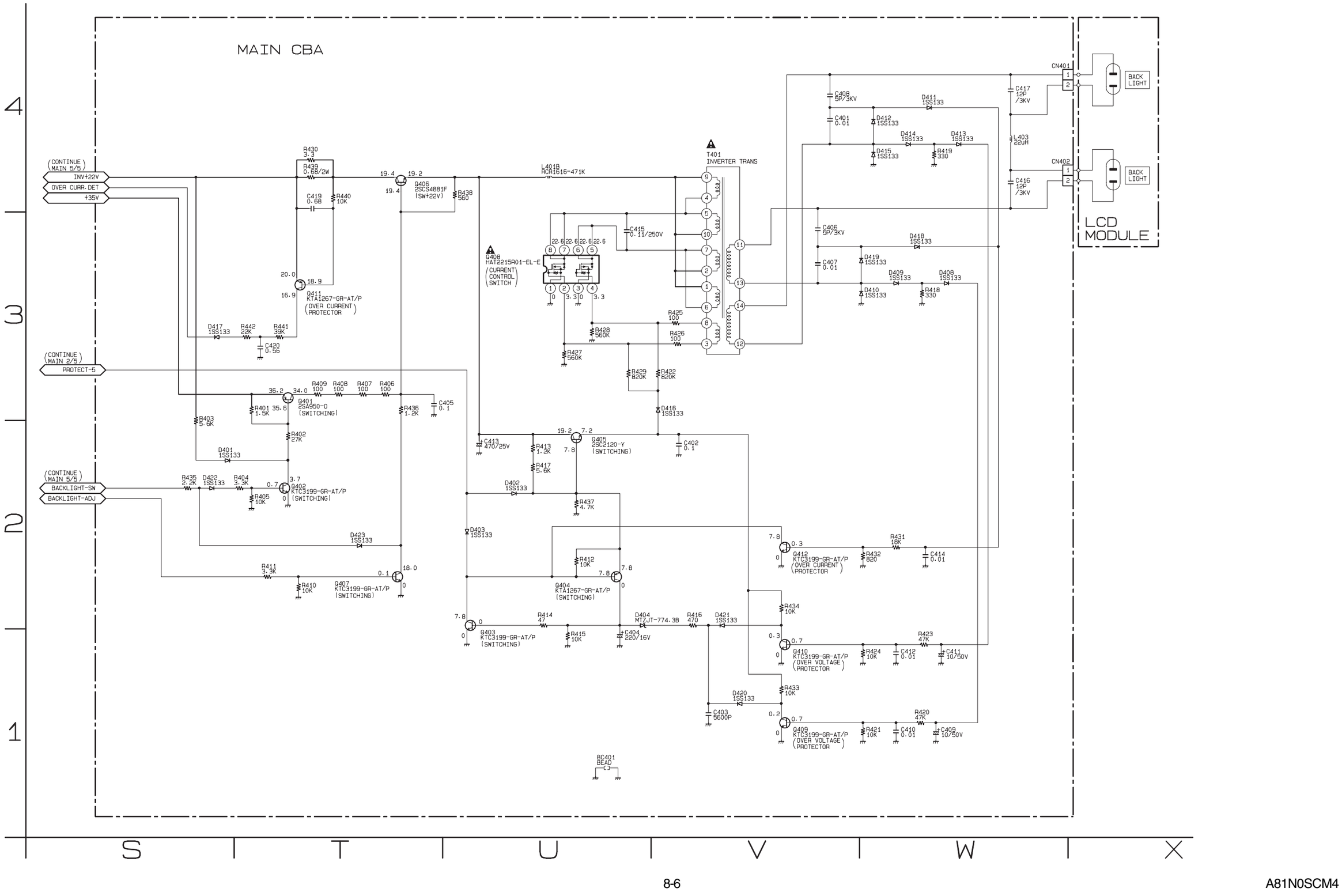


VOLTAGE CHART

CN703

Pin No.	Voltage
1	---
2	2.2
3	0
4	0.7
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	~
18	~
19	0
20	~
21	0
22	---
23	---

Main 4/5 Schematic Diagram



Main 5/5 Schematic Diagram

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

CAUTION ! : For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

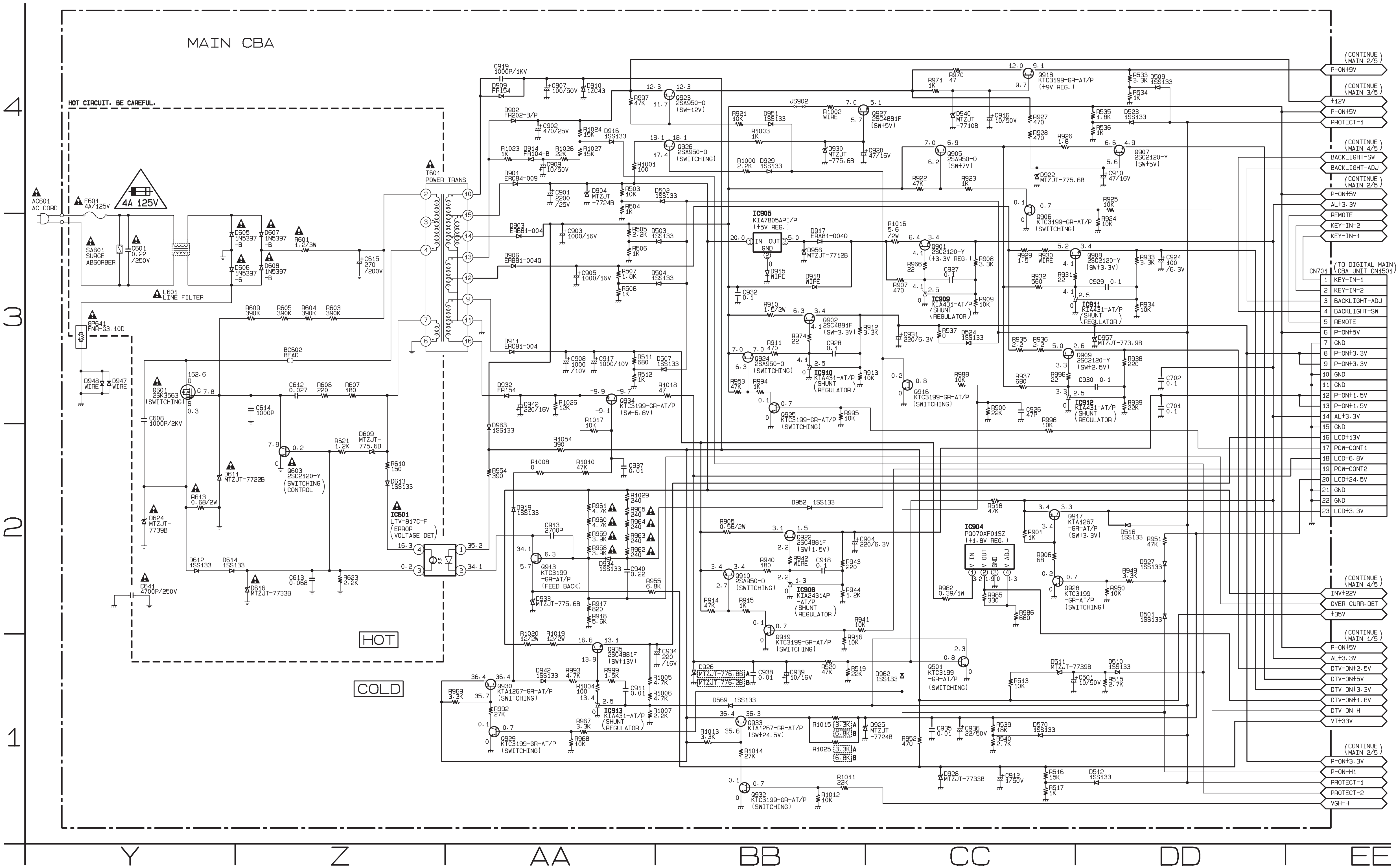
NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

