Service Manual

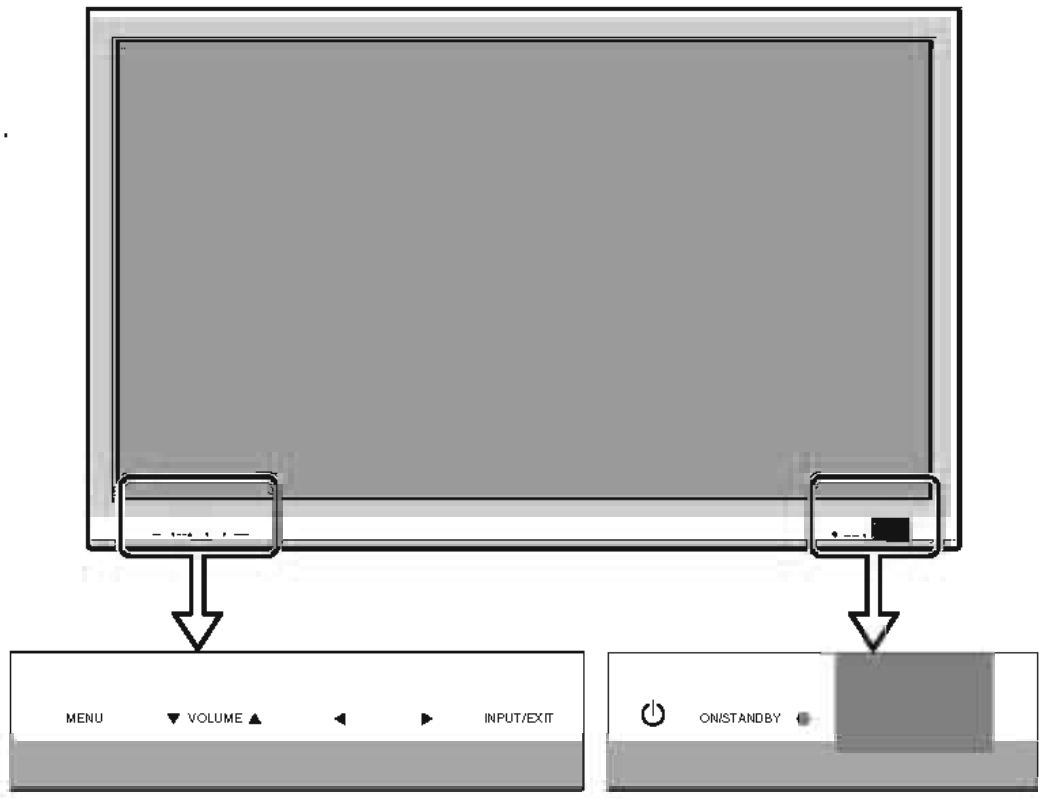
PD6001 /U1B

Plasma Monitor

2nd EDITION

This service manual is the revised one.

- 4. ADUSTMENT and 7. BLOCK DIAGRAM were added.
- A partial revision of the contents.



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Please use this service manual with referring to the user guide (D.F.U.) without fail.
修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

marantz®

PD6001

Part no. 90M26AV855020
First Issue 2006.12
MZ

PD6001

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound.
Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.
Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.
The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA
MARANTZ AMERICA, INC
100 CORPORATE DRIVE
MAHWAH, NEW JERSEY 07430
USA

EUROPE / TRADING
MARANTZ EUROPE B.V.
P. O. BOX 8744, BUILDING SILVERPOINT
BEEMDSTRAAT 11, 5653 MA EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2507844
FAX : +31 - 40 - 2507860

CANADA
MARANTZ CANADA INC.
5-505 APPLE CREEK BLVD.
MARKHAM, ONTARIO L3R 5B1
CANADA
PHONE : 905 - 415 - 9292
FAX : 905 - 475 - 4159

AUSTRALIA
QualiFi Pty Ltd,
24 LIONEL ROAD,
MT. WAVERLEY VIC 3149
AUSTRALIA
PHONE : +61 - (0)3 - 9543 - 1522
FAX : +61 - (0)3 - 9543 - 3677

THAILAND
MRZ STANDARD CO., LTD
746 - 754 MAHACHAI ROAD.,
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WO KEE HONG DISTRIBUTION PTE LTD
No.1 JALAN KILANG TIMOR
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FAX : +65 6376 0166

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WILDASH AUDIO SYSTEMS NZ
14 MALVERN ROAD MT ALBERT
AUCKLAND NEW ZEALAND
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FAX : +64 - 9 - 8463554

TAIWAN
PAI- YUING CO., LTD.
6 TH FL NO, 148 SUNG KIANG ROAD,
TAIPEI, 10429, TAIWAN R.O.C.
PHONE : +886 - 2 - 25221304
FAX : +886 - 2 - 25630415

MALAYSIA
WO KEE HONG ELECTRONICS SDN. BHD.
2ND FLOOR BANGUNAN INFINITE CENTRE
LOT 1, JALAN 13/6, 46200 PETALING JAYA
SELANGOR DARUL EHSAN, MALAYSIA
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FAX : +60 - 3 - 7954 7088

JAPAN
D&M Holdings Inc.
D&M BUILDING, 2-1 NISSHIN-CHO,
KAWASAKI-KU, KAWASAKI-SHI,
KANAGAWA, 210-8569 JAPAN

株式会社 ディーアンドエムホールディングス

本 社 〒210-8569
神奈川県川崎市川崎区日進町2-1 D&Mビル

KOREA
MARANTZ KOREA CO., LTD.
ROOM 604, ELECTRO OFFICE, 16-58,
HANGGANG-RO 3GA, YONGSAN-KU,
SEOUL, 140-013, KOREA
PHONE : +82 - 2 - 323 - 2155
FAX : +82 - 2 - 323 - 2154

CHINA
MARANTZ SHANGHAI TRADING LTD.
ROOM.506 SHANGHAI LIGHT INDUSTRY MANSION
1578 NANJING (WEST) ROAD SHANGHAI
CHINA
TEL : 021 - 6248 - 1064
FAX : 021 - 6248 - 3565

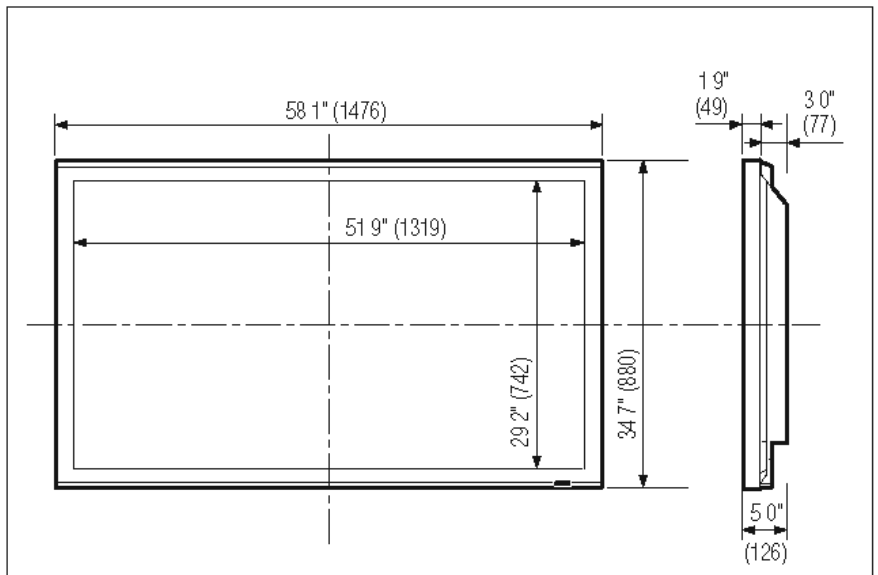
SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.
Ref. UL Standard No. 60065.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

Screen Size	51.9 inches(H) × 29.2 inches(V) 1319 mm(H) × 742 mm(V) diagonal 60 inches
Aspect Ratio	16 : 9
Resolution	1365 pixels(H) × 768 pixels(V)
Pixel Pitch	0.038 inches(H) × 0.038 inches(V) 0.97 mm(H) × 0.97 mm(V)
Signals	
Synchronization Range	Horizontal : 15.5 kHz to 110.0 kHz (automatic : step scan) Vertical : 50.0 Hz to 120.0 Hz (automatic : step scan)
Input Signals	RGB, NTSC (3.58/4.43), PAL (B,G,M,N), PAL60, SECAM, HD*1 , DVD*1
Input Terminals	
PC/RGB	
Visual 1 (Analog)	mini D-sub 15-pin × 1
Video	
Visual 1	RCA × 1
Visual 2	S-Video: DIN 4-pin × 1
DVD/HD	
Visual 1	RCA-pin (Y, Cb/Pb, Cr/Pr) × 1*1
Visual 2	RCA-pin (Y, Cb/Pb, Cr/Pr) × 1*1
HDMI	HDMI connector × 2*2
Audio	Stereo RCA × 3 (Selectable)
External Control	D-sub 9-pin × 1 (RS-232C)
Remote In	Mini jack × 1
Remote Out	Mini jack × 1
Sound output	9 W+9 W at 6 ohm
Power Supply	AC100 V to 240 V 50 Hz/60 Hz
Current Rating	7.0 A (maximum)
Power Consumption	440 W (typical)
Dimensions	58.1 inches(W) × 34.7 inches(H) × 5.0 inches(D) 1476 mm(W) × 880 mm(H) × 126 mm(D)
Weight	135.6 lbs / 61.5 kg (without stand)
Environmental Considerations	
Operating Temperature	0 °C to 40 °C / 32 °F to 104 °F
Humidity	20 % to 80 % (no condensation)
Storage Temperature	-10 °C to 50 °C / 14 °F to 122 °F
Humidity	10 % to 90 % (no condensation)
Other Features	Motion compensated 3D Scan Converter (NTSC, PAL, 480I, 576I, 525I, 625I, 1035I, 1080I), 2-3 pull down Converter (NTSC, 480I, 525I, 1035I, 1080I (60 Hz)), 2-2 pull down Converter (PAL, 576I, 625I, NTSC, 480I, 525I), Digital Zooming (100 % to 900 % Selectable), Self Diagnosis via RS232C, PDP Saver (PEAK BRIGHT, ORBITER, INVERSE, WHITE, SCREEN WIPER, SOFT FOCUS, etc.), Color Temperature Select (high/middle/middle low/low, user has 4 memories), Auto Picture Adjust, Input Skip, Color Tune, Gamma Correction (4 modes), Plug and play (DDC1, DDC2b, HDMI: E-DDC), Enhanced Split Screen, etc.
Accessories	Power cord (× 1), Remote control (× 1), AAA batteries (× 2), Manuals (User guide), Ferrite cores for power cord (× 2), bands for power code (× 2), Cable clampers (× 3), beads bands (× 3), Ferrite core for remote cable (× 2), Warranty card
Regulations	UL 60065, CAN/CSA-C22.2 No.60065-03, FCC class B, ICES-003 class B



Units are in inch
(mm)

The features and specifications may be subject to change without notice.

***1 DVD/HD input signals supported on this system.**

480P (60 Hz)	480I (60 Hz)	525P (60 Hz)
525I (60 Hz)	576P (50 Hz)	576I (50 Hz)
625P (50 Hz)	625I (50 Hz)	720P (60 Hz)
720P (50 Hz)	1035I (60 Hz)	1080I (50 Hz)
1080I (60 Hz)	1080P (50 Hz)	1080P (60 Hz)

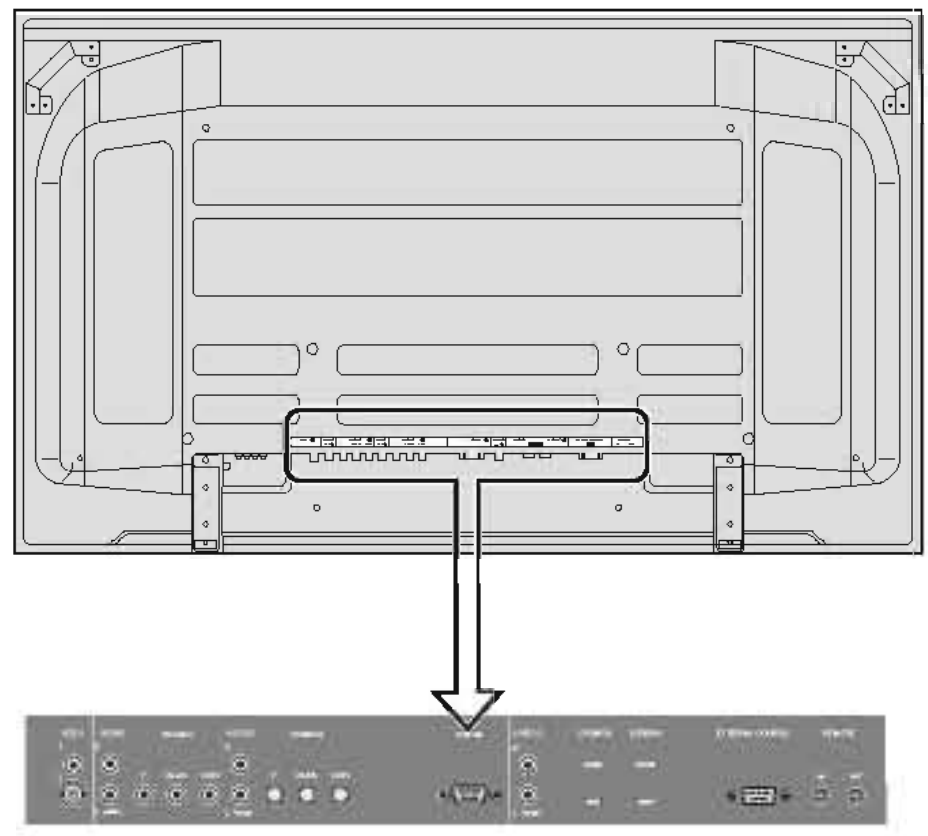
***2 HDMI input signals supported on this system.**

Supported Signals

- 640 × 480P @ 59.94/60 Hz
- 1280 × 720P @ 59.94/60 Hz
- 1920 × 1080I @ 59.94/60 Hz
- 720 × 480P @ 59.94/60 Hz
- 1440 (720) × 480I @ 59.94/60 Hz
- 1920 × 1080I @ 50 Hz
- 720 × 576P @ 50 Hz
- 1440 (720) × 576I @ 50 Hz
- 1280 × 720P @ 50 Hz

Note: In some cases a signal on the plasma monitor may not be displayed properly. The problem may be an inconsistency with standards from the source equipment (DVD, Set-top box, etc...). If you do experience such a problem please contact Marantz America, Inc. and also the manufacturer of the source equipment.

HIGH-DEFINITION MULTIMEDIA INTERFACE



2. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

SAFETY PRECAUTIONS

NOTICE : Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

The following precautions should be observed :

1. When service is required, even though the PDP UNIT an isolation transformer should be inserted between the power line and the set in safety before any service is performed.
2. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacture's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacture has become defective, or inadvertently defeated during servicing. Therefore, the following checks should be performed for the continued protection of the customer and servicetechnician.
6. Perform the following precautions against unwanted radiation and rise in internal temperature.
   - Always return the internal wiring to the original styling.
   - Attach parts (Gascket, Ferrite Core, Ground, Rear Cover, Shield Case etc.) surely after disassembly.
7. Perform the following precautions for the PDP panel.
   - When the front case is removed, make sure nothing hits the panel face, panel corner, and panel edge (so that the glass does not break).
   - Make sure that the panel vent does not break. (Check that the cover is attached.)
   - Handle the FPC connected to the panel carefully. Twisting or pulling the FPC when connecting it to the connector will cause it to peel off from the panel.
8. Pay attention to the following.
   - Pay extreme caution when the front case and rear panel are removed because this may cause a high risk of disturbance to TVs and radios in the surrounding.

Insulation Resistance Check

With the AC plug removed from an AC power source, place a jumper across the two plug prongs. Turn the AC power switch on. (Case of PD6001, AC power is alwayas on.)

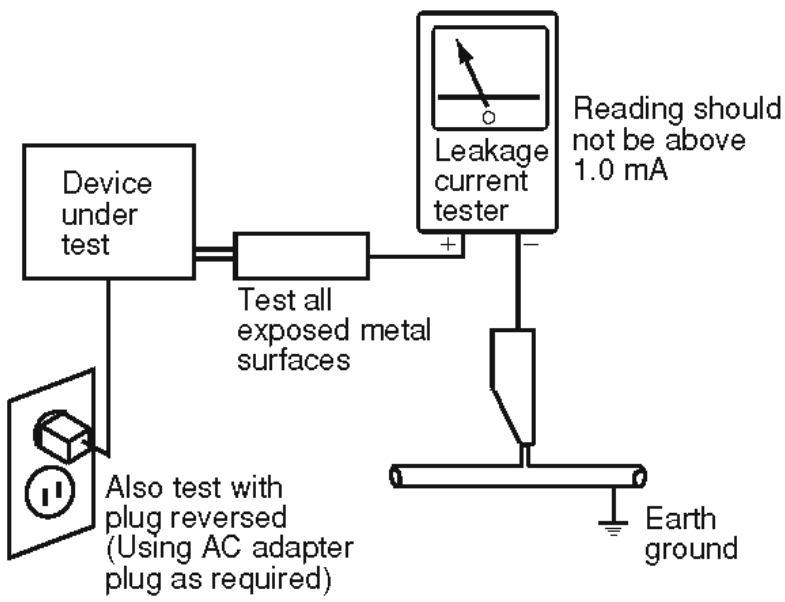
Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), The resistance should be greater than 4 MΩ.

Leakage Current Hot Check

Plug the AC line cord directly into an AC power source (do not use an isolation transformer for this check).

Turn the AC power switch on.

Using a "Leakage Current Tester", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, etc.). Any current measured must not exceed 1.0 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the Set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

■Safety cautions

The matters to be observed without fail are explained below. These matters are indispensable for the prevention of an accident during the maintenance servicing, the "security of products" after the completion of servicing work, and the "prevention of the repeated occurrence of similar fault."

(1) The degree of danger and material damage, caused as a result of wrong use by disregarding the contents of the display" is distinguished and explained in the table below.

WARNING	If this display is disregarded and equipment is handled wrongly, this can be a cause of physical injury and a fire, thus leading a person to death or serious injury.
CAUTION	If this display is disregarded and equipment is handled wrongly, this may lead to personal injury or material damage.

(2) Kinds of the matters to be observed are classified and explained in the icons shown below.

	This icon indicates a dangerous place where an electric shock is anticipated.
	This icon indicates the contents of "caution" that must be borne in mind, without fail.
	This icon indicates the contents of "caution" that must be practiced, without fail.

WARNING

• Observe the caution matter, without fail.

- In the place where a particular caution is needed during maintenance servicing, such a caution note is displayed with a label or a stamp that is given to the cabinet, chassis, PWB, etc. These caution notes and also the caution matters of ⚠WARNING given in the instruction manuals, etc., must be observed, without fail.

• Be careful of an electric shock or a burn.

- The power block or the PDP module involves the sections where high voltage or high temperature is prevalent. When equipment is energized, use working gloves in order to prevent an electric shock or a burn. At the time of transportation, disassembly, reassembly, and the replacement of parts, such a servicing job must be done after pulling out the power plug.

• Modification of equipment is absolutely prohibited. Use the specified parts at all times.

- If any modification is performed, the validity of the manufacturer's warranty is lost at that moment. The personnel who did this modification is responsible for the physical injury or the like, if it should occur as a result of the modification. The parts used are given the safety-based characteristics, such as non-flammability or sufficient withstand voltage. The parts to be replaced shall be those which are specified in the list of replacement parts.(Example: The lithium battery (circuit symbol BT9501 in the MAIN PWB) will give rise to explosion if its polarity is wrongly treated.

• The replaced parts and wiring must be arranged in the original conditions.

- For safety reasons, insulation materials like tubes and tapes may be used or some parts may be mounted clear of the PWB. The internal wiring and the fastening with the clampers for separation from high-heat and high-voltage parts shall be returned to their original conditions, without fail.

⚠ CAUTION

• Observe the caution matter, without fail

- The caution matters of ⚠CAUTION given in the instruction manuals, etc., must be observed, without fail.

• Do not give shocks and vibration.

- The panel surface (display plane) of the filter and the PDP module (include the PDP Service ASSY) is made of glass. If any shocks or vibration is applied, it may be broken and the scattered glass chips will be a cause of injury.

• Do not put anything.

- Do not put anything on the product. Otherwise, this can be a cause of injury as a result of falling down or dropping caused by imbalance.

• Transportation must be done by enough personnel.

- The product is heavy. In the case of transportation, unpacking, or packing, more than two persons should do it (three persons for a product of 60-inch or larger) by supporting the top and the bottom of the product.

Miscellaneous caution matters

(1) This product uses highly integrated semiconductor parts. Since these parts are fragile to electrostatic charges, earth bands should be used for handling. The product should be handled where measures have been taken against electrostatic charges.

(2) If this product is used for the fixed character display or the like as in the case of a character display board, a phenomenon of burning (not warranted) will occur. Burning is a phenomenon that the unevenness in the brightness is caused in the display. In such a case, the brightness in the section where the integrated display time is longer becomes lower than the brightness in another section where the integrated display time is shorter. This phenomenon is in proportion to the integrated display time and the brightness. For this reason, to relieve this difficulty during servicing, do not use any still picture, but use a display by motion pictures of a video or the like. In addition, use "FULL" for the screen mode and avoid using any display by "NORMAL", "TRUE", or MULTI SCREEN like side by side etc. If it is necessary to use only a still picture for unavoidable reasons, use a burning relief function such as "PLE LOCK", "ORBITER", "SCREEN WIPER", etc.

(3) When a PDP module (include the PDP Service ASSY) is operated after a long time of storage, it may encounter a difficulty like a failure in displaying a screen or unstability according to the condition of storage. In such a case, the PDP module (include the PDP Service ASSY) should be incorporated in the product and aging treatment should be carried out for about two hours (all screen display).

(4) Sulfides will deteriorate the PDP module (include the PDP Service ASSY) and this is a cause of malfunction. Therefore, it is absolutely prohibited to put any vulcanized rubber or a material containing sulfur in the vicinity of the PDP module (include the PDP Service ASSY).

(5) When taking out a PDP module (include the PDP Service ASSY) from the maintenance

package box, do it slowly so that the panel surface does not get any shock or stress.

(6) If one touches the connector of the flexible cable exposed to the rear side of the PDP module (include the PDP Service ASSY), there is danger of causing a poor contact. As such, it must be handled with utmost care. In addition, the flexible cable is very weak in mechanical strength. Therefore, this cable must not be touched during handling.

(7) The panel surface of the filter and the PDP module (include the PDP Service ASSY) is easy to be hurt. These components should be handled very carefully not to press or rub them with a hard thing. Never put them on a hard thing with the panel surface faced downwards.

(8) When the panel surface of the filter and the PDP module (include the PDP Service ASSY) is contaminated, gently wipe off the contaminant with a piece of soft dry cloth. Liquid-state contamination can be removed by lightly pressing it, without rubbing it. If it is difficult to remove the contamination, use a piece of cloth soaked with a neutral detergent (Use it, diluting with water.) or a rubbing alcohol. The cloth for wiping off should be clean. Never use the same cloth repeatedly. If a cleansing detergent or water drops should enter the module interior or be attached to the module surface other than the display plane at the time of cleaning, this will give rise to the destruction of the product when the product is energized.

(9) When transporting this product, use the packing materials specified in the list of parts. Once used, such packing materials should not be used again.

(10) This product is composed of a variety of parts, such as those made of materials like glass, metal, plastics, etc., and those like a lithium battery (circuit symbol of the MAIN ASSY: BT9501), etc. Therefore, when abandoning this product, this should be done in accordance with the relevant law of the nation or an autonomous body.

CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to above the Instructions.

(11) You should use the following service tools when you replace ICs etc. since solder with free lead is used in product.

* Soldering iron for solder with free lead ; HAKKO SOLDERING IRON 934 (Hakko corporation)
(See the following web address in detail. http://realwww.hkk.idanet.ne.jp/english/index.html)

* Solder with free lead ; SN96C 0.3 mm (NIHON SUPERIOR CO., LTD)
(See the following web address in detail. http://www.nihonsuperior.co.jp/english/index.html)

■ Charged Section

The places where the commercial AC power is used without passing through the power supply transformer.
If the places are touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. Therefore, be sure to connect the set via an insulated transformer and supply the current.

1. Power cord
2. AC inlet
3. Power switch (S1)
4. Fuse (In the POWER SUPPLY Unit)
5. STB transformer and Converter transformer
   (In the POWER SUPPLY Unit)
6. Other primary side of the POWER SUPPLY Unit

■ High Voltage Generating Point

The places where voltage is 100 V or more except for the charged places described above. If the places are touched, there is a risk of electric shock.
The VSUS voltage remains for several minutes after the power to the unit is turned off. These places must not be touched until about 10 minutes after the power is turned off, or it is confirmed with a tester that there is no residual VSUS voltage.

If the procedures described in "3.4 POWER ON/OFF FUNC-
-TION FOR THE LARGE-SIGNAL SYSTEM" are performed before the power is turned off, the voltage will be discharged in about 30 seconds.

POWER SUPPLY Unit.....(DC205 V)
60 X DRIVE Assy.....(–180 V to 205 V)
60 Y DRIVE Assy.....(–500 V to 500 V)
607 SCAN A Assy.....(–500 V to 500 V)
607 SCAN B Assy.....(–500 V to 500 V)

: Part is Charged Section.

: Part is the High Voltage Generating Points other than the Charged Section.

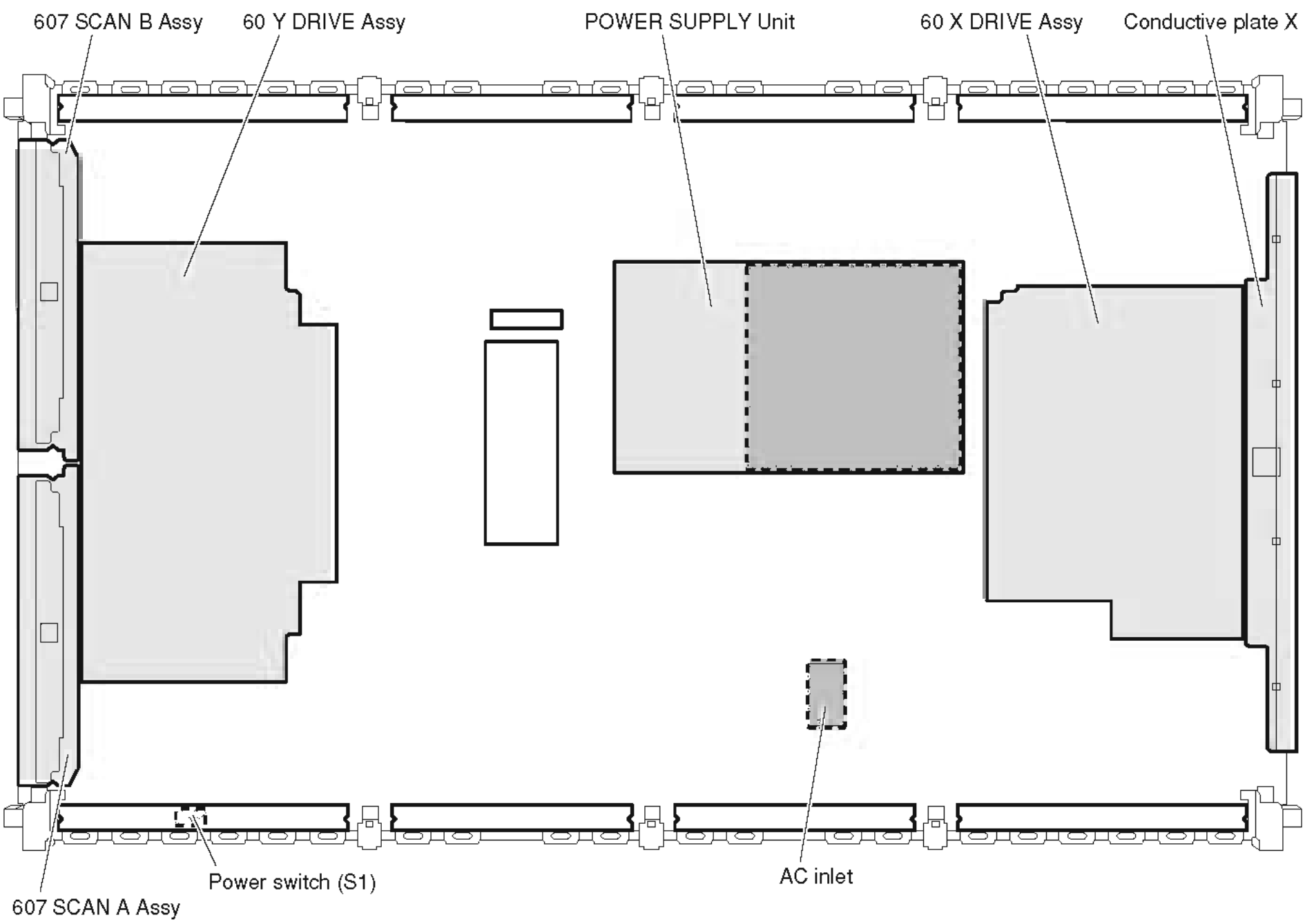
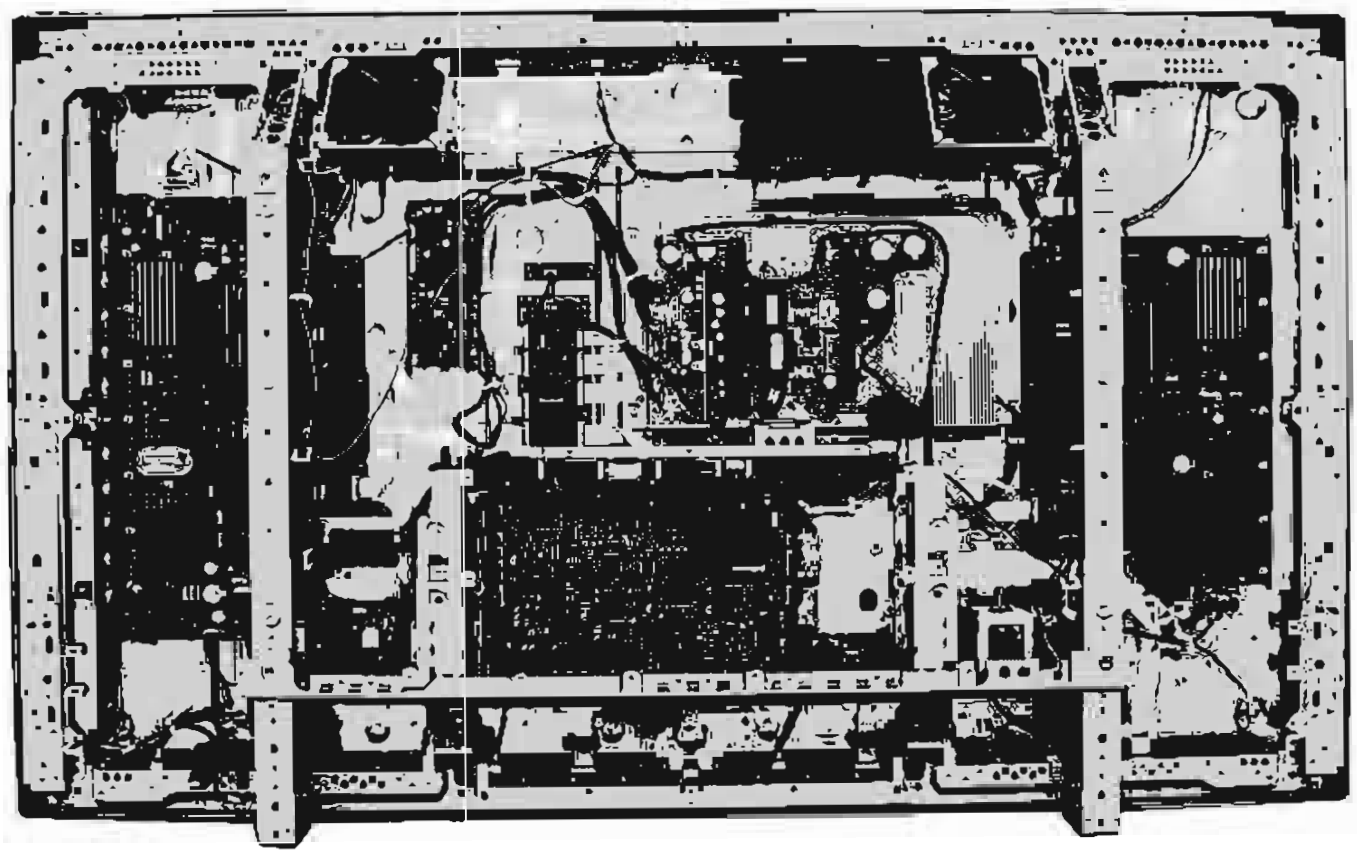


Fig. High Voltage Generating Point (Rear view)

■ High Temperature Section

Caution: Because the places circled (▭) in the photo can be extremely hot, work with care.



[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

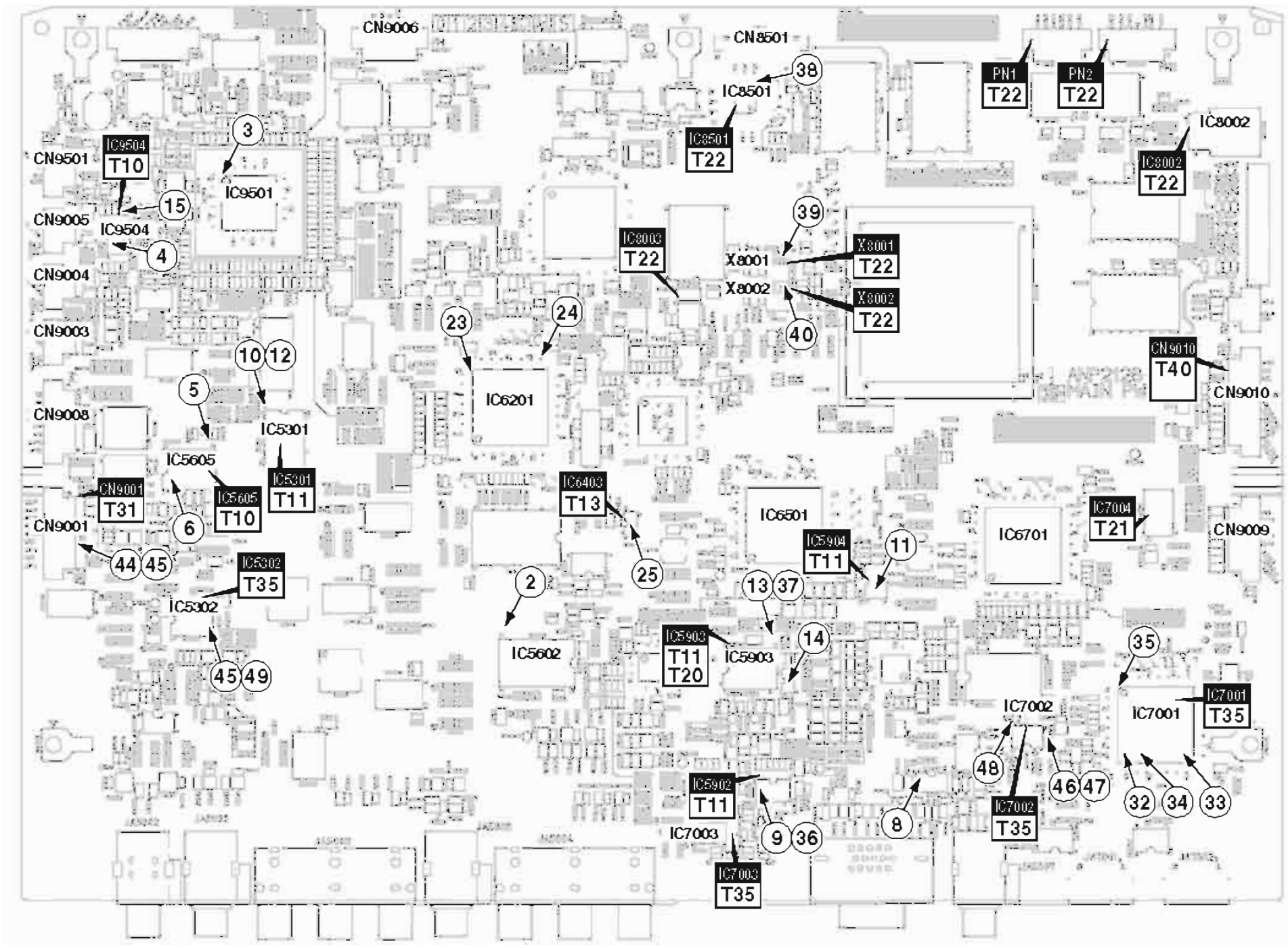
3. FAILURE DIAGNOSIS

3.1 FAILURE DIAGNOSIS

● **Diagnosis Points of PCB Assy**

Note:
If symptoms persist after replacement of parts, such as ICs, following the diagnosis results of this failure-analysis chart, it is recommended to replace the whole PC board, as short-circuiting or breaking of printed wiring of board patterns is suspected.