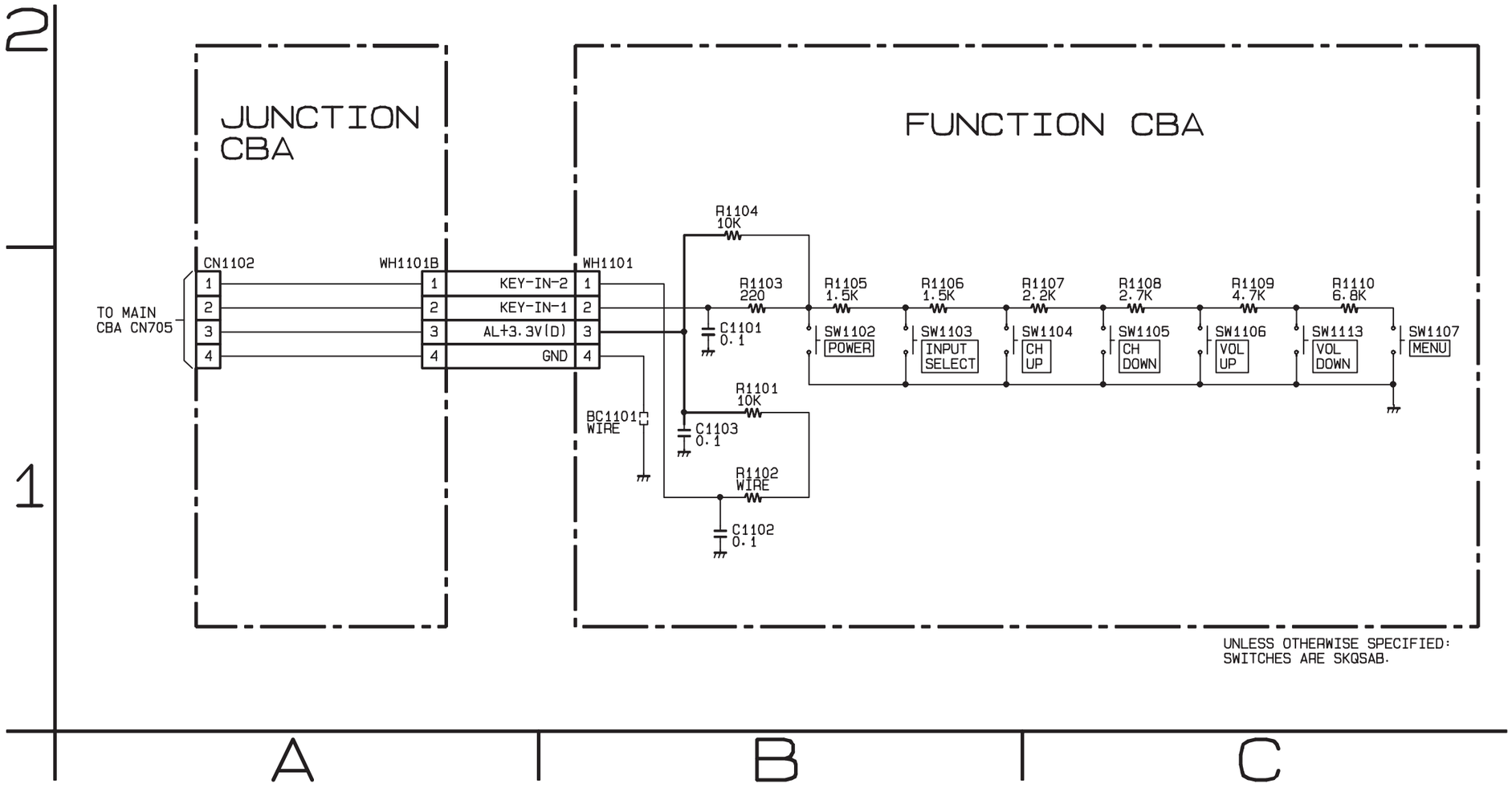
Comparison Chart of Models and Marks

Model	Mark
LC195EM82	A
LC195EM87	B

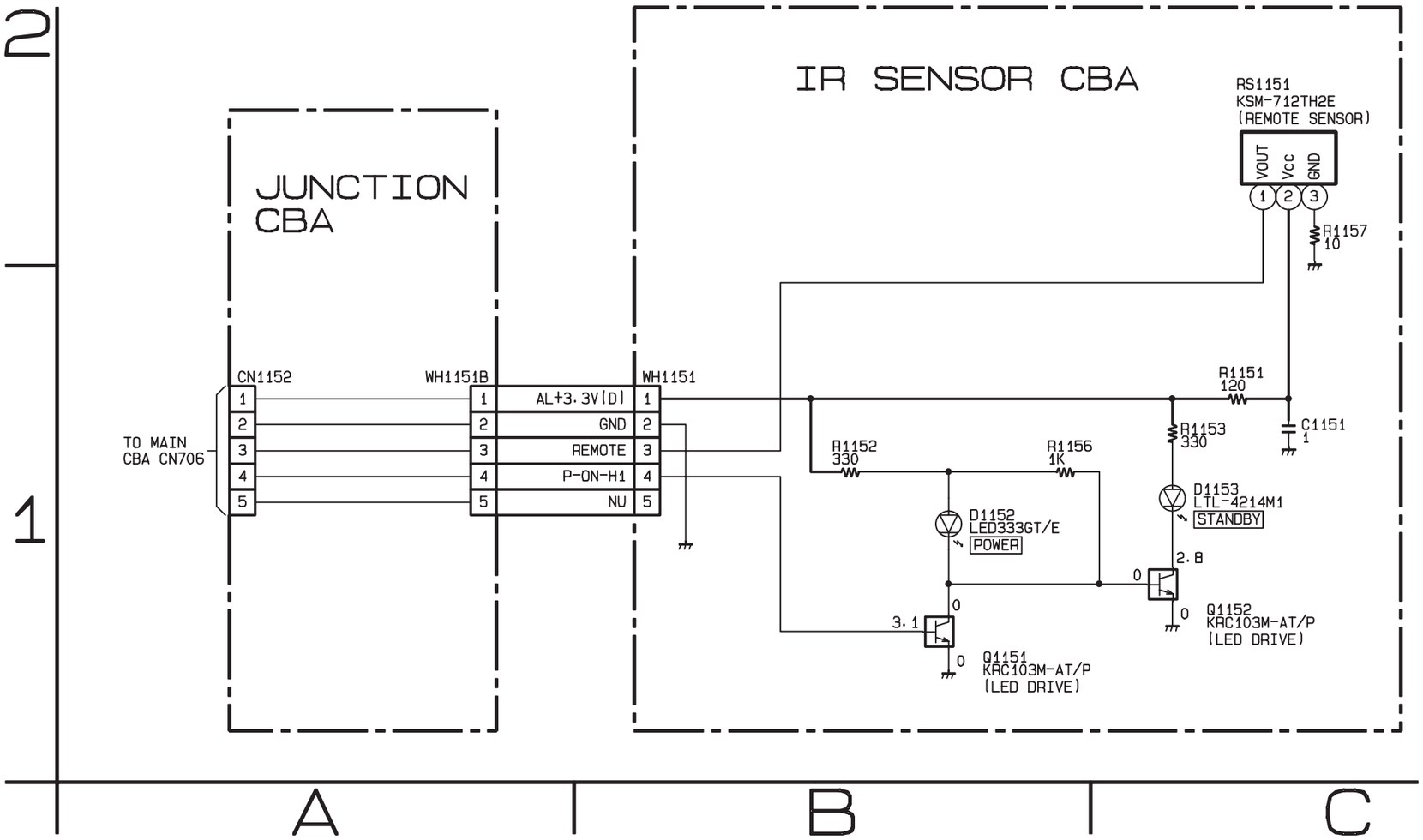
VOLTAGE CHART
CN701

Pin No.	Voltage
1	3.4
2	3.4
3	0.4
4	3.3
5	2.1
6	5.1
7	0
8	3.4
9	3.4
10	0
11	0
12	1.5
13	1.5
14	3.4
15	0
16	13.1
17	3.3
18	-7.0
19	3.3
20	24.4
21	0
22	0
23	3.3

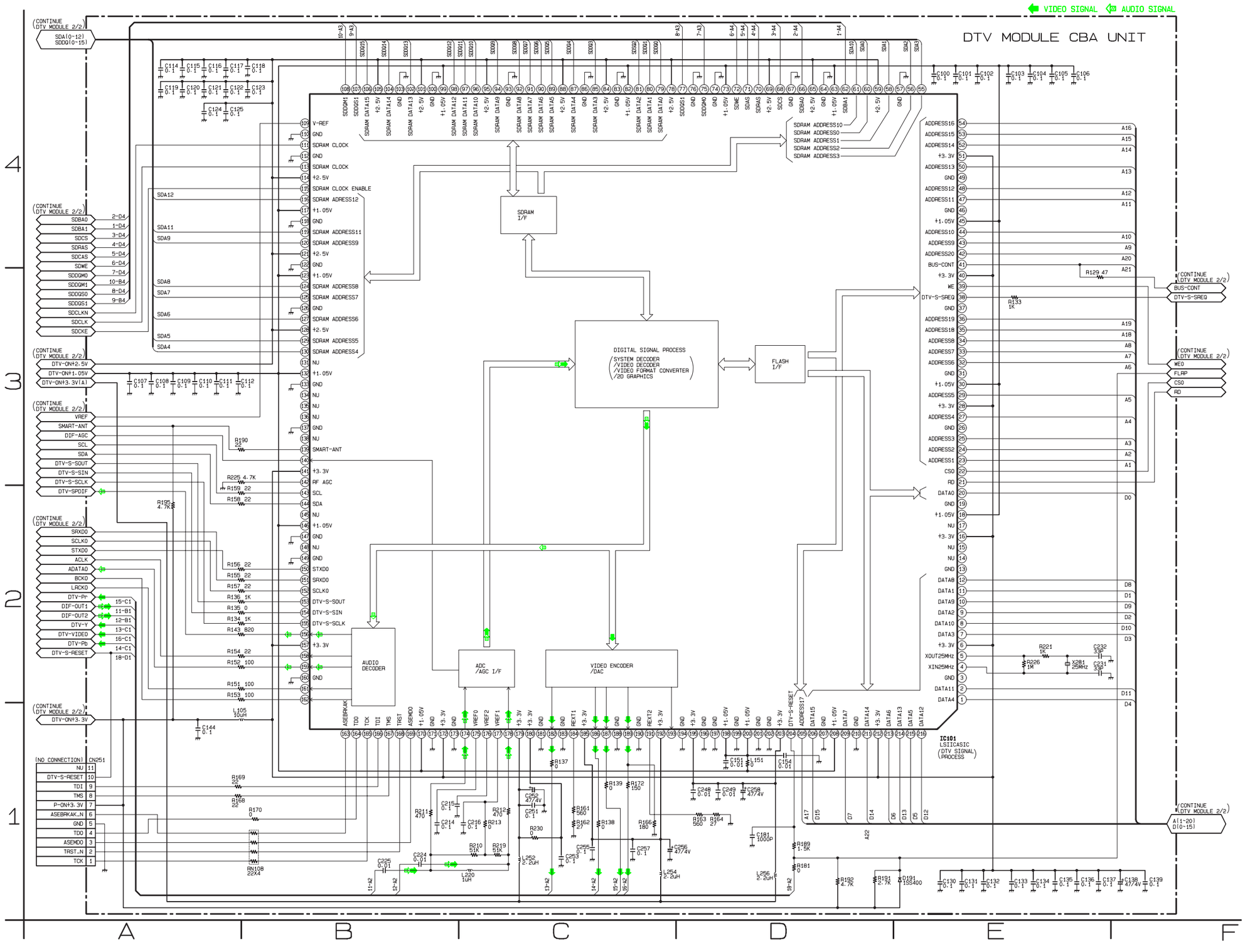



2
1
A
B
C
JUNCTION CBA
FUNCTION CBA
CN1102
WH1101B
WH1101
TO MAIN CBA CN705
1
2
3
4
KEY-IN-2
KEY-IN-1
AL+3.3V(D)
GND
R1104 10K
R1103 220
R1105 1.5K
R1106 1.5K
R1107 2.2K
R1108 2.7K
R1109 4.7K
R1110 6.8K
C1101 0.1
SW1102 POWER
SW1103 INPUT SELECT
SW1104 CH UP
SW1105 CH DOWN
SW1106 VOL UP
SW1113 VOL DOWN
SW1107 MENU
R1101 10K
C1103 0.1
BC1101 WIRE
R1102 WIRE
C1102 0.1
UNLESS OTHERWISE SPECIFIED:
SWITCHES ARE SKQSAB.