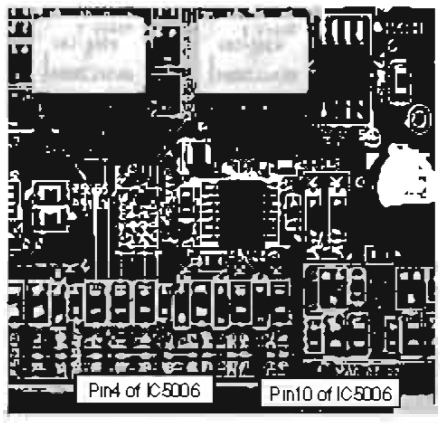
MAIN ASSY (XR model)



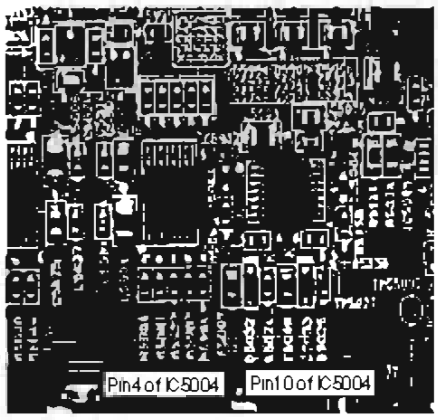
• **Legend symbol**

(45) : Waveform No. on Flowchart.

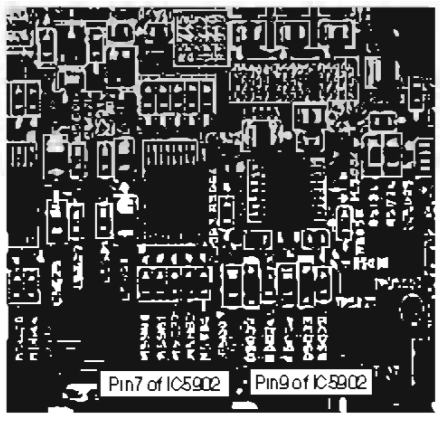
IC5002 / T13 : Broken circuit number on Flowchart, and number of Flowchart that broken parts are written.



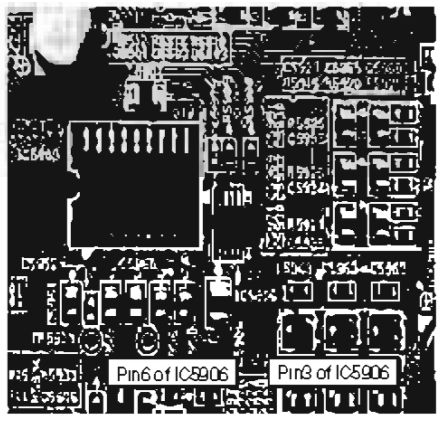
No ⑧(IC5006)



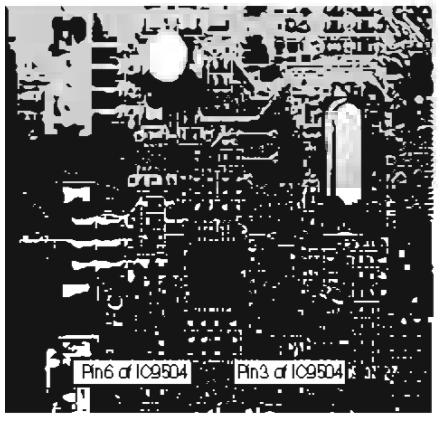
No ⑧(IC5004)



No ⑨ and ㉚ and ㉟



No ⑭



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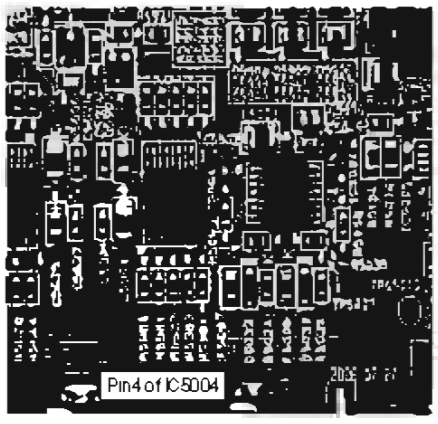
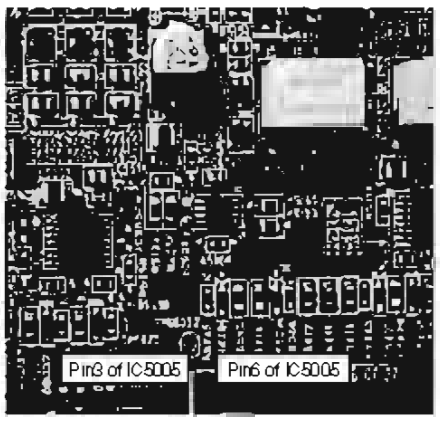


No ⑳



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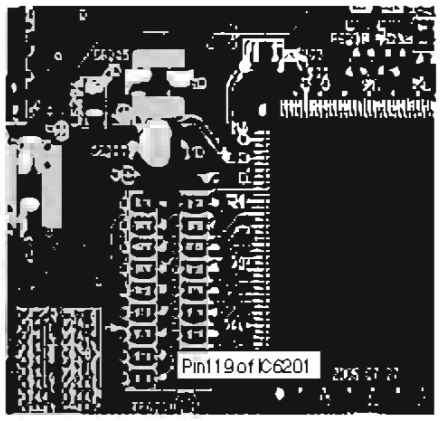
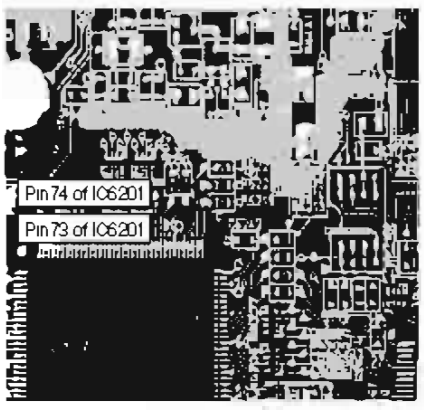


No ㉓



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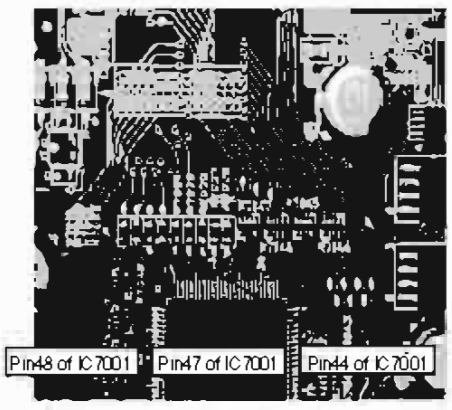

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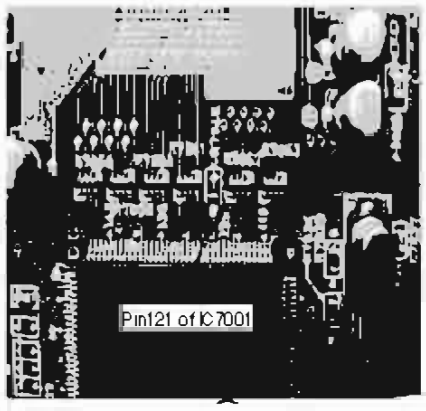

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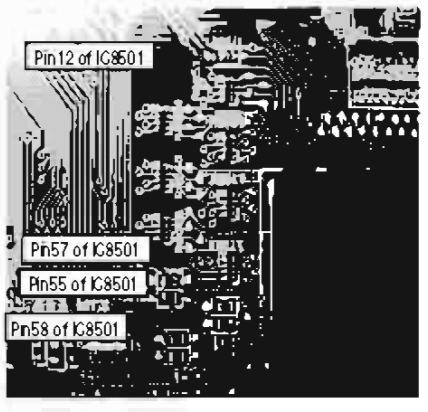

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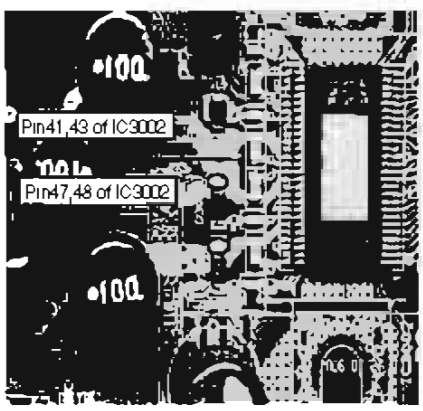

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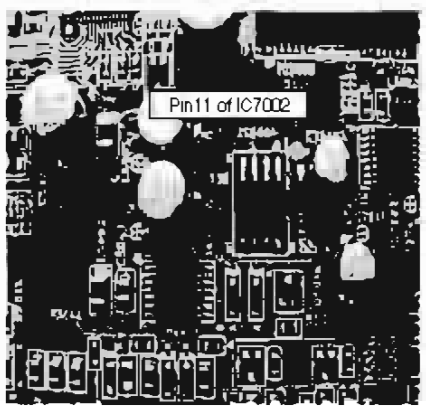

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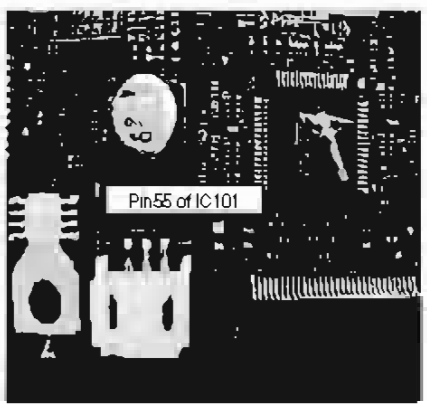

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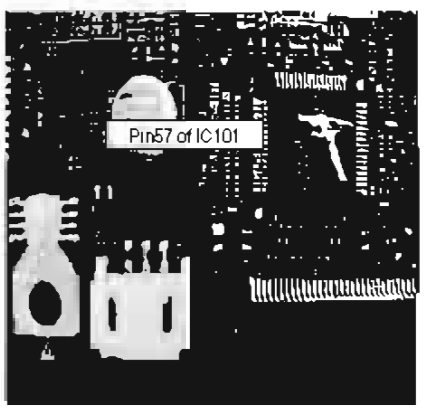
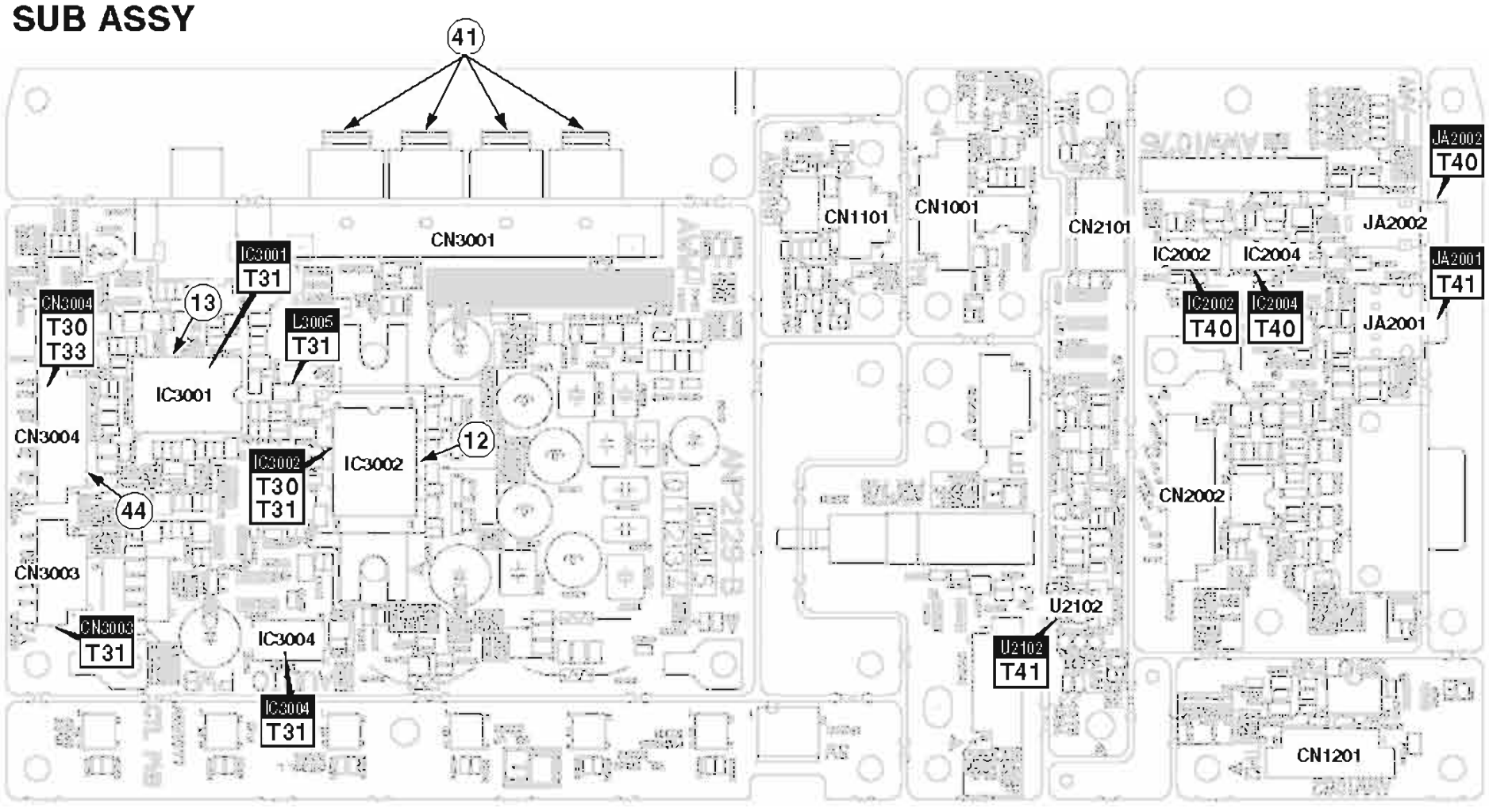


No (51)

SUB ASSY

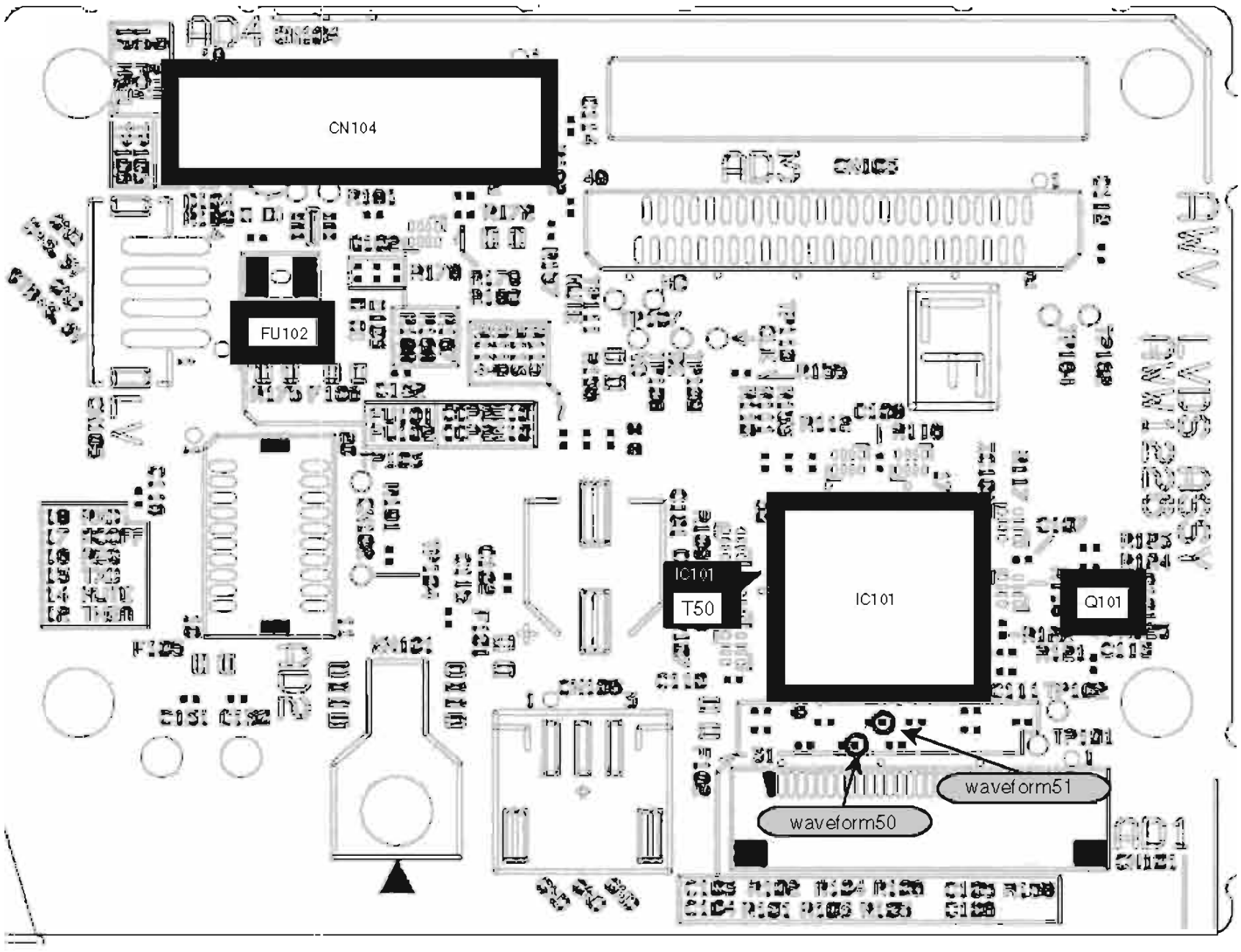


- **Legend symbol**

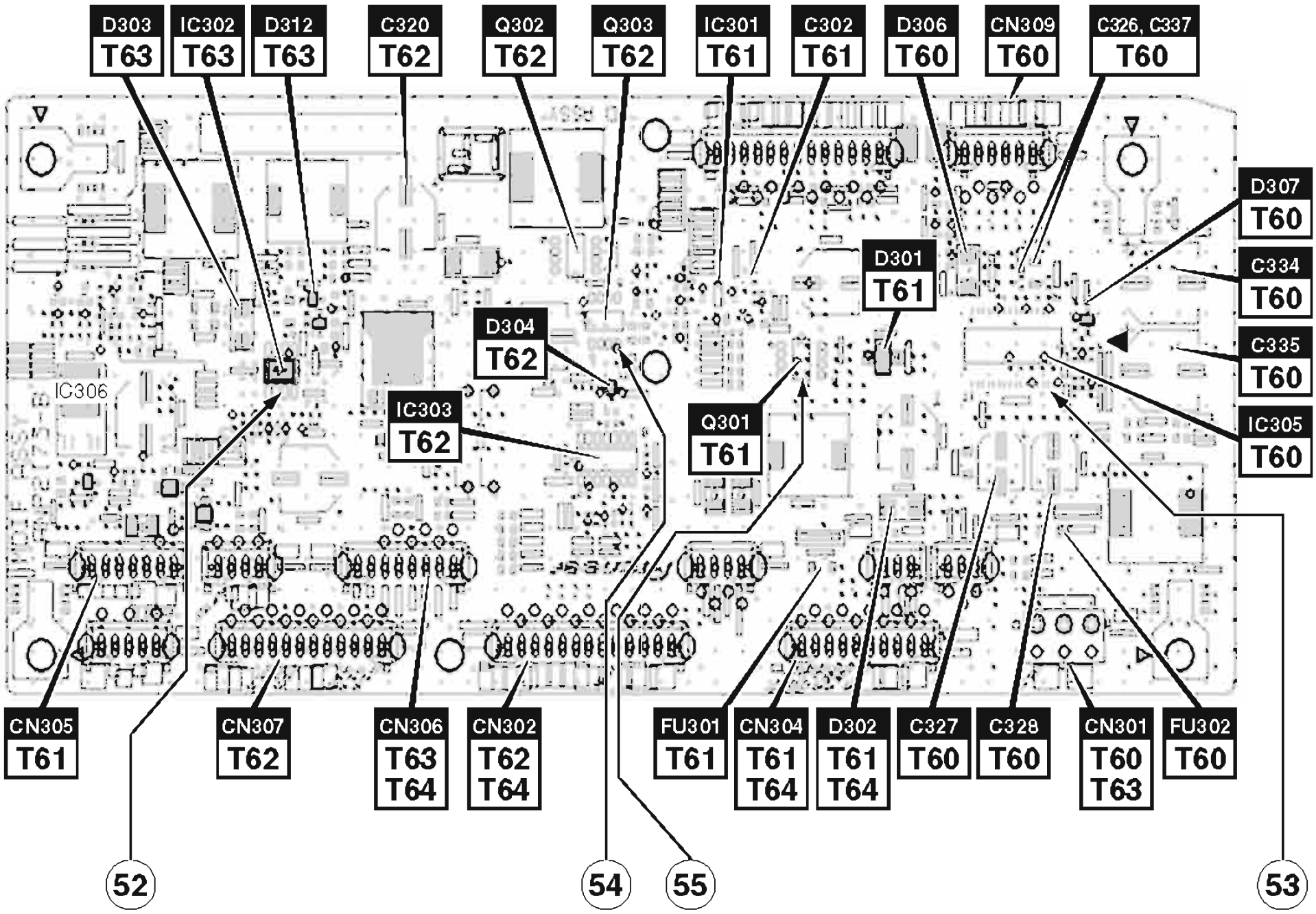
(45) : Waveform No. on Flowchart.

IC5002 T13 : Broken circuit number on Flowchart, and number of Flowchart that broken parts are written.

LVDS ASSY



DD ASSY



IC302 SW pin (#3)
(= D303 Cathode terminal)

Q303 Drain terminal
(#5 - #8)

Q301 Drain terminal
(#5 - #8)

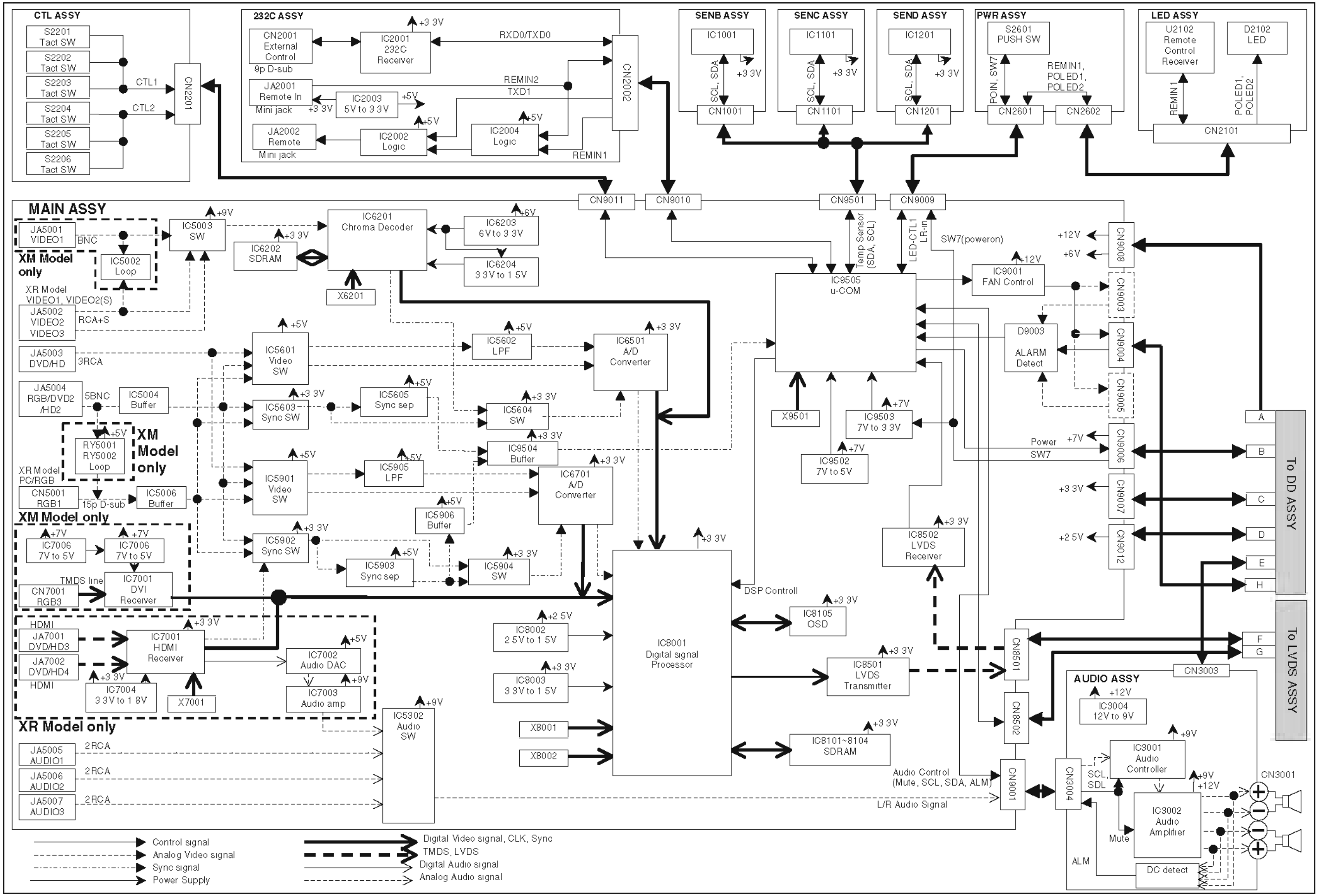
IC305 (#11 - #14)
V OUT pin

- **Legend symbol**

(52) : Waveform No. on Flowchart.

CN305 / T61 : Broken circuit number on Flowchart, and number of Flowchart that broken parts are written.

General Block Diagram (1/2)

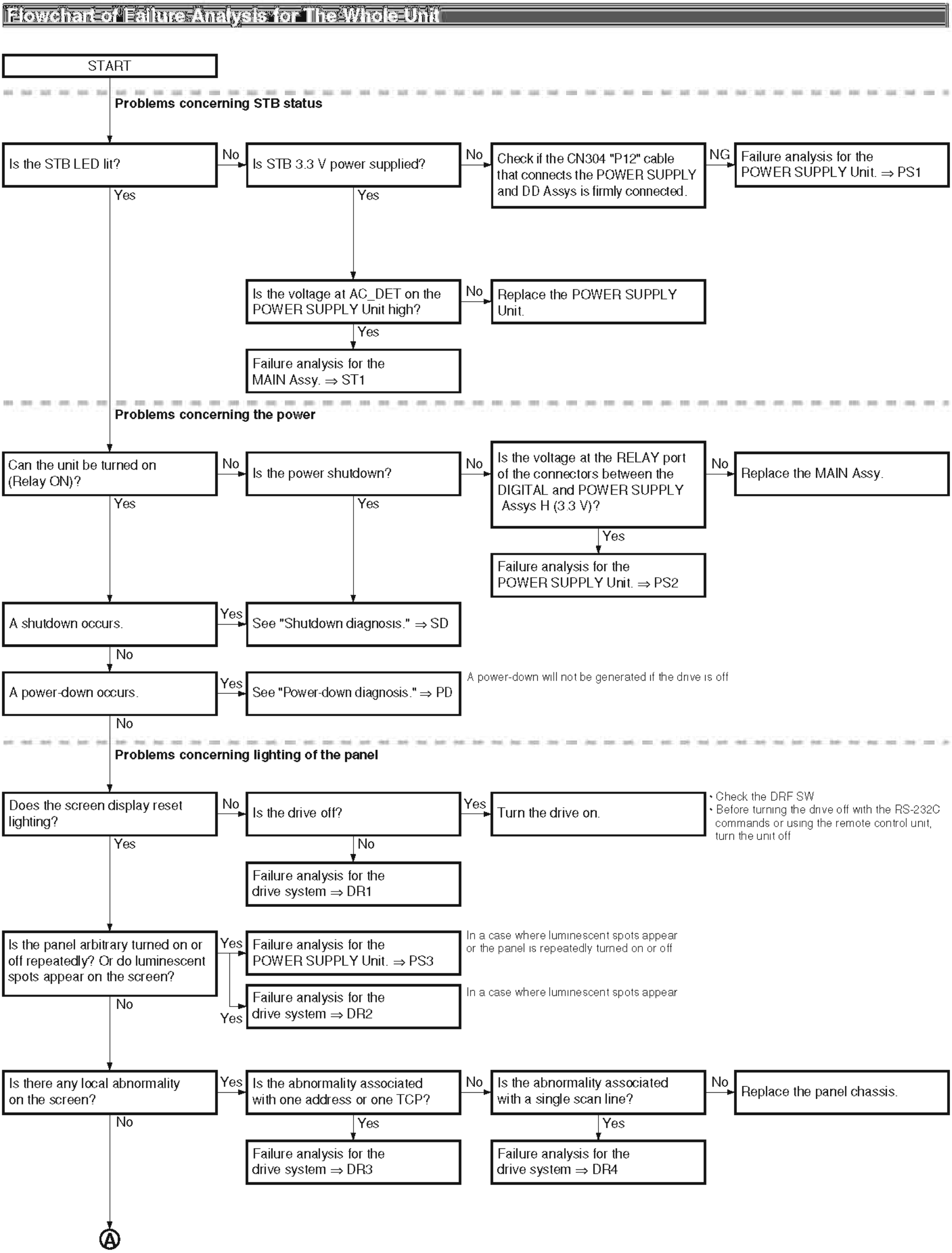


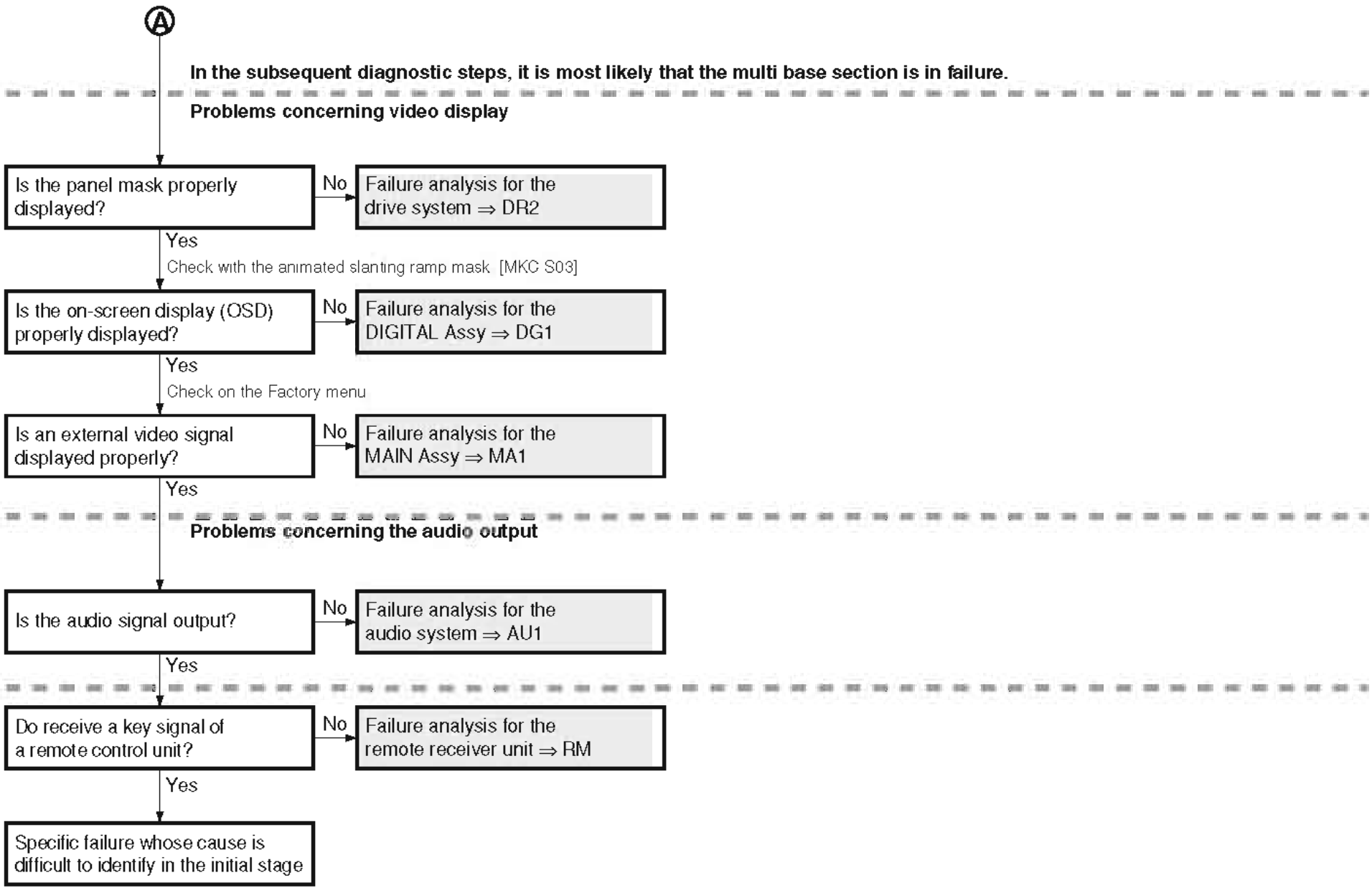
To MAIN ASSY (1/2)
F
G
CN101
CN102
+3 3V
IC101
LVDS
Receiver
LVDS ASSY
CN103
CN104
D1
D2

PDP Module
P1
P7
P4
P6
P2
60 ADDRESS L ASSY
60 ADDRESS S ASSY
PANEL SENSOR ASSY
607 SCAN B ASSY
60Y DRIVE ASSY
VOLTAGE CONVERTER BLOCK
Y MASK MODULE IC2301
Y MASK MODULE IC2302
Y DK MODULE IC2103
Y DK MODULE IC2151
Y RESET BLOCK
Y OFFSET BLOCK
PHOTO COUPLER
LOGIC BLOCK
HOT PLATE (PSUS)
607 SCAN A ASSY
DG
DRIVE CONTROL ASSY
DGDC CONVERTER MODULE
MODULE UCOM M30620FCPGP IC3151
SUB-FLD CONV & Y DRV SEQUENCE PATTERN GEN. PEG122C-K IC0401
FLASH MEMORY IC2301
60 DIGITAL ASSY
To LVDS ASSY CN104
To LVDS ASSY CN103
60X DRIVE ASSY
X MASK MODULE IC1203
X MASK MODULE IC1205
X DK MODULE IC1103
X DK MODULE IC1131
X RESET BLOCK
HOT PLATE