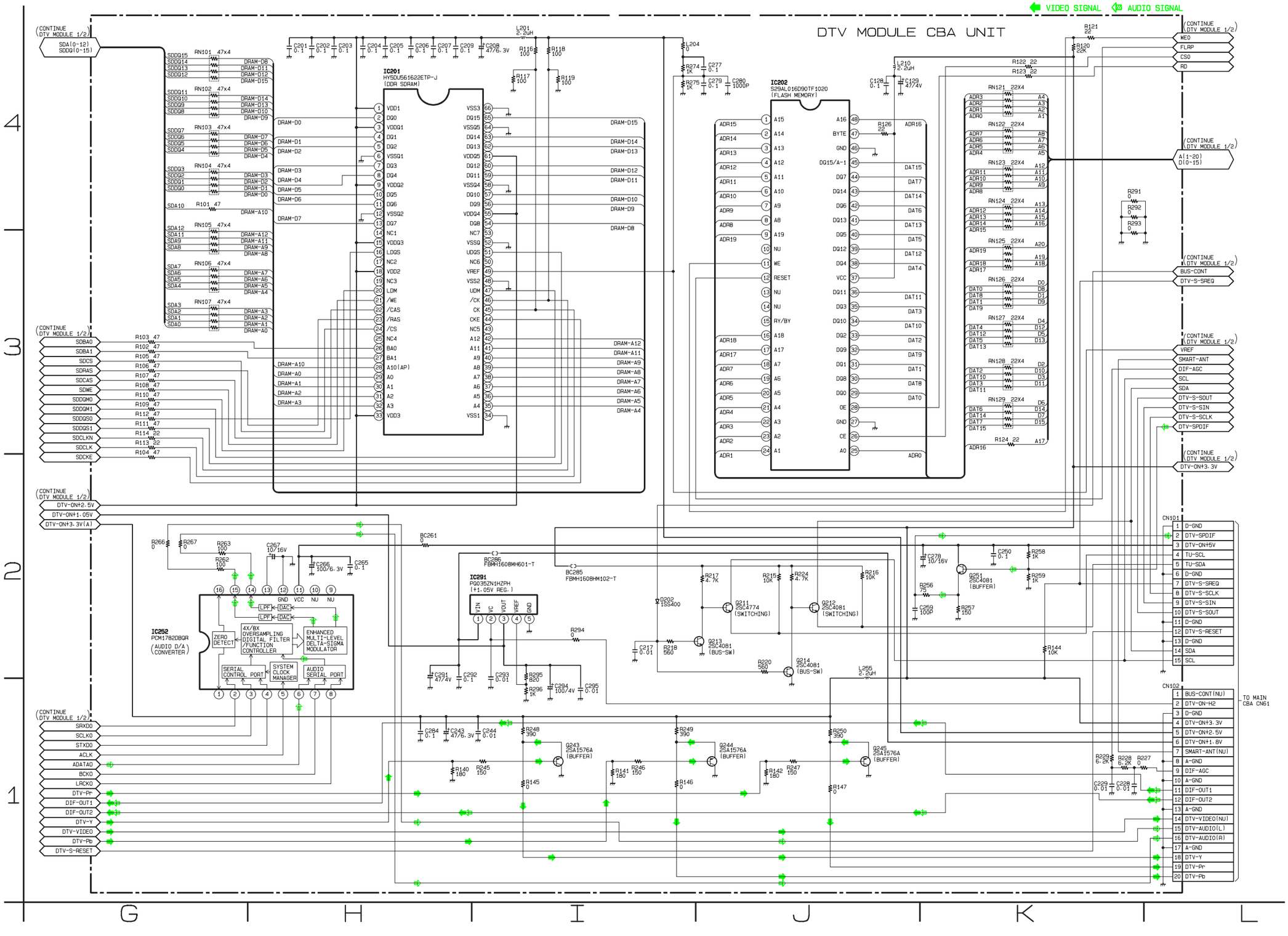
IR Sensor & Junction Schematic Diagram



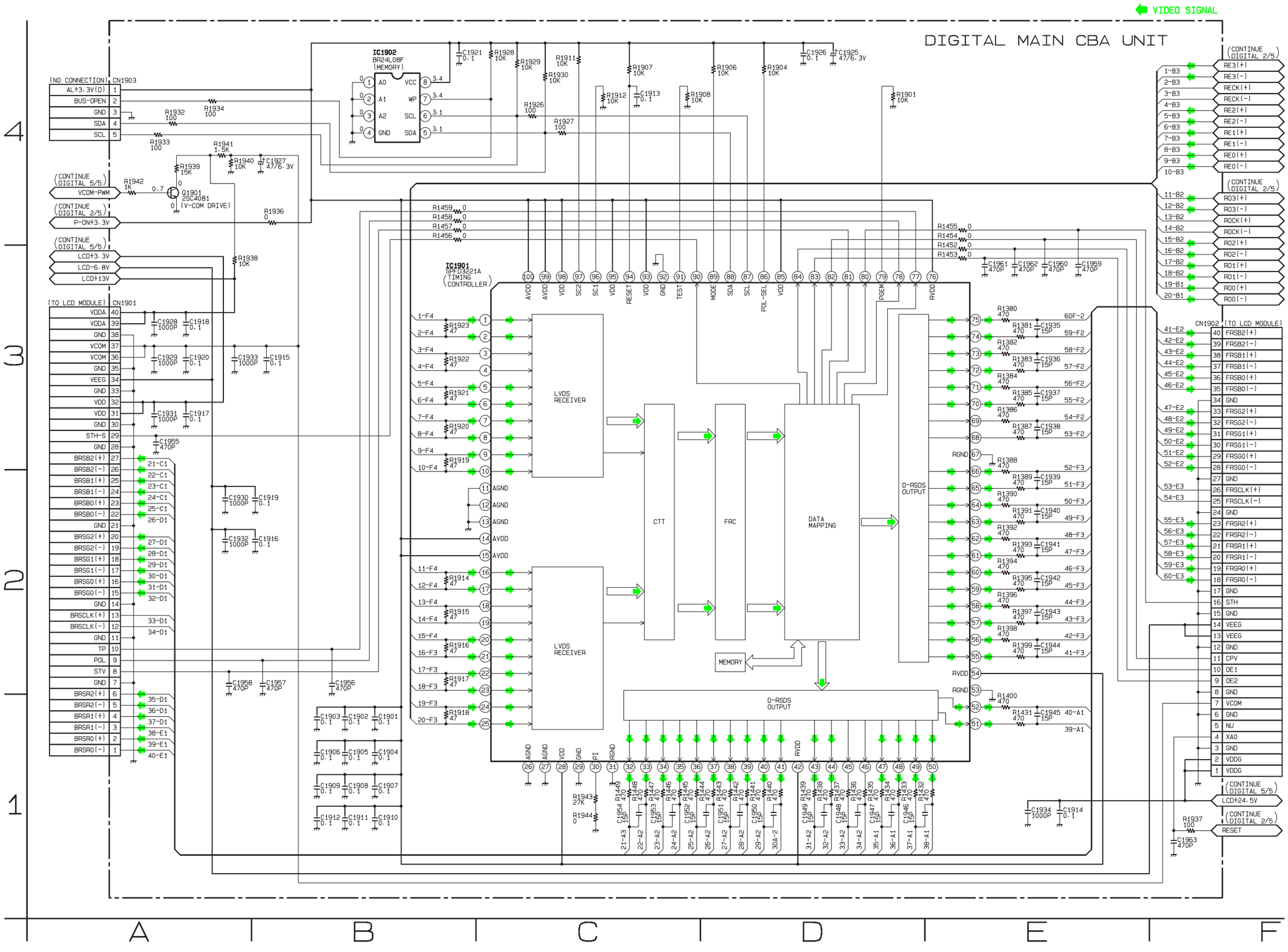
DTV Module 1/2 Schematic Diagram



DTV Module 2/2 Schematic Diagram

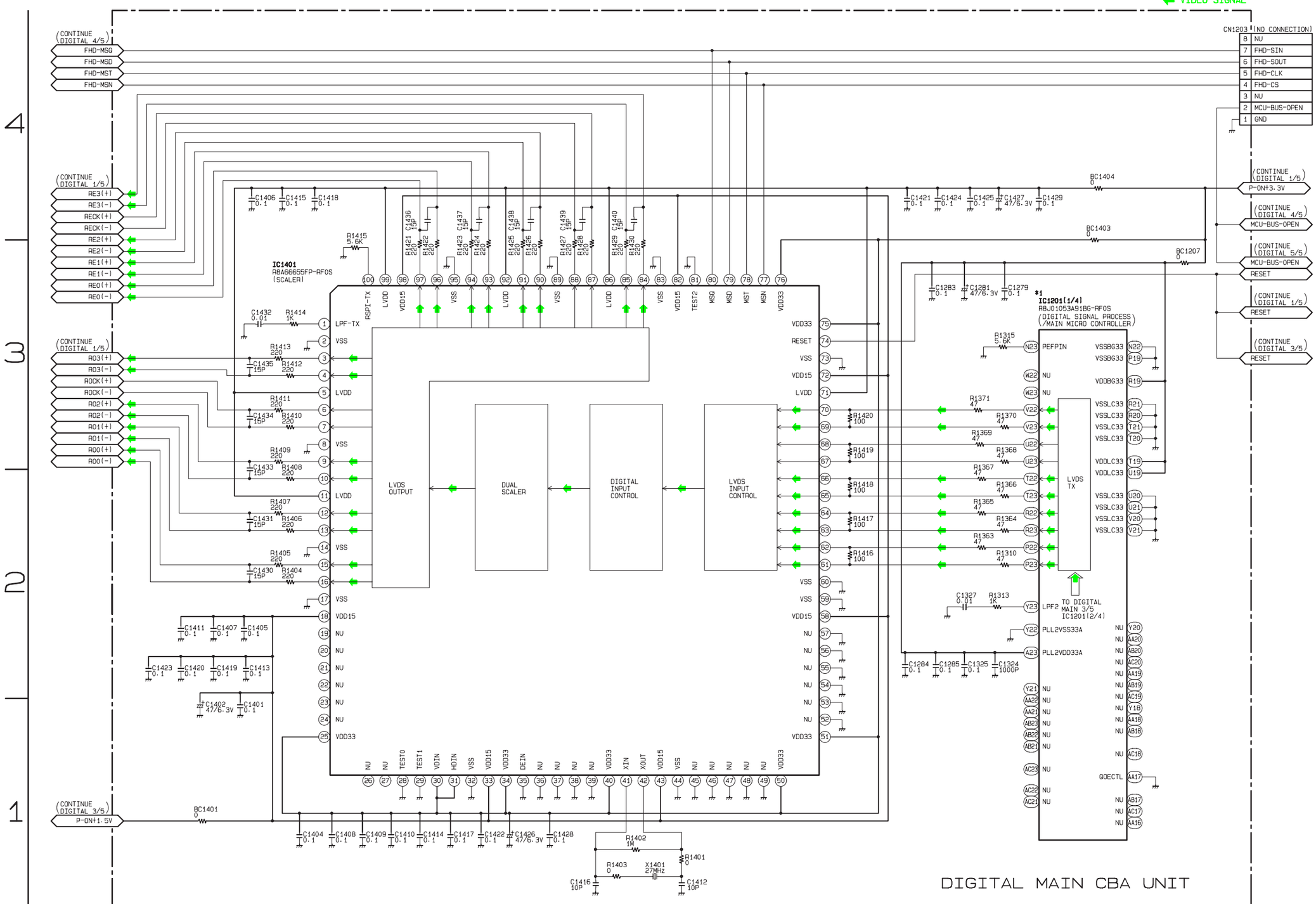


Digital Main 1/5 Schematic Diagram



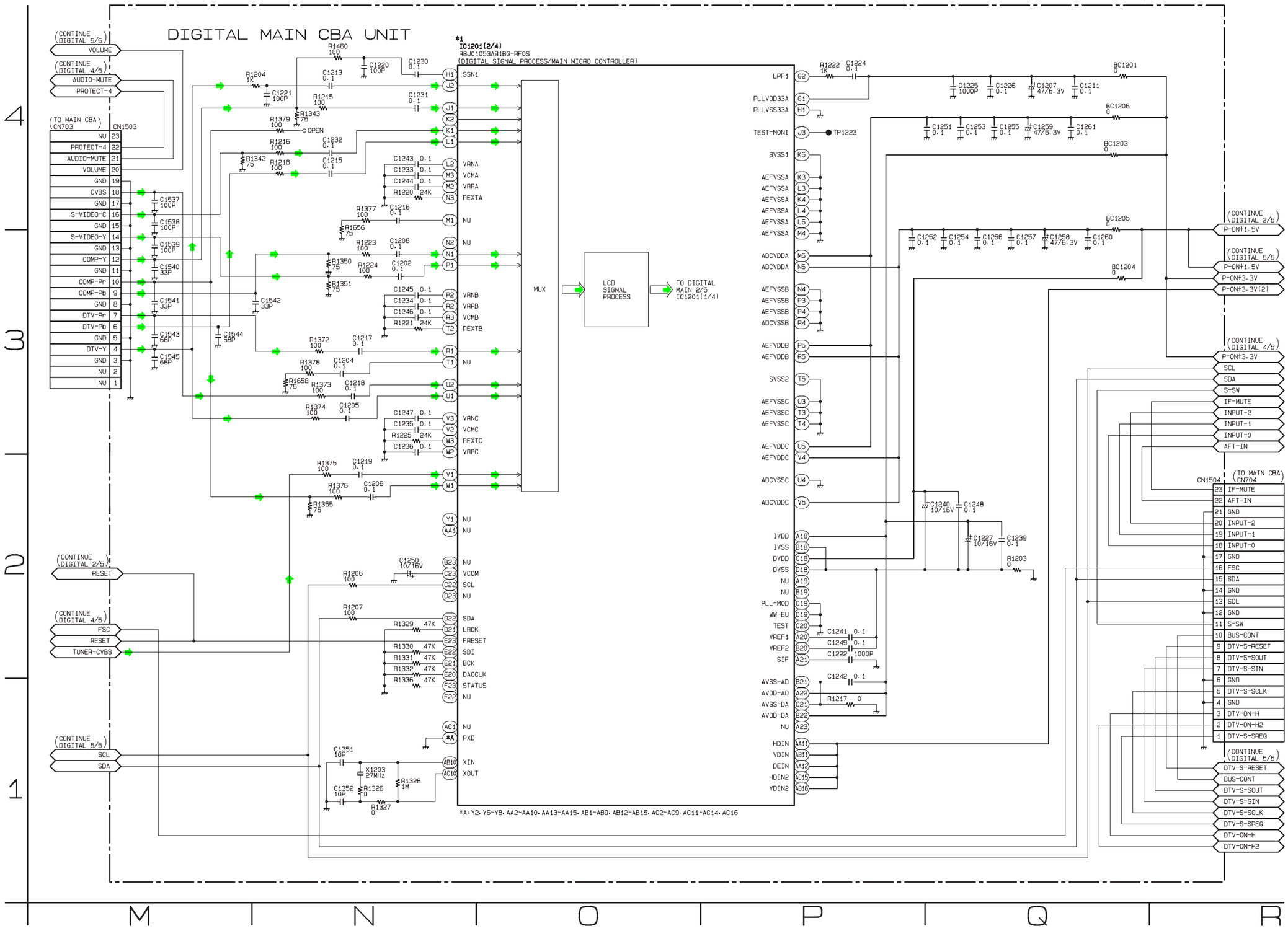
Digital Main 2/5 Schematic Diagram

∗1 **NOTE:**
The order of pins shown in this diagram is different from that of actual IC1201.
IC1201 is divided into four and shown as IC1201 (1/4) ~ IC1201 (4/4) in this Digital Main Schematic Diagram Section.



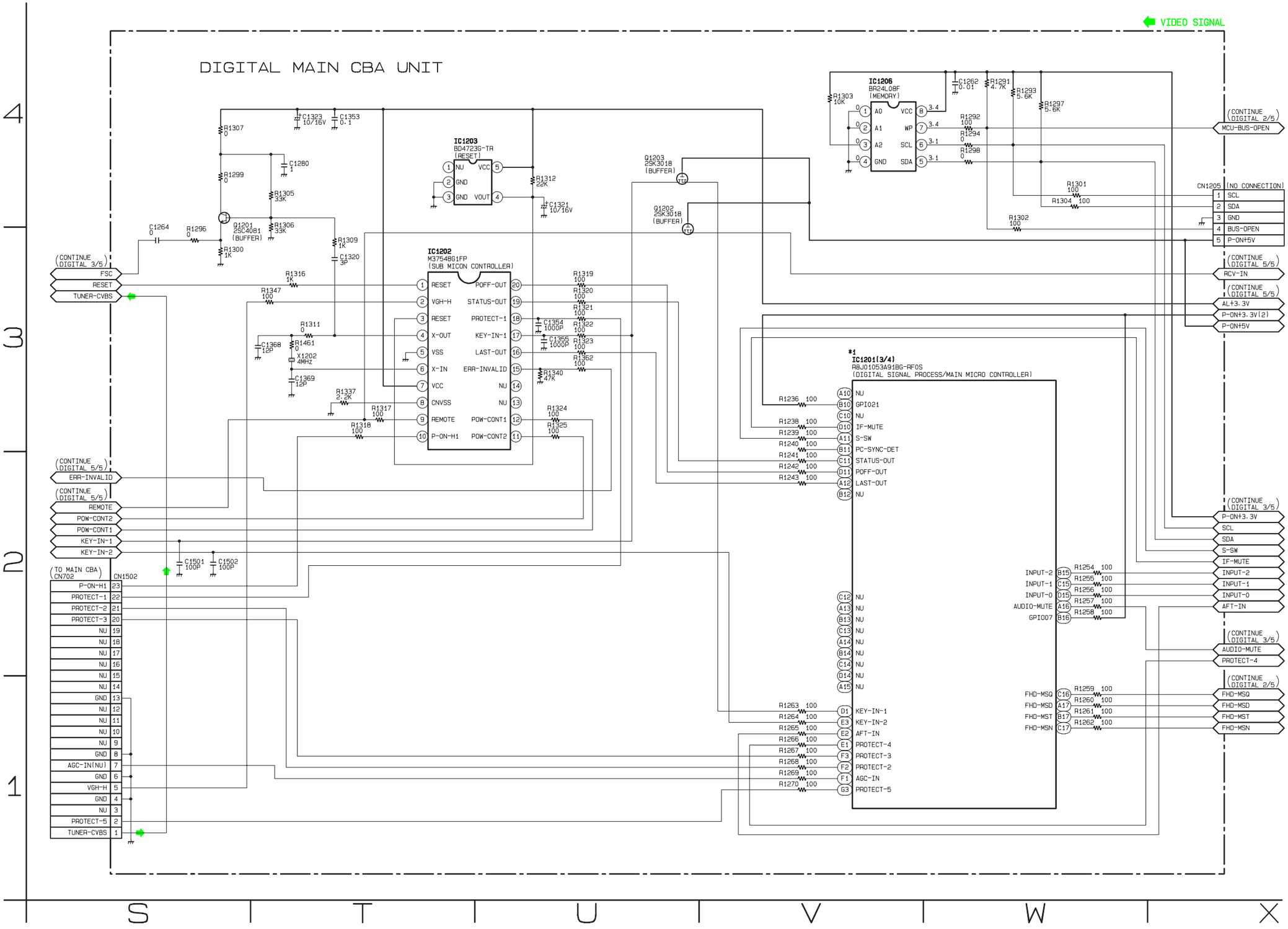
Digital Main 3/5 Schematic Diagram

∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC1201.
IC1201 is divided into four and shown as IC1201 (1/4) ~ IC1201 (4/4) in this Digital Main Schematic Diagram Section.