To MAIN ASSY (1/2)
A
B
C
D
H
To AUDIO ASSY (1/2)
E
DD ASSY
CN306
CN305
CN307
CN309
CN311
+12V
+6V
+7V
+3 3V
+2 7V
+12V
IC302 +16 5V to 12V
IC301 STB3 3 to +7V
IC303 +5 1 to +3 3V
IC305 +16 5 to +12V
IC306 +12 to 7 8V
ALARM Detect
FAN (1)
FAN (2)
FAN (3)
CN315
CN313
CN312
CN304(P12)
CN302(P8)
CN(301)
P12
P8
P5
+16 5V
+12V
STB3 3V
+6 5V
+12V
+16 5V
+5 1V
+16 5V
Power Supply Unit
P1
P2
P4
P6
P7
P3
+16 5V
+6 5V
Vsus
+16 5V
+6 5V
Vsus
+12V
+12V
STB3 3V
M_SW_DET
EXT_PD
VSUS_ADJ
PS_PD
RELAY
DRF_B
AC DET
PD_TRIG_B
+60V
+60V
AC INLET

3.1.1 FLOWCHART OF FAILURE ANALYSIS FOR THE WHOLE UNIT

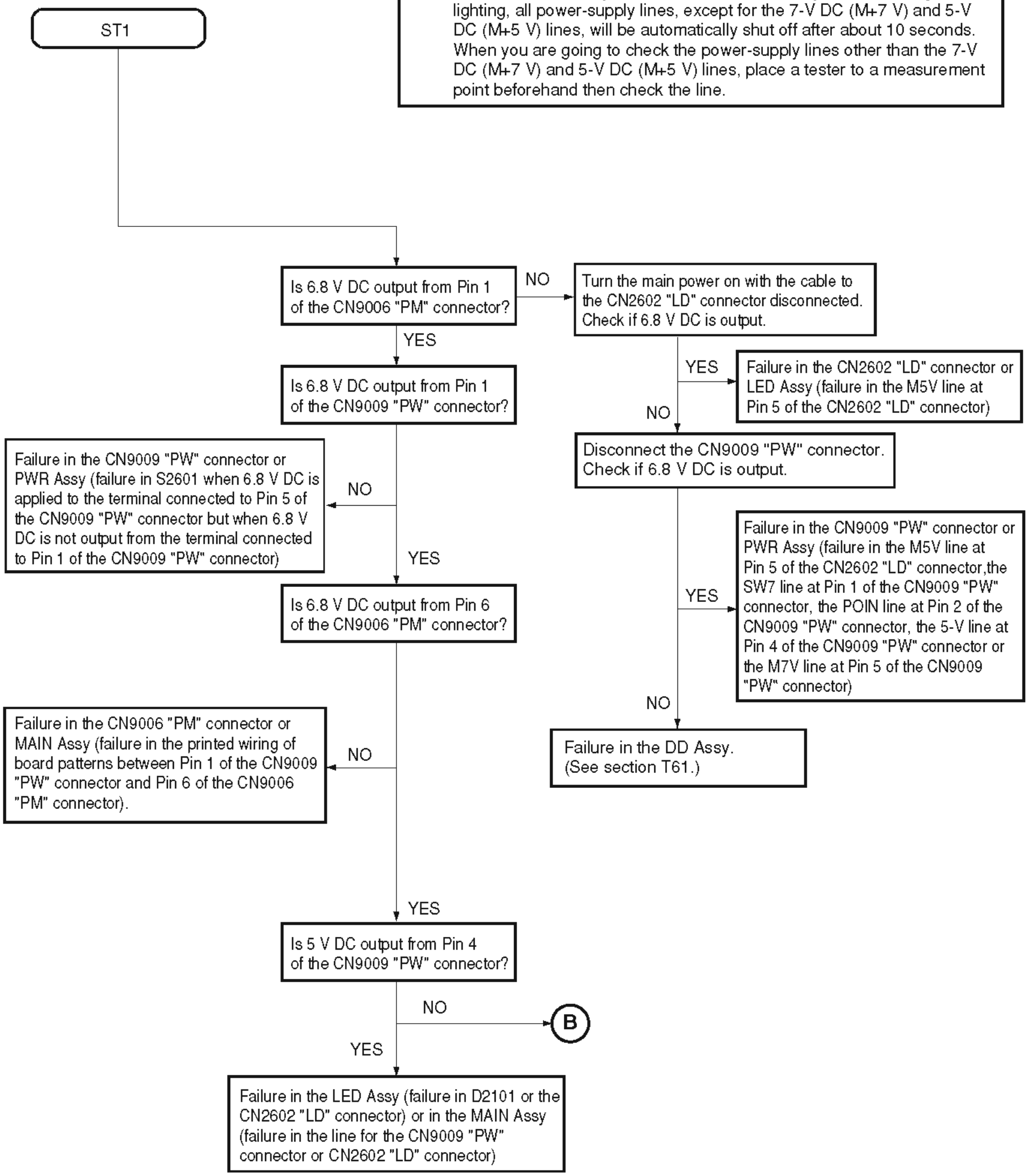


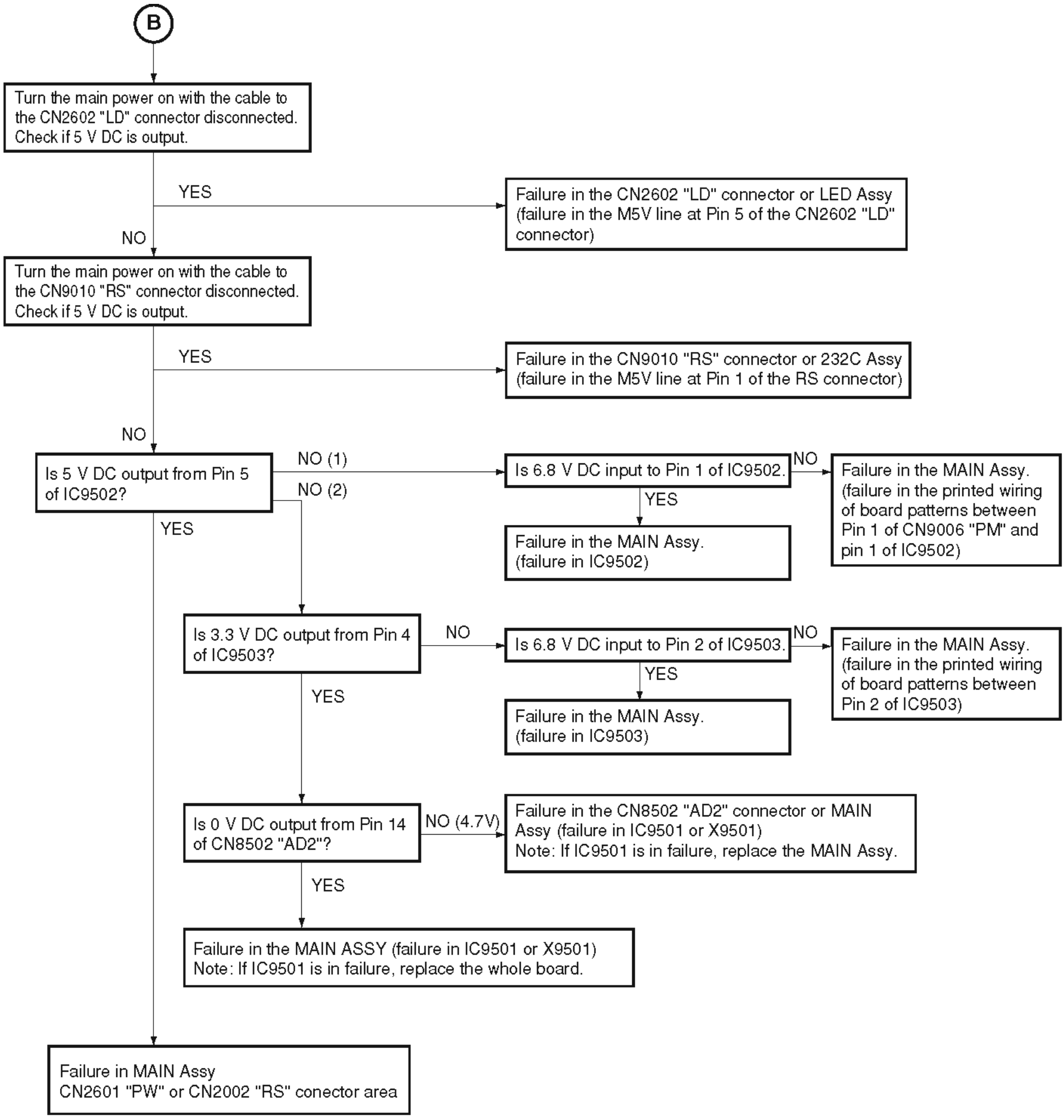

Ⓐ
In the subsequent diagnostic steps, it is most likely that the multi base section is in failure.
Problems concerning video display
Is the panel mask properly displayed?
No
Failure analysis for the drive system ⇒ DR2
Yes
Check with the animated slanting ramp mask. [MKC S03]
Is the on-screen display (OSD) properly displayed?
No
Failure analysis for the DIGITAL Assy ⇒ DG1
Yes
Check on the Factory menu
Is an external video signal displayed properly?
No
Failure analysis for the MAIN Assy ⇒ MA1
Yes
Problems concerning the audio output
Is the audio signal output?
No
Failure analysis for the audio system ⇒ AU1
Yes
Do receive a key signal of a remote control unit?
No
Failure analysis for the remote receiver unit ⇒ RM
Yes
Specific failure whose cause is difficult to identify in the initial stage

3.1.2 FLOWCHART OF FAILURE ANALYSIS FOR STANDBY STATUS

(1) No power

Note: When an abnormality is detected and indicated by LEDs' flashing or lighting, all power-supply lines, except for the 7-V DC (M+7 V) and 5-V DC (M+5 V) lines, will be automatically shut off after about 10 seconds. When you are going to check the power-supply lines other than the 7-V DC (M+7 V) and 5-V DC (M+5 V) lines, place a tester to a measurement point beforehand then check the line.

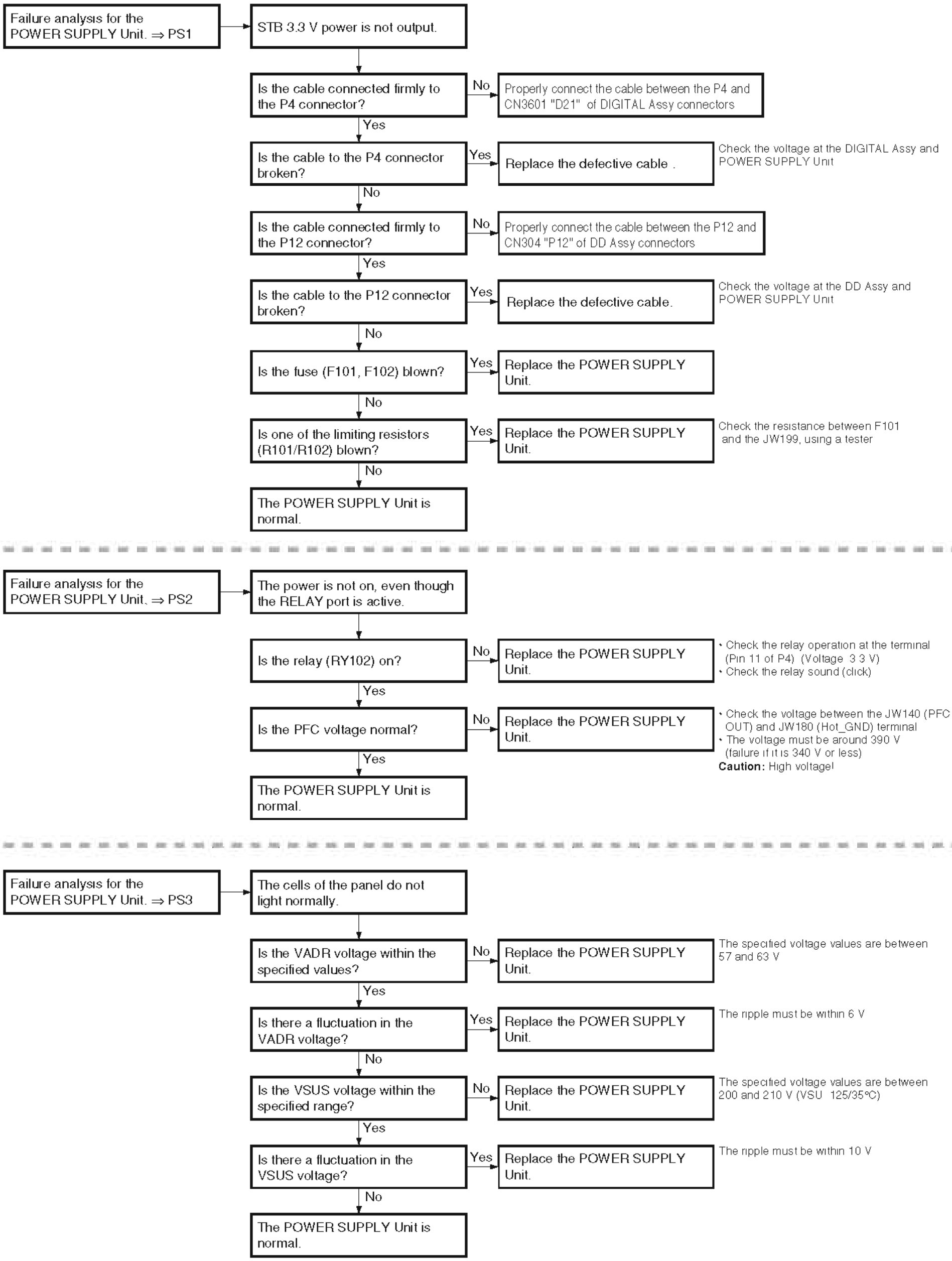




Note :
To check the power supply to the MAIN Assy and AUDIO Assy, follow the procedures described in "DD ASSY Troubleshooting Chart" (T60 to T64).
For details on statuses of the unit and voltages of each block, see "7.2 CONNECTION PIN EXPLANATION."

3.1.3 FLOWCHART OF FAILURE ANALYSIS FOR THE POWER SUPPLY UNIT

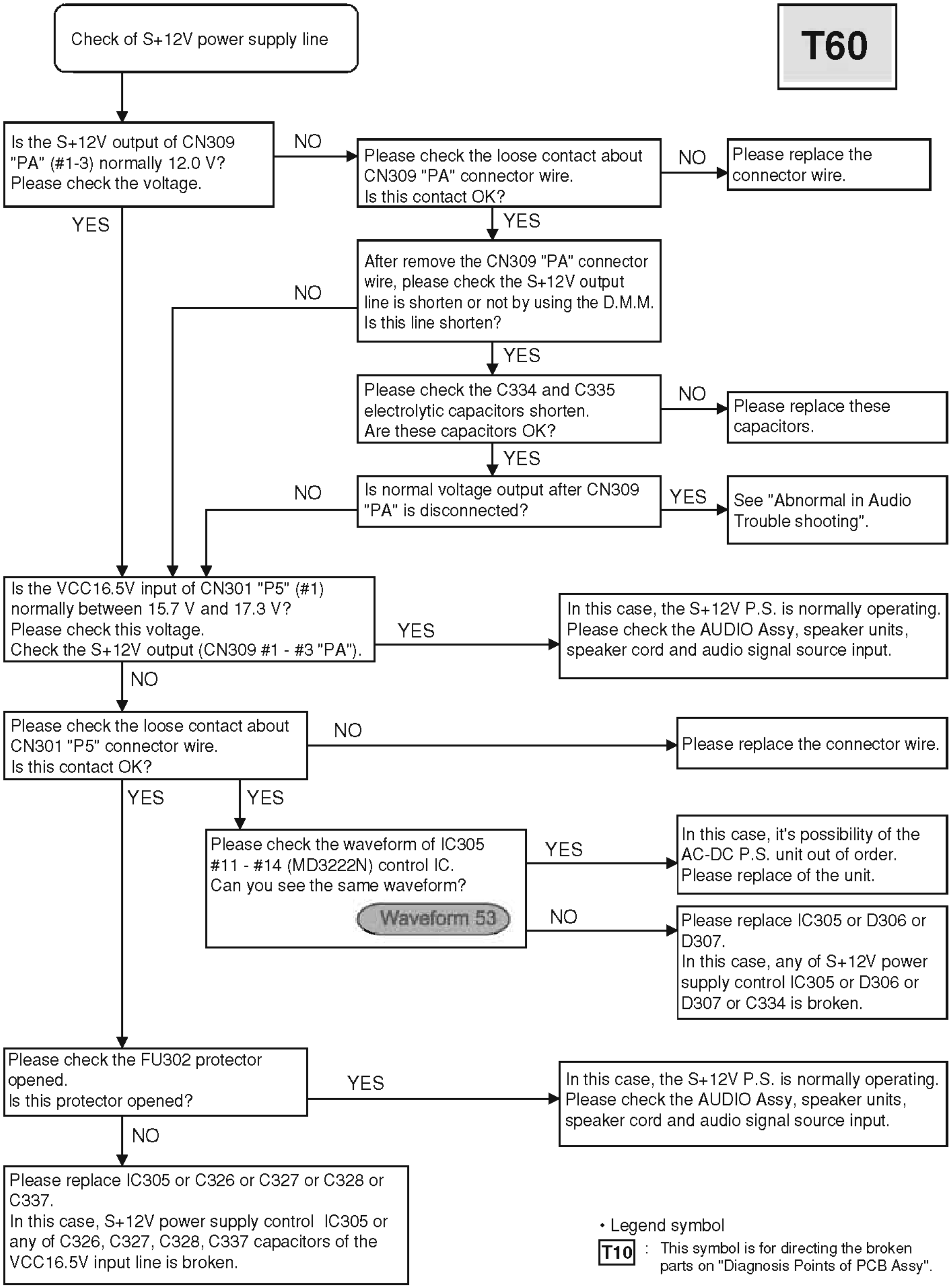
Flowchart of Failure Analysis for The POWER SUPPLY Unit



3.1.4 FLOWCHART OF FAILURE ANALYSIS FOR THE DD ASSY

DD ASSY (ANP2173) Trouble Shooting Chart

(1) Trouble Shooting of the "S+12V" output abnormal operation.

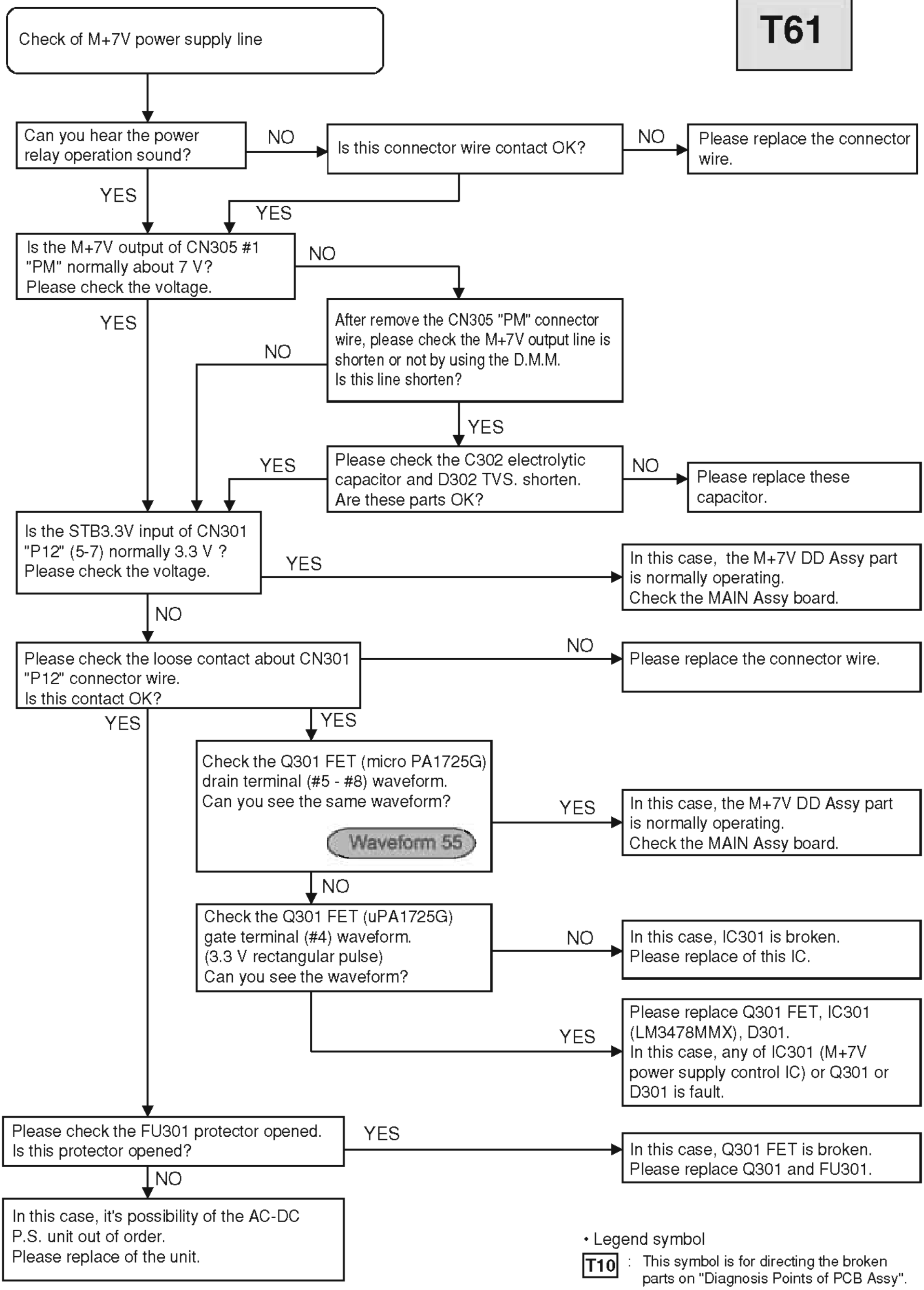


• Legend symbol

T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

(2) Trouble Shooting of the "M+7V" output abnormal operation.

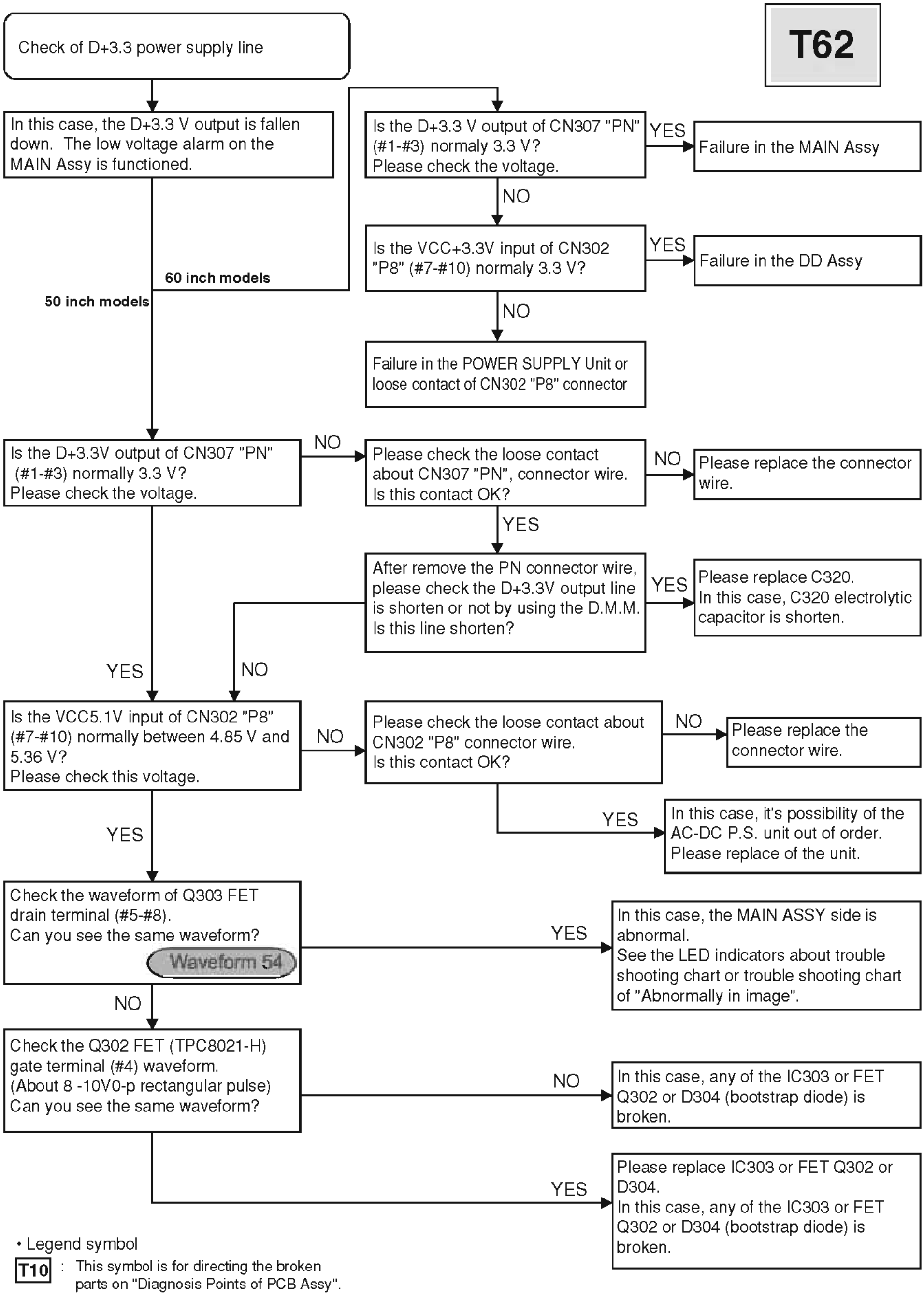
T61



• Legend symbol

T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

(3) Trouble Shooting of the "D+3.3V" output abnormal operation.



• Legend symbol

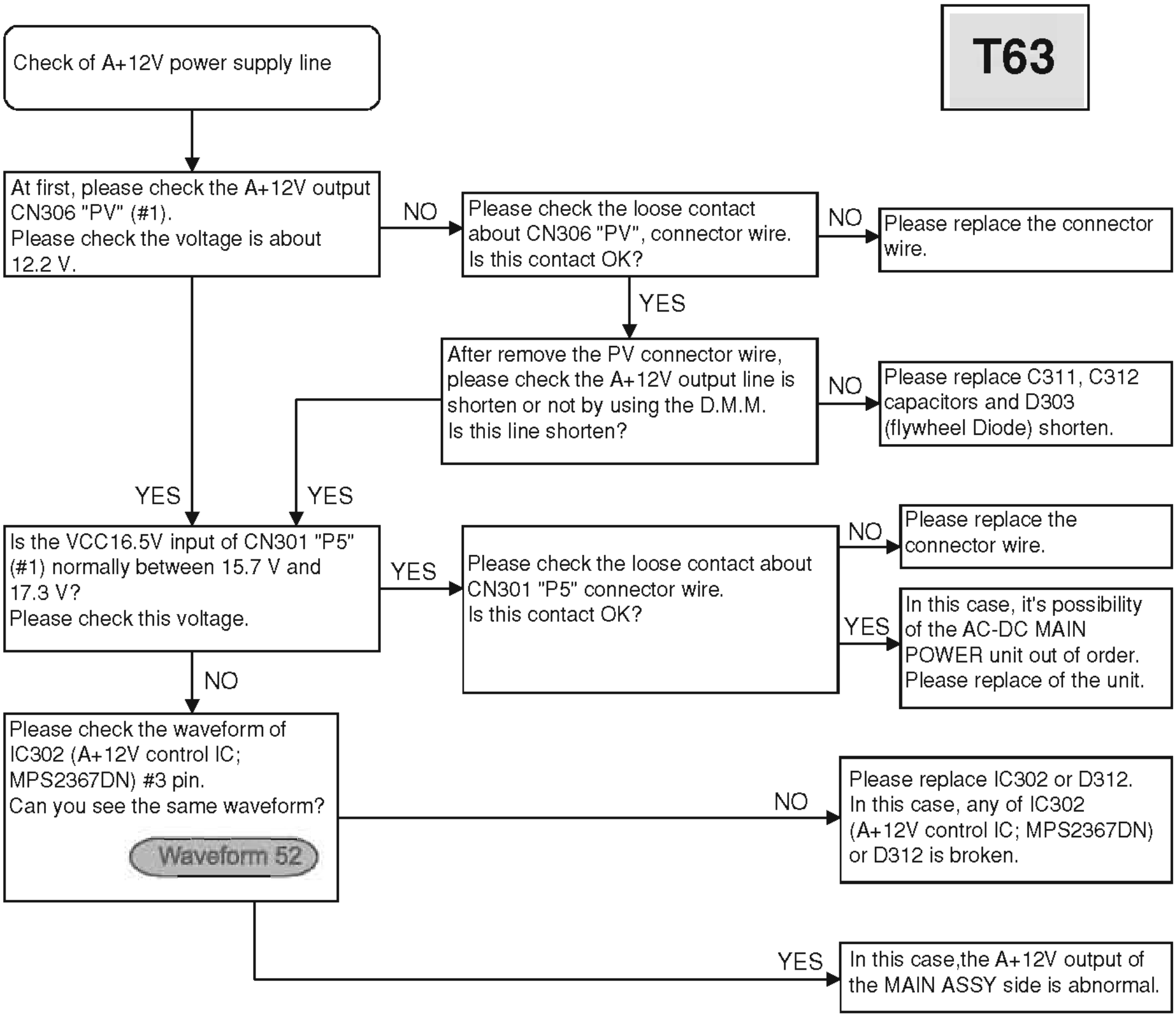
T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

(4) Trouble Shooting of the "A+12V" output abnormal operation.

This voltage Line is supplied for analog circuit and the fan motors VCC voltage through the variable voltage regulator on the MAIN ASSY.
The output voltage of the variable voltage regulator is DC 11.6 V or DC 8.8 V or DC 6.0 V.

And, no operation fan motors by acting fan alarm signal is not mentioned on this item.

T63

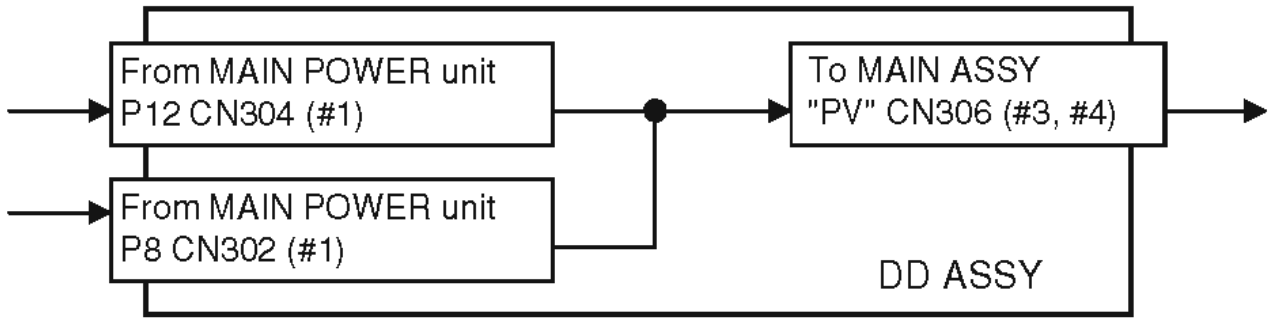


(5) Trouble Shooting of the "A+6.5V" output abnormal operation.

This voltage Line is supplied to MAIN ASSY from MAIN POWER unit via DD ASSY.
Please check board to board connection first if A+6.5V is abnormal.

T64

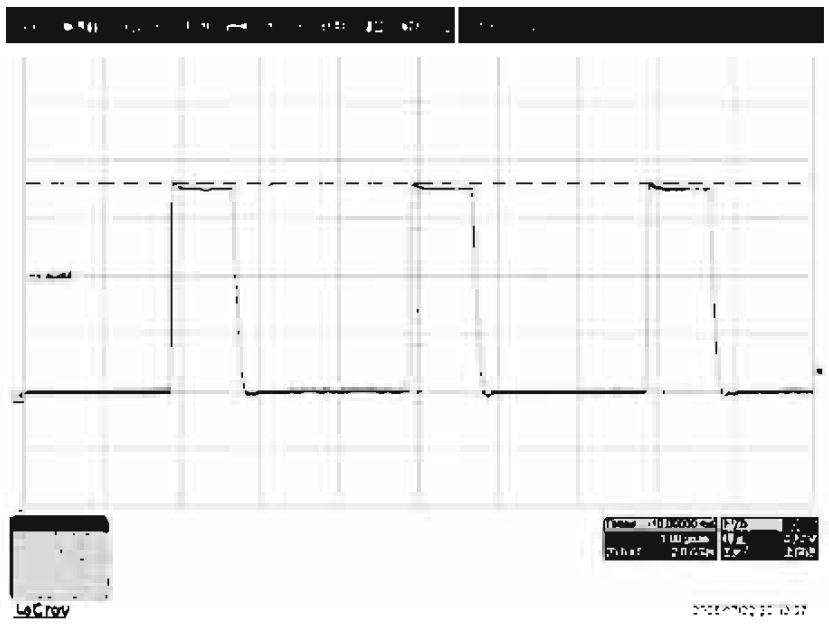
e.g.) pin contact of connector, short between wire

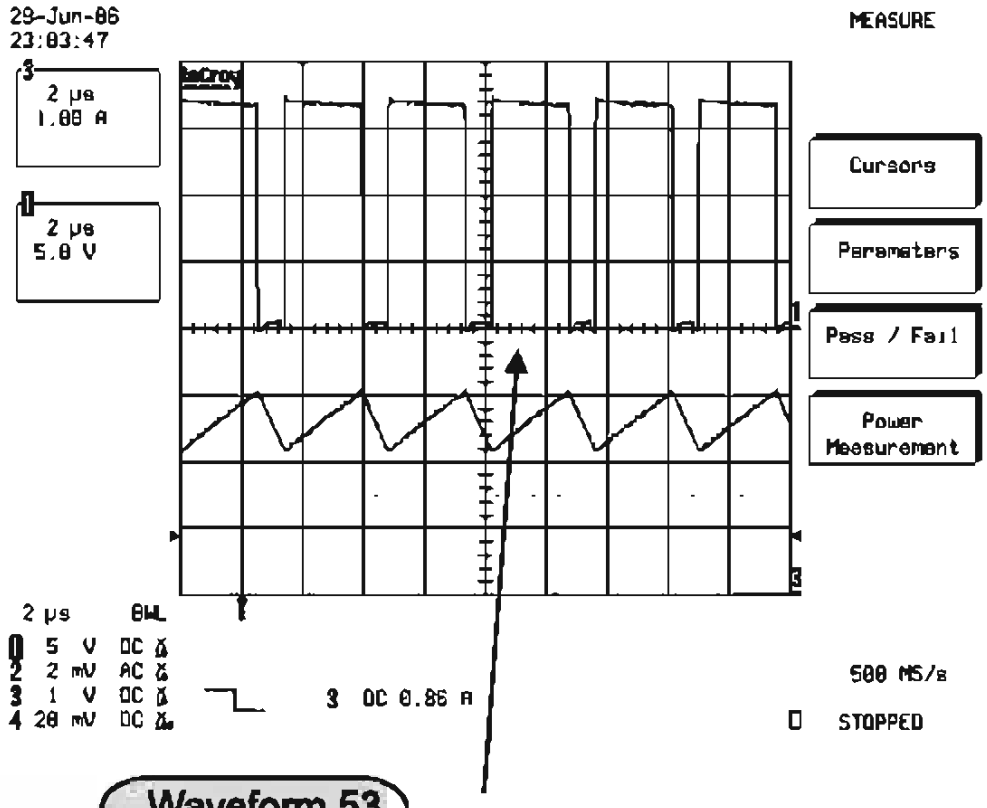


• Legend symbol

T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

DD ASSY (ANP2173) Waveform (Each 4 Switching Regulators)

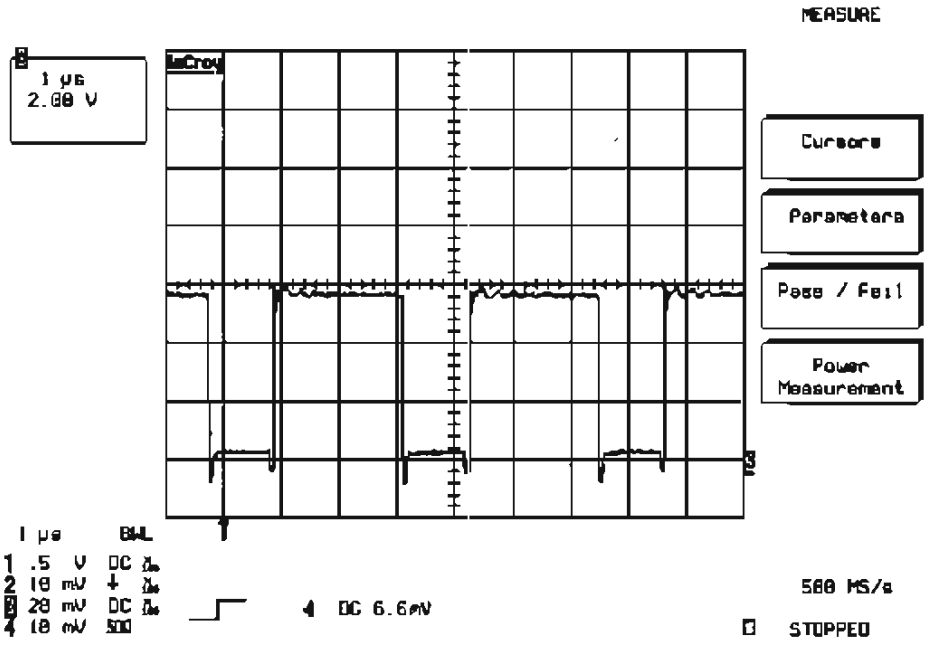




Waveform 52

A+12V POWER SUPPLY
IC302 #3 voltage waveform.
5 V/div., 1 µs/div.