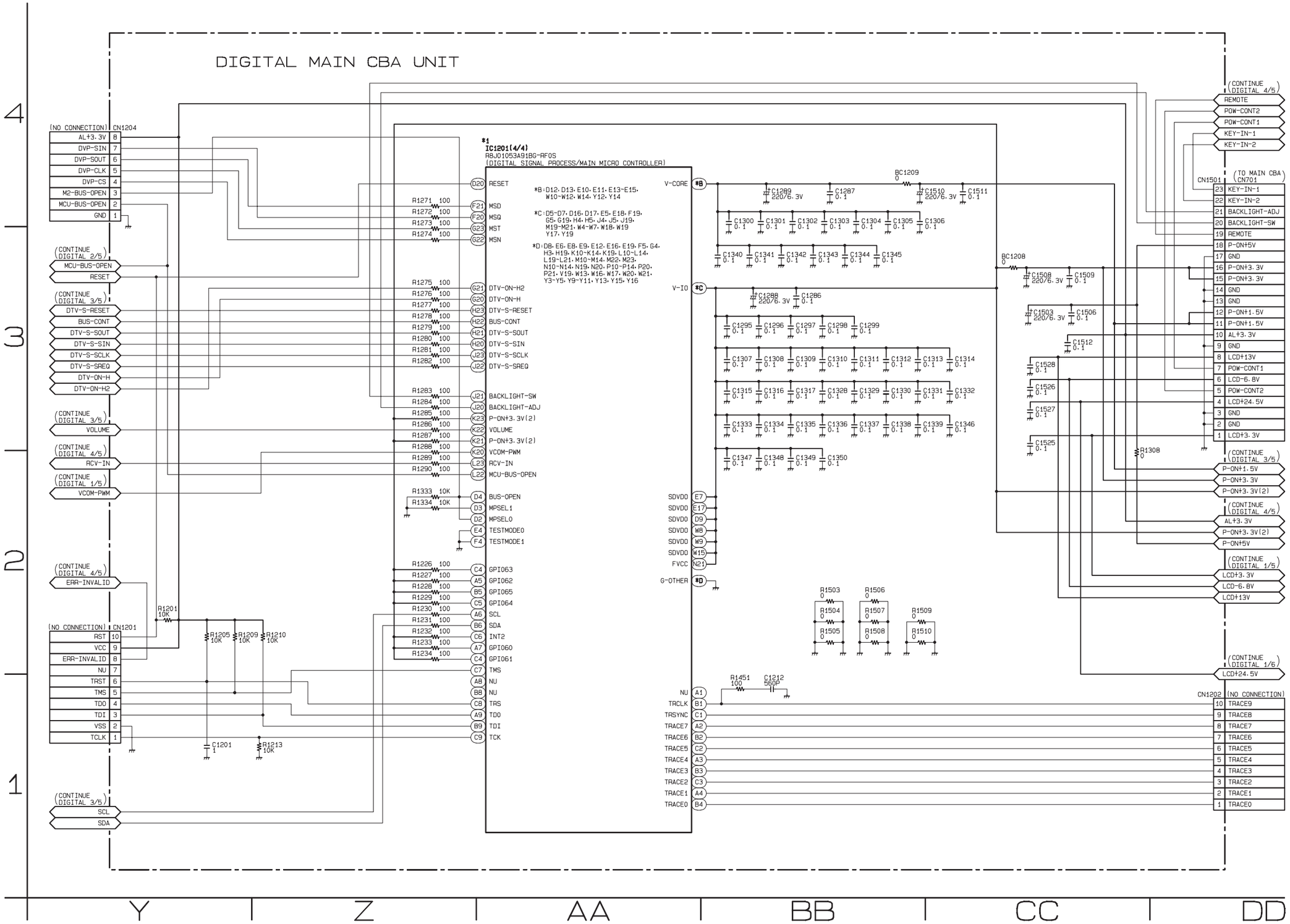
Digital Main 4/5 Schematic Diagram

∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC1201.
IC1201 is divided into four and shown as IC1201 (1/4) ~ IC1201 (4/4) in this Digital Main Schematic Diagram Section.



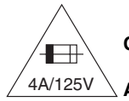
Digital Main 5/5 Schematic Diagram

∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC1201.
IC1201 is divided into four and shown as IC1201 (1/4) ~ IC1201 (4/4) in this Digital Main Schematic Diagram Section.



Main CBA Top View

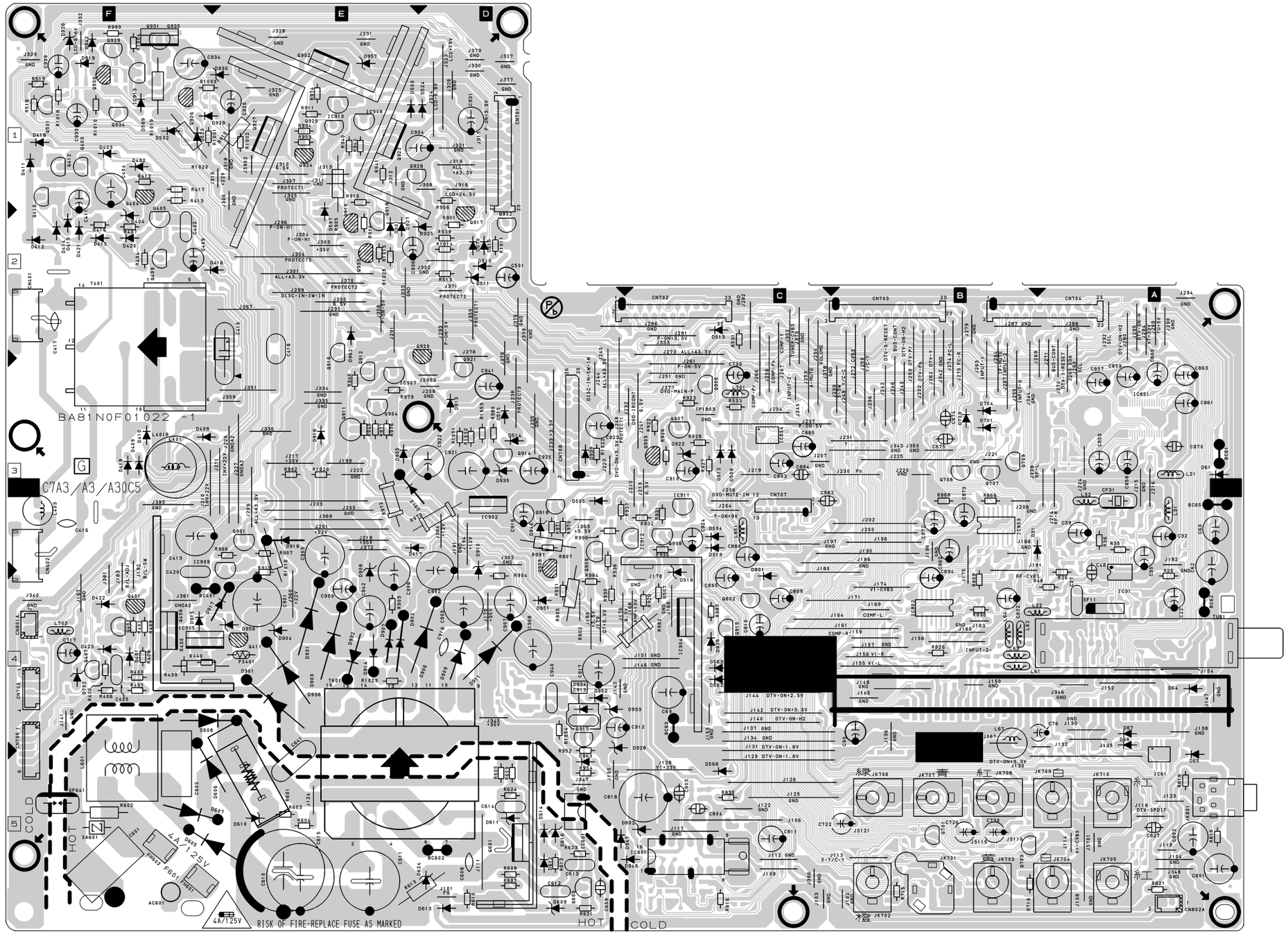
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.



CAUTION ! : For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

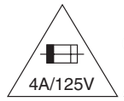
NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.



Main CBA Bottom View

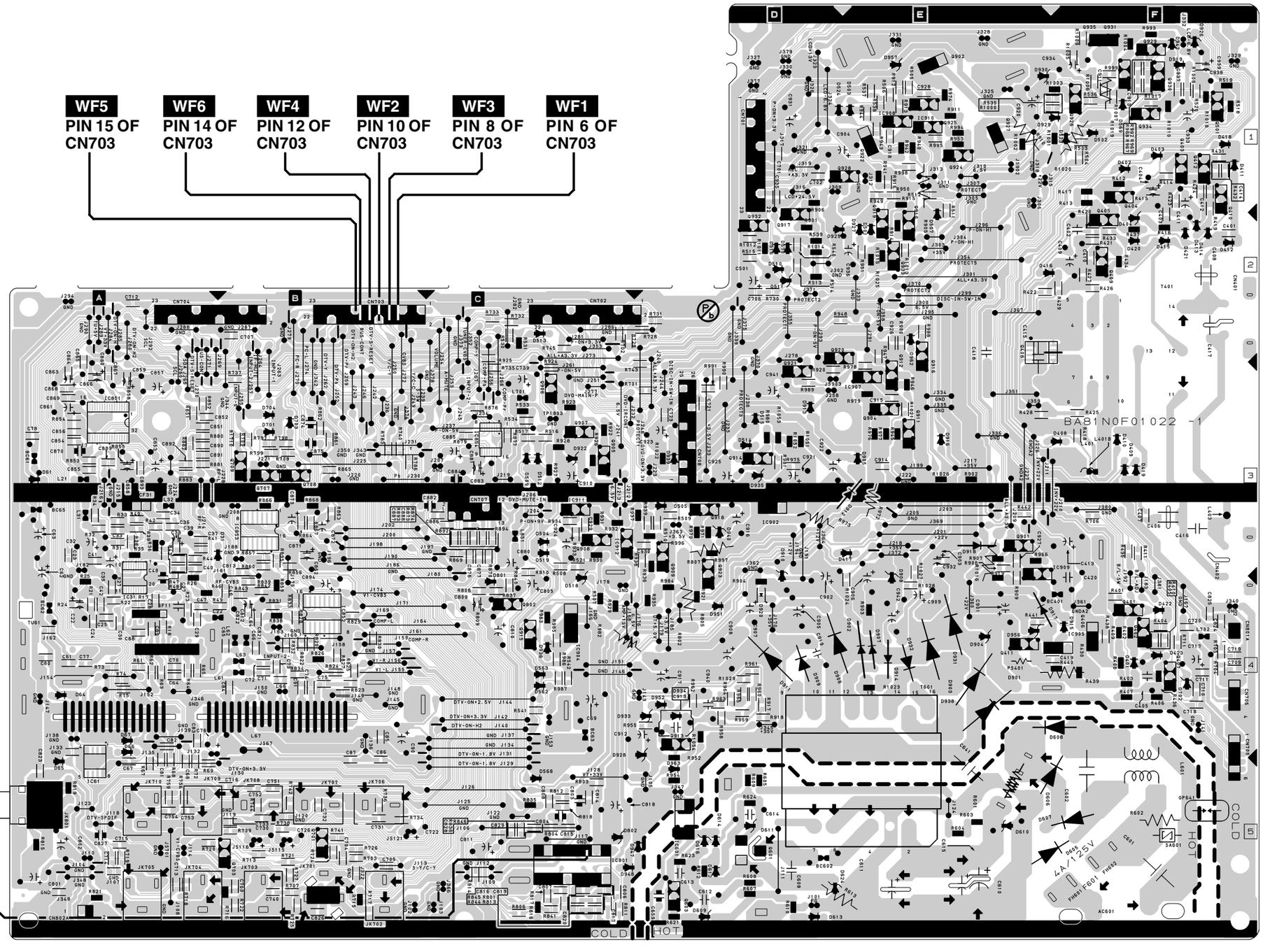
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.



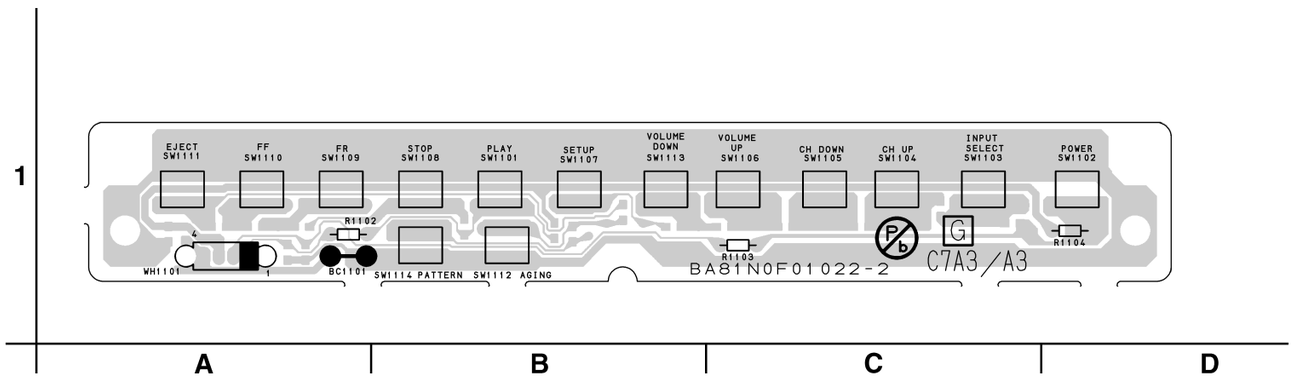
CAUTION ! : For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

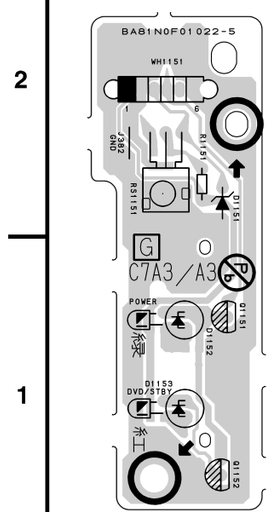
Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.