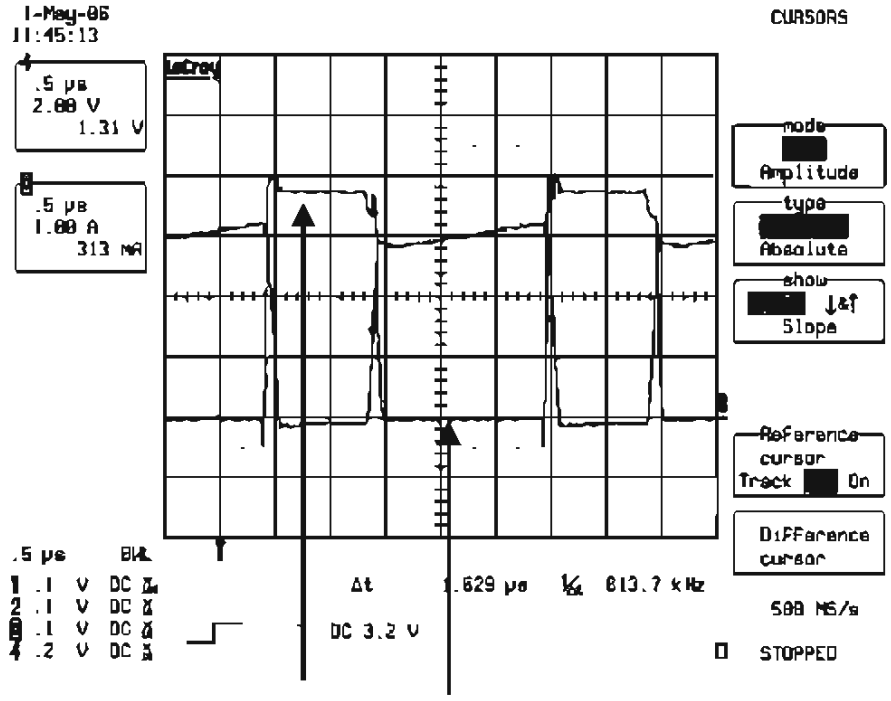
Normal: 18.2 V0-p, T= 2.95 µs



Waveform 53

S+12V POWER SUPPLY
Upper side waveform
IC305 #11-#14 voltage waveform.
5 V/div., 2 µs/div.

Normal: 17.5V0-p, T= 3.3 µs



Waveform 54

D+3.3V POWER SUPPLY
Q303 FET Drain terminal (#5-#8)
voltage waveform.
2 V/div., 1 µs/div.

Normal: 6.0 V0-p, T= 3.3 µs

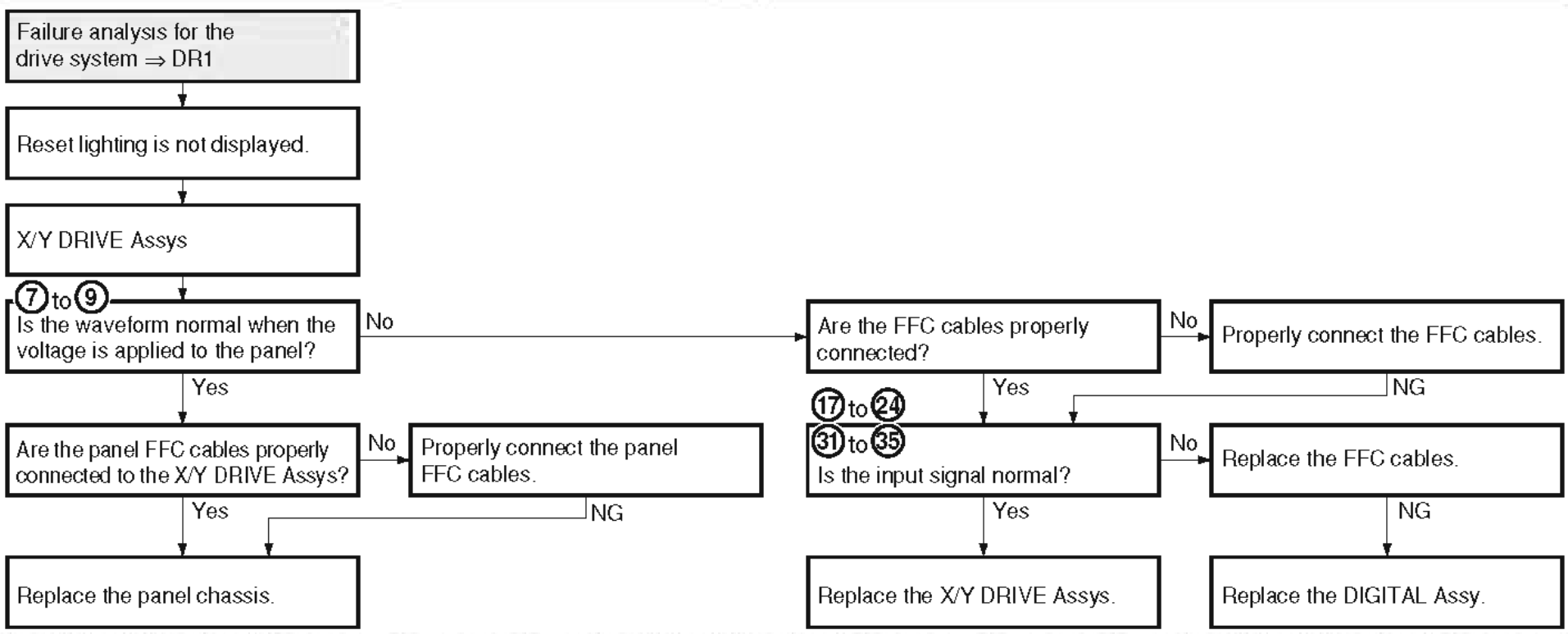
Waveform 55

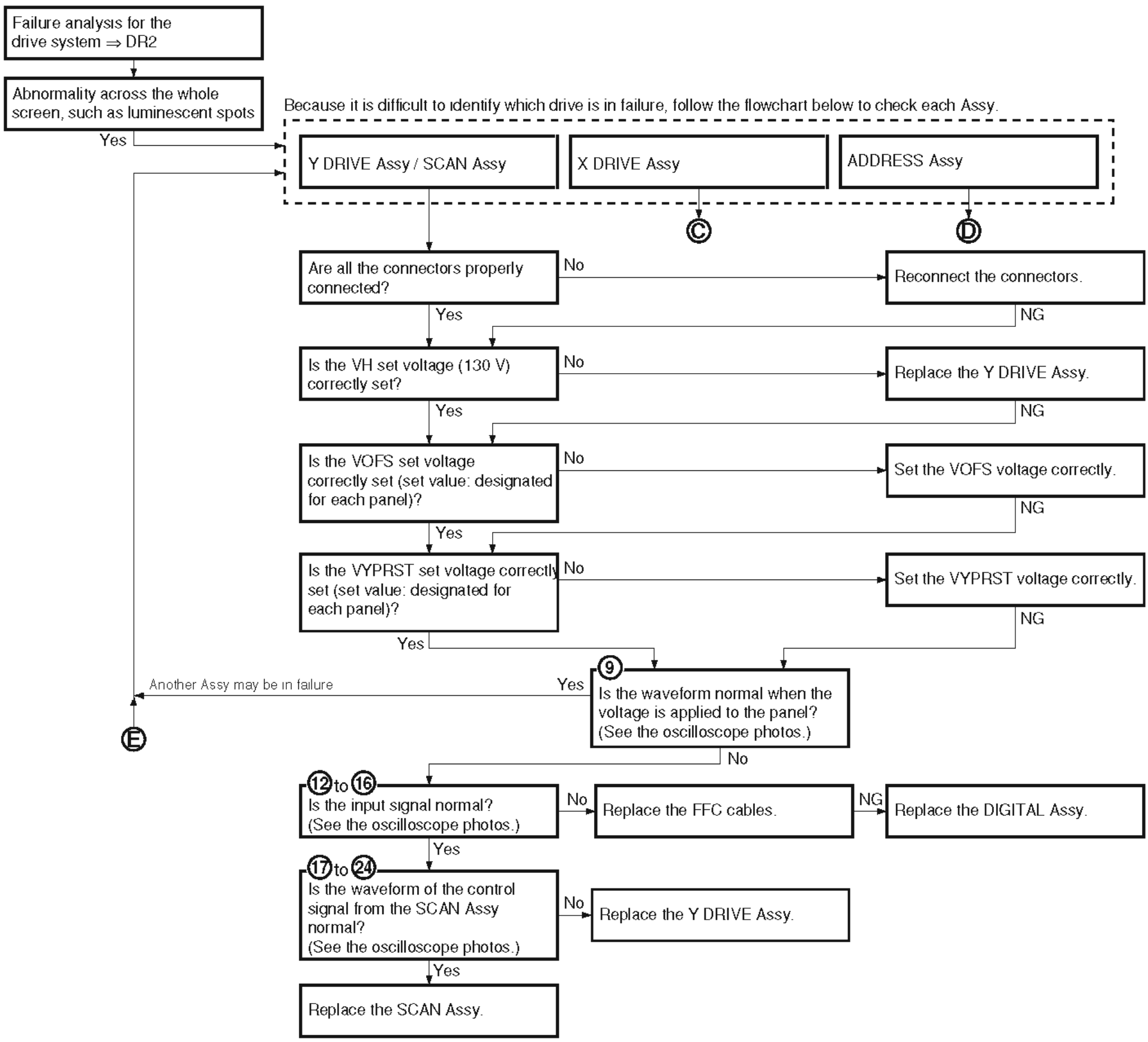
M+7V POWER SUPPLY
Q301 FET Drain terminal (#5-#8)
voltage waveform.
2 V/div., 0.5 µs/div.

Normal: 8.0 V0-p, T= 2.6 µs

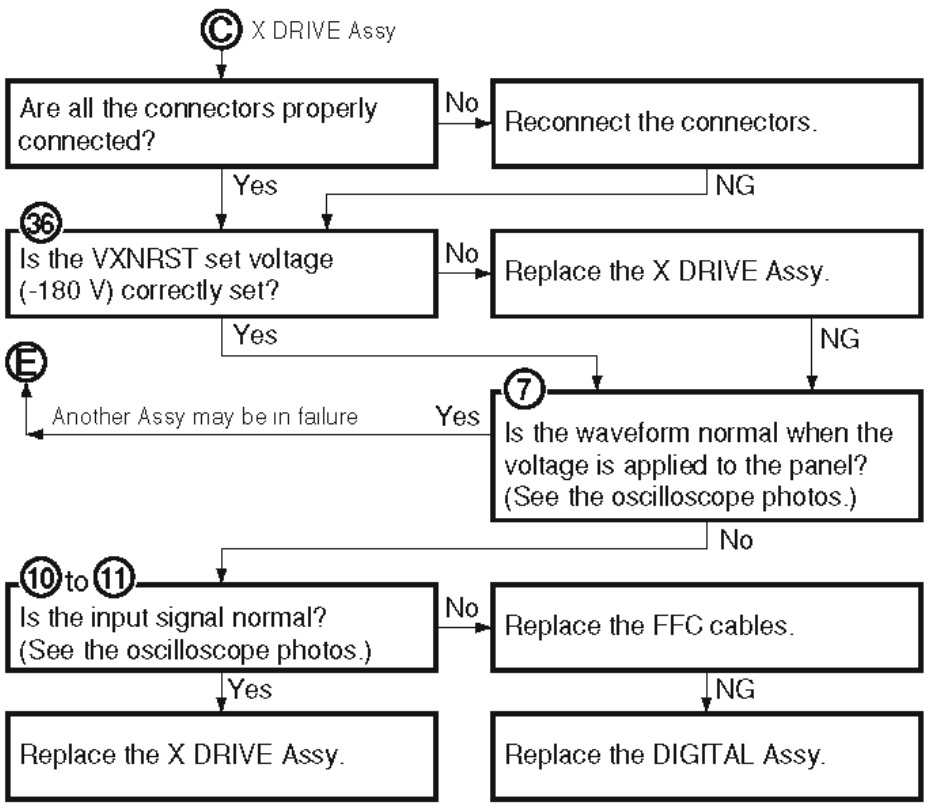
3.1.5 FLOWCHART OF FAILURE ANALYSIS FOR THE DRIVE ASSY

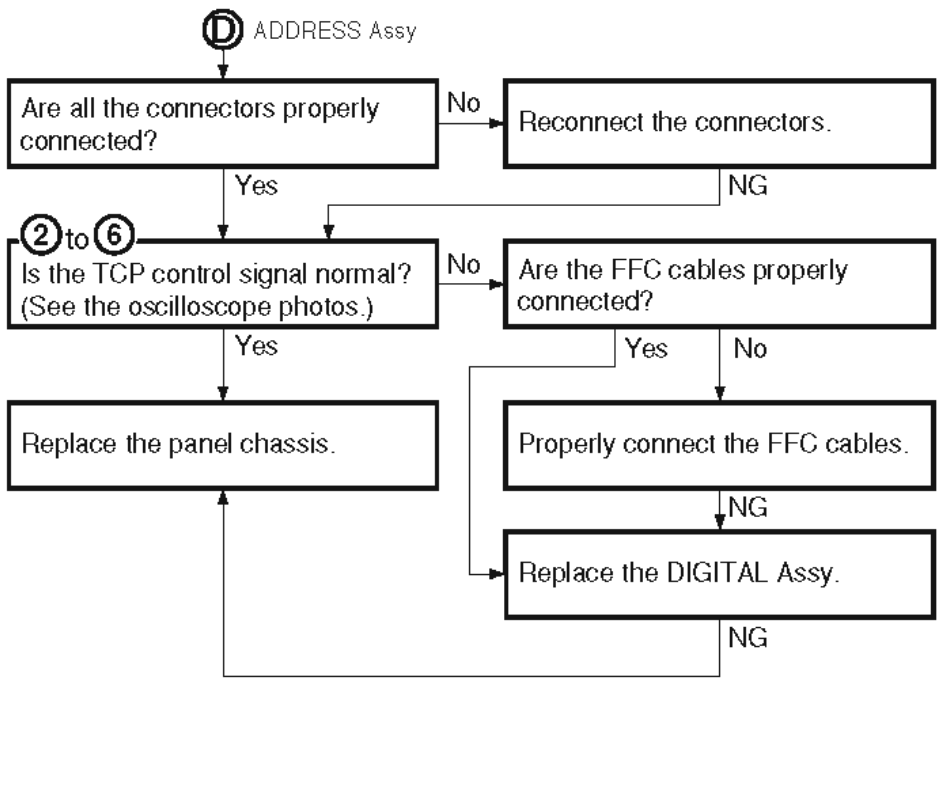
Flowchart of Failure Analysis for The Drive Assy (1)

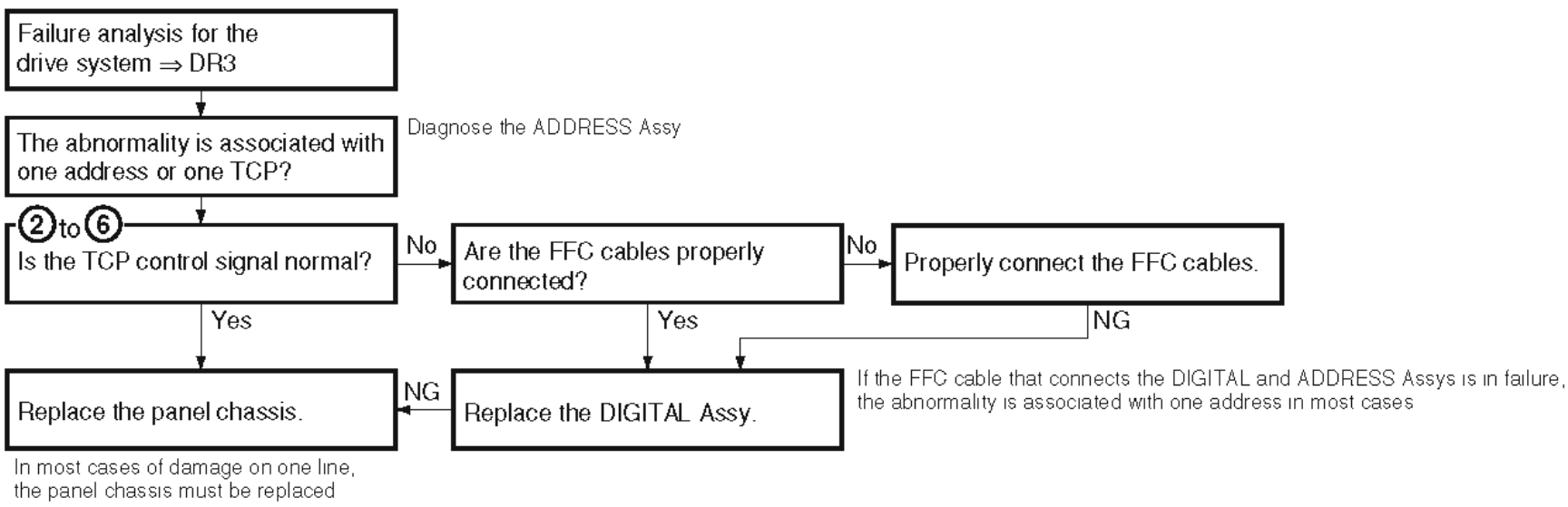


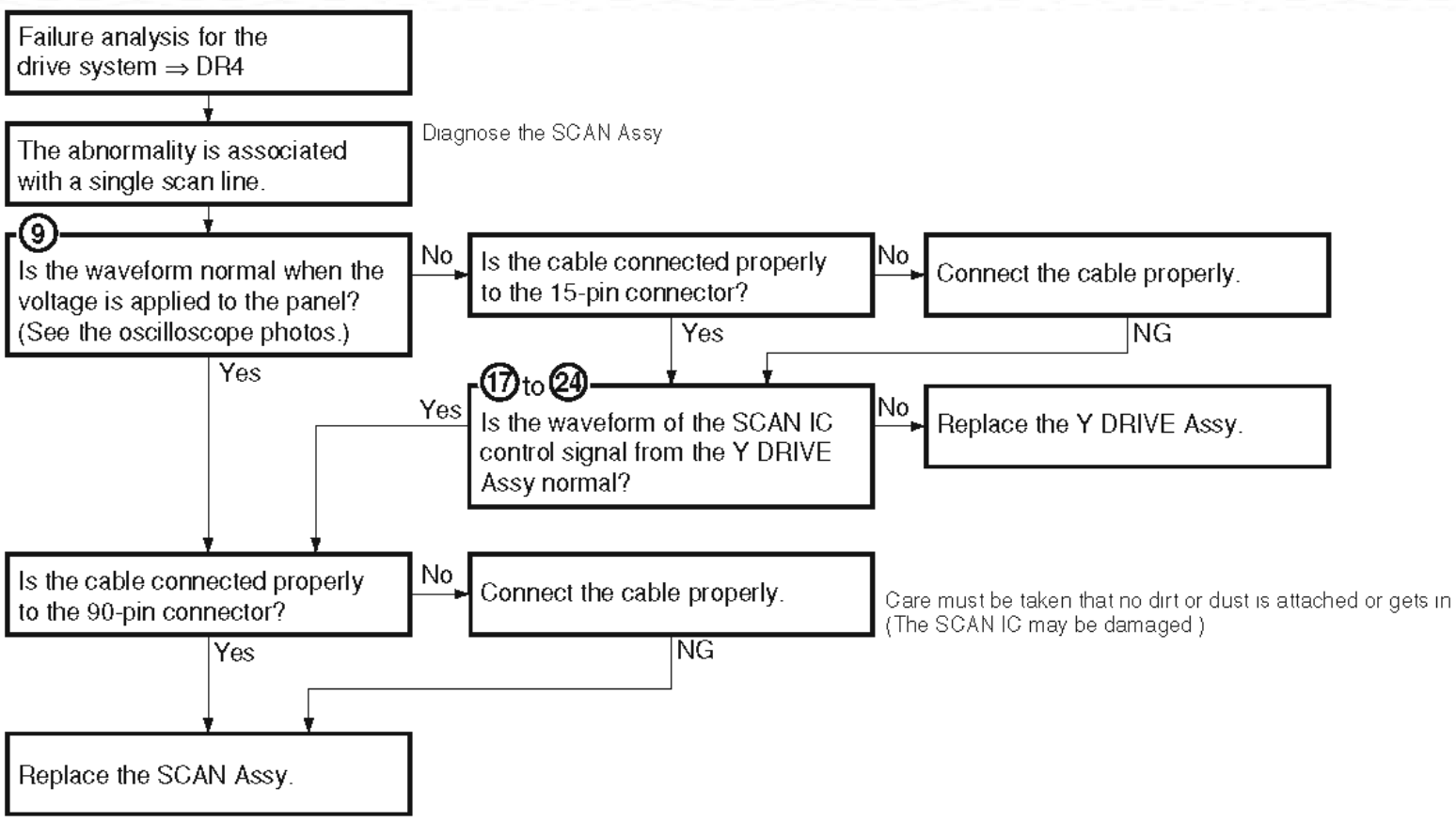


Flowchart of Failure Analysis for The Drive Assy (2)









● 60 ADDRESS ASSY

• ADR LOGIC BLOCK

1) input VIDEO 60Hz
signal COLOR BAR (MKSS17)

① **ch1: L1730 (V+ADR1) (side-A through hole)**
V 10 V/div H 2 mS/div

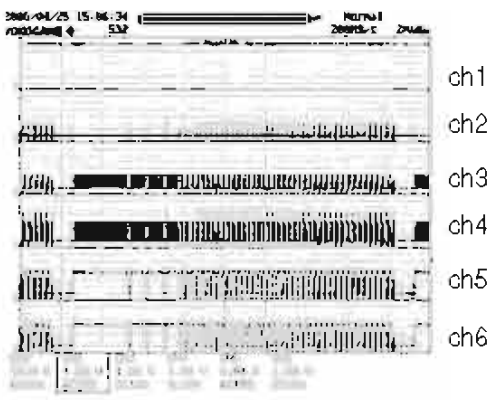
② **ch2: IC1601 or IC1801 28 pin (R_E) side-A test plane "R_E"**
V 1 V/div H 2 mS/div

③ **ch3: IC1601 or IC1801 38 pin (CLK) side-A test plane "CLK1"**
V 1 V/div H 2 mS/div

④ **ch4: IC1601 or IC1801 (LE_E) side-A test plane "LE_E"**
V 1 V/div H 2 mS/div

⑤ **ch5: IC1601 or IC1801 45 pin (HBLK) side-A test plane "HBLK"**
V 1 V/div H 2 mS/div

⑥ **ch6: IC1601 or IC1801 44 pin (LBLK) side-A test plane "LBLK"**
V 1 V/div H 2 mS/div



• Incoming signals of TCP (1Field)

2) input VIDEO 60Hz
signal Checkered pattern of Black-White (MKSS13)

① **CH1: L1730 (V+ADR1) (side-A through hole)**
V 10 V/div H 2 mS/div

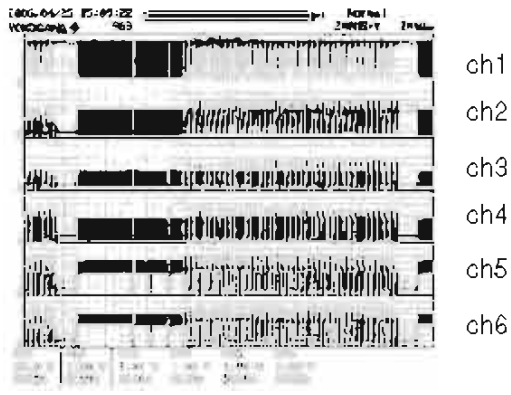
② **CH2: IC1601 or IC1801 28 pin (R_E) side-A test plane "R_E"**
V 1 V/div H 2 mS/div

③ **CH3: IC1601 or IC1801 38 pin (CLK) side-A test plane "CLK1"**
V 1 V/div H 2 mS/div

④ **CH4: IC1601 or IC1801 (LE_E) side-A test plane "LE_E"**
V 1 V/div H 2 mS/div

⑤ **CH5: IC1601 or IC1801 45 pin (HBLK) side-A test plane "HBLK"**
V 1 V/div H 2 mS/div

⑥ **CH6: IC1601 or IC1801 44 pin (LBLK) side-A test plane "LBLK"**
V 1 V/div H 2 mS/div



• Incoming signals of TCP (1Field)

3) input VIDEO
signal Checkered pattern of Black-White (MKSS13)

① **CH1: L1730 (V+ADR1) (side-A through hole)**
V 10 V/div H 500 nS/div

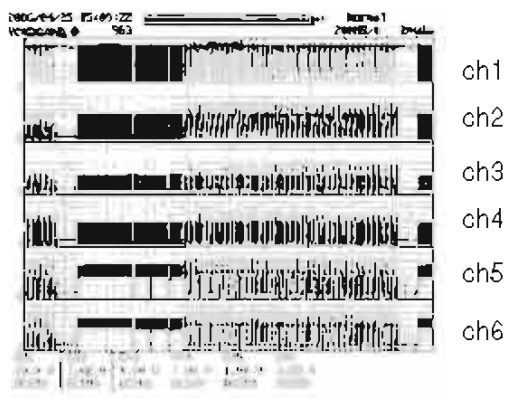
② **CH2: IC1601 or IC1801 28 pin (R_E) side-A test plane "R_E"**
V 1 V/div H 500 nS/div

③ **CH3: IC1601 or IC1801 38 pin (CLK) side-A test plane "CLK1"**
V 1 V/div H 500 nS/div

④ **CH4: IC1601 or IC1801 (LE_E) side-A test plane "LE_E"**
V 1 V/div H 500 nS/div

⑤ **CH5: IC1601 or IC1801 45 pin (HBLK) side-A test plane "HBLK"**
V 1 V/div H 500 nS/div

⑥ **CH6: IC1601 or IC1801 44 pin (LBLK) side-A test plane "LBLK"**
V 1 V/div H 500 nS/div



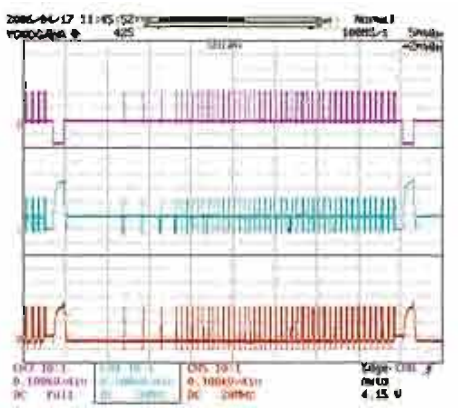
• Incoming signals of TCP (Resonance part)

● 60 X DRIVE ASSY, 60 Y DRIVE ASSY, 607 SCAN A ASSY, 607 SCAN B ASSY

⑦ **ch3: R1222 (XPSUS) - K1201(SUSGND)**
V 100 V/div H 2 mS/div
(60 X DRIVE Assy)

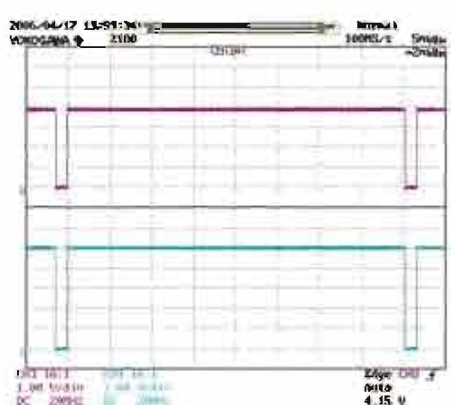
⑧ **ch4: K2801 to K2812, K2901 to K2912 (Scan OUT) - K2301 (SUSGND)**
V 100 V/div H 2 mS/div
(607 SCAN B Assy HIGH SIDE)

⑨ **ch5: R2288 (YPSUS) - KN2203 (SUSGND)**
V 100 V/div H 2 mS/div
(60 Y DRIVE Assy)



⑩ **ch3: K1012 (XSUS-MSK) - K1002 (DGND)**
V 1 V/div H 2 mS/div
(60 X DRIVE Assy)

⑪ **ch4: K1008 (XNR-D) - K1002 (DGND)**
V 1 V/div H 2 mS/div
(60 X DRIVE Assy)



⑫ **ch1: K2007 (YNOFS) - K2014(DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

⑬ **ch2: K2005 (YSUS-MSK) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

⑭ **ch3: K2004 (YNRST) - K2014 (DGND)**
V 1 V/div H 2mS/div
(60 Y DRIVE Assy)

⑮ **ch4: K2003 (SOFT-D) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

⑯ **ch5: K2010 (YPR-U) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

⑰ **ch1: R2401 (LE) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

⑱ **ch2: R2404 (CLK2) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

⑲ **ch3: R2406 (SI_L) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

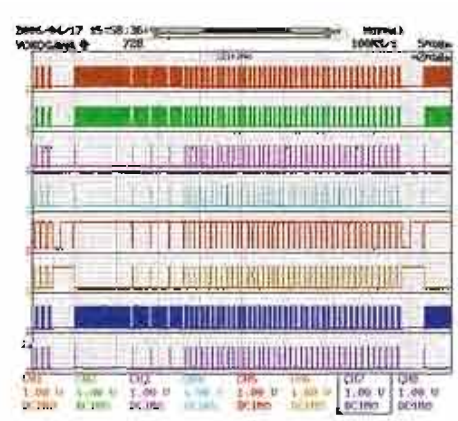
⑳ **ch4: R2409 (CLR) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

㉑ **ch5: R2411 (OC2_U) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

㉒ **ch6: R2415 (OC1) - K2014 (DGND)**
V 1 V/div H 2 mS/div
(60 Y DRIVE Assy)

㉓ **ch7: R2418 (CLK1) - K2014 (DGND)**
H 2 mS/div
(60 Y DRIVE Assy)

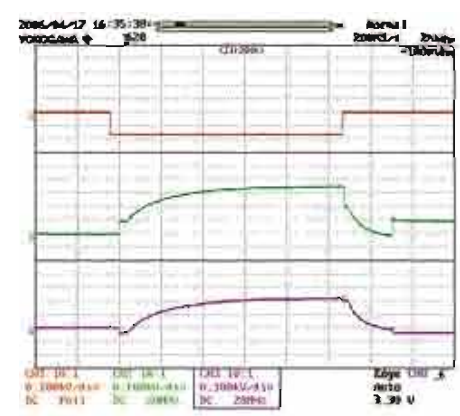
㉔ **ch8: R2420 (SI_H) - K2014 (DGND)**
H 2 mS/div
(60 Y DRIVE Assy)



㉕ **ch1: R1222 (XPSUS) - K1201 (SUSGND)**
V 100 V/div H 100 µS/div
(60 X DRIVE Assy)

㉖ **ch2: K2801 to K2812, K2901 to K2912 (ScanOUT) - K2301 (SUSGND)**
V 100 V/div H 100 µS/div
(607 SCAN B Assy HIGH SIDE)

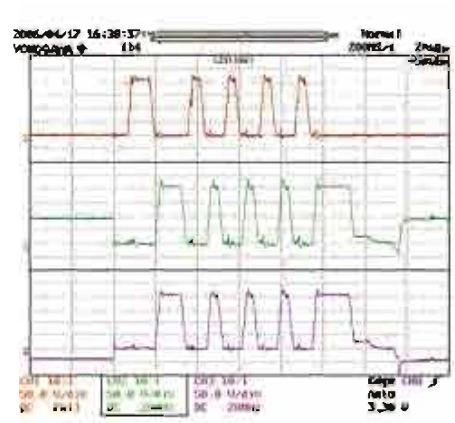
㉗ **ch3: F2301 (YPSUS) - KN2206 (SUSGND)**
V 100 V/div H 100 µS/div
(60 Y DRIVE Assy)



㉘ **ch1: R1222 (XPSUS) - K1202 (SUSGND)**
V 50 V/div H 5 µS/div
(60 X DRIVE Assy)

㉙ **ch2: K2801 to K2812, K2901 to K2912 (ScanOUT) - K2301 (SUSGND)**
V 50 V/div H 5 µS/div
(607 SCAN A Assy LOW SIDE)

㉚ **ch3: F2301 (YPSUS) - K2301 (SUSGND)**
V 50 V/div H 5 µS/div
(60 Y DRIVE Assy)



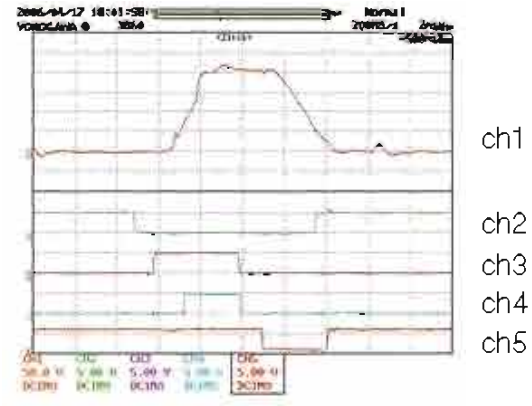
㉛ **ch1: F2301 (YPSUS) - K2301 (SUSGND)**
V 50 V/div H 500 nS/div
(60 Y DRIVE Assy)

㉜ **ch2: K2002 (YSUS-G) - K2014 (DGND)**
V 5 V/div H 500 nS/div
(60 Y DRIVE Assy)

㉝ **ch3: K2013 (YSUS-U) - K2014 (DGND)**
V 5 V/div H 500 nS/div
(60 Y DRIVE Assy)