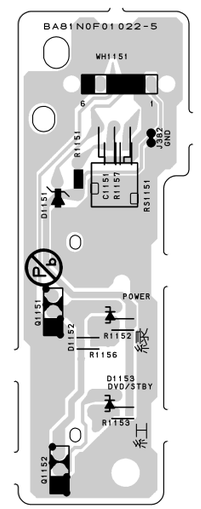
Function CBA Top View



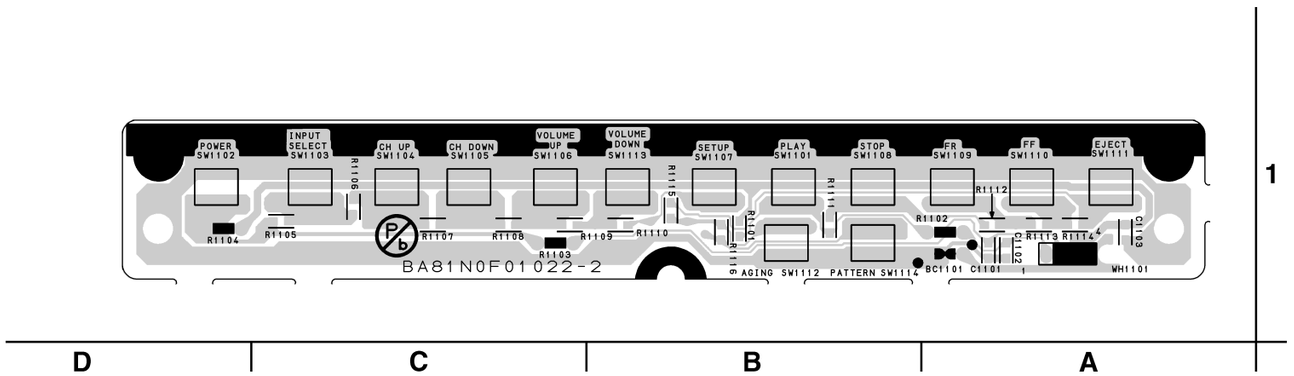
IR Sensor CBA Top View



IR Sensor CBA Bottom View

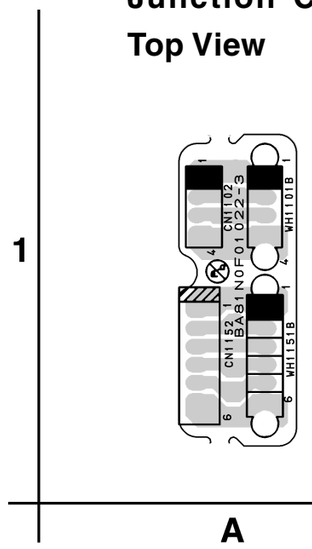


Function CBA Bottom View

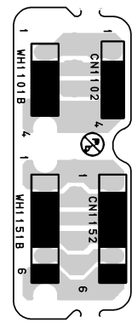


BA81N0F01022-2

Junction CBA Top View



Junction CBA Bottom View



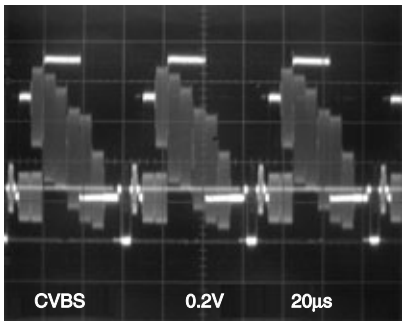
BA81N0F01022-3

WAVEFORMS

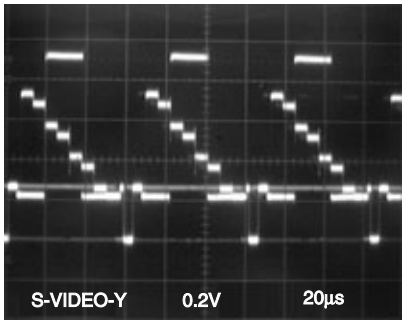
WF1 ~ WF7 = Waveforms to be observed at Waveform check points. (Shown in Schematic Diagram.)

Input: NTSC Color Bar Signal (with 1kHz Audio Signal)