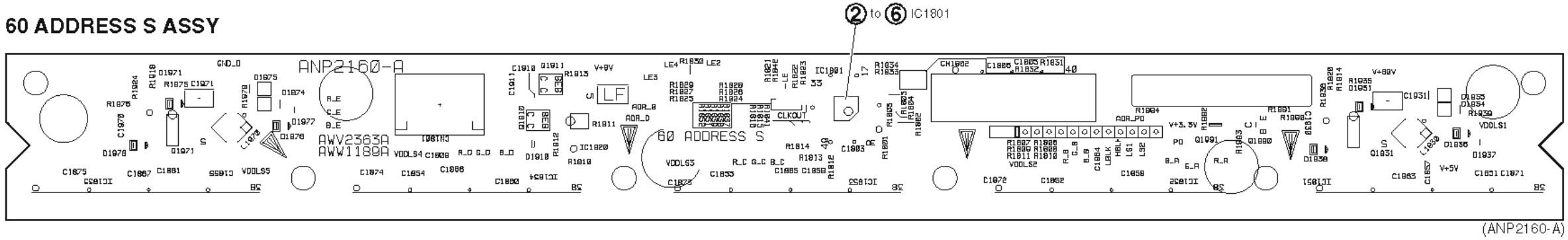
㉞ **ch4: K2011 (YSUS-B) - K2014 (DGND)**
V 5 V/div H 500 nS/div
(60 Y DRIVE Assy)

㉟ **ch5: K2012 (YSUS-D) - K2014 (DGND)**
V 5 V/div H 500 nS/div
(60 Y DRIVE Assy)



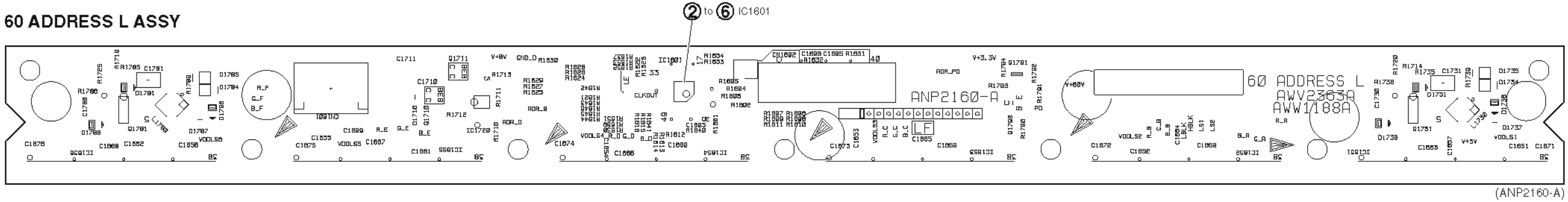
SIDE A

60 ADDRESS S ASSY



(ANP2160-A)

60 ADDRESS L ASSY

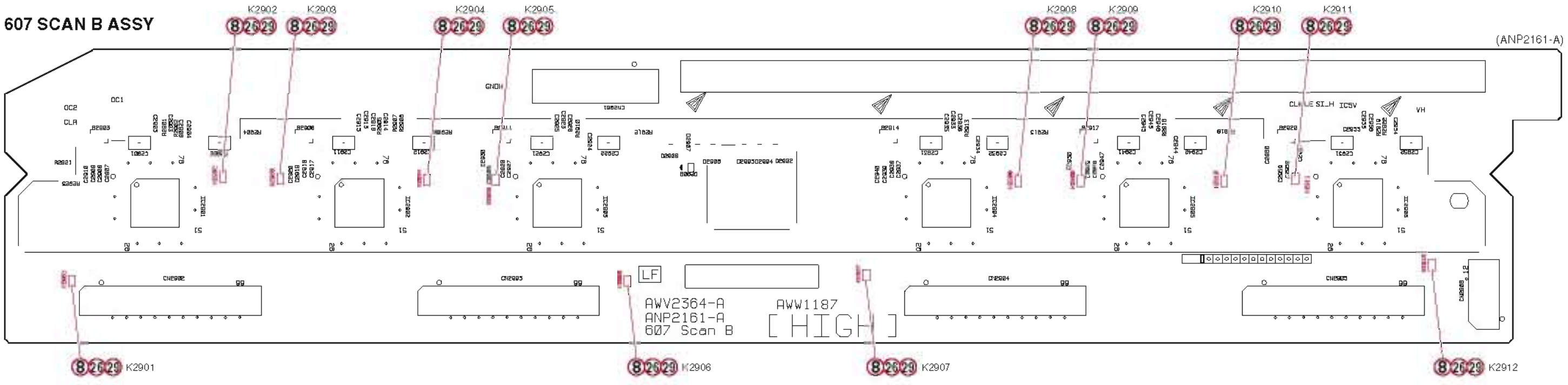


(ANP2160-A)

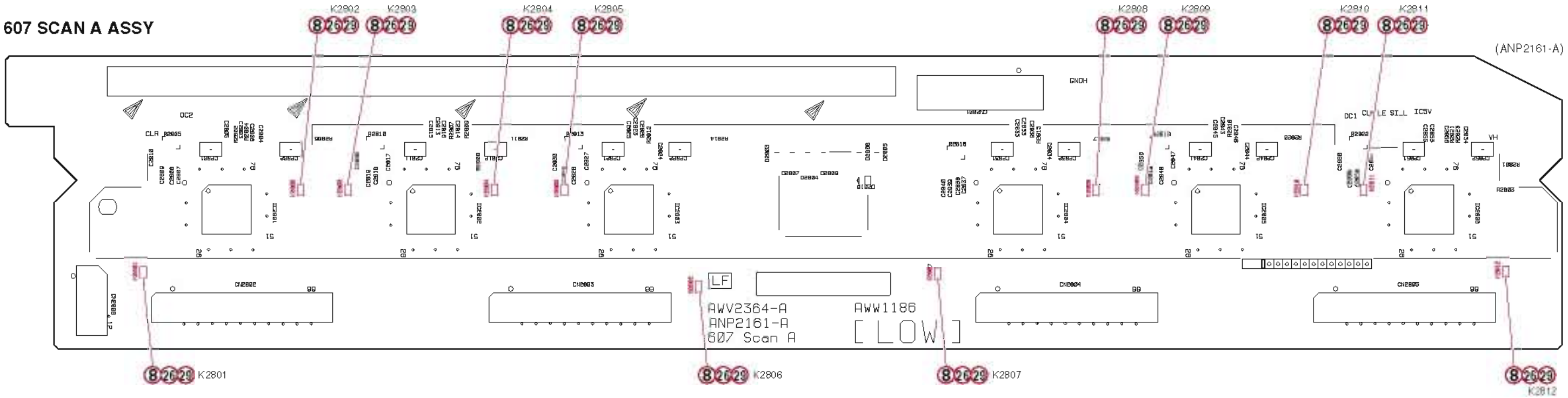
SIDE A

SIDE A

607 SCAN B ASSY

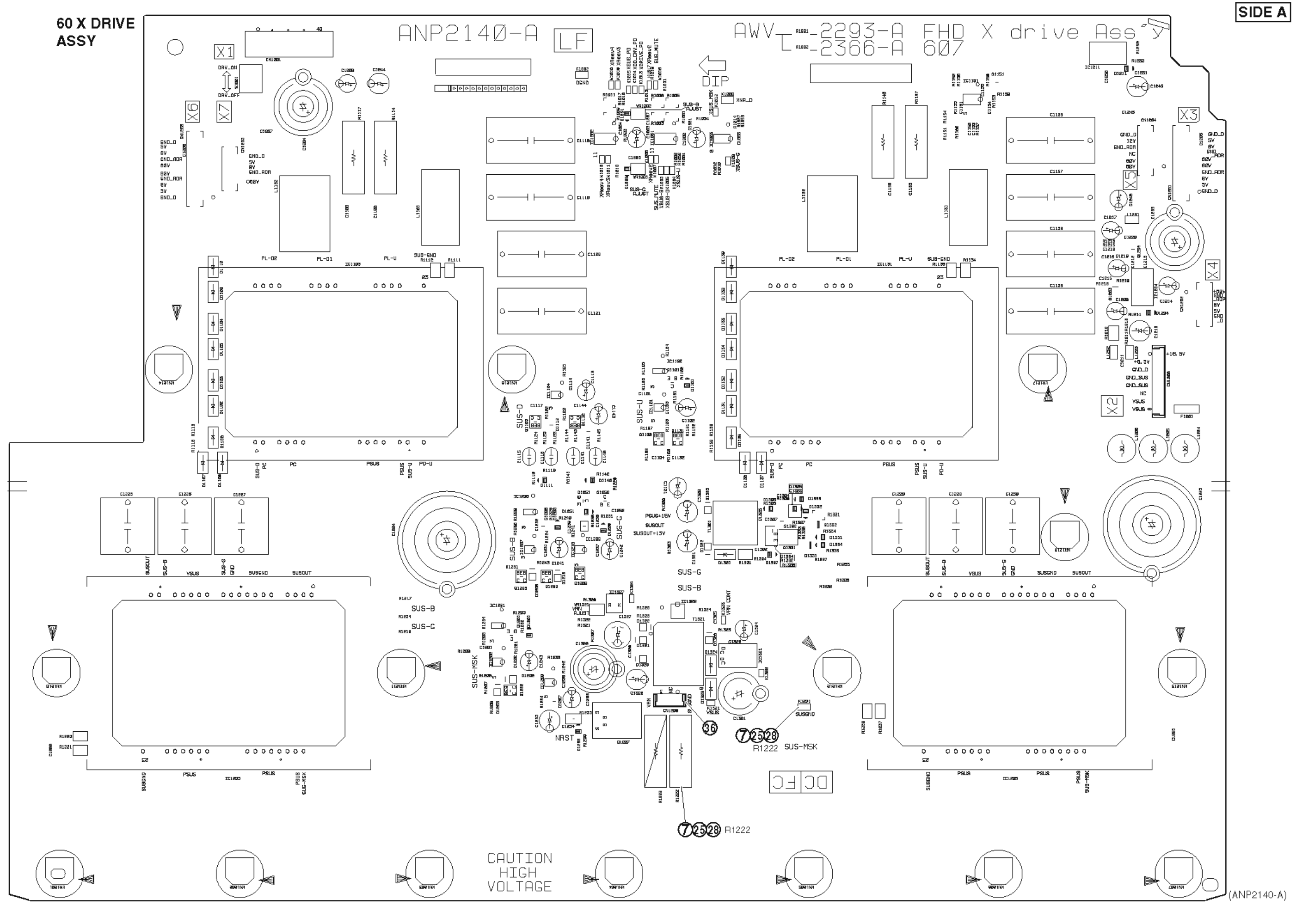


607 SCAN A ASSY



SIDE A

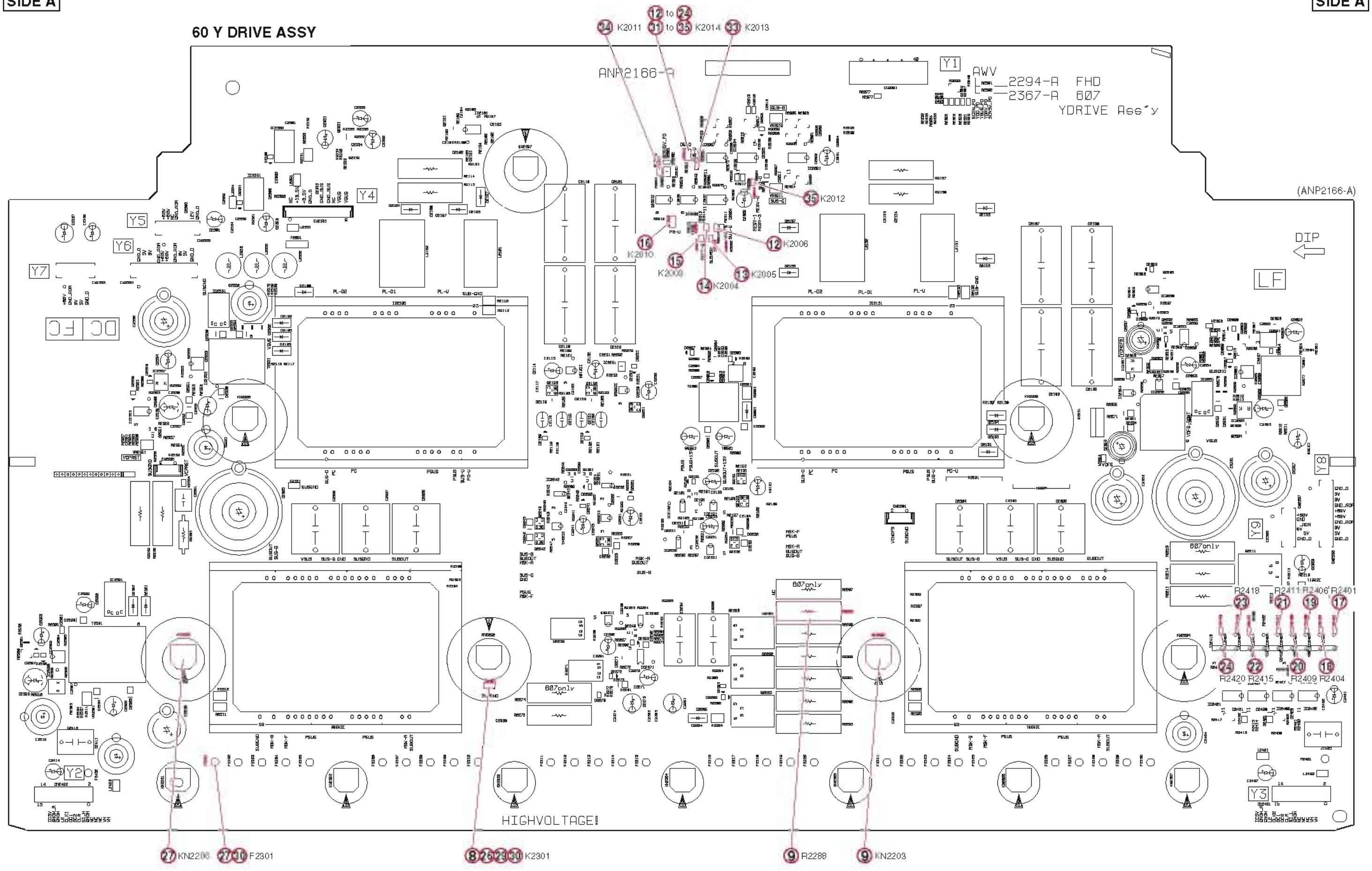
60 X DRIVE ASSY



SIDE A

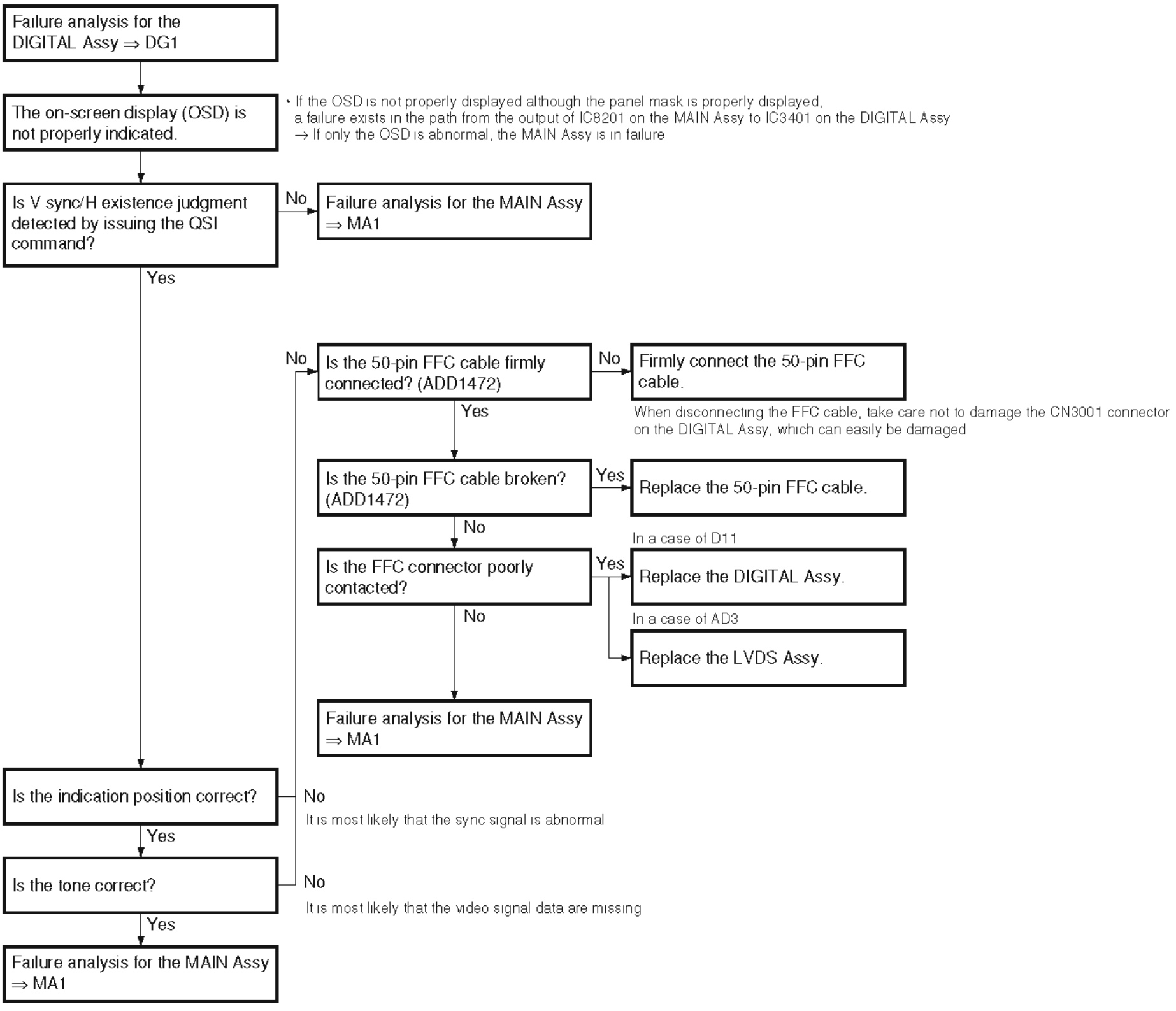
SIDE A

60 Y DRIVE ASSY



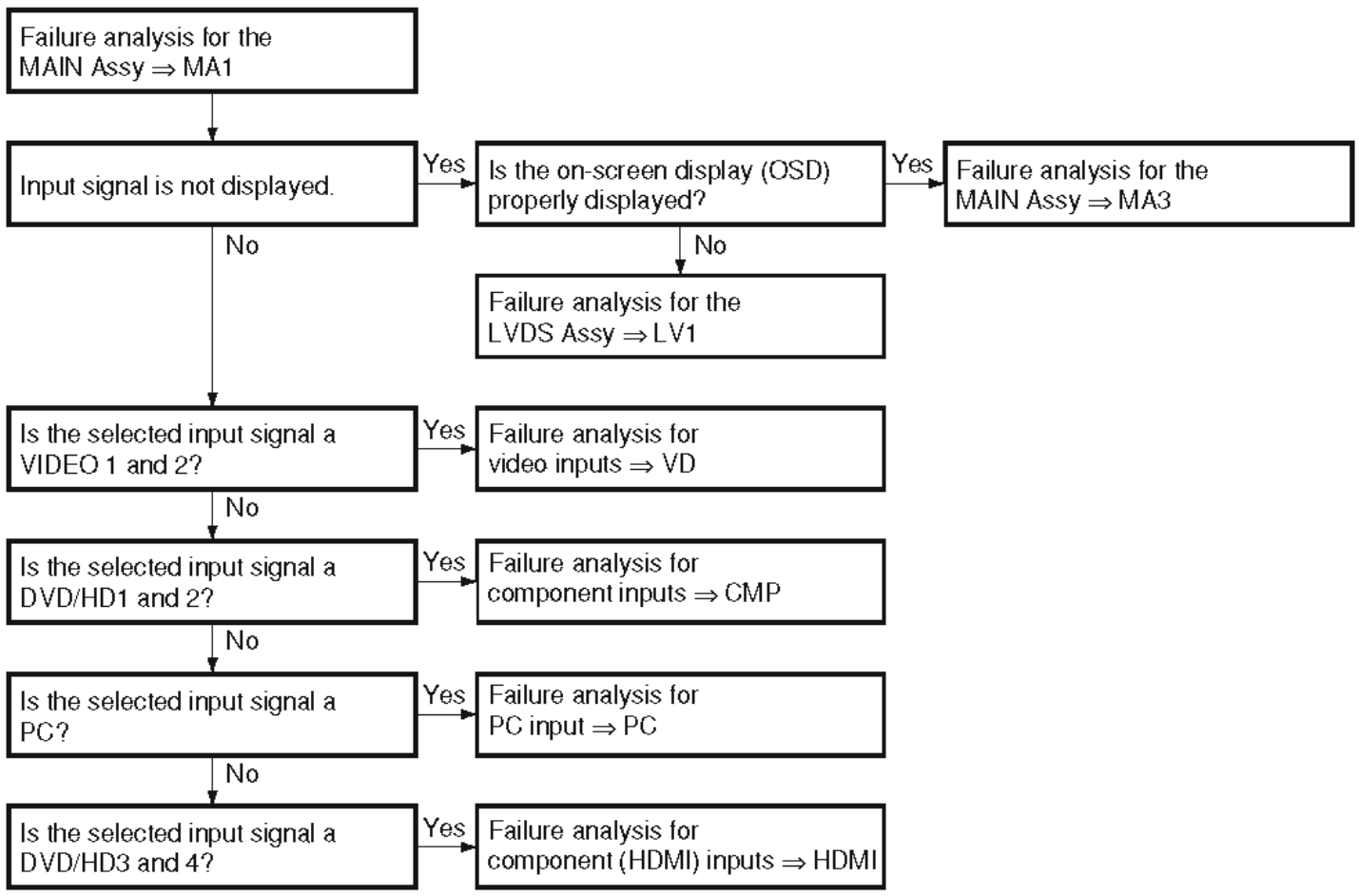
3.1.6 FLOWCHART OF FAILURE ANALYSIS FOR THE DIGITAL ASSY

Flowchart of Failure Analysis for The DIGITAL Assy



3.1.7 FLOWCHART OF FAILURE ANALYSIS FOR THE MAIN ASSY

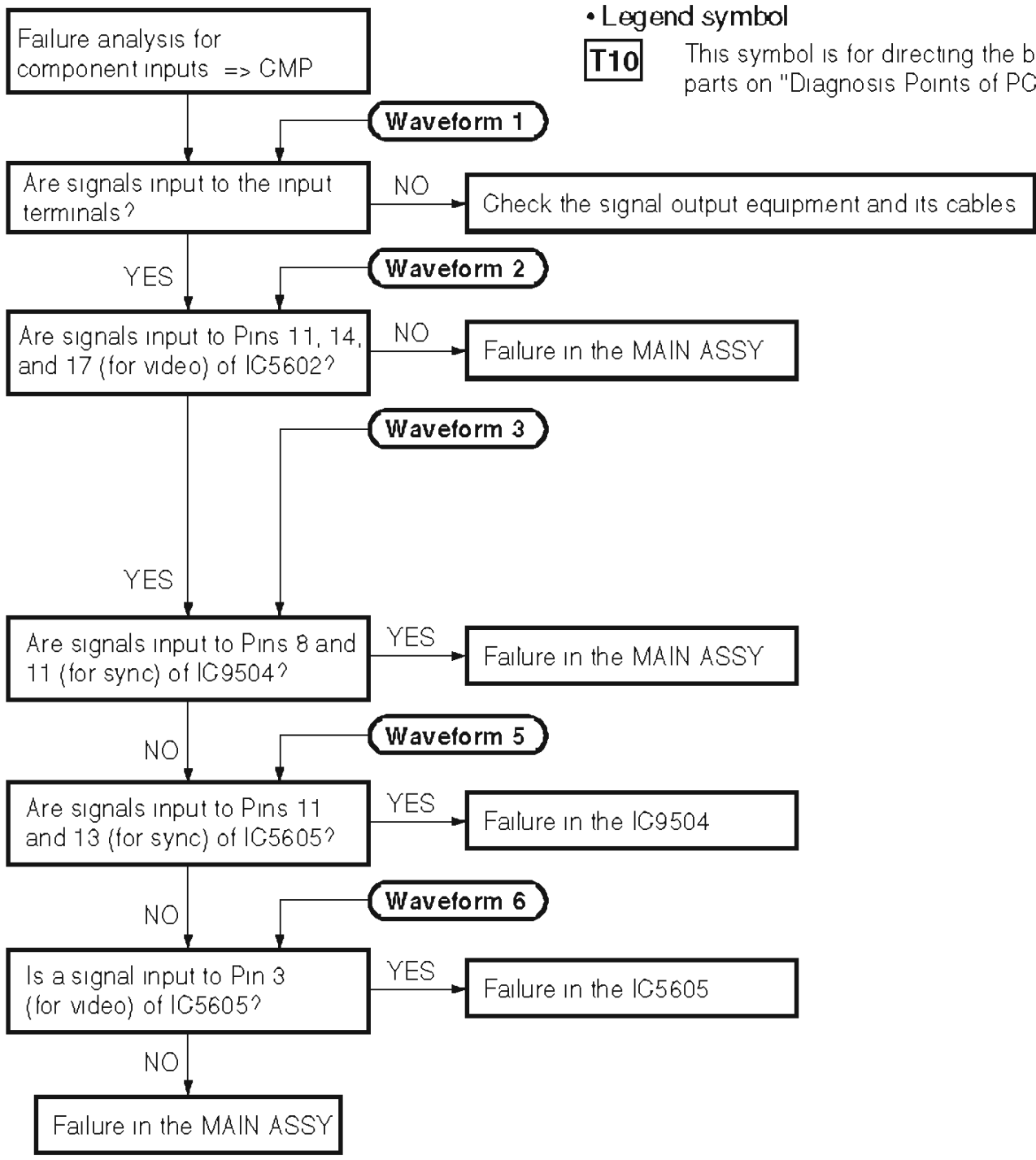
Flowchart of Failure Analysis for The MAIN Assy



Examination of the MAIN ASSY

No image (Examination of the MAIN ASSY)

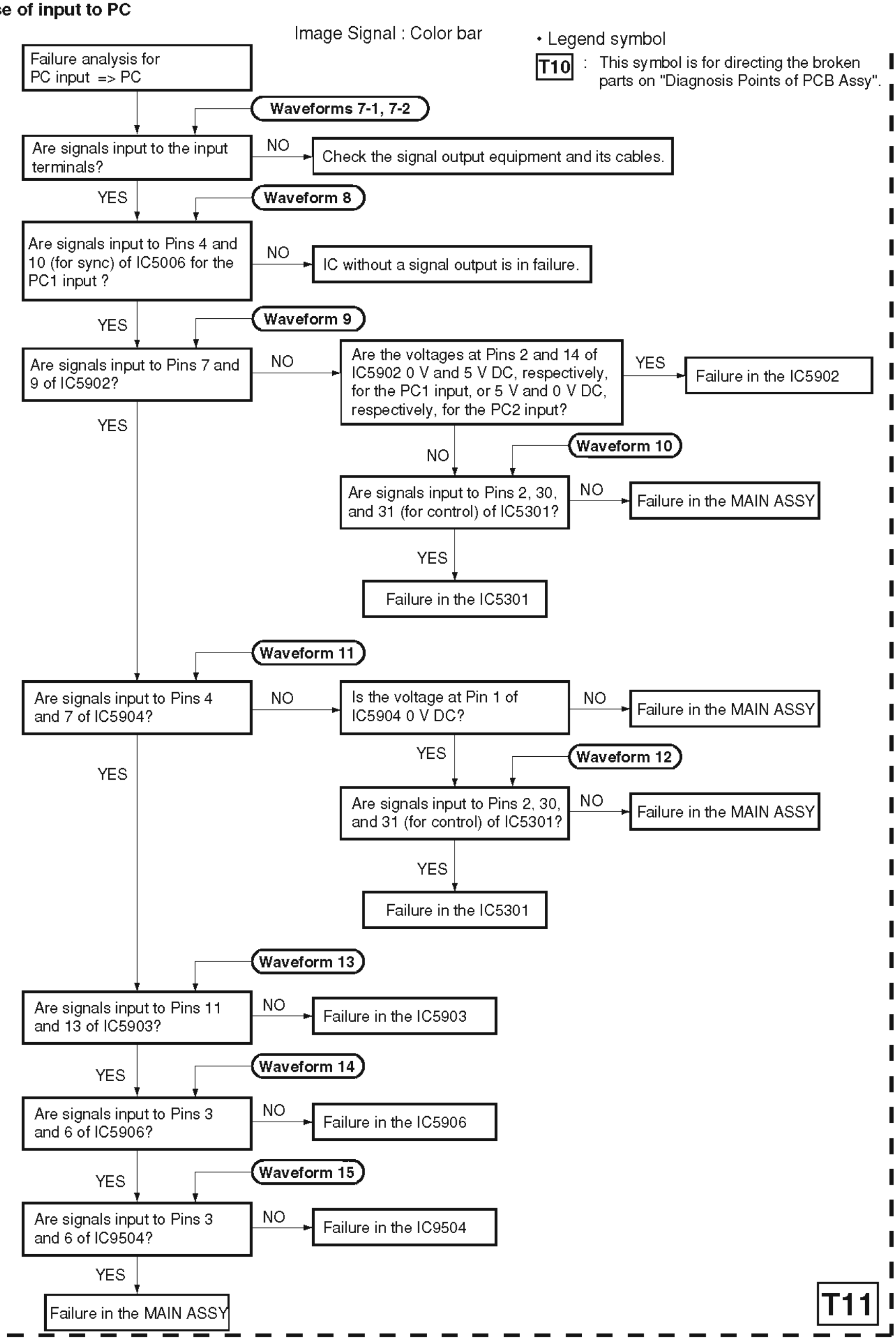
In a case of inputs to DVD/HD1 and 2 (component inputs)

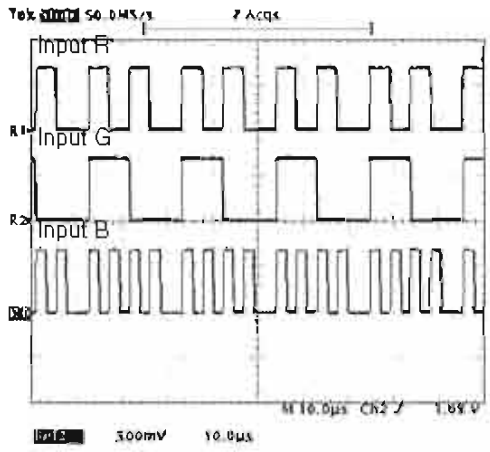


• Legend symbol

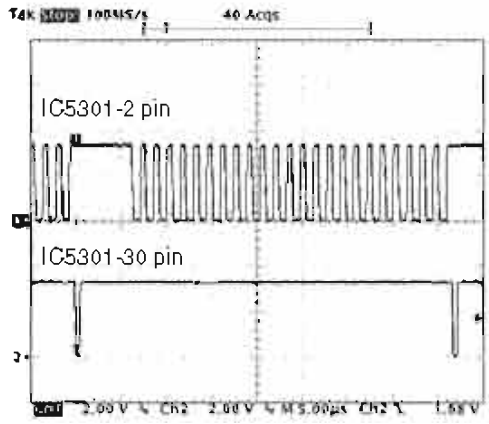
T10 This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy"