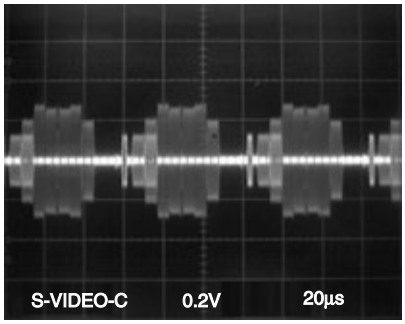
WF1 Pin 6 of CN703



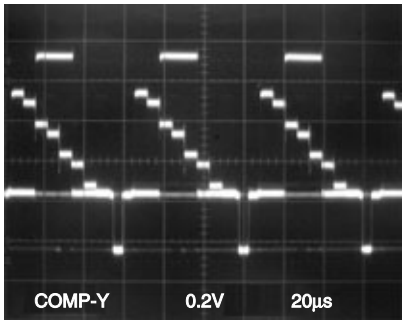
WF2 Pin 10 of CN703



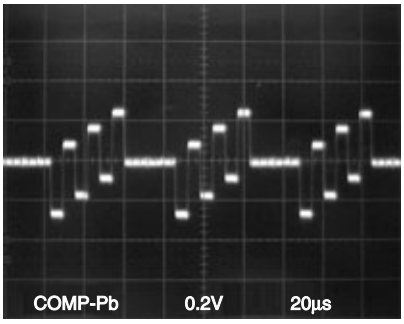
WF3 Pin 8 of CN703



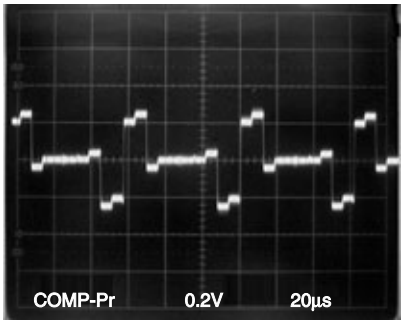
WF4 Pin 12 of CN703



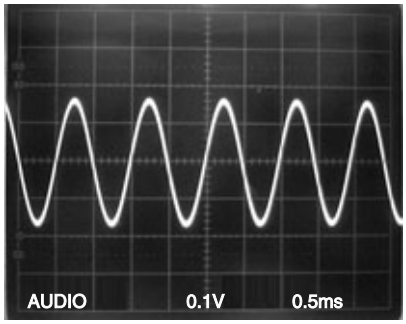
WF5 Pin 15 of CN703



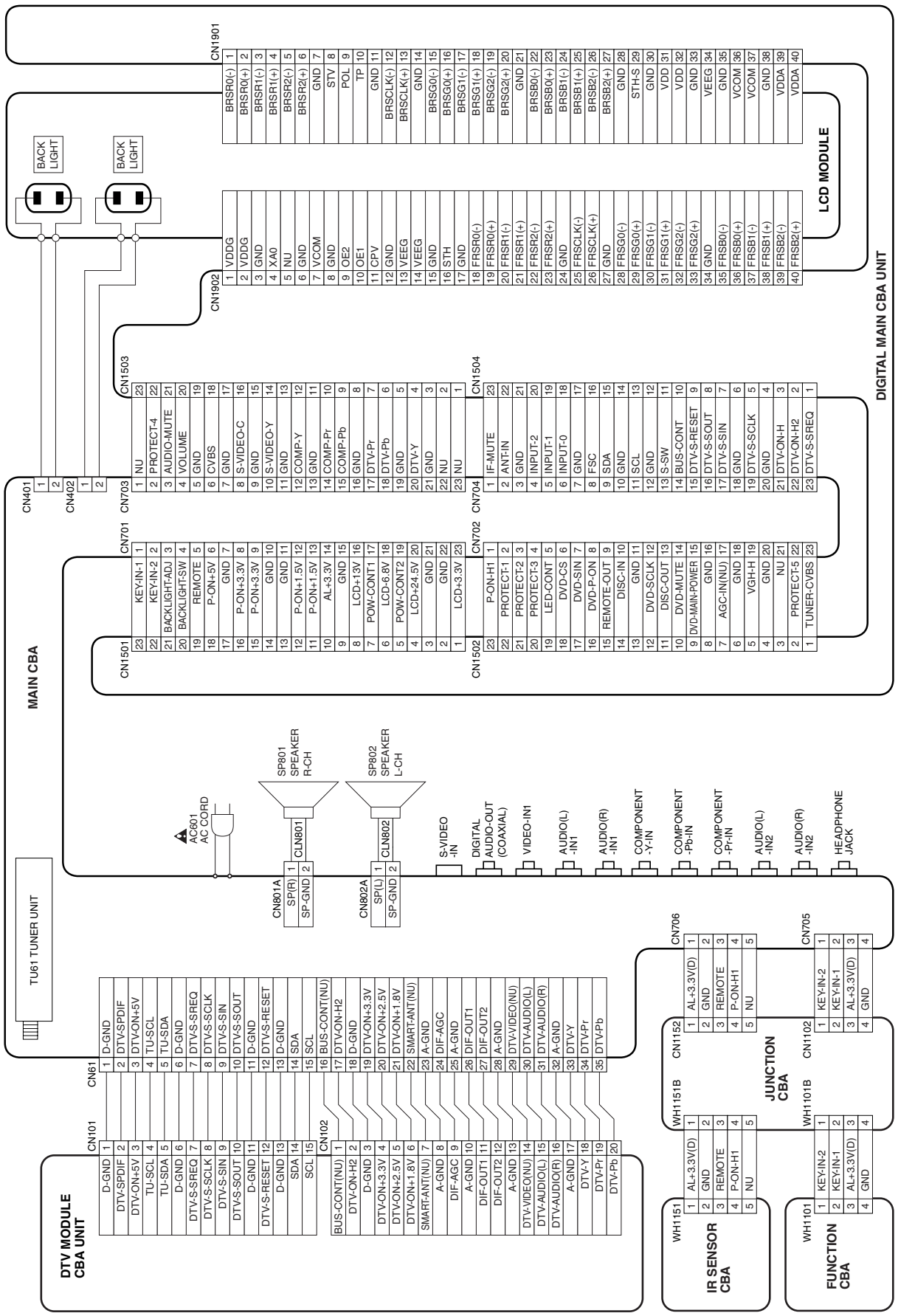
WF6 Pin 14 of CN703



WF7 Pin 14 of IC801

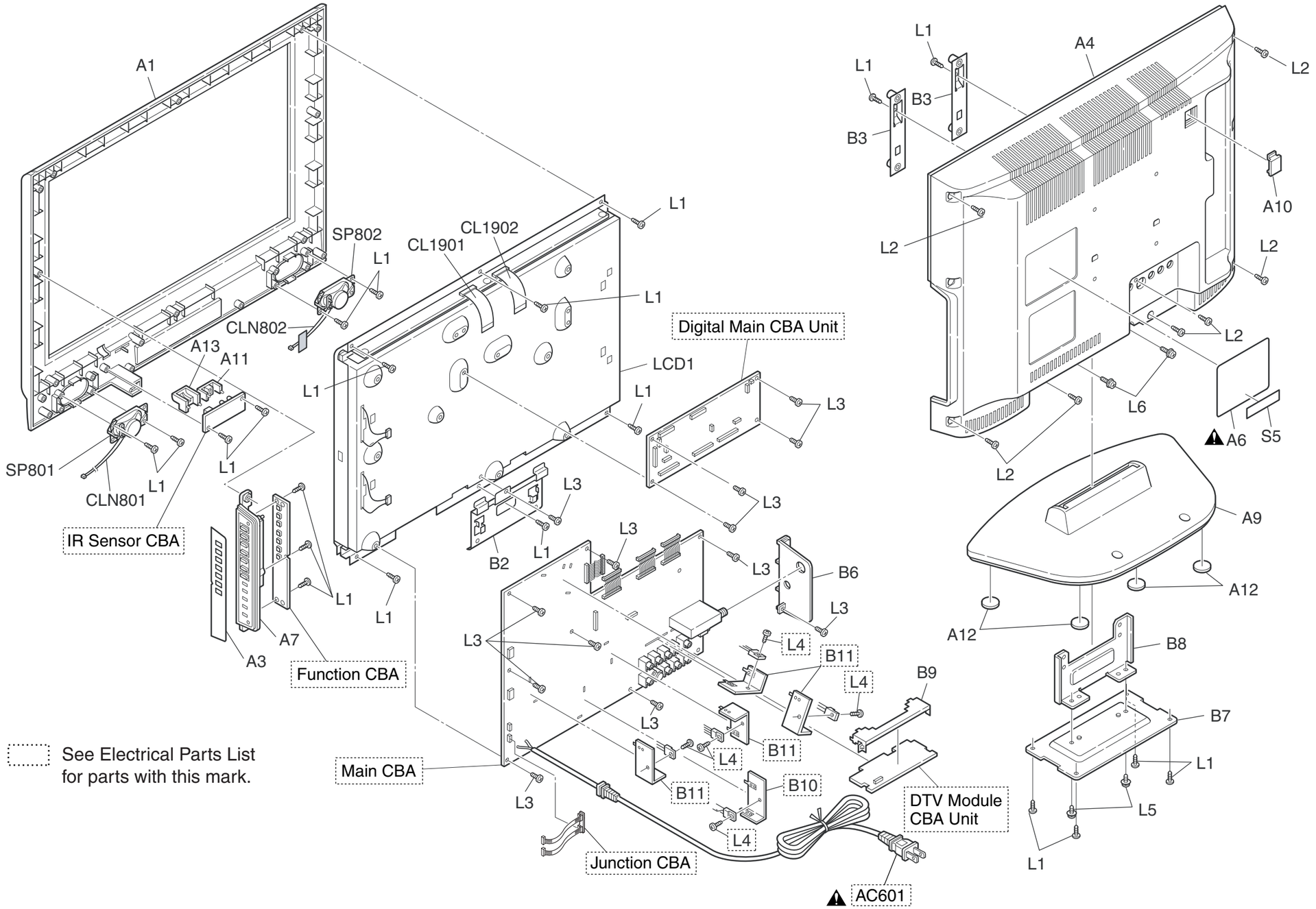


WIRING DIAGRAM



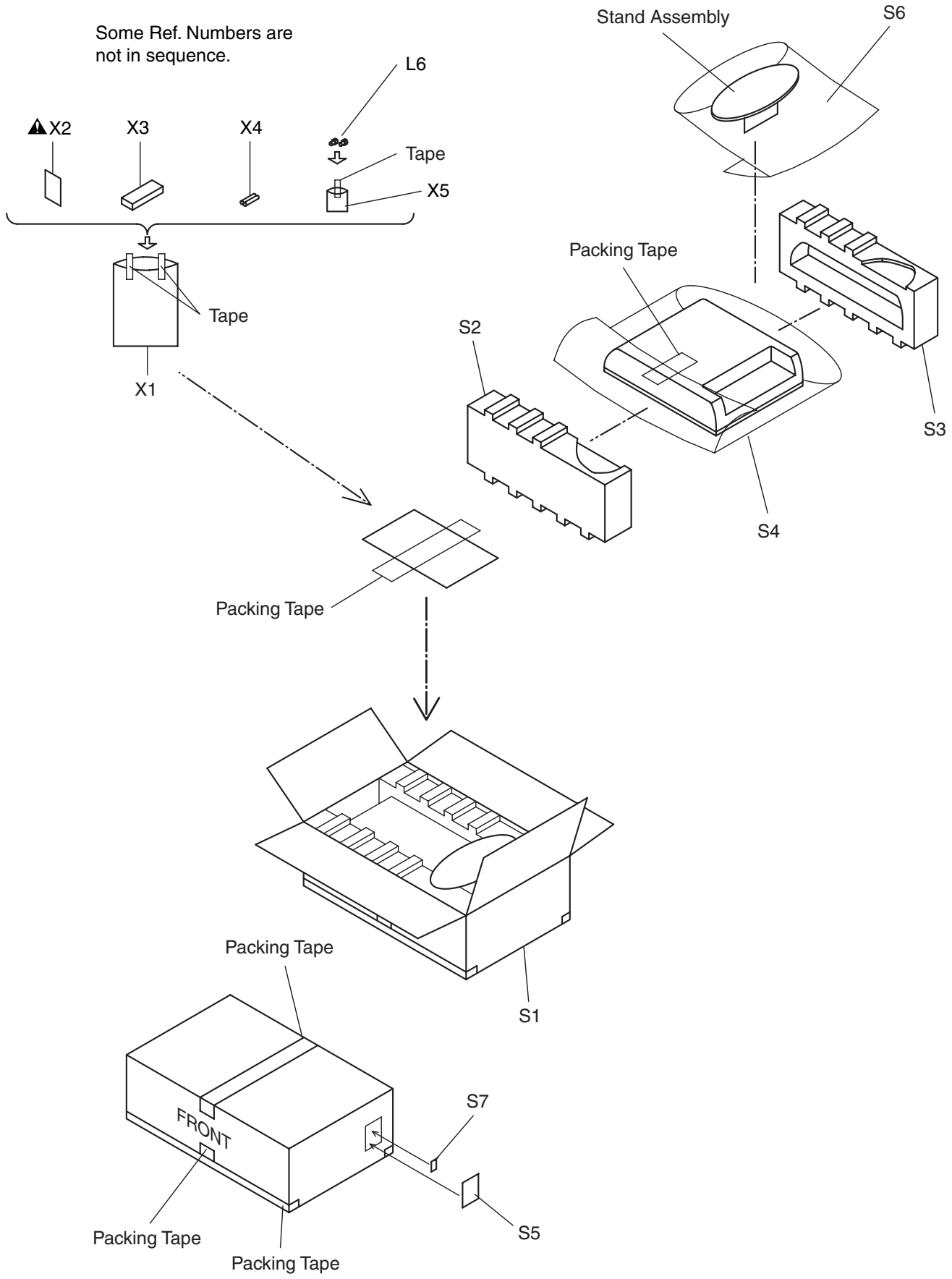
EXPLODED VIEWS

Cabinet



See Electrical Parts List for parts with this mark.

Packing


Some Ref. Numbers are not in sequence.
L6
⚠X2
X3
X4
Tape
X5
Tape
X1
Stand Assembly
S6
Packing Tape
S2
S3
S4
Packing Tape
Packing Tape
S1
FRONT
S7
S5
Packing Tape
Packing Tape

MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that are not assigned part numbers (---------) are not available.

Comparison Chart of Models and Marks

Model	Mark
LC195EM82	A
LC195EM87	B

Ref. No.	Mark	Description	Part No.
A1		FRONT CABINET A81N0UH	1EM021786
A3		CONTROL PLATE A81H0UH	1EM322723
A4		REAR CABINET A81N0UH	1EM021787
A6⚠	A	RATING LABEL A81N0UH	----------
A6⚠	B	RATING LABEL A81N1UH	----------
A7		FUNCTION KNOB A81H0UH	1EM121947
A9		STAND COVER A81N0UH	1EM021788
A10		REAR COVER A7260JH	1EM322484
A11		LED LENS A81N0UH	1EM322707
A12		STAND RUBBER FOOT L5001CB	1EM423855
A13		SENSOR LENS A81N0UH	1EM322708
B2		TILT STAND HOLDER A81N0UH	1EM322710
B3		STAND HOLDER A81N0UH	1EM322709
B6		JACK HOLDER(A) A81N0UH	1EM322705
B7		STAND BASE A81N0UH	1EM322711
B8		STAND HINGE A81N0UH	1EM322729
B9		MODULE PCB HOLDER P7150UT	1EM322373A
CL1901		WIRE ASSEMBLY FFC FFC 40PIN	WX1A81N0-01A
CL1902		WIRE ASSEMBLY FFC FFC 40PIN	WX1A81N0-01A
CLN801		WIRE ASSEMBLY SPEAKER 2PIN AWG24	WX1A81N0-05A
CLN802		WIRE ASSEMBLY SPEAKER 2PIN AWG24	WX1A81N0-05A
L1		SCREW P-TIGHT M3X10 BIND HEAD+	GBJP3100
L2		SCREW P-TIGHT 3X10 BIND HEAD+	GBHP3100
L3		SCREW S-TIGHT M3X6 BIND HEAD+	GBJS3060
L5		DOUBLE SEMS SCREW M4X9 + BLACK L0130UA	0EM408146A
L6		DOUBLE SEMS SCREW M4X14 + BLK	FPH34140
LCD1	A	LCD MODULE 19INCH WIDE CMO 19INCH WXGA	UG190XA
LCD1	B	LCD MODULE 19INCH WIDE SVA 19INCH WXGA	UG190XB
SP801		SPEAKER MAGNETIC S0306N01	DSD0806XQ001
SP802		SPEAKER MAGNETIC S0306N01	DSD0806XQ001
PACKING			
S1		CARTON A81N0UH	1EM322714
S2		STYROFOAM BOTTOM A81N0UH	1EM021790
S3		STYROFOAM TOP A81N0UH	1EM021789
S4		SET BAG A81N0UH	1EM322872
S5		RFID LABEL P7100UM	----------
S6		STAND BAG A81N0UH	1EM424597
S7		LABEL EAS(H3761UD) MAKER NO.ZLLFNSLE1	----------

Ref. No.	Mark	Description	Part No.
ACCESSORIES			
X1		BAG POLYETHYLENE 235X365XT0.03	0EM408420A
X2⚠		OWNERS MANUAL A81N0UH	1EMN22282
X3		REMOTE CONTROL NF604UD	NF604UD
X4		DRY BATTERY(SUNRISE) R6SSE/2S	XB0M451MS002
X5		SCREW BAG A81N0UH	1EM424596

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%

G.....±2% J.....±5% K.....±10%

M.....±20% N.....±30% Z.....+80/-20%

Comparison Chart of Models and Marks

Model	Mark
LC195EM82	A
LC195EM87	B

DTV MODULE CBA UNIT

Ref. No.	Mark	Description	Part No.
		DTV MODULE CBA UNIT	1ESA14957

DIGITAL MAIN CBA UNIT

Ref. No.	Mark	Description	Part No.
		DIGITAL MAIN CBA UNIT	1ESA14798

MMA CBA

Ref. No.	Mark	Description	Part No.
	A B	MMA CBA MMA CBA Consists of the following:	1ESA14795 1ESA14974
		MAIN CBA FUNCTION CBA IR SENSOR CBA JUNCTION CBA	---------- ---------- ---------- ----------

MAIN CBA

Ref. No.	Mark	Description	Part No.
		MAIN CBA Consists of the following:	----------
		CAPACITORS	
C22		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C23		CHIP CERAMIC CAP.(1608) CH J 1000pF/50V	CHD1JJ3CH102
C24		CHIP CERAMIC CAP.(1608) CH J 1000pF/50V	CHD1JJ3CH102
C25		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C27		FILM CAP.(P) 0.018μF/50V J	CA1J183MS029
C28		CHIP CERAMIC CAP.(1608) B K 0.047μF/ 50V	CHD1JK30B473
C29		CHIP CERAMIC CAP. CH D 5pF/50V	CHD1JD3CH5R0
C32		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C34		CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V	CHD1JJ3CH470
C35		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL1R0
C36		CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V	CHD1JJ3CH470
C37		CHIP CERAMIC CAP. CH J 680pF/50V	CHD1JJ3CH681
C39		ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C41		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C42		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C47		CHIP CERAMIC CAP. CH D 8pF/50V	CHD1JD3CH8R0
C62		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C63		ELECTROLYTIC CAP. 47μF/50V M	CE1JMASDL470
C64		CHIP CERAMIC CAP.(1608) B K 1000pF/ 50V	CHD1JK30B102
C67		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C68		CHIP CERAMIC CAP.(1608) CH J 33pF/ 50V	CHD1JJ3CH330
C69		ELECTROLYTIC CAP. 1000μF/6.3V M	CE0KMASDL102
C70		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C71		CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V	CHD1JJ3CH470
C72		CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V	CHD1JJ3CH470
C74		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C75		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C77		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C80		CHIP CERAMIC CAP.(1608) B K 1000pF/ 50V	CHD1JK30B102
C83		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
C84		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C85		CHIP CERAMIC CAP. CH J 330pF/50V	CHD1JJ3CH331
C86		CHIP CERAMIC CAP. CH J 330pF/50V	CHD1JJ3CH331
C87		CHIP CERAMIC CAP.(1608) B K 1000pF/ 50V	CHD1JK30B102
C89		CHIP CERAMIC CAP. CH J 220pF/50V	CHD1JJ3CH221
C90		ELECTROLYTIC CAP. 10μF/50V M H7	CE1JMASSL100
C91		CHIP CERAMIC CAP.(1608) B K 1000pF/ 50V	CHD1JK30B102
C401		CHIP CERAMIC CAP.(1608) B K 4700pF/ 50V	CHD1JK30B472
C402		FILM CAP.(P) 0.1μF/50V J	CA1J104MS029
C403		CHIP CERAMIC CAP.(1608) B K 5600pF/ 50V	CHD1JK30B562
C404		ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
C405		FILM CAP.(P) 0.1μF/50V J	CA1J104MS029
C406		CAP CHIP 5PF 3KV C XC	CA3F5R05M016
C407		CHIP CERAMIC CAP.(1608) B K 4700pF/ 50V	CHD1JK30B472
C408		CAP CHIP 5PF 3KV C XC	CA3F5R05M016
C409		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C410		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C411		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C412		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C413		ELECTROLYTIC CAP. 470μF/25V M	CE1EMASDL471
C414		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C415		CAP METALIZED FILM 0.11μF 250V H MPE	CA2E114DT051
C416		CAP CERAMIC HV 12P 3KV SL J	CCD3FJPSL120
C417		CAP CERAMIC HV 12P 3KV SL J	CCD3FJPSL120

Ref. No.	Mark	Description	Part No.
C419		CHIP CERAMIC CAP. B K 0.68μF/10V	CHD1AK30B684
C420		TF CAP. 0.56μF/50V	CT1J564MS045
C501		ELECTROLYTIC CAP. 10μF/50V M H7	CE1JMASSL100
C601⚠		ACROSS THE LINE CAP. 0.22μF/250V	CT2E224DC015
C608		CERAMIC CAP. B K 1000pF/2KV	CA3D102MR030
C612		FILM CAP.(P) 0.027μF/50V J	CA1J273MS029
C613		FILM CAP.(P) 0.068μF/50V J	CA1J683MS029
C614		FILM CAP.(P) 0.001μF/50V J	CMA1JJP00102
C615		CAP ELE LS 270μF/200V/M/85	CA2D271V8006
C641⚠		SAFETY CAP. 4700pF/250V KX	CA2E472MR050
C701		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C702		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C705		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C706		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C707		CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V	CHD1JJ3CH470
C708		CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V	CHD1JJ3CH101
C710		CHIP CERAMIC CAP. CH J 330pF/50V	CHD1JJ3CH331
C711		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C712		CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V	CHD1JJ3CH470
C713		CHIP CERAMIC CAP. B K 1500pF/50V	CHD1JK30B152
C714		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C715		CHIP CERAMIC CAP. B K 1500pF/50V	CHD1JK30B152
C716		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C717		ELECTROLYTIC CAP. 47μF/10V M H7	CE1AMASSL470
C718		CHIP CERAMIC CAP. CH J 330pF/50V	CHD1JJ3CH331
C720		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C751		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C752		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C753		CHIP CERAMIC CAP.(1608) B K 3300pF/ 50V	CHD1JK30B332
C754		CHIP CERAMIC CAP.(1608) B K 3300pF/ 50V	CHD1JK30B332
C801		ELECTROLYTIC CAP. 220μF/16V M H7	CE1CMASSL221
C802		ELECTROLYTIC CAP. 220μF/16V M H7	CE1CMASSL221
C805		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C806		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C807		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C809		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C810		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C811		ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C812		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C813		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C818		ELECTROLYTIC CAP. 2200μF/16V M	CE1CMZNDL222
C819		CHIP CERAMIC CAP. CH J 680pF/50V	CHD1JJ3CH681
C820		CHIP CERAMIC CAP. CH J 680pF/50V	CHD1JJ3CH681
C821		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C822		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C823		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C824		CHIP CERAMIC CAP. CH J 180pF/50V	CHD1JJ3CH181
C825		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C826		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C827		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZTFZ104
C853		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C854		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104