In a case of input to PC

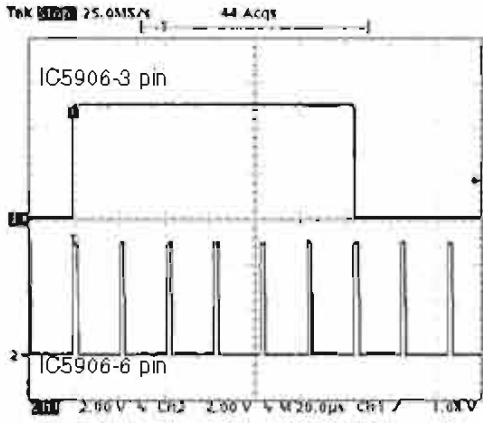




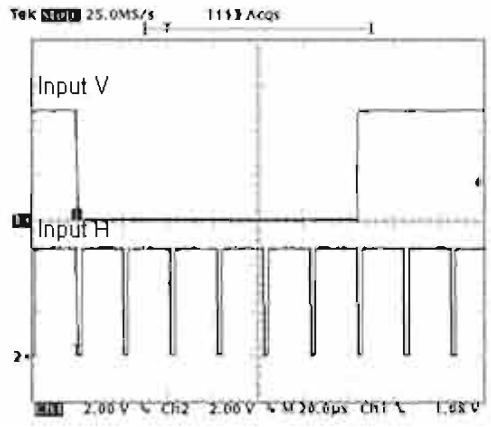
Waveform 7-1



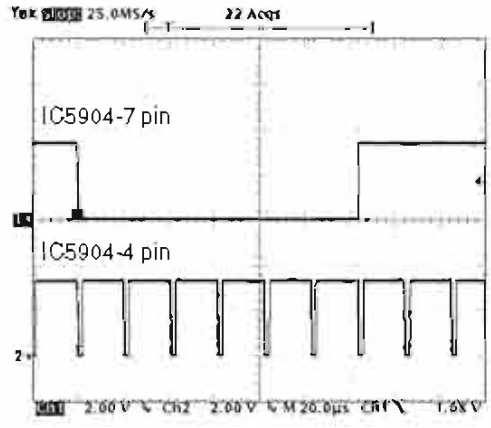
Waveform 10



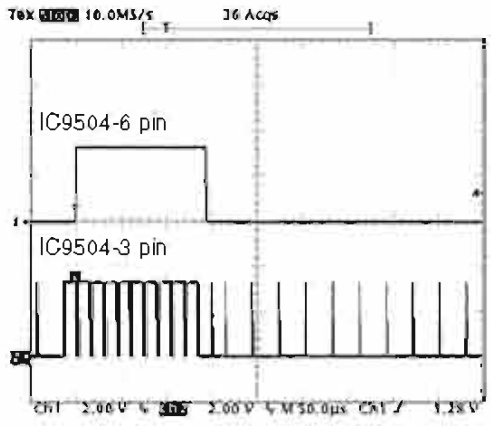
Waveform 14



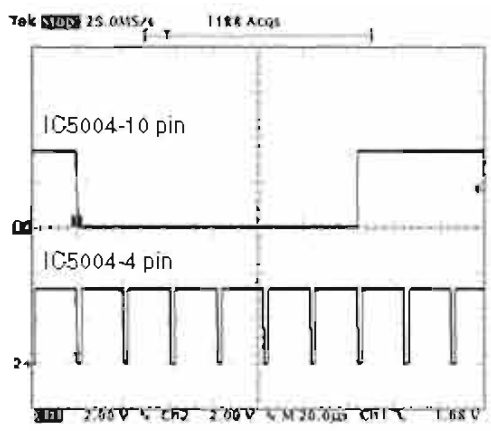
Waveform 7-2



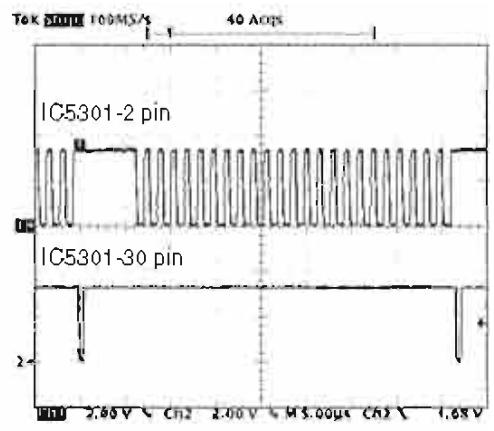
Waveform 11



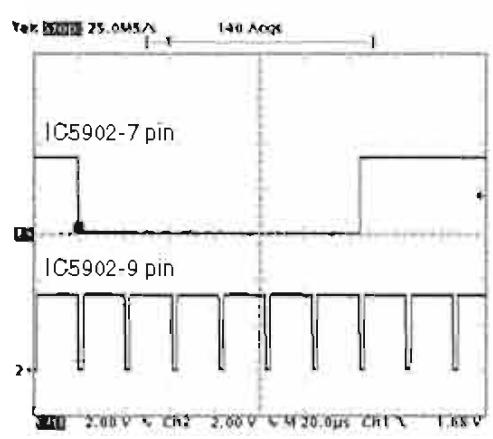
Waveform 15



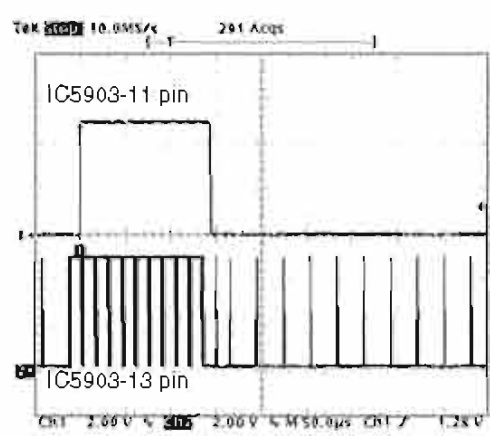
Waveform 8



Waveform 12

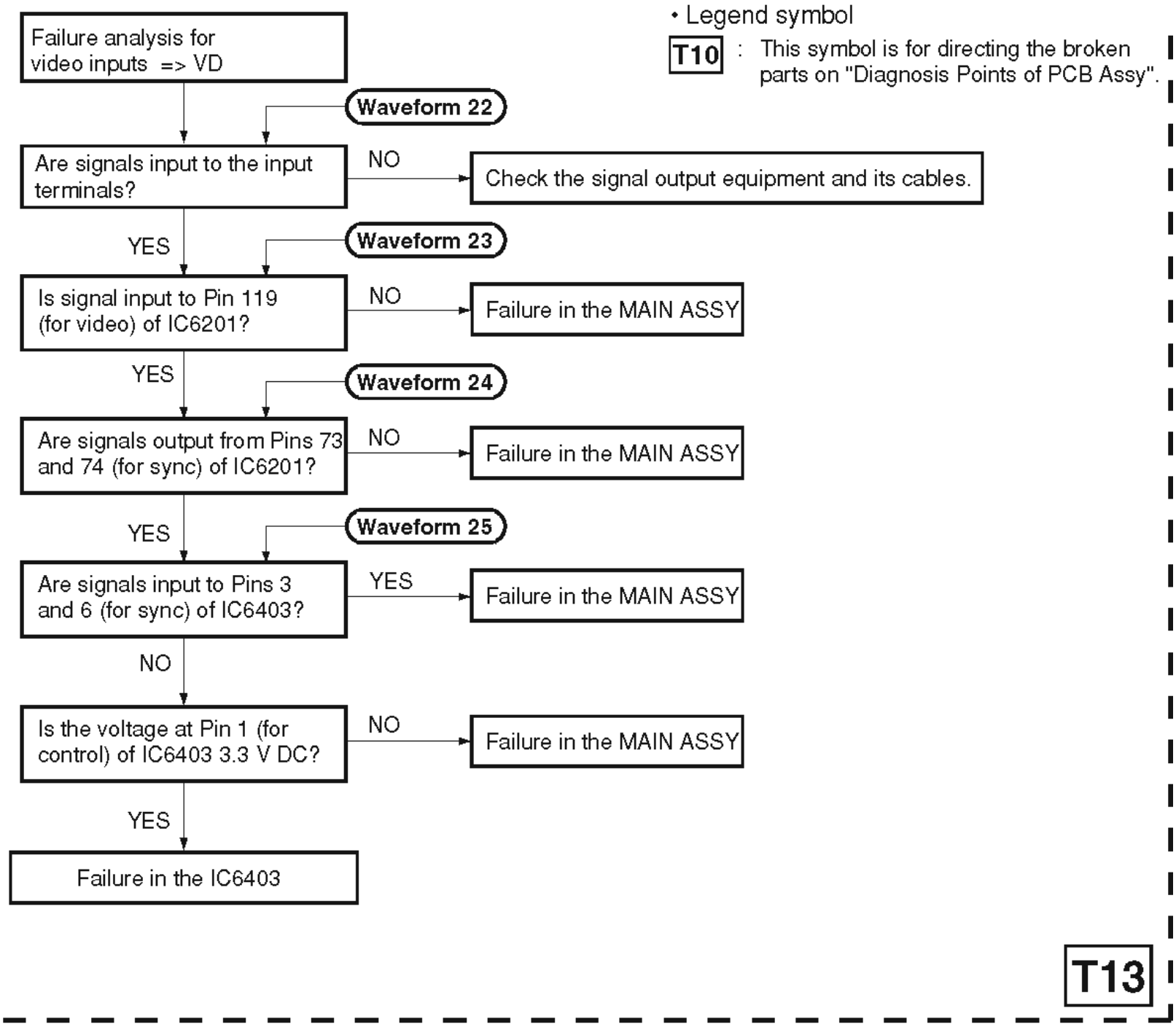


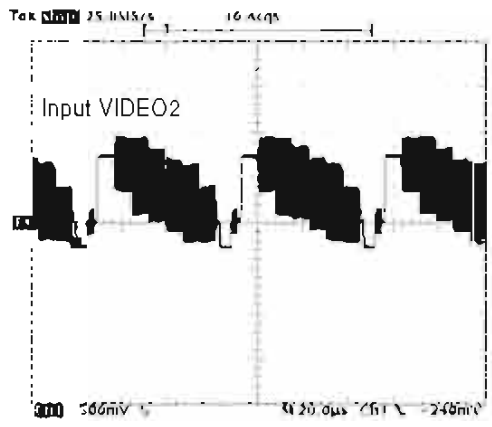
Waveform 9



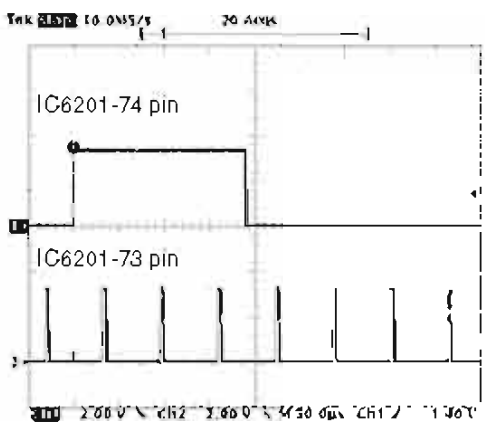
Waveform 13

In a case of inputs to VIDEO 1 and 2

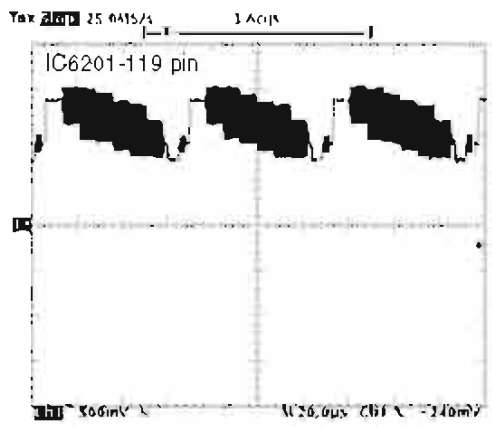




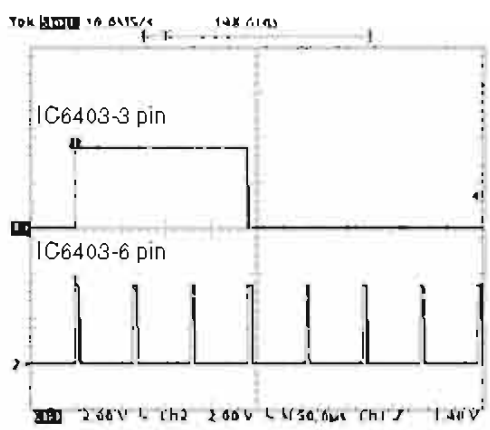
Waveform 22



Waveform 24

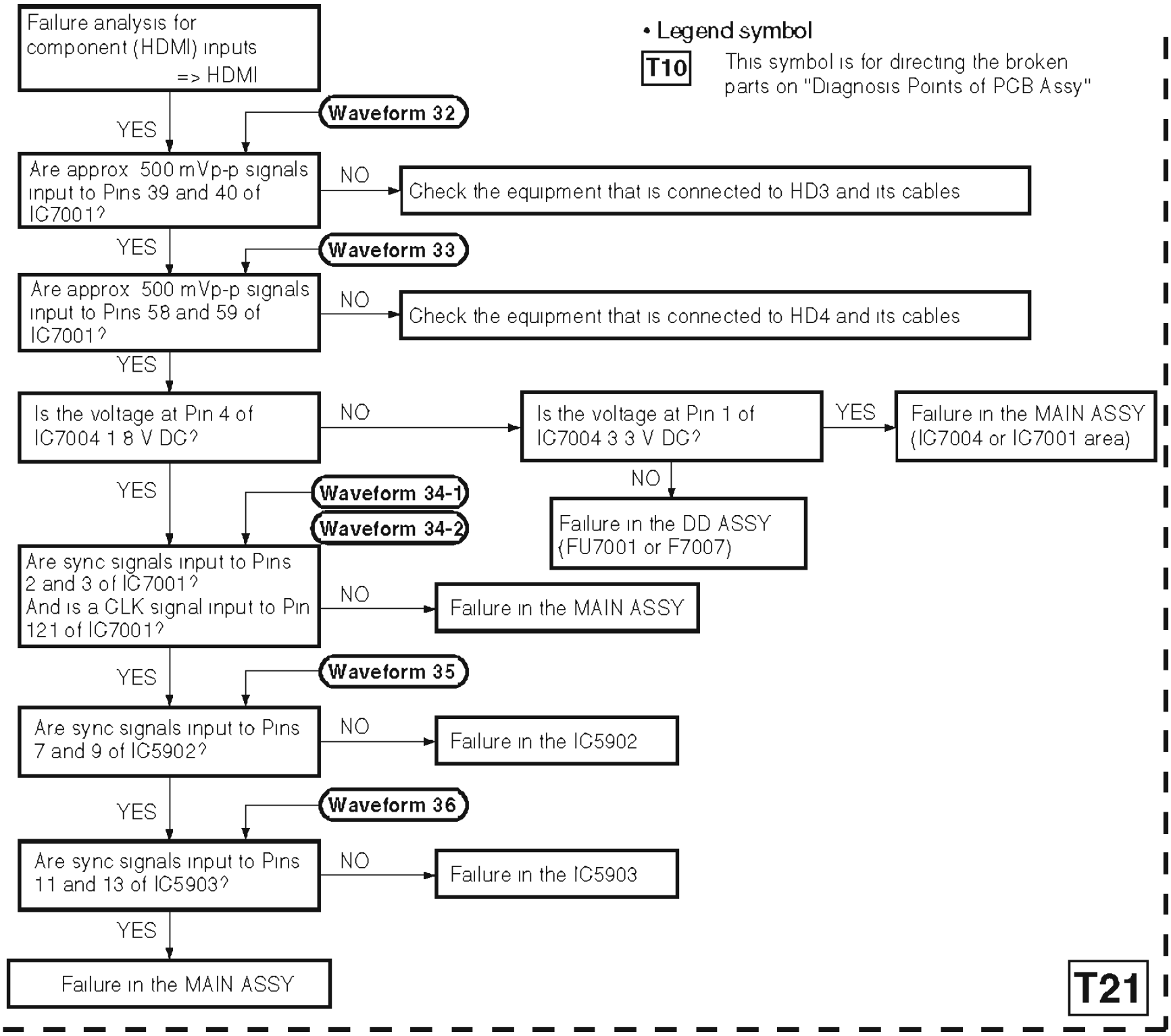


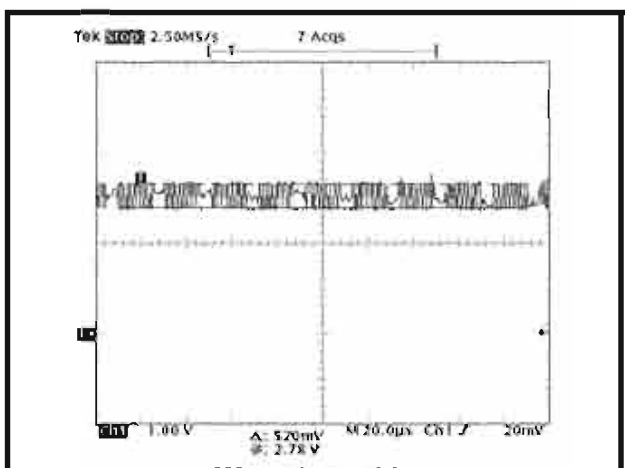
Waveform 23



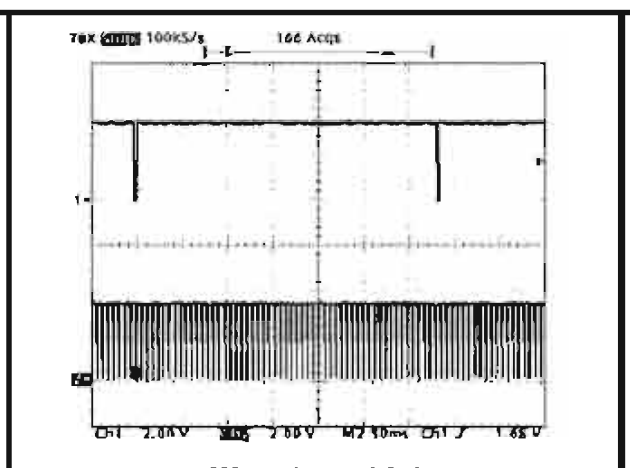
Waveform 25

In a case of inputs to DVD/HD3 and 4 (HDMI) (in a theater model)

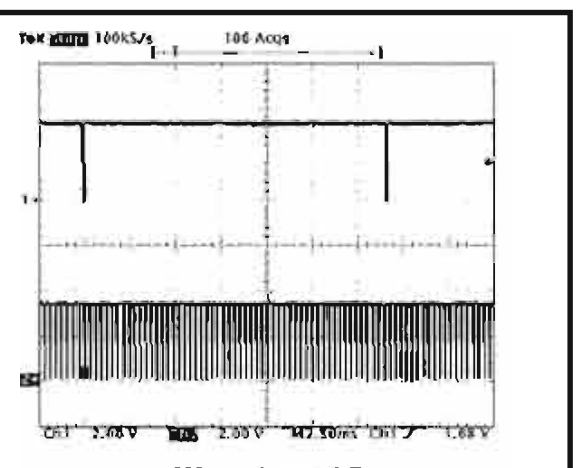




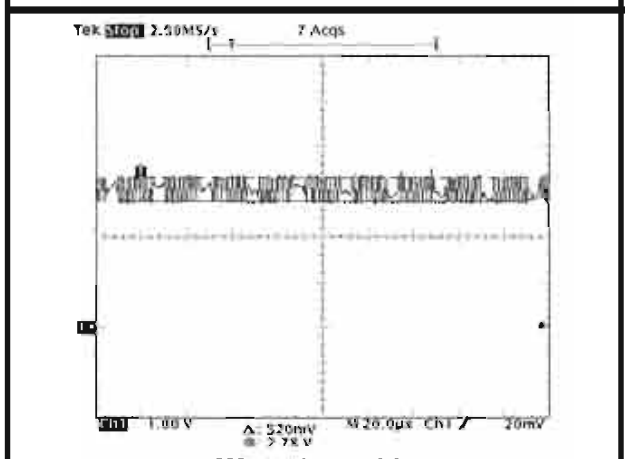
Waveform 32



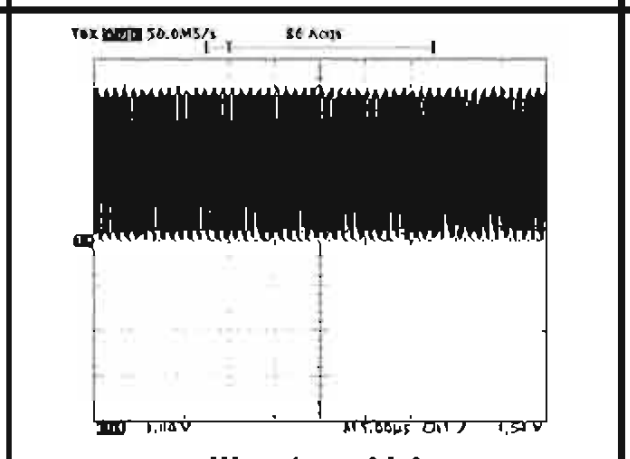
Waveform 34-1



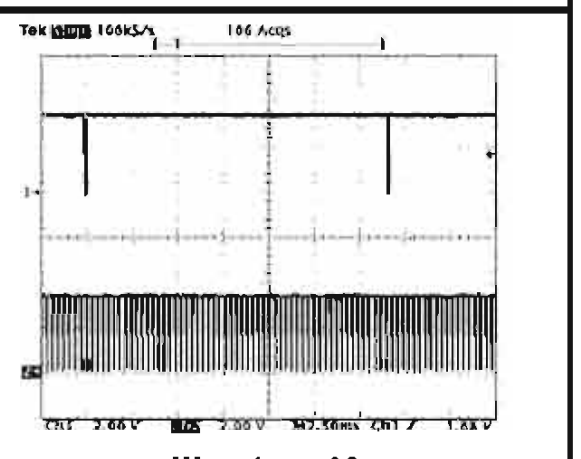
Waveform 35



Waveform 33

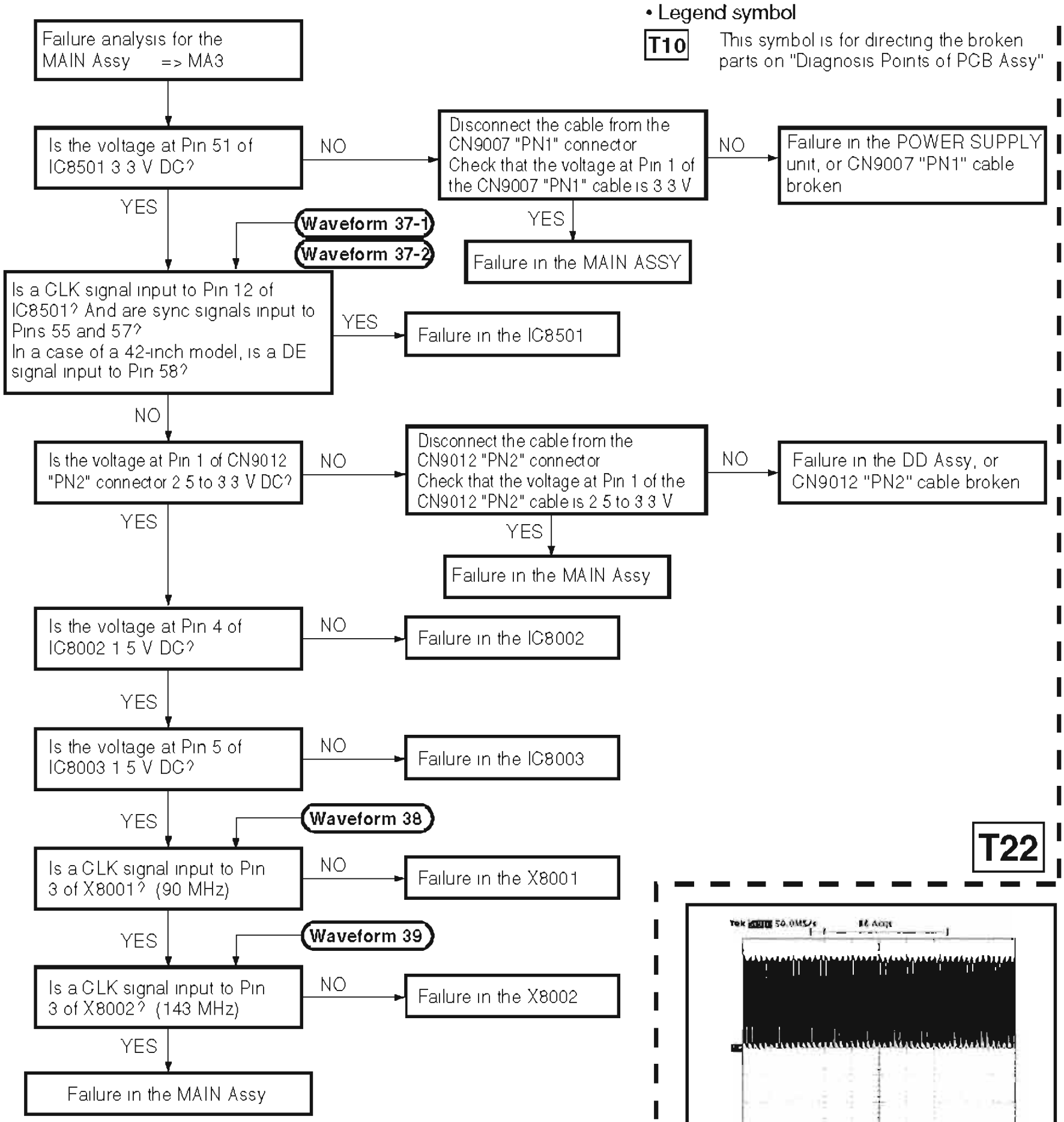


Waveform 34-2

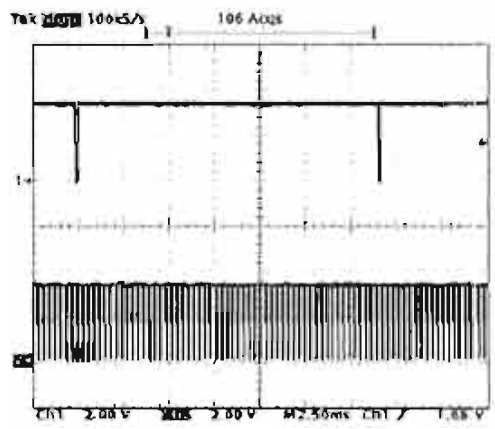


Waveform 36

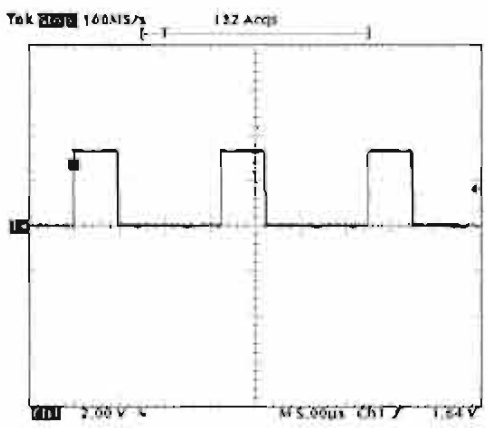
In a case when no image from any input appears



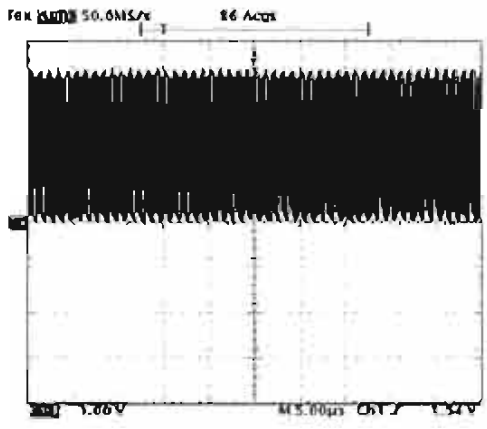
Waveform 38



Waveform 37-1



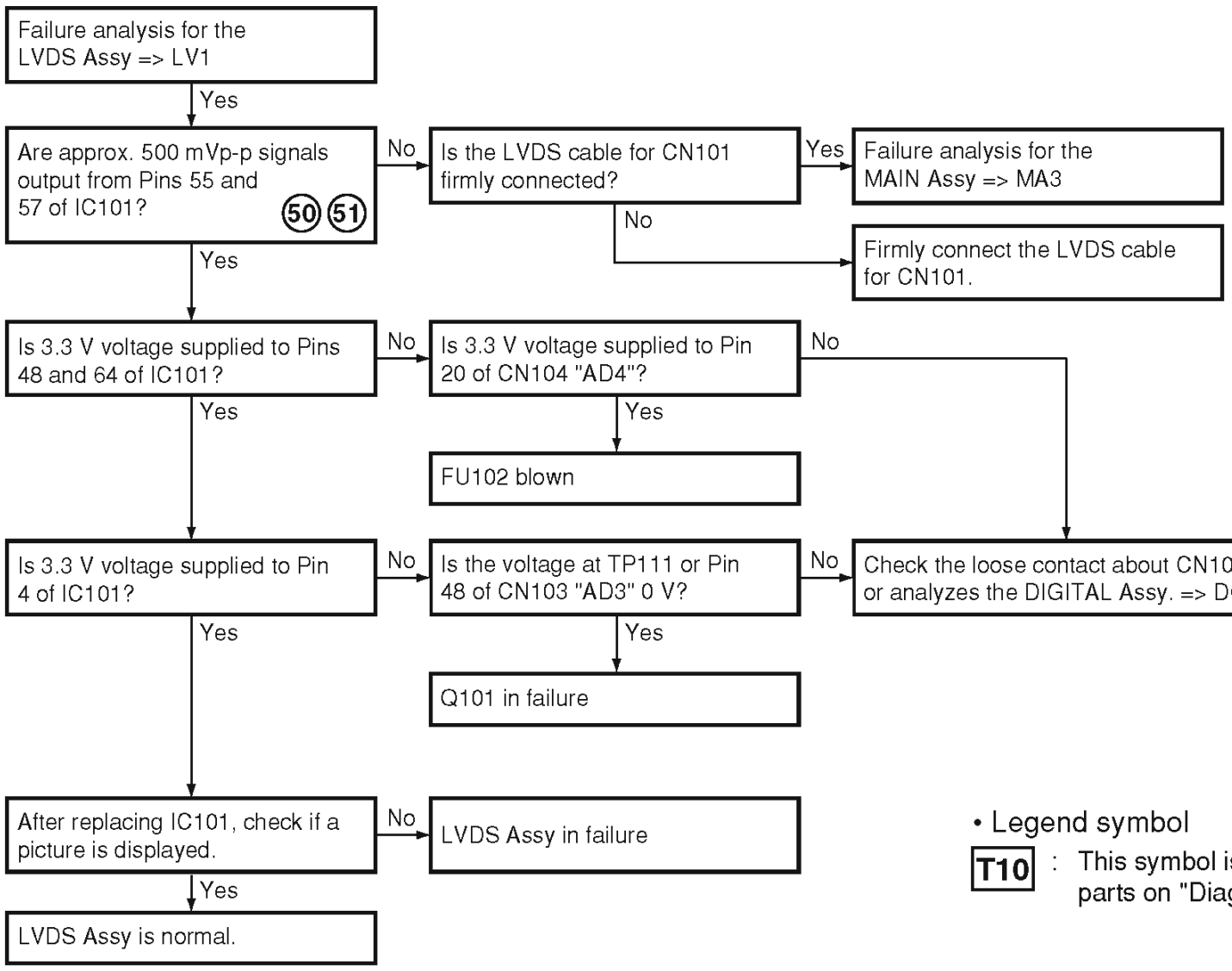
Waveform 37-2:
DE signal (42-inch models)



Waveform 39

3.1.8 FLOWCHART OF FAILURE ANALYSIS FOR THE LVDS ASSY

In a case in which no picture for any of the input connectors is displayed



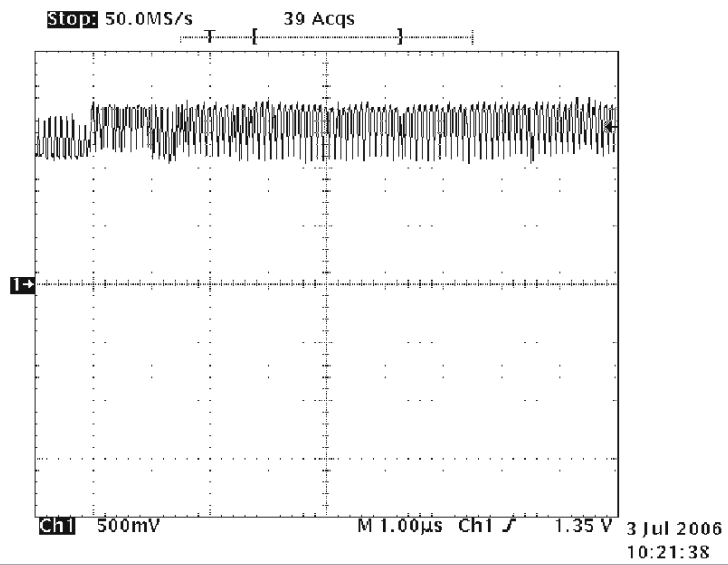
• Legend symbol

T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

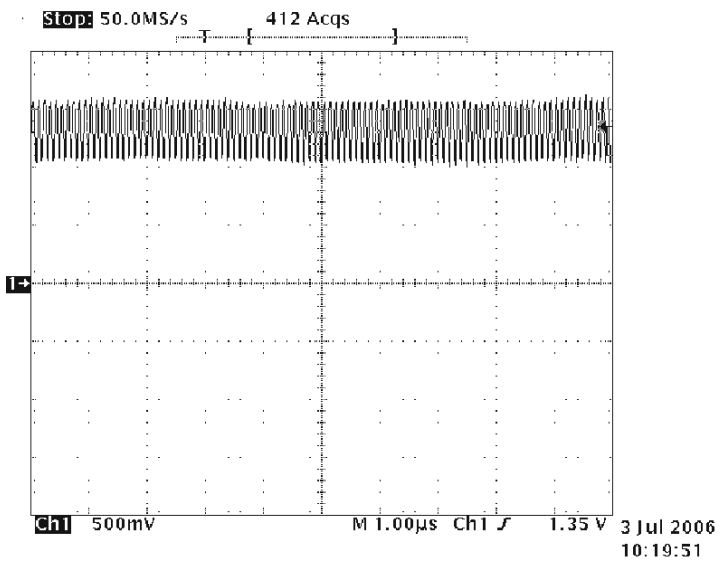
T50

● **Waveforms**

50 **IC101 - pin 55**
V: 500 mV/div H: 1.00 µsec/div

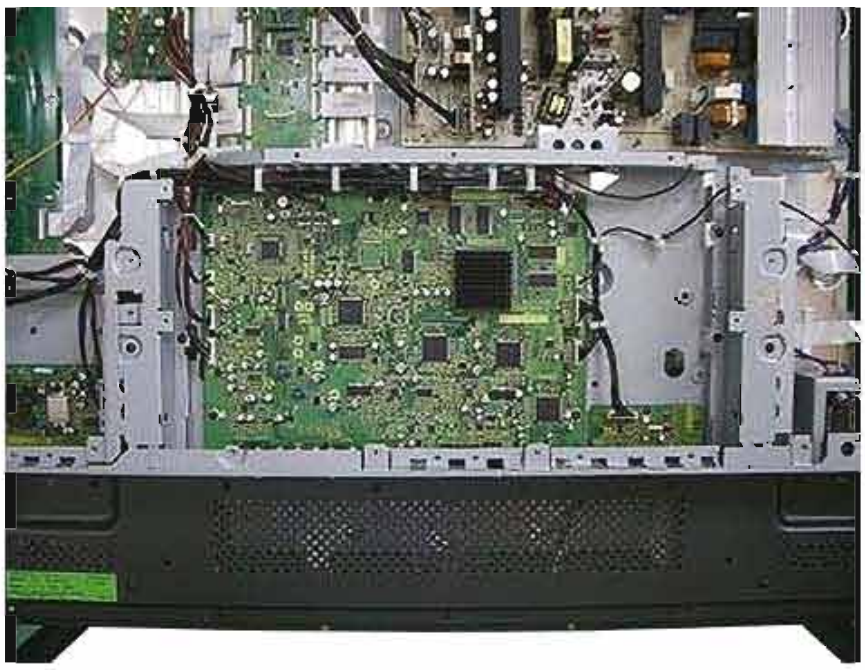


51 **IC101 - pin 57**
V: 500 mV/div H: 1.00 µsec/div

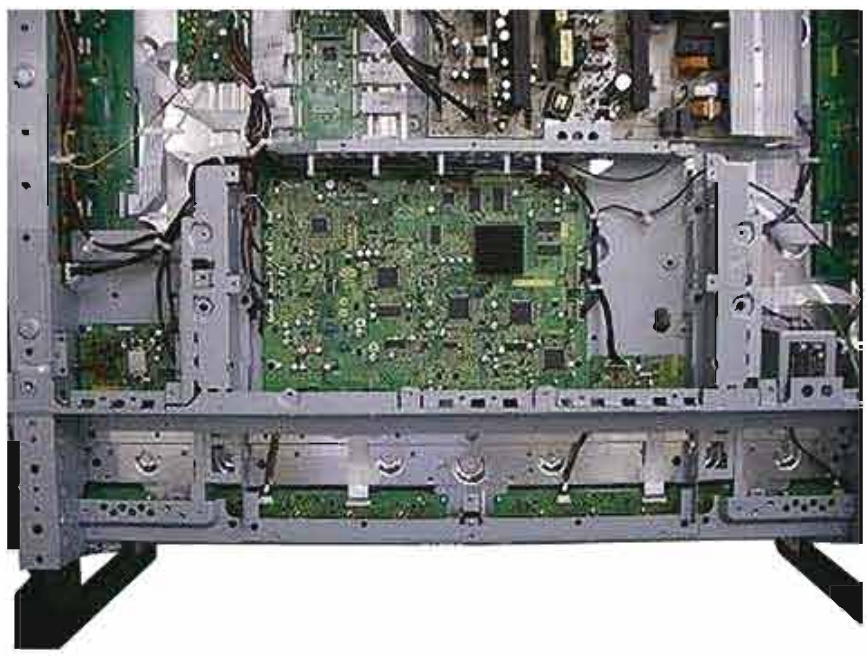


■ Disassembly for Diagnosis

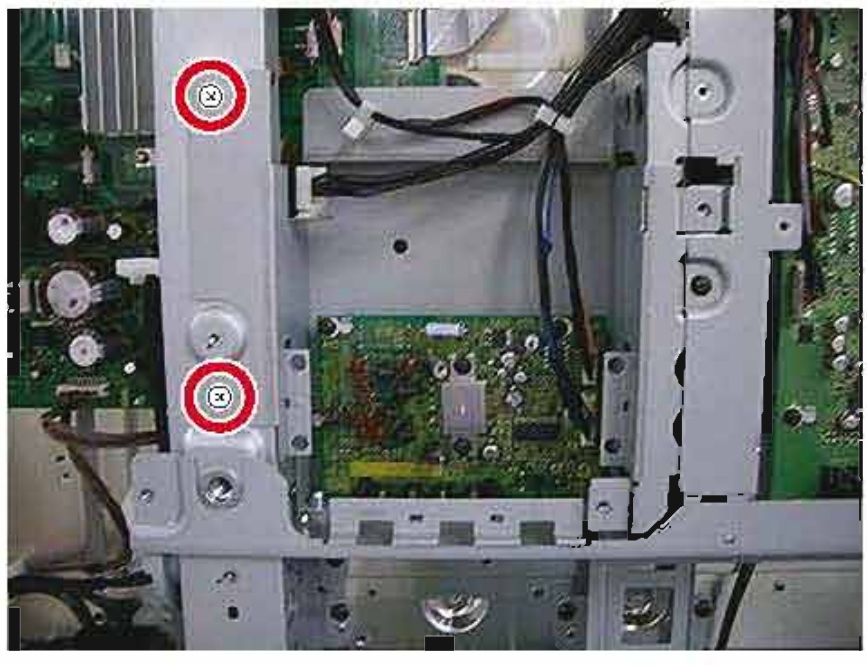
① Remove the rear case



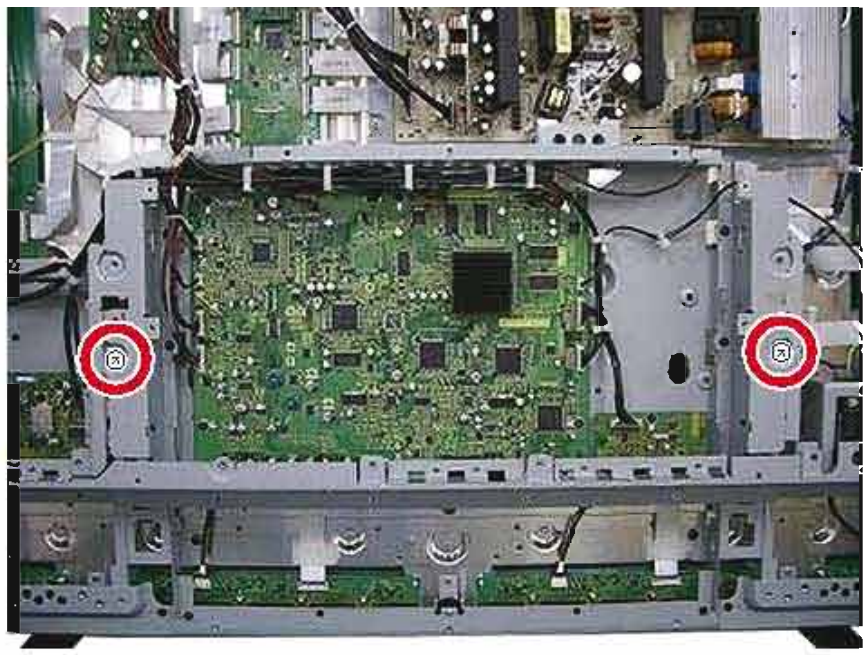
② Remove the under cover



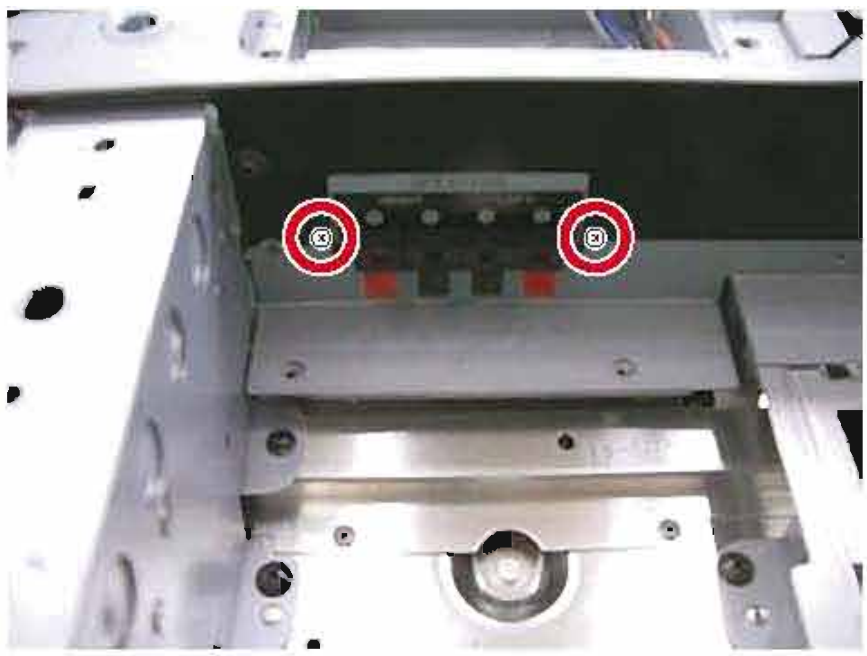
③ Remove the two screws from the sub multi base