Ref. No.	Mark	Description	Part No.
C855		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C856		CHIP CERAMIC CAP.(1608) B K 0.33μF/ 10V	CHD1AK30B334
C857		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C858		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C859		ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C860		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C861		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C863		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C864		CHIP CERAMIC CAP.(1608) B K 0.022μF/ 25V	CHD1EK30B223
C865		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C866		CHIP CERAMIC CAP. F Z 2.2μF/10V	CHD1AZ30F225
C867		CHIP CERAMIC CAP. F Z 2.2μF/10V	CHD1AZ30F225
C868		CHIP CERAMIC CAP.(1608) B K 1μF/10V	CHD1AK30B105
C869		CHIP CERAMIC CAP.(1608) B K 0.022μF/ 50V	CHD1JK30B223
C889		CHIP CERAMIC CAP.(1608) CH J 1000pF/50V	CHD1JJ3CH102
C890		CHIP CERAMIC CAP.(1608) B K 4700pF/ 50V	CHD1JK30B472
C891		CHIP CERAMIC CAP.(1608) B K 4700pF/ 50V	CHD1JK30B472
C892		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C893		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C901		ELECTROLYTIC CAP. 2200μF/25V M	CE1EMZNDL222
C902		ELECTROLYTIC CAP. 470μF/25V M	CE1EMASDL471
C903		ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZNDL102
C904		ELECTROLYTIC CAP. 220μF/6.3V M	CE0KMASTL221
C905		ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZNDL102
C907		ELECTROLYTIC CAP. 100μF/50V M	CE1JMASDL101
C908		ELECTROLYTIC CAP. 1000μF/10V M	CE1AMASDL102
C909		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C910		ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C911		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C912		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL1R0
C913		FILM CAP.(P) 0.0027μF/50V J	CA1J272MS029
C916		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C917		ELECTROLYTIC CAP. 1000μF/10V M	CE1AMASDL102
C918		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C919		CERAMIC CAP. B K 1000pF/1KV	CCD3AKP0B102
C920		CAP ELE SML-105 47μF 16V M 105	CE1CMASTJ470
C924		ELECTROLYTIC CAP. 100μF/6.3V M	CE0KMASDL101
C926		CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V	CHD1JJ3CH470
C927		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C928		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C929		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C930		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C931		ELECTROLYTIC CAP. 220μF/6.3V M	CE0KMASTL221
C932		CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V	CHD1JK30B104
C934		ELE.CAP 220μF/16V M(105C)	CE1CMASTJ221
C935		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C936		ELECTROLYTIC CAP. 22μF/50V M	CE1JMASDL220
C937		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C938		CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V	CHD1JK30B103
C939		ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100

Ref. No.	Mark	Description	Part No.
C940		CAP POLYESTER FILM 0.22μF 50V J	CA1J224SER04
C942		ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
CONNECTORS			
CN401		CONNECTOR PRINT OSU KW04-800-0200	J30402KET001
CN402		CONNECTOR PRINT OSU KW04-800-0200	J30402KET001
CN701		TWG CONNECTOR 23P TWG-P23P-A1	J3TWA23TG001
CN702		TWG CONNECTOR 23P TWG-P23P-A1	J3TWA23TG001
CN703		TWG CONNECTOR 23P TWG-P23P-A1	J3TWA23TG001
CN704		TWG CONNECTOR 23P TWG-P23P-A1	J3TWA23TG001
CN705		242 SERIES CONNECTOR 224202104W1	J322C04TG001
CN706		242 SERIES CONNECTOR 224202106W1	J322C06TG001
CN801A		CONNECTOR PRINT OSU 008283021200000S+	J383C02UG004
CN802A		CONNECTOR PRINT OSU 008283021200000S+	J383C02UG004
DIODES			
D31		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D401		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D402		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D403		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D404		ZENER DIODE MTZJT-774.3B	QDTB0MTZJ4R3
D408		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D409		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D410		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D411		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D412		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D413		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D414		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D415		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D416		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D417		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D418		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D419		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D420		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D421		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D422		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D423		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D501		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D502		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D503		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D504		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D507		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D509		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D510		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D511		ZENER DIODE MTZJT-7739B	QDTB00MTZJ39
D512		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D513		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D516		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D518		ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D519		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D523		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D524		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D562		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D563		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D568		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D569		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D570		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D605⚠		DIODE 1N5397-B	NDLZ001N5397
D606⚠		DIODE 1N5397-B	NDLZ001N5397
D607⚠		DIODE 1N5397-B	NDLZ001N5397
D608⚠		DIODE 1N5397-B	NDLZ001N5397

Ref. No.	Mark	Description	Part No.
D609		ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D611⚠		ZENER DIODE MTZJT-7722B	QDTB00MTZJ22
D612		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D613		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D614		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D616⚠		ZENER DIODE MTZJT-7733B	QDTB00MTZJ33
D624⚠		ZENER DIODE MTZJT-7739B	QDTB00MTZJ39
D702		ZENER DIODE MTZJT-773.9B	QDTB0MTZJ3R9
D801		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D802		ZENER DIODE MTZJT-7712B	QDTB00MTZJ12
D901		SCHOTTKY BARRIER DIODE ERC84-009	QDLZERC84009
D902		RECTIFIER DIODE FR202-B/P	NDQZ000FR202
D903		SCHOTTKY BARRIER DIODE ERC81-004	QDPZERC81004
D904		ZENER DIODE MTZJT-7724B	QDTB00MTZJ24
D906		SCHOTTKY BARRIER DIODE ERA81-004Q	QDLZRA81004Q
D909		DIODE FR154	NDLZ000FR154
D910		DIODE 1ZC43(Q)	QDLZ001ZC43Q
D911		SCHOTTKY BARRIER DIODE ERC81-004	QDPZERC81004
D914		DIODE FR104-B	NDLZ000FR104
D915		PCB JUMPER D0.6-P5.0	JW5.0T
D916		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D917		SCHOTTKY BARRIER DIODE ERA81-004Q	QDLZRA81004Q
D918		PCB JUMPER D0.6-P10.0	JW10.0T
D919		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D922		ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D925		ZENER DIODE MTZJT-7724B	QDTB00MTZJ24
D926	A	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D926	B	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D927		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D928		ZENER DIODE MTZJT-7733B	QDTB00MTZJ33
D929		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D930		ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D932		DIODE FR154	NDLZ000FR154
D933		ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D934		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D940		ZENER DIODE MTZJT-7710B	QDTB00MTZJ10
D942		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D947		PCB JUMPER D0.6-P5.0	JW5.0T
D948		PCB JUMPER D0.6-P5.0	JW5.0T
D951		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D952		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D956		ZENER DIODE MTZJT-7712B	QDTB00MTZJ12
D957		ZENER DIODE MTZJT-773.9B	QDTB0MTZJ3R9
D962		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D963		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
ICS			
IC31		IC VIF/SIF M61116FP TF0G	QSZBA0SHT034
IC61		IC EEPROM AT24C128N-10SU-1.8 S	NSZBA0TAZ083
IC601⚠		PHOTO COUPLER LTV817MCF	NPECLTV817MF
IC801		IC AN17812A	QSZBA0SMS017
IC851		IC MTS DECORDER AN5832SA-E1V	QSZBA0TMS003
IC852		IC SWITCHING TC4052BF(ELNF)	QSZBA0TTS162
IC904		VOLTAGE REGULATOR PQ070XF01SZH	QSZBA0SSH054
IC905		IC VOLTAGE REGULATOR 5V KIA7805API/P	NSZBA0SJY041
IC908		SHUNT REGULATOR KIA2431AP-AT/P	NSZBA0TJY054
IC909		IC SHUNT REGULATOR KIA431-AT/P	NSZBA0TJY036
IC910		IC SHUNT REGULATOR KIA431-AT/P	NSZBA0TJY036
IC911		IC SHUNT REGULATOR KIA431-AT/P	NSZBA0TJY036
IC912		IC SHUNT REGULATOR KIA431-AT/P	NSZBA0TJY036

Ref. No.	Mark	Description	Part No.
IC913		IC SHUNT REGULATOR KIA431-AT/P	NSZBA0TJY036
COILS			
L21		PCB JUMPER D0.6-P5.0	JW5.0T
L22		INDUCTOR 100μH-J-26T	LLAXJATTU101
L31		PCB JUMPER D0.6-P5.0	JW5.0T
L32		INDUCTOR 18μH-J-26T	LLAXJATTU180
L61		PCB JUMPER D0.6-P5.0	JW5.0T
L63		PCB JUMPER D0.6-P5.0	JW5.0T
L66		INDUCTOR CHIP LK16081R0K-T 1.0μH	LLACKB3TU1R0
L401B		POWER INDUCTER RCR1616-471K	LLC471KSF009
L403		CHOKE COIL 22μH-K	LLBD00PKV021
L601⚠		LINE FILTER 5.0MH 6Y075	LLBG00ZKT004
L701		PCB JUMPER D0.6-P5.0	JW5.0T
L702		INDUCTOR 22μH-J-26T	LLAXJATTU220
L851		PCB JUMPER D0.6-P5.0	JW5.0T
TRANSISTORS			
Q401		TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q402		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q403		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q404		TRANSISTOR KTA1267-GR-AT/P	NQS1KTA1267P
Q405		TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q406		NPN TRANSISTOR POWER 2SC4881F HFE MAX320	QQWZ2SC4881F
Q407		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q408⚠		FET MOS SMD HAT2215R01-EL-E	QF2ZHAT2215R
Q409		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q410		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q411		TRANSISTOR KTA1267-GR-AT/P	NQS1KTA1267P
Q412		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q501		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q601⚠		FET MOS 2SK3563(Q)	QFWZ2SK3563Q
Q603⚠		TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q707		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q708		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q709		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q802		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q901		TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q902		NPN TRANSISTOR POWER 2SC4881F HFE MAX320	QQWZ2SC4881F
Q905		TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q906		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q907		TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q908		TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q909		TRANSISTOR 2SC2120-Y(TE2 F T)	QQSY2SC2120F
Q910		TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q913		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q916		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q917		TRANSISTOR KTA1267-GR-AT/P	NQS1KTA1267P
Q918		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q919		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q922		NPN TRANSISTOR POWER 2SC4881F HFE MAX320	QQWZ2SC4881F
Q923		TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q924		TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q925		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q926		TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q927		NPN TRANSISTOR POWER 2SC4881F HFE MAX320	QQWZ2SC4881F
Q928		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q929		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q930		TRANSISTOR KTA1267-GR-AT/P	NQS1KTA1267P
Q932		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q933		TRANSISTOR KTA1267-GR-AT/P	NQS1KTA1267P
Q934		TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P

Ref. No.	Mark	Description	Part No.
Q935		NPN TRANSISTOR POWER 2SC4881F HFE MAX320	QQWZ2SC4881F
RESISTORS			
R17		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R18		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R21		CHIP RES. 1/10W J 150k Ω	RRXAJR5Z0154
R23		CHIP RES. 1/10W J 680 Ω	RRXAJR5Z0681
R24		CHIP RES. 1/10W J 820k Ω	RRXAJR5Z0824
R25		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R26		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R32		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R38		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R42		CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R46		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R48		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R49		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R61		CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R62		CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R63		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R64		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R65		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R67		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R68		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R72		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R73		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R74		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R75		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R401		CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R402		CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R403		CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R404		CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R405		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R406		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R407		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R408		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R409		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R410		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R411		CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R412		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R413		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R414		CHIP RES. 1/10W J 47 Ω	RRXAJR5Z0470
R415		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R416		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R417		CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R418		CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R419		CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R420		CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R421		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R422		CHIP RES. 1/10W J 820k Ω	RRXAJR5Z0824
R423		CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R424		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R425		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R426		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R427		CHIP RES. 1/10W J 560k Ω	RRXAJR5Z0564
R428		CHIP RES. 1/10W J 560k Ω	RRXAJR5Z0564
R429		CHIP RES. 1/10W J 820k Ω	RRXAJR5Z0824
R430		CARBON RES. 1/4W J 3.3 Ω	RCX4JATZ03R3
R431		CHIP RES. 1/10W J 18k Ω	RRXAJR5Z0183
R432		CHIP RES. 1/10W J 820 Ω	RRXAJR5Z0821
R433		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R434		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R435		CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R436		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122