④ Remove the two screws from the multi base

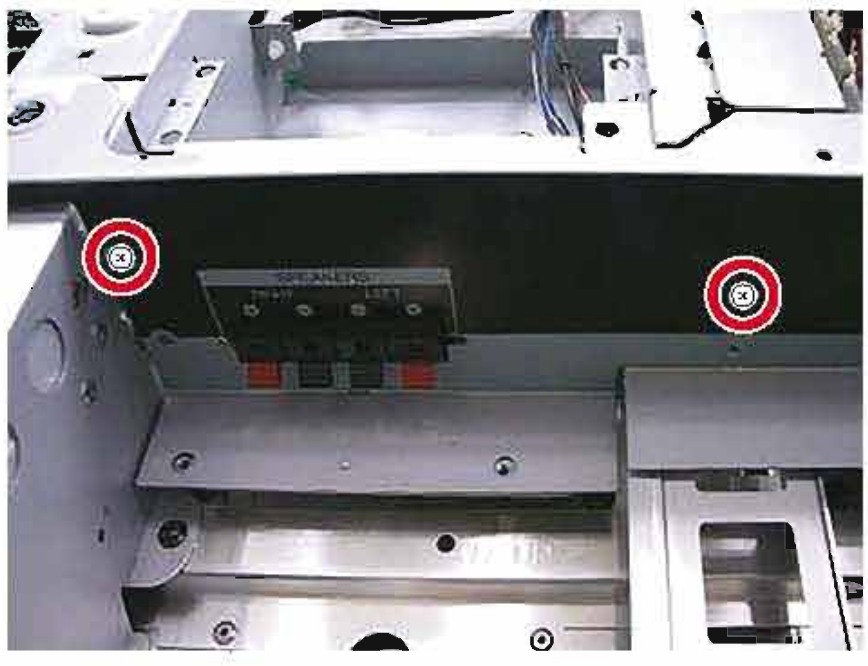


⑤ Remove the two screws from the speaker terminal



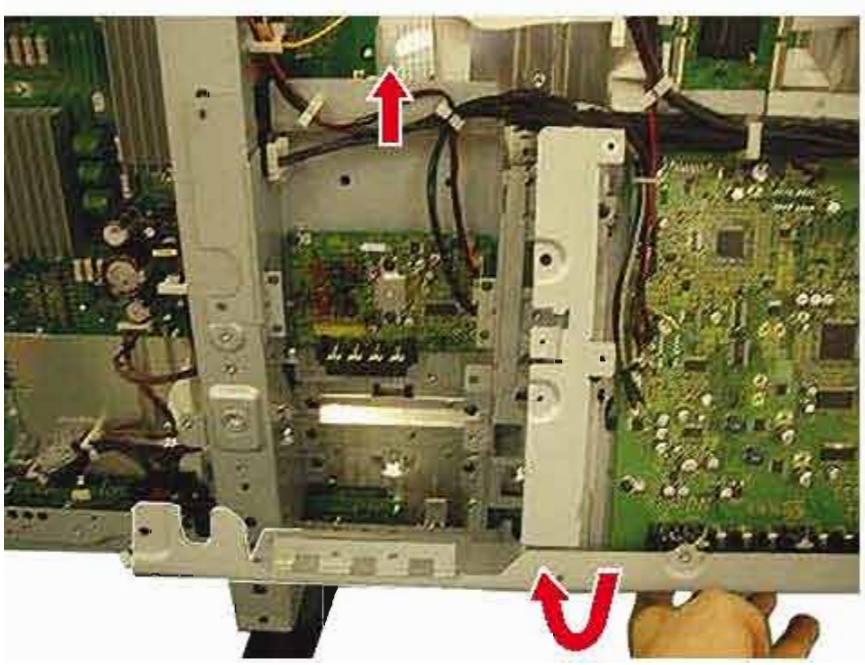
⑥ Remove the four screws from the terminal panel

⑥-1

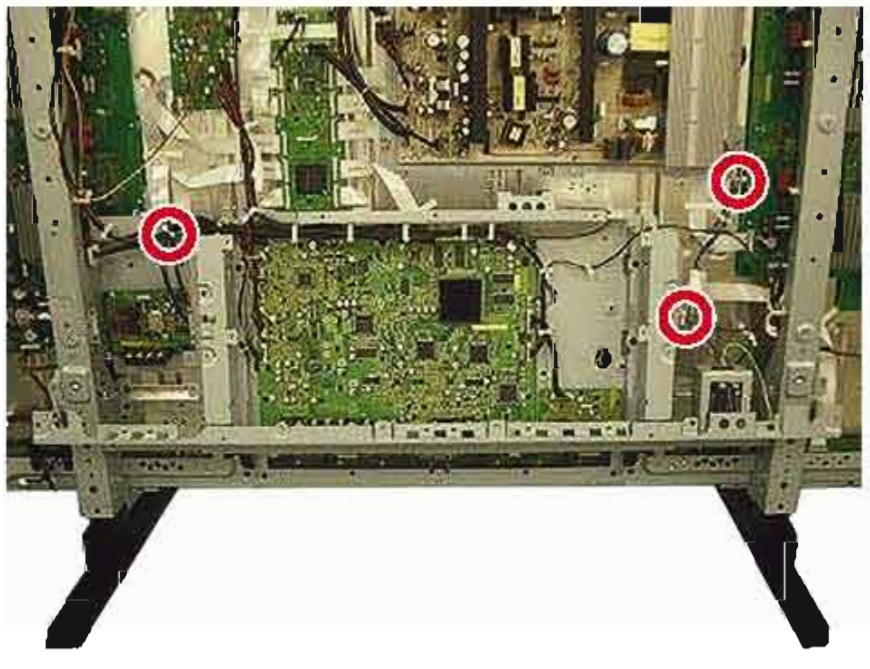


⑥-2

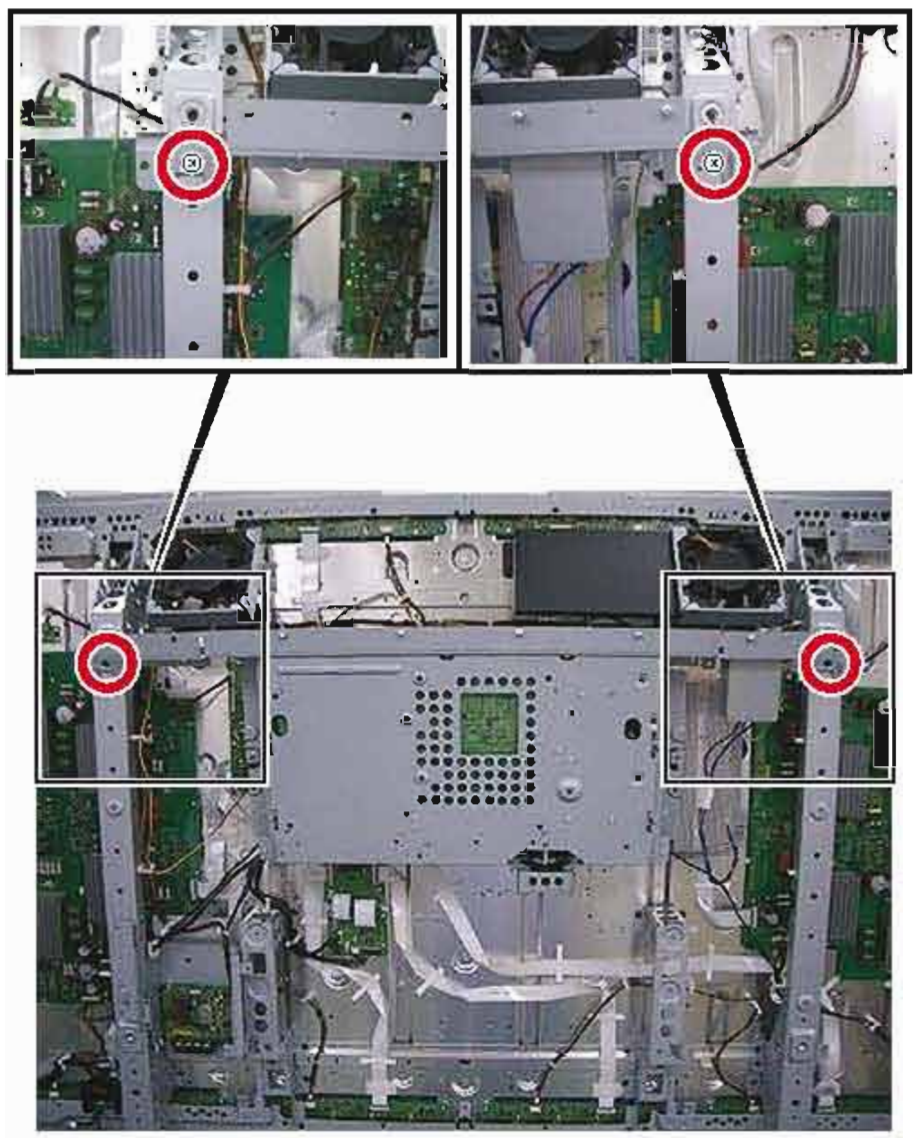
⑦ Pull up the sub multi base、
Pull the multi base toward you



⑧ Loosen the three clampers, and remove the jumper wires



⑨ Reverse with the multi base
Fasten the multi base to the subframes by two screws



3.1.9 ABNORMALITY IN AUDIO

Note: Before performing a failure diagnosis, be sure to check that the settings of the unit are properly made by referring to its specifications and instruction manual.
If speaker outputs with different polarities or a speaker output and ground are short-circuited, the protection circuit is activated, and audio will not be output. In this case, turn the power off at the Main Power Switch, make connections properly, then turn the power back on again. The protection circuit will then be released.

AU1

Conditions of signal input (200 mV, 1 kHz)

Waveform 41

With the speaker cables disconnected, are audio signals output from the speaker terminals?

YES → Failure in the speakers or speaker cables

NO

If an audio signal is input to another audio input connector and that audio input is selected, is the audio signal output?

YES → Failure in the MAIN Assy (IC5302) or poor connection of the audio connectors

NO

Is the green POWER indicator repeating a burst of 5 flashes?

YES → Does the green POWER indicator repeat a burst of 5 flashes even after the CN3004 "AU" is disconnected?

YES → Failure in the MAIN Assy or the CN3004 "AU"

NO → Failure in the AUDIO ASSY

NO

Is the voltage at Pin 9 of IC3002 4 V or higher?

NO → Is the voltage at Pin 9 of IC3002 4 V or higher after the CN3004 "AU" is disconnected?

YES → Failure in the MAIN Assy or the CN3004 "AU"

NO → Failure in the IC3002

YES

T30

Waveform 42

Is a PWM waveform output from Pins 41, 43, 47 and 48 of IC3002?

NO → Are the voltages shown in the table below output from each pin of the CN3003 "PA" connector on the AUDIO Assy?

Pin No.	Name	Voltage
1	S+12	12.2 Vdc
2	S+12	12.2 Vdc
3	S+12	12.2 Vdc
4	GND	GND
5	GND	GND
6	GND	GND

YES → Failure in the IC3002

NO → Is not there abnormality in connection of the CN3003 "PA" connector?

YES → Failure in the CN3003 "PA" connector

NO → Failure in the DD Assy

YES

A

T31

• Legend symbol

T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

• Legend symbol

T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

(A)

YES

Is the 9 V DC applied to the both ends of L3005 and L3006?

NO → Failure in the IC3001, IC3002 and IC3004

YES

Waveform 43

Is the audio signal waveform output from Pin 11 of IC3001?

YES → Failure in the IC3002

NO

Are the waveforms shown below output from the CN3004 "AU" on the AUDIO Assy?

YES → Failure in the IC3001

Pin 8 — 5Vp-p

Pin 9 — 5Vp-p

Pin 7 — 9.0Vdc

Pin 5 — 3.3Vdc

Pins 1 and 3: Audio signal waveform ← Waveform 44

T31

NO

Are the waveforms shown below output from the CN9001 "AU" on the MAIN Assy?

YES → Failure in the CN9001 "AU"

Pin 8 — 5Vp-p

Pin 9 — 5Vp-p

Pin 7 — 9.0Vdc

Pin 5 — 3.3Vdc

Pins 1 and 3: Audio signal waveform

NO

Waveform 45

Is the audio signal waveform input to Pin 1 of IC5302?

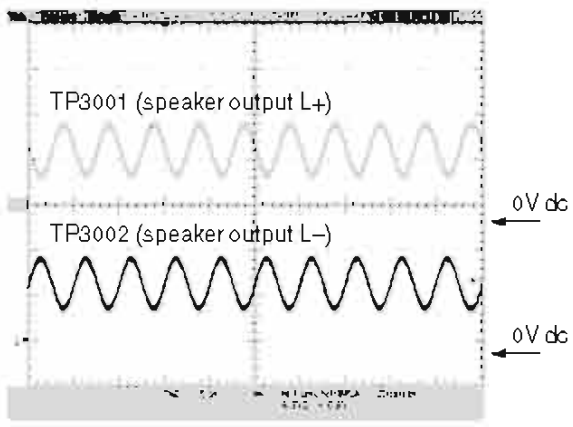
YES → Failure in the IC5302

NO

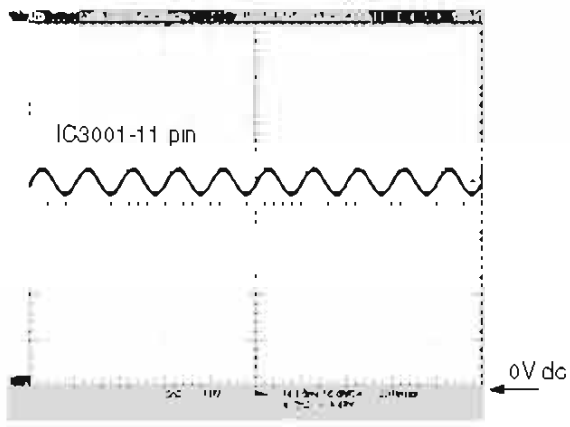
Failure in the audio input connectors or the audio output equipment

T33

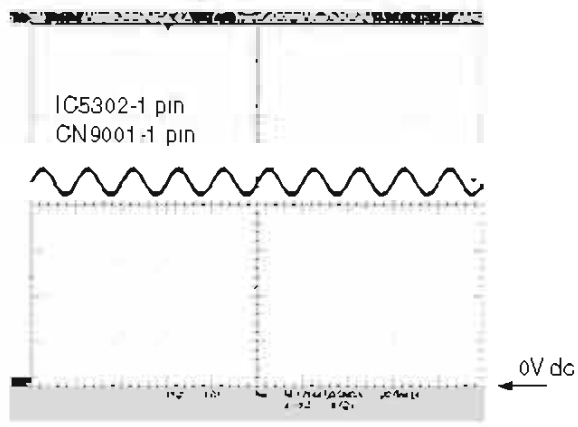
Conditions of signal input
Audio input connector: AUDIO 1 (L channel)
Input signal level: 200 mVrms
Input signal frequency: 1 kHz
Volume: Max



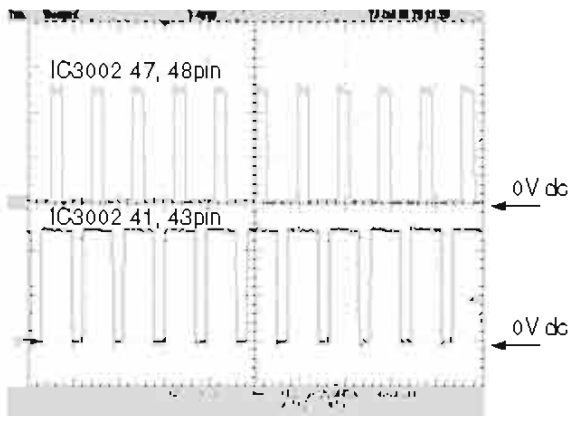
Waveform 41 H 1mS/div V 5V/div



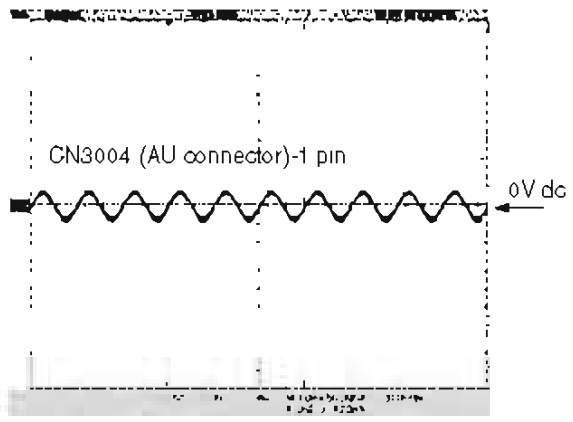
Waveform 43 H 1mS/div V 1V/div



Waveform 45 H 1mS/div V 1V/div



Waveform 42 H 2uS/div V 5V/div



Waveform 44 H 1mS/div V 1V/div

The following flowchart and waveform charts are related to the audio output function that is provided only with the XR model : PD5001/PD6001.

Abnormality in HDMI audio
(No HDMI audio output is available although the analog audio input is output)

Are neither the audio nor video of the HDMI input signals output? — YES → Poor connection of the HDMI cable or failure in the connected equipment

NO (Only the image is displayed)

Is the HDMI audio output format of the connected HDMI output equipment set to Linear PCM? — NO → Set the audio output format of the HDMI output equipment to Linear PCM

YES

Waveform 46, 47

Is the digital audio output from IC7001 input to Pins 1 (MCLK), 2 (BILK), 4 (LRCK), and 3 (SDTI) of IC7002? — NO → Failure in the IC7001

YES

Waveform 48

Is the analog audio signal output from Pin 11 of IC7002? — NO → Failure in the IC7002

YES

Waveform 49

Is the analog audio signal input to Pin 13 of IC5302? — NO → Failure in the IC7003

YES

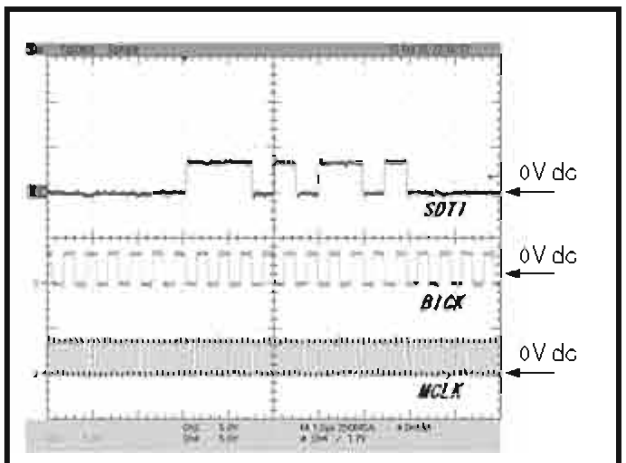
Waveform 45

Is the analog audio signal output from Pin 1 (CN9001) of the AU connector on the MAIN ASSY? — NO → Failure in the IC5302

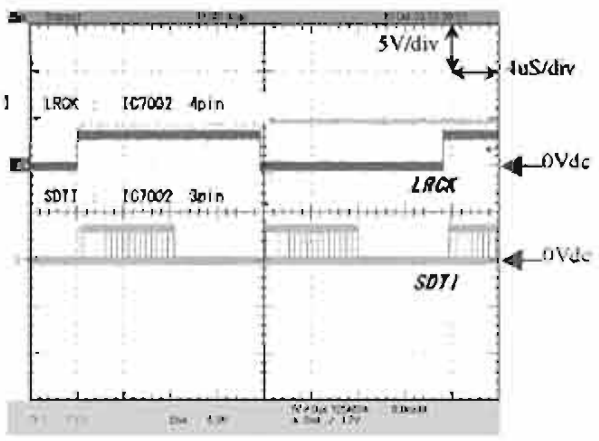
YES

Poor connection of the speakers or a failure in the AUDIO ASSY is suspected
Go back to the first step of "Abnormality in audio" of this troubleshooting guide, and follow the flowchart

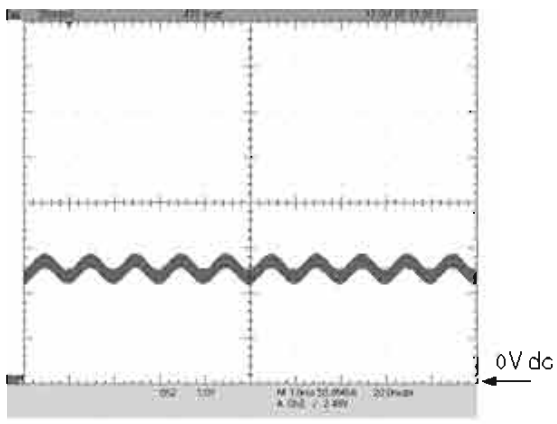
Conditions of signal input
Audio input connector: AUDIO 1 (L ch)
Input signal level: -20dB
Input signal frequency: 1 kHz
Volume: Max



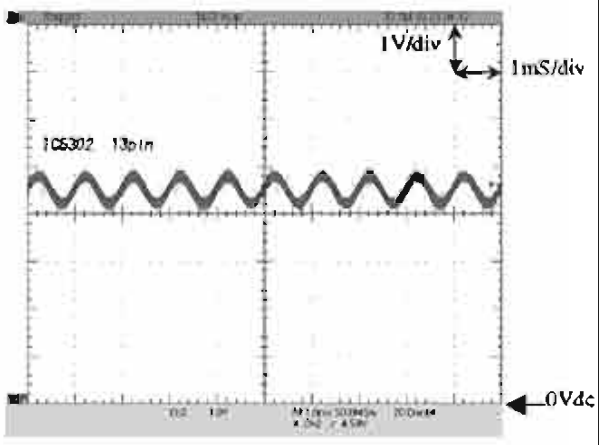
Waveform 46 H 1µS/div V 5V/div



Waveform 47 H 4µS/div V 5V/div



Waveform 48 H 1mS/div V 1V/div



Waveform 49 H 1mS/div V 1V/div

• Legend symbol

T10 This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy"

T35

3.1.10 FAILURE OF A REMOTE CONTROL UNIT

Note: In a case of a model for industrial use, make sure of the following settings before performing a failure diagnosis: PLE Link, Repeat timer, and Wireless remote control unit set to ON, and Remote control unit ID set to ALL. As a wired remote control unit does not work if the ID number is set, be sure to set the ID number setting to OFF.

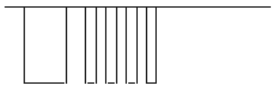
(1) When a PDP is used alone

• Legend symbol

T10 : This symbol is for directing the broken parts on "Diagnosis Points of PCB Assy".

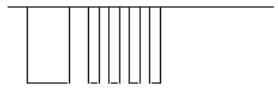
The wired remote control unit does not work.

Is the signal shown below output from Pin 6 of CN9010 "RS" on the MAIN Assy?



NO

Is the signal shown below output from Pin 3 of JA2001 on the 232C Assy?



NO

Failure in the remote control unit or its cable

YES

Failure in the MAIN Assy

YES

When the cable is disconnected from the CN2002 "RS" connector on the 232C Assy, are the voltages shown in the table below output from CN9010 "RS" of the MAIN Assy?

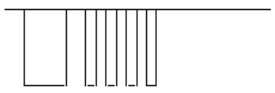
Pin No.	Name	Voltage
5	M+3.3V	3.3Vdc

YES

Failure in the 232C Assy

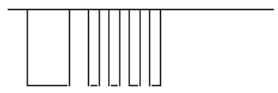
No output from the Wired OUT

Is the signal shown below output from Pin 8 of IC2004 on the 232C Assy?



YES

Is the signal shown below output from Pin 8 of IC2002 on the 232C Assy?



YES

Failure in JA2002 or the section for the wired remote control unit of the second unit

NO

Failure in the IC2004

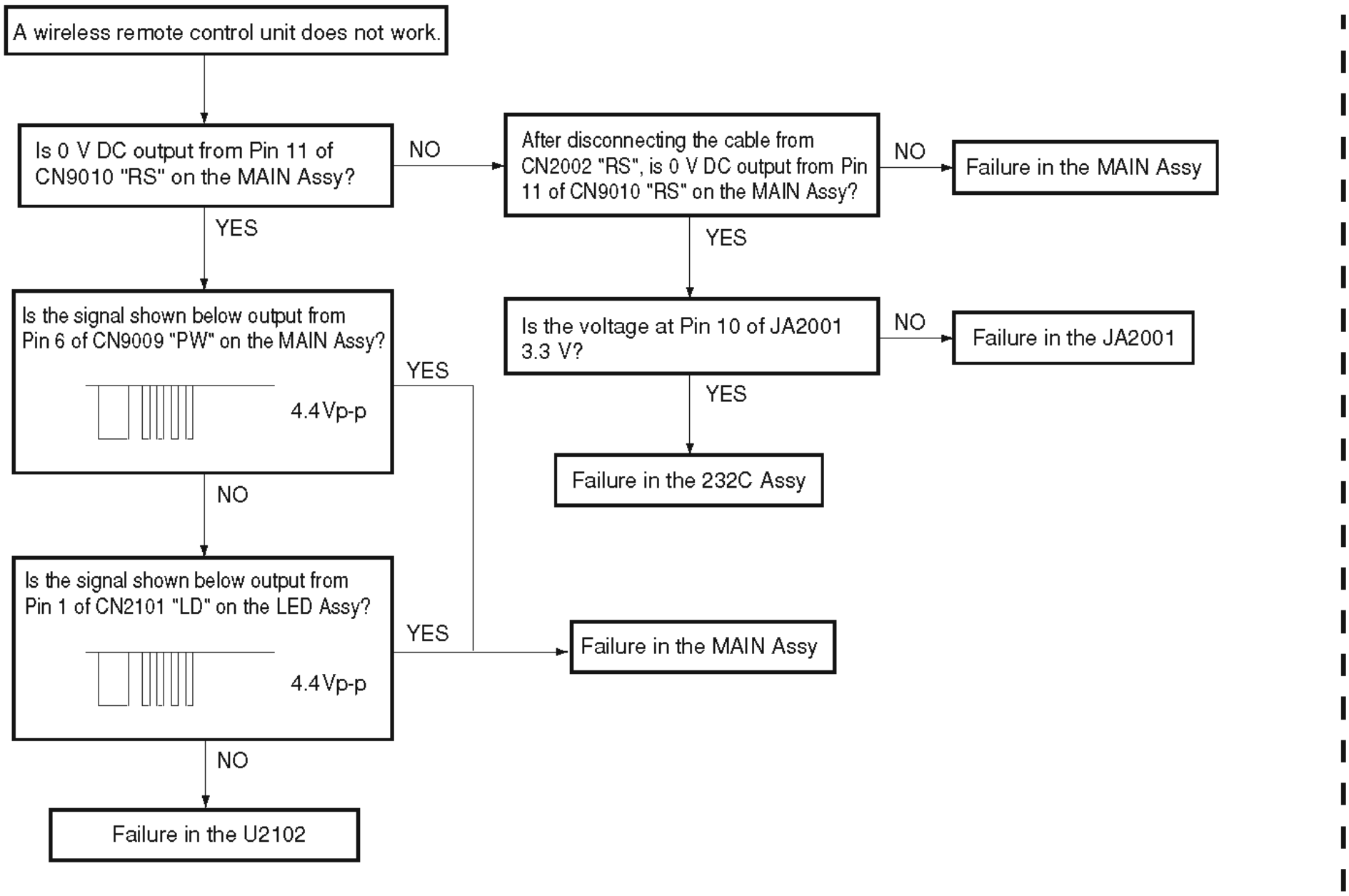
NO

Failure in the IC2002

T40

(2) A wireless remote control unit does not work

Note: Be sure to disconnect the cable of the wired remote control unit from the Remote connector of the unit when a wireless remote control unit is to be diagnosed, as whether a wired or wireless remote control unit is to be used is detected by the connection to the Remote connector of the unit.
For a model for industrial use, before performing a failure diagnosis, make sure of the following settings on the User menu: Wireless Remote Control Unit set to ON, ID Number set to ALL, and Remote Control Unit ID set to ALL.