Ref. No.	Mark	Description	Part No.
R437		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R438		CHIP RES. 1/10W J 560 Ω	RRXAJR5Z0561
R439		METAL OXIDE FILM RES. 2W J 0.68 Ω	RN02R68KE010
R440		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R441		CHIP RES. 1/10W J 39k Ω	RRXAJR5Z0393
R442		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R503		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R504		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R505		CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R506		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R507		CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R508		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R511		CHIP RES. 1/10W J 680 Ω	RRXAJR5Z0681
R512		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R513		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R515		CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R516		CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R517		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R518		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R519		CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R520		CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R521		CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R530		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R531		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R533		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R534		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R535		CHIP RES. 1/10W J 1.8k Ω	RRXAJR5Z0182
R536		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R537		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R539		CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R540		CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R541		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R542		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R601⚠		CEMENT RES. 3W K 1.2 Ω	RW031R2PG007
R603		CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R604		CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R605		CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R607		CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R608		CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R609		CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R610		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R613⚠		METAL OXIDE FILM RES. 2W J 0.68 Ω	RN02R68KE010
R621		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R623		CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R701		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R702		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R704		CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R705		CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R706		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R707		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R708		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R709		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R711		CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R715		PCB JUMPER D0.6-P5.0	JW5.0T
R716		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R718		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R719		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R722		CHIP RES. 1/10W J 75 Ω	RRXAJR5Z0750
R726		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R728		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R729		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R730		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R731		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103

Ref. No.	Mark	Description	Part No.
R732		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R733		CHIP RES. 1/10W J 560 Ω	RRXAJR5Z0561
R734		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R735		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R737		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R738		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R739		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R740		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R743		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R745		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R756		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R759		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R783		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R786		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R797		CHIP RES. 1/10W J 3.9k Ω	RRXAJR5Z0392
R798		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R799		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R805		METAL OXIDE FILM RES. 2W J 2.7 Ω	RN022R7DP004
R807		METAL OXIDE FILM RES. 2W J 2.7 Ω	RN022R7DP004
R808		CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R809		CHIP RES. 1/10W J 3.9k Ω	RRXAJR5Z0392
R810		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R811		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R812		CHIP RES. 1/10W J 4.7k Ω	RRXAJR5Z0472
R813		CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R814		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R815		CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R816		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R817		CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R818		CHIP RES. 1/10W J 8.2k Ω	RRXAJR5Z0822
R819		CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R820		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R821		PCB JUMPER D0.6-P5.0	JW5.0T
R822		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R823		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R824		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R825		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R826		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R827		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R828		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R829		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R830		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R831		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R832		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R833		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R834		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R837		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R838		PCB JUMPER D0.6-P5.0	JW5.0T
R839		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R840		CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R841		CHIP RES. 1/10W J 12k Ω	RRXAJR5Z0123
R842		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R843		CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R844		CHIP RES. 1/10W J 12k Ω	RRXAJR5Z0123
R851		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R852		CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R853		CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R855		CHIP RES. 1/10W J 180k Ω	RRXAJR5Z0184
R877		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R878		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R879		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R880		CHIP RES. 1/10W J 8.2k Ω	RRXAJR5Z0822
R881		CHIP RES. 1/10W J 8.2k Ω	RRXAJR5Z0822

Ref. No.	Mark	Description	Part No.
R882		CHIP RES. 1/10W J 5.6k Ω	RRXAJR5Z0562
R883		CHIP RES. 1/10W J 5.6k Ω	RRXAJR5Z0562
R895		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R900		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R901		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R905		METAL OXIDE FILM RES. 2W J 0.56 Ω	RN02R56KE010
R906		CARBON RES. 1/4W J 68 Ω	RCX4JATZ0680
R907		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R908		CHIP RES. 1/10W F 3.3k Ω	RRXAFR5H3301
R909		CHIP RES. 1/10W F 10k Ω	RRXAFR5H1002
R910		METAL OXIDE FILM RES. 2W J 1.5 Ω	RN021R5KE010
R911		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R912		CHIP RES. 1/10W F 3.3k Ω	RRXAFR5H3301
R913		CHIP RES. 1/10W F 10k Ω	RRXAFR5H1002
R914		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R915		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R916		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R917		CHIP RES. 1/10W F 820 Ω	RRXAFR5H8200
R918		CHIP RES. 1/10W F 5.6k Ω	RRXAFR5H5601
R921		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R922		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R923		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R924		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R925		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R926		CARBON RES. 1/4W J 1.8 Ω	RCX4JATZ01R8
R927		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R928		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R929		CARBON RES. 1/4W J 1.5 Ω	RCX4JATZ01R5
R930		PCB JUMPER D0.6-P5.0	JW5.0T
R931		CARBON RES. 1/4W J 22 Ω	RCX4JATZ0220
R932		CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R933		CHIP RES. 1/10W F 3.3k Ω	RRXAFR5H3301
R934		CHIP RES. 1/10W F 10k Ω	RRXAFR5H1002
R935		CARBON RES. 1/4W J 2.2 Ω	RCX4JATZ02R2
R936		CARBON RES. 1/4W J 2.2 Ω	RCX4JATZ02R2
R937		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R938		CHIP RES. 1/10W F 220 Ω	RRXAFR5H2200
R939		CHIP RES. 1/10W F 22k Ω	RRXAFR5H2202
R940		CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R941		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R942		PCB JUMPER D0.6-P5.0	JW5.0T
R943		CHIP RES. 1/10W F 220 Ω	RRXAFR5H2200
R944		CHIP RES. 1/10W F 1.2k Ω	RRXAFR5H1201
R949		CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R950		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R951		CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R952		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R953		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R954		CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R955		CHIP RES. 1/10W J 6.8k Ω	RRXAJR5Z0682
R958⚠		CHIP RES. 1/10W F 3.9k Ω	RRXAFR5H3901
R959⚠		CHIP RES. 1/10W F 3.9k Ω	RRXAFR5H3901
R960⚠		CHIP RES. 1/10W F 4.7k Ω	RRXAFR5H4701
R961⚠		CHIP RES. 1/10W F 4.7k Ω	RRXAFR5H4701
R962⚠		CHIP RES. 1/10W F 240 Ω	RRXAFR5H2400
R963⚠		CHIP RES. 1/10W F 240 Ω	RRXAFR5H2400
R964⚠		CHIP RES. 1/10W F 240 Ω	RRXAFR5H2400
R965⚠		CHIP RES. 1/10W F 240 Ω	RRXAFR5H2400
R966		CARBON RES. 1/4W J 22 Ω	RCX4JATZ0220
R967		CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R968		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R969		CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R970		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470

Ref. No.	Mark	Description	Part No.
R971		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R974		CARBON RES. 1/4W J 22 Ω	RCX4JATZ0220
R982		METAL OXIDE FILM RES. 1W J 0.39 Ω	RN01R39DP003
R985		CHIP RES. 1/10W F 330 Ω	RRXAFR5H3300
R986		CHIP RES. 1/10W F 680 Ω	RRXAFR5H6800
R988		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R992		CHIP RES. 1/10W J 27k Ω	RRXAJR5Z0273
R993		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R994		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R995		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R996		CARBON RES. 1/4W J 22 Ω	RCX4JATZ0220
R997		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R998		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R999		CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R1000		CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1001		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R1002		PCB JUMPER D0.6-P5.0	JW5.0T
R1003		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1004		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R1005		CHIP RES. 1/10W F 4.7k Ω	RRXAFR5H4701
R1006		CHIP RES. 1/10W F 4.7k Ω	RRXAFR5H4701
R1007		CHIP RES. 1/10W F 2.2k Ω	RRXAFR5H2201
R1008		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1010		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R1011		CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R1012		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1013		CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R1014		CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R1015	A	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R1015	B	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R1016		METAL OXIDE FILM RES. 2W J 5.6 Ω	RN025R6DP004
R1017		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1018		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R1019		METAL OXIDE FILM RES. 2W J 12 Ω	RN02120DP004
R1020		METAL OXIDE FILM RES. 2W J 12 Ω	RN02120DP004
R1023		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1024		CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R1025	A	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R1025	B	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R1026		CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R1027		CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R1028		CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R1029		CHIP RES. 1/10W F 240 Ω	RRXAFR5H2400
R1054		CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R1710		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
MISCELLANEOUS			
AC601⚠		AC CORD A0A0280-007	WAC0172LTE04
B10		POW HEAT SINK A7120μH	1EM423993
B11		HEAT SINK PLT ASSEMBLY L0700UZ	1EM423290
BC61		BEAD INDUCTOR FBR07HA121TB-00	LLBF00ZTU021
BC62		PCB JUMPER D0.6-P5.0	JW5.0T
BC63		BEAD INDUCTOR FBR07HA121TB-00	LLBF00ZTU021
BC65		BEAD INDUCTOR FBR07HA121TB-00	LLBF00ZTU021
BC401		BEAD INDUCTOR FBR07HA121TB-00	LLBF00ZTU021
BC602		BEAD INDUCTOR FBR07HA121TB-00	LLBF00ZTU021
CF31		CERAMIC FILTER SFSRA4M50CF00-B0	FBB455PMR004
CL1101		WIRE ASSEMBLY SW 4PIN AWG26	WX1A81N0-02A
CL1151		WIRE ASSEMBLY SENSOR 6PIN AWG26	WX1A81N0-03B
F601⚠		FUSE 4.00A/125V	PAGG20CNG402
FH601		FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
FH602		FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
GP641⚠		GAP. FNR-G3.10D	FAZ000LD6005

Ref. No.	Mark	Description	Part No.
JK701		Y/C JACK YKF51-5646N	JYEJ040JC001
JK702		JACK RCA PCB S AV-4B-70HH	JXRJ010SNJ06
JK703		RCA JACK AV-4B-54H YELLOW	JXRJ010SNJ01
JK704		RCA JACK WHITE AV-4B-58H WHITE	JXRJ010SNJ04
JK705		RCA JACK AV-4A-57H RED	JYRJ010SNJ01
JK706		RCA JACK AV-4B-55H	JXRJ010SNJ05
JK707		RCA JACK AV-4B-56H	JXRJ010SNJ02
JK708		RCA JACK AV-4B-57H	JXRJ010SNJ03
JK709		RCA JACK WHITE AV-4B-58H WHITE	JXRJ010SNJ04
JK710		RCA JACK AV-4A-57H RED	JYRJ010SNJ01
JK801		MINIATURE JACK(PB FREE) CKX-035-318AZ4	JYSL010SNJ01
JS67		PCB JUMPER D0.6-P7.5	JW7.5T
JS115		PCB JUMPER D0.6-P5.0	JW5.0T
JS116		PCB JUMPER D0.6-P5.0	JW5.0T
JS121		PCB JUMPER D0.6-P5.0	JW5.0T
JS701		PCB JUMPER D0.6-P5.0	JW5.0T
JS902		PCB JUMPER D0.6-P5.0	JW5.0T
L4		SCREW B-TIGHT D3X8 BIND HEAD+	GBJB3080
SA601⚠		SURGE ABSORBER 470V+-10PER	NVQZ10D471KB
SF11		FILTER CERAMIC B SAFHS45M7VAUM01B05	FBB456LMR006
T401⚠		TRANS INVERTER ETJV26ZE11AC	LTZ3PC0MS001
T601⚠		TRANS POWER 7729	LTT2PC0KT026
TP1803		PCB JUMPER D0.6-P5.0	JW5.0T
TU61		TUNER UNIT U4002AF	UTUNATSSP001

FUNCTION CBA

Ref. No.	Mark	Description	Part No.
		FUNCTION CBA Consists of the following:	----------
CAPACITORS			
C1101		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C1102		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
C1103		CHIP CERAMIC CAP.(1608) F Z 0.1μF/ 25V	CHD1EZ30F104
RESISTORS			
R1101		CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1102		PCB JUMPER D0.6-P5.0	JW5.0T
R1103		CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R1104		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R1105		CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R1106		CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R1107		CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1108		CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R1109		CHIP RES. 1/10W J 4.7k Ω	RRXAJR5Z0472
R1110		CHIP RES. 1/10W J 6.8k Ω	RRXAJR5Z0682
SWITCHES			
SW1102		TACT SWITCH SKQSAB	SST0101AL038
SW1103		TACT SWITCH SKQSAB	SST0101AL038
SW1104		TACT SWITCH SKQSAB	SST0101AL038
SW1105		TACT SWITCH SKQSAB	SST0101AL038
SW1106		TACT SWITCH SKQSAB	SST0101AL038
SW1107		TACT SWITCH SKQSAB	SST0101AL038
SW1113		TACT SWITCH SKQSAB	SST0101AL038
MISCELLANEOUS			
BC1101		PCB JUMPER D0.6-P5.0	JW5.0T

IR SENSOR CBA

Ref. No.	Mark	Description	Part No.
		IR SENSOR CBA Consists of the following:	----------
CAPACITOR			
C1151		CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
DIODES			
D1152		LED 333GT/E	NPHZ00333GTE
D1153		LED LTL-4214M1	NPQZLTL4214M
TRANSISTORS			
Q1151		NPN TRANSISTOR KRC103M-AT/P	NQSZKRC103MP
Q1152		NPN TRANSISTOR KRC103M-AT/P	NQSZKRC103MP
RESISTORS			
R1151		CARBON RES. 1/4W J 120 Ω	RCX4JATZ0121
R1152		CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R1153		CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R1156		CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1157		CHIP RES. 1/10W J 10 Ω	RRXAJR5Z0100
MISCELLANEOUS			
RS1151		PHOTO LINK MODULE KSM-712TH2E	USESJRSKK044

JUNCTION CBA

Ref. No.	Mark	Description	Part No.
		JUNCTION CBA Consists of the following:	----------
CONNECTORS			
CN1102		242 SERIES CONNECTOR TUC-P04X-B1 WHT ST	JCTUB04TG002
CN1152		242 SERIES CONNECTOR TUC-P06X-B1 WHT ST	JCTUB06TG002

LC195EM82/LC195EM87
A81N0/N1UH
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