T41

■ VOLTAGES and WAVEFORMS (Information)

■ Voltages

Ref. No.	Pin No.	Pin Name	Function	Voltages / Waveforms	Measurement Condition	Remarks
Digital Section						
IC6203	4	VIN	3.3V power supply for IC6201	3.3V	Tester	
	5	VO	1.5V power supply for IC6201	1.5V	Tester	
IC6502	4	VO	3.3V power supply for IC6501	3.3V	Tester	
IC6702	4	VO	3.3V power supply for IC6701	3.3V	Tester	
IC7003 (XM model)	1	VI	5V power supply (IC7006 output)	5V	Tester	
	3	VO	3.3V power supply for IC7001	3.3V	Tester	
IC7004 (XR model)	2	VI	3.3V power supply for IC7001	3.3V	Tester	
	4	VO	1.8V power supply for IC7001	1.8V	Tester	
IC8003	4	VIN	3.3V power supply for IC8001	3.3V	Tester	
	5	VO	1.5V power supply for IC8001	1.5V	Tester	
IC8002	2	VI	2.5V power suply (input)	2.5V	Tester	
	4	VO	1.5V power supply for IC8001	1.5V	Tester	
IC6201 (VIDEO)	73	HD	HSYNC output	wave ①_Ch2	V: 2V/div H: 2.5ms/div	input: video, signal: color-bar
	74	VD	VSYNC output	wave ①_Ch1	V: 2V/div H: 2.5ms/div	input: video, signal: color-bar
	57	ROY4	DATA output	wave ②_Ch2	V: 2V/div H: 25us/div	input: video, signal: color-bar
	64	RCLK	CLK output	wave ③_Ch1	V: 2V/div H: 5us/div	input: video, signal: color-bar
IC6202 (SDRAM)	35	SDRCLK	CLK input (output: IC6201)	wave ⑭_Ch1	V: 1V/div H: 5ns/div	input: video, signal: color-bar
	49	SDRQ15	DATA	wave ⑭_Ch2	V: 1V/div H: 5ns/div	input: video, signal: color-bar
IC6501 (A/D_A)	127	HSYNCO	HSYNC output	wave ④_Ch2	V: 2V/div H: 2.5ms/div	input: DVD/HD, signal: color-bar
	132	VSYNCO	VSYNC output	wave ④_Ch1	V: 2V/div H: 2.5ms/div	input: DVD/HD, signal: color-bar
	108	RA4	DATA output	wave ⑤_Ch2	V: 2V/div H: 5us/div	input: DVD/HD, signal: color-bar
	64	CKDATA	CLK output	wave ③_Ch1	V: 2V/div H: 5us/div	input: DVD/HD, signal: color-bar
IC6701 (A/D_A)	127	HSYNCO	HSYNC output	wave ④_Ch2	V: 2V/div H: 2.5ms/div	input: PC1, signal: color-bar
	132	VSYNCO	VSYNC output	wave ④_Ch1	V: 2V/div H: 2.5ms/div	input: PC1, signal: color-bar
	108	RA4	DATA output	wave ⑤_Ch2	V: 2V/div H: 5us/div	input: PC1, signal: color-bar
	64	CKDATA	CLK output	wave ③_Ch1	V: 2V/div H: 5us/div	input: PC1, signal: color-bar
IC7001 (DVI) (XM model)	48	HSYNC	HSYNC output	wave ⑦_Ch2	V: 2V/div H: 2.5ms/div	input: PC3, signal: color-bar
	47	VSYNC	VSYNC output	wave ⑦_Ch1	V: 2V/div H: 2.5ms/div	input: PC3, signal: color-bar
	46	DE	DE output	wave ⑧_Ch2	V: 2V/div H: 5us/div	input: PC3, signal: color-bar
	63	QO12	DATA output	wave ⑨_Ch2	V: 2V/div H: 5us/div	input: PC3, signal: color-bar
	44	OCLK	CLK output	wave ③_Ch1	V: 2V/div H: 5us/div	input: PC3, signal: color-bar
IC7001 (HDMI) (XR model)	2	HSYNC	HSYNC output	wave ⑦_Ch2	V: 2V/div H: 2.5ms/div	input: DVD3, signal: color-bar
	3	VSYNC	VSYNC output	wave ⑦_Ch1	V: 2V/div H: 2.5ms/div	input: DVD3, signal: color-bar
	1	DE	DE output	wave ⑧_Ch2	V: 2V/div H: 5us/div	input: DVD3, signal: color-bar
	129	Q11	DATA output	wave ⑨_Ch2	V: 2V/div H: 5us/div	input: DVD3, signal: color-bar
	121	OCLK	CLK output	wave ③_Ch1	V: 2V/div H: 5us/div	input: DVD3, signal: color-bar
IC8101 (SDRAM)	68	CLK	CLK input (output: IC8001)	wave ③_Ch1	V: 2V/div H: 5us/div	input: video, signal: color-bar
	85	DQ15	DATA	wave ⑥_Ch1	V: 2V/div H: 5us/div	input: video, signal: color-bar
IC8102 (SDRAM)	68	CLK	CLK input (output: IC8001)	wave ③_Ch1	V: 2V/div H: 5us/div	input: video, signal: color-bar
	85	DQ15	DATA	wave ⑥_Ch1	V: 2V/div H: 5us/div	input: video, signal: color-bar
IC8103 (SDRAM)	68	CLK	CLK input (output: IC8001)	wave ③_Ch1	V: 2V/div H: 5us/div	input: video, signal: color-bar
	85	DQ15	DATA	wave ⑥_Ch1	V: 2V/div H: 5us/div	input: video, signal: color-bar

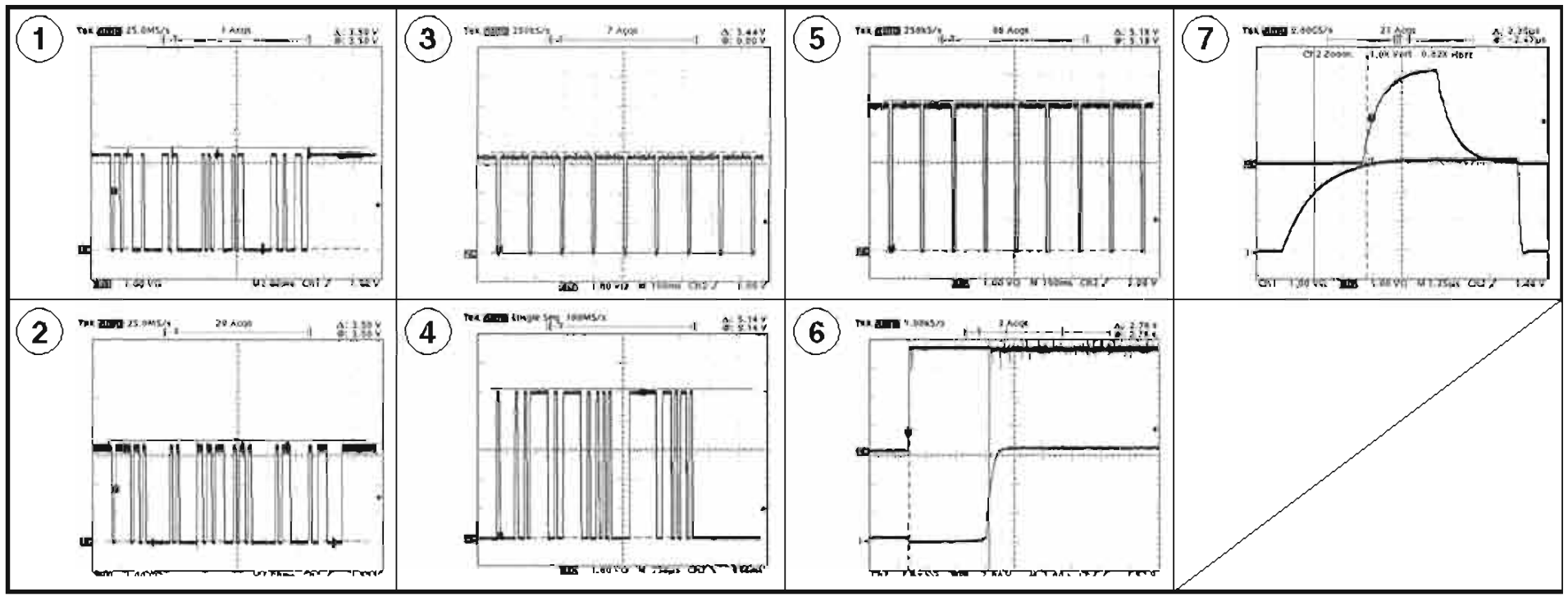
XR model : PD5001/PD6001

Ref. No.	Pin No.	Pin Name	Function	Voltages / Waveforms	Measurement Condition	Remarks
IC8105	11	VSYNC	VSYNC input (output IC8001)	wave ⑫_Ch2	V 2V/div H 2.5ms/div	OSM display
	10	HSYNC	HSYNC input (output IC8001)	wave ⑫_Ch1	V 2V/div H 2.5ms/div	OSM display
	28	DAO	DATA output	wave ⑬_Ch2	V 2V/div H 2.5ms/div	OSM display
	5	DCLKI	CLK input	wave ③_Ch1	V 2V/div H 5us/div	OSM display
X8001	3	–	X'TAL 90MHz output	wave ③_Ch1	V 2V/div H 5us/div	–
X8002	3	–	X'TAL 143MHz output	wave ③_Ch1	V 2V/div H 5us/div	–
IC8501 (LVDS)	23	TCLK-	DATA output	wave ⑩_Ch1	V 2V/div H 5us/div	input video, signal color-bar
	18	TE+	DATA output	wave ⑪_Ch1	V 2V/div H 5us/div	input video, signal color-bar

Waveforms for DIGITAL Section

Ref. No.	Pin No.	Pin Name	Function	Voltages / Waveforms	Measurement Condition	Remarks
Microcomputer Section						
IC9501 (Microcomputer)	10	RESET	system reset	3 3V	power ON	
	11	XOUT	X'TAL	33MHz	power ON	
	13	XIN	X'TAL	33MHz	power ON	
	59	ACDET/POMUTE	AC code detection	42 0, 50/61 3 3V	power ON	
	77	POWER	Power signal	42 non, 50/61 3 3V	power ON	
	88	DCIN	D3 3V monitor	3 3V	power ON	
	91	SW7	Main power SW detection	3 3V	power ON	
SUB Section						
CN2002	1	M+5V	5V power supply	5V	Tester	remote control power REG input
	2	TXD0	232C driver input	wave ①	V 1V/div H 1ms/div	waveform at PC external control
	4	RXD0	232C receiver output	wave ②	V 1V/div H 1ms/div	waveform at PC external control
	5	M+3V	3 3V power supply	3 3V	Tester	232C driver/receiver power supply
	6	REMIN2 /RXD	wired remote control / PLE link	wave ③	V 1V/div H 100ms/div	waveform at long press button (wired remote control)
	8	PLE_CTL	remote control / PLE select	0V / 3 3V	Tester	
	9	TXD1	PLE data	wave ④	V 1V/div H 250us/div	PLE test waveform
	10	REMIN1	wireless remote control	wave ⑤	V 1V/div H 100ms/div	waveform at long press button (wireless remote control)
	11	REM	wired / wireless select	3 3V / 0V	Tester	wired 3 3V / wireless 0V
JA2001 (F2022)	2		wired remote control power supply	3 3V	Tester	
CN9011	1	CTL1	PROCEED	2 5V	Tester	voltage at tact SW operate
			VOL DOWN	1 8V	Tester	
			VOL UP	0 9V	Tester	
	2	CTL2	CURSOR L	2 5V	Tester	
			CURSOR R	1 8V	Tester	
			INPUT SEL	0 9V	Tester	
CN9009	2	POIN	main power switch	wave ⑥_ch1	V 1V/div H 1s/div	waveform at main power SW ON
	1	SW7		wave ⑥_ch2	V 2V/div H 1s/div	
CN1101	1	SCL5	temp sensor clock	wave ⑦_ch2	V 1V/div H 1 25us/div	
	4	SDA5	temp sensor data	wave ⑦_ch1	V 1V/div H 1 25us/div	
	3	VDD3 3P	temp sensor power supply	3 3V	Tester	

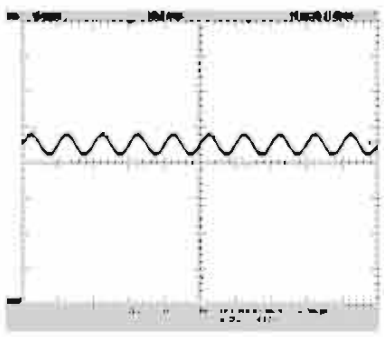
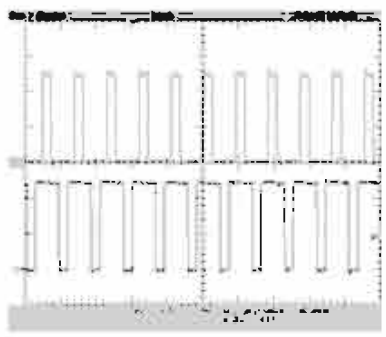
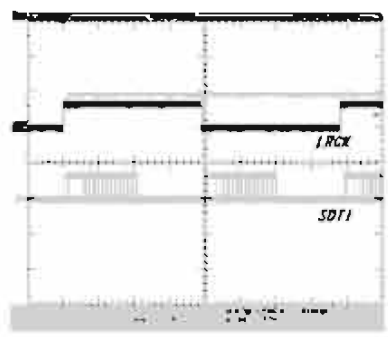
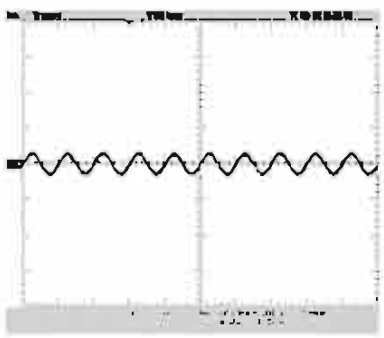
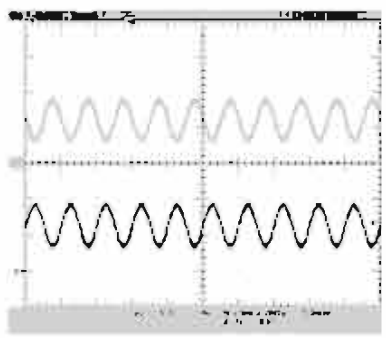
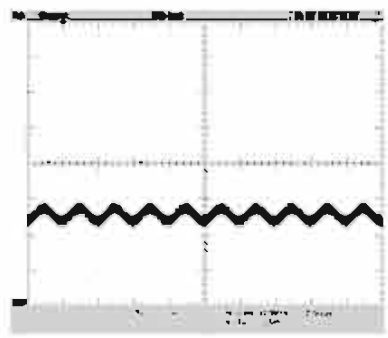
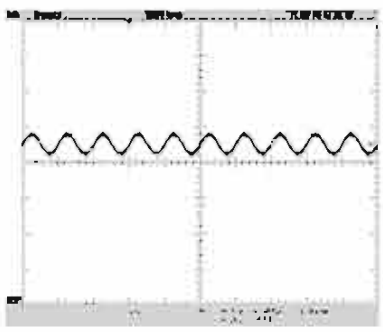
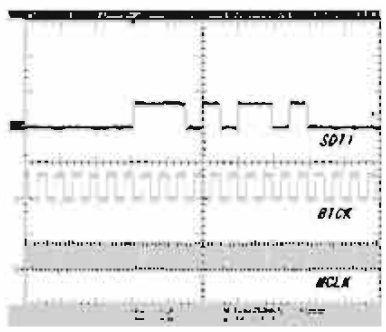
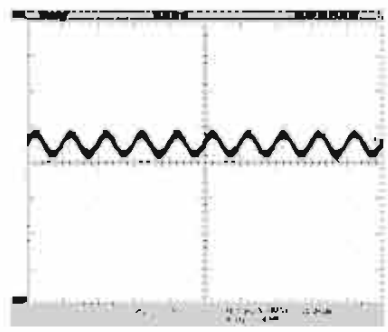
Waveforms for SUB Section



Ref. No.	Pin No.	Pin Name	Function	Voltages / Waveforms	Measurement Condition	Remarks
Audio Section						
AU connector	1	AU_L	audio L ch signal line	0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	2	GND	GND	0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	3	AU_R	audio R ch signal line	0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	4	GND	GND	0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	5	SP_ALM	speaker output DC detect	3.3V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	6	GND	GND	0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	7	MUTE	MUTE control	9V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	8	SCL	I2C	5.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	9	SDA	I2C	5.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
IC5302	14	V+	power supply	9.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
IC3001	28	VCC	power supply	9.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
IC3002	1	DVDD1	power supply	9.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	14	VREF	reference voltage	4.5V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	15	AVCC	power supply	9.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	26	DVDD2	power supply	9.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	28	VDA2	power supply	12.5V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	33	VDB2	power supply	12.5V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	46	VDB1	power supply	12.5V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	51	VDA1	power supply	12.5V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
IC3004	1	IN	power supply	12.5V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	3	OUT	power supply (regulate output)	9.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
IC7002	14	VDD		5.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max (XR model only)
IC7003	8	VCC		9.0V	Tester	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max (XR model only)
IC5302	1	IN1L	signal input	wave ①	1V/div, 1ms/div, AC+DC	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
AU connector	1	AU_L	L ch signal line	wave ②	1V/div, 1ms/div, AC+DC	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
IC3001	11	LOUT	L ch signal control output	wave ③	1V/div, 1ms/div, AC+DC	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
IC3002	47, 48	OUTA1	L ch signal PWM output +	wave ④	5V/div, 2us/div, AC+DC (single trigger)	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
	41, 43	OUTB1	L ch signal PWM output -			
TP3001	–	LOUT+	L ch signal speaker output +	wave ⑤	5V/div, 1ms/div, AC+DC	AUDIO 1 input, 200mVrms/1kHz sign wave, volume max
TP3002	–	LOUT-	L ch signal speaker output -			
IC7002	1	MCLK	master clock input	wave ⑥	5V/div, 4us/div, AC+DC	HDMI input, -20dB/1kHz sign wave, volume max (XR model only)
	2	BICK	bit clock input			
	3	SDTI	data input			
	4	LRCK	LR clock input	wave ⑦	5V/div, 4us/div, AC+DC	HDMI input, -20dB/1kHz sign wave, volume max (XR model only)
	11	AOUTL	analog signal output	wave ⑧	1V/div, 1ms/div, AC+DC	HDMI input, -20dB/1kHz sign wave, volume max (XR model only)
IC5302	13	IN4L	HDMI audio signal input	wave ⑨	1V/div, 1ms/div, AC+DC	HDMI input, -20dB/1kHz sign wave, volume max (XR model only)

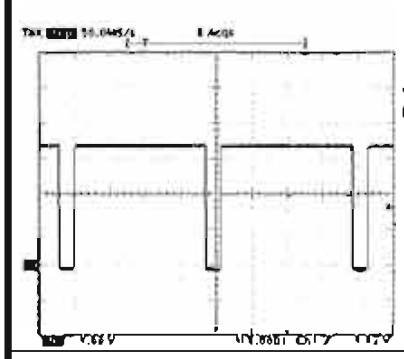
XR model : PD5001/PD6001

Waveforms for Audio Section

1 	4 	7 
2 	5 	8 
3 	6 	9 

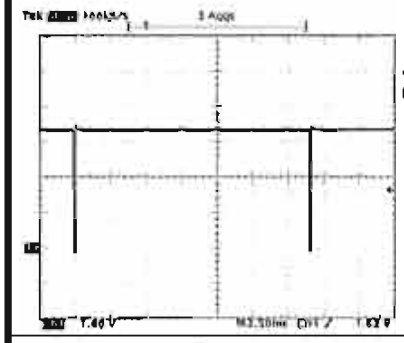
■ Waveforms (MAIN ASSY)

1 **IC5004 - pin 4 (PC2_HD)** HSYNC output
V 1V/div H 5 0usec/div



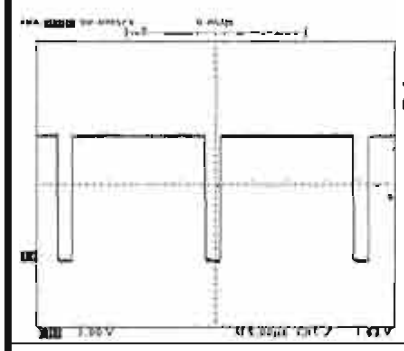
INPUT PC2
SIGNAL RGB, XGA@60Hz
COLOR-BAR

2 **IC5004 - pin 10 (PC2_VD)** VSYNC output
V 1V/div H 2 5msec/div



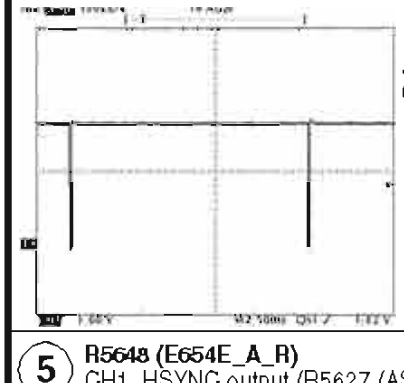
INPUT PC2
SIGNAL RGB, XGA@60Hz
COLOR-BAR

3 **IC5006 - pin 4 (PC1_HD)** : HSYNC output
V: 1V/div. H: 5.0usec/div.



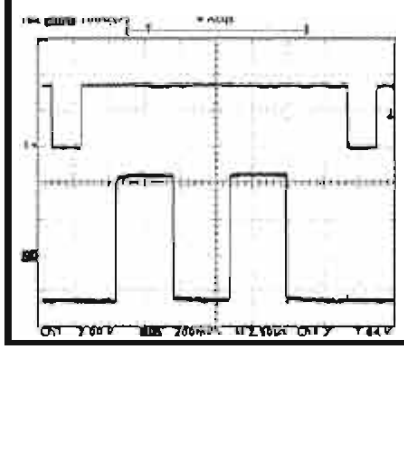
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR

4 **IC5006 - pin 10 (PC1_VD)** VSYNC output
V 1V/div H 2 5msec/div



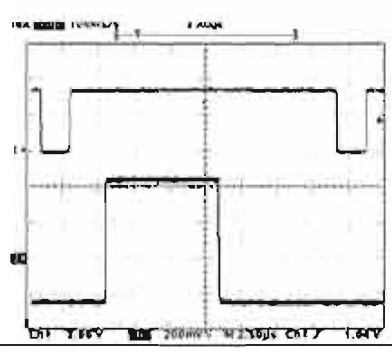
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR

5 **R5648 (E654E_A_R)**
CH1 HSYNC output (R5627 (ASEL_HD))
V 2V/div H 2 5usec/div
CH2 R video output
V 200mV/div H 2.5usec/div



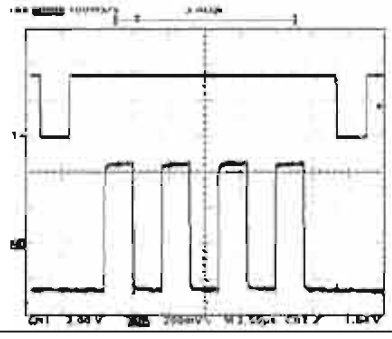
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
monitor MAIN PC3, SUB
PC1 at PinP display

6 **R5649 (E654E_A_G)**
CH1 HSYNC output (R5627 (ASEL_HD))
V 2V/div H 2.5usec/div
CH2 G video output
V 200mV/div H 2 5usec/div



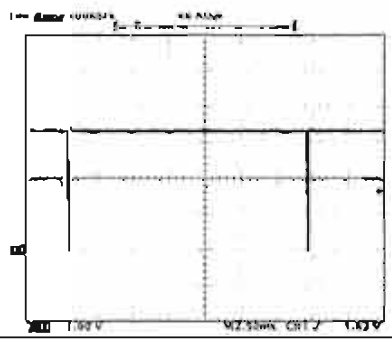
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
monitor MAIN PC3, SUB
PC1 at PinP display

7 **R5650 (E654E_A_B)**
CH1 HSYNC output (R5627 (ASEL_HD))
V 2V/div H 2.5usec/div
CH2 B video output
V 200mV/div H 2 5usec/div



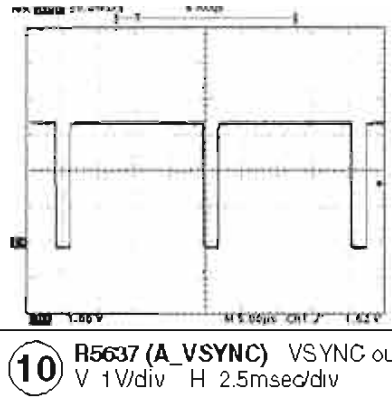
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
monitor MAIN PC3, SUB
PC1 at PinP display

8 **R5630 (ASEL_VD)** VSYNC output
V 1V/div H 2.5msec/div



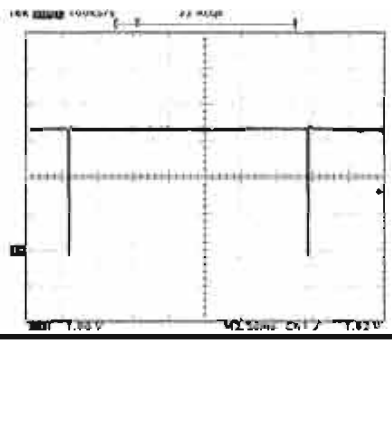
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
monitor MAIN PC3, SUB
PC1 at PinP display

9 **R5634 (A_HSYNC)** HSYNC output
V 1V/div H 5 0usec/div



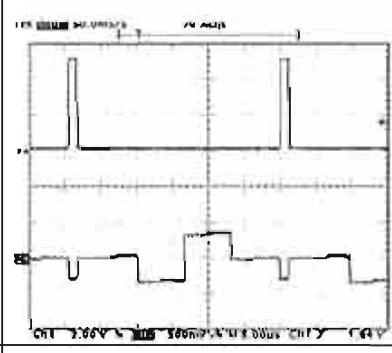
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
monitor MAIN PC3, SUB
PC1 at PinP display

10 **R5637 (A_VSYNC)** VSYNC output
V 1V/div H 2.5msec/div



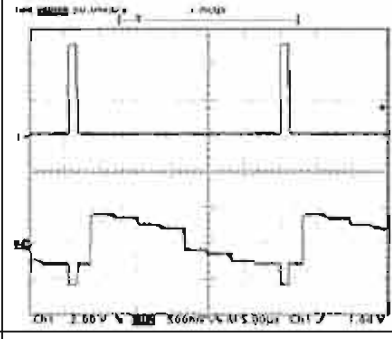
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
monitor MAIN PC3, SUB
PC1 at PinP display

11 **IC5602 - pin 17 (LPF_A_R)**
CH1 HSYNC output (IC5605 - pin 13 (A_MHD))
V 2V/div H 5 0usec/div
CH2 Pr video output
V 500mV/div H 5 0usec/div



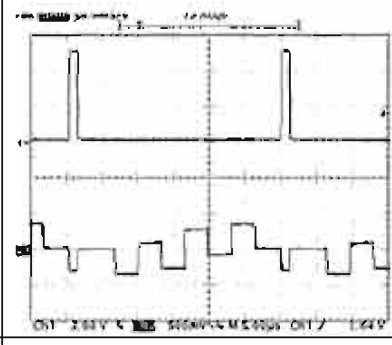
INPUT HD1
SIGNAL 1080i
COLOR-BAR

12 **IC5602 - pin 14 (LPF_A_G)**
CH1 HSYNC output (IC5605 - pin 13 (A_MHD))
V 2V/div H 5 0usec/div
CH2 Y video output
V 500mV/div H 5 0usec/div



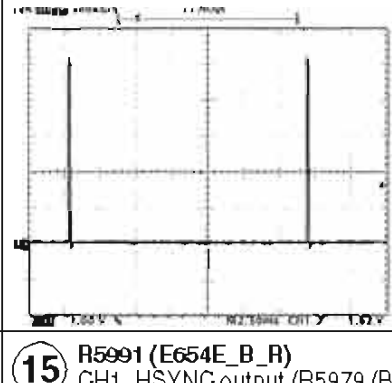
INPUT HD1
SIGNAL 1080i
COLOR-BAR

13 **IC5602 - pin 11 (LPF_A_B)**
CH1 HSYNC output (IC5605 - pin 13 (A_MHD))
V 2V/div H 5 0usec/div
CH2 Pb video output
V 500mV/div H 5 0usec/div



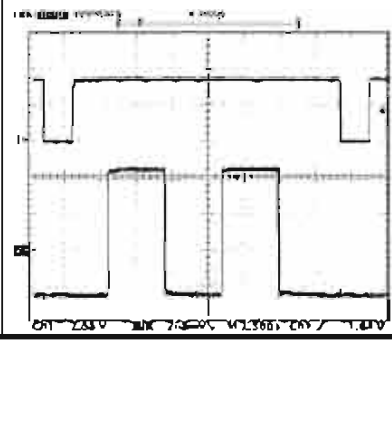
INPUT HD1
SIGNAL 1080i
COLOR-BAR

14 **IC5605 - pin 11 (A_MVD)** VSYNC output
V 1V/div H 2.5msec/div



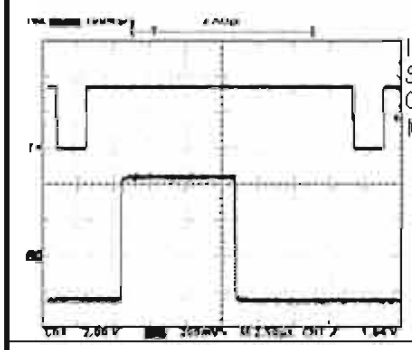
INPUT HD1
SIGNAL 1080i
COLOR-BAR

15 **R5991 (E654E_B_R)**
CH1 HSYNC output (R5979 (BSEL_HD))
V 2V/div H 2.5usec/div
CH2 R video output
V 200mV/div H 2 5usec/div



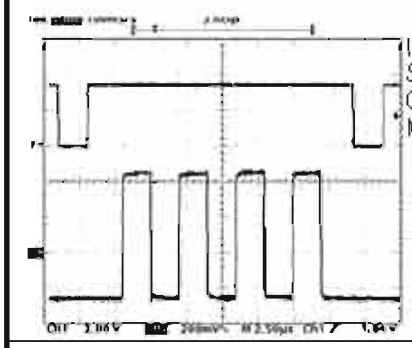
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
MAIN display only

16 **R5992 (E654E_B_G)**
CH1 HSYNC output (R5979 (BSEL_HD))
V 2V/div H 2.5usec/div
CH2 G video output
V 200mV/div H 2.5usec/div



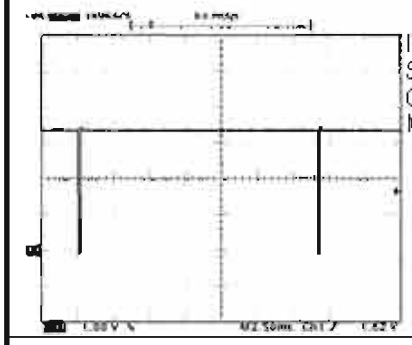
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
MAIN display only

17 **R5993 (E654E_B_B)**
CH1 HSYNC output (R5979 (BSEL_HD))
V 2V/div H 2.5usec/div
CH2 B video output
V 200mV/div H 2.5usec/div



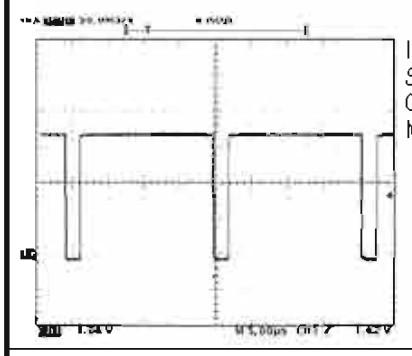
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
MAIN display only

18 **R5984 (BSEL_VD)** VSYNC output
V 1V/div H 2.5msec/div



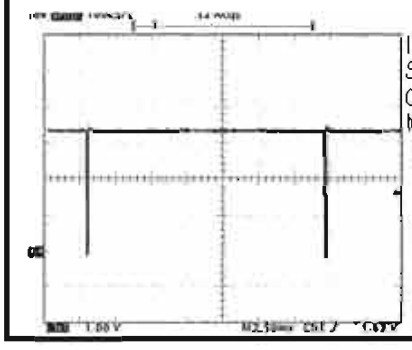
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
MAIN display only

19 **IC5904 - pin 4 (B_HSYNC)** HSYNC output
V 1V/div H 5usec/div



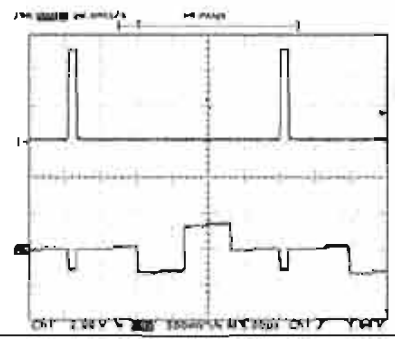
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
MAIN display only

20 **IC5904 - pin 7 (B_VSYNC)** VSYNC output
V 1V/div H 2.5msec/div



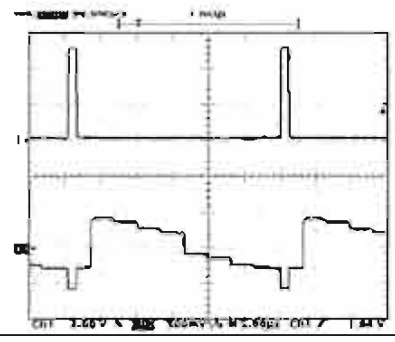
INPUT PC1
SIGNAL RGB, XGA@60Hz
COLOR-BAR
MAIN display only

21 **IC5903 - pin 17 (LPF_B_R)**
CH1 HSYNC output (IC5903 - pin 13 (B_MHD))
V 2V/div H 5.0usec/div
CH2 Pr video output
V 200mV/div H 5.0usec/div



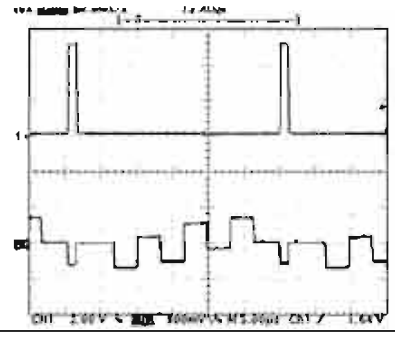
INPUT HD1
SIGNAL 1080i
COLOR-BAR
Monitor MAIN VIDEO1,
SUB HD1 at PinP display

22 **IC5903 - pin 14 (LPF_B_G)**
CH1 HSYNC output (IC5903 - pin 13 (B_MHD))
V 2V/div H 5.0usec/div
CH2 Y video output
V 200mV/div H 5.0usec/div



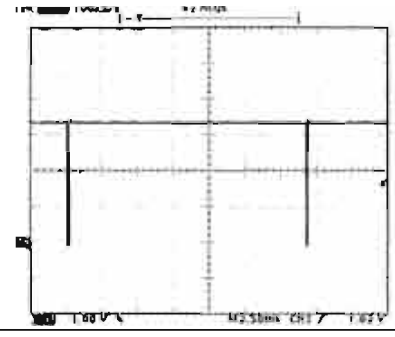
INPUT HD1
SIGNAL 1080i
COLOR-BAR
Monitor MAIN VIDEO1,
SUB HD1 at PinP display

23 **IC5903 - pin 11 (LPF_B_B)**
CH1 HSYNC output (IC5903 - pin 13 (B_MHD))
V 2V/div H 5.0usec/div
CH2 Pb video output
V 500mV/div H 5.0usec/div



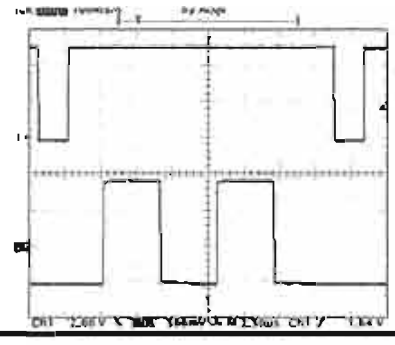
INPUT HD1
SIGNAL 1080i
COLOR-BAR
Monitor MAIN VIDEO1,
SUB HD1 at PinP display

24 **IC5903 - pin 11 (B_MVD)** VSYNC output
V 1V/div H 2.5msec/div



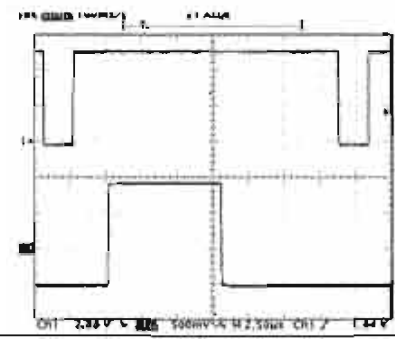
INPUT HD1
SIGNAL 1080i
COLOR-BAR
Monitor MAIN VIDEO1,
SUB HD1 at PinP display

25 **IC5011 - pin 15 (LOOP_R)**
CH1 HSYNC output (IC5005 - pin 6 (LOOP_HD))
V 2V/div H 5.0usec/div
CH2 R video output
V 500mV/div H 5.0usec/div



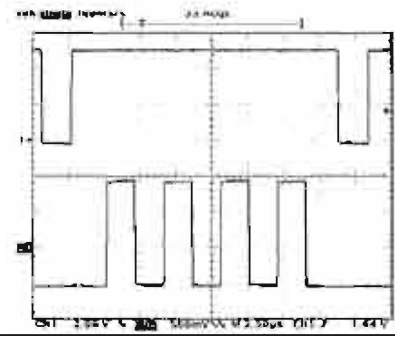
INPUT PC2
Monitor at LOOP-OUT is
ON

26 **IC5011 - pin 13 (LOOP_G)**
CH1 HSYNC output (IC5005 - pin 6 (LOOP_HD))
V 2V/div H 5.0usec/div
CH2 G video output
V 500mV/div H 5.0usec/div



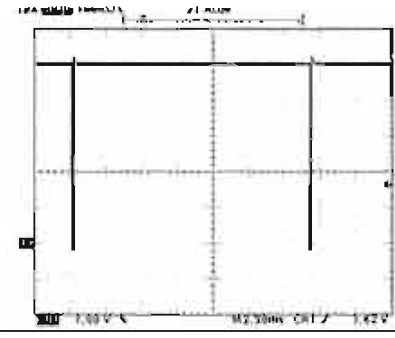
INPUT PC2
Monitor at LOOP-OUT is
ON

27 **IC5011 - pin 10 (LOOP_B)**
CH1 HSYNC output (IC5005 - pin 6 (LOOP_HD))
V 2V/div H 5.0usec/div
CH2 B video output
V 500mV/div H 5.0usec/div



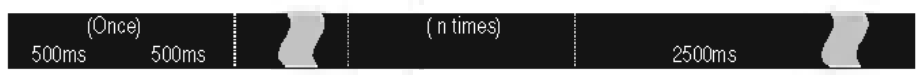
INPUT PC2
Monitor at LOOP-OUT is
ON

28 **IC5005 - pin 3 (LOOP_VD)** VSYNC output
V 1V/div H 2.5msec/div



INPUT PC2
Monitor at LOOP-OUT is
ON

3.2 FAILURE DIAGNOSIS BY LED

Status	LED Display Pattern			Remarks
Power OFF (Indicator OFF)	The red and green LEDs are unlit.	Red Green		
Power ON (Indicator ON)	Lit in Green	Red Green		
Standby	Lit in Red	Red Green		
PD (Power Down)	The red LED flashes at intervals of 500 ms one to n times*1 then go dark and remain unlit for 2500 ms	Red Green		*For details, see "SD (SHUTDOWN) DIAGNOSIS "
SD (Shut Down)	The green LED flashes at intervals of 500 ms one to n times*1 then go dark and remain unlit for 2500 ms	Red Green		*For details, see "PD (POWER DOWN) DIAGNOSIS "
No backup copy (panel)	Lit in Red/Green LED flashes at intervals of 200 ms	Red Green		
In the process of rewriting the program of the main microcoputer	Red LED flashes at intervals of 300 ms	Red Green		
In the process of rewriting the program of the MD microcoputer (during MOD)	Red LED flashes at intervals of 100 ms	Red Green		
In the process of rewriting the program of the ASTRA microcoputer (during PNL)	The red and green LEDs flash simultaneously at intervals of 100 ms	Red Green		
Wrong setting of the Power Unit (only for a 60-inch model) (5 1-V output to the 3 3-V line)	The red LED flashes twice at intervals of 200 ms, then the green LED flashes twice at intervals of 200 ms Then both LEDs are unlit for 1000 ms	Red Green		It is likely that a wrong power unit is mounted.

■ SD (SHUT DOWN) DIAGNOSIS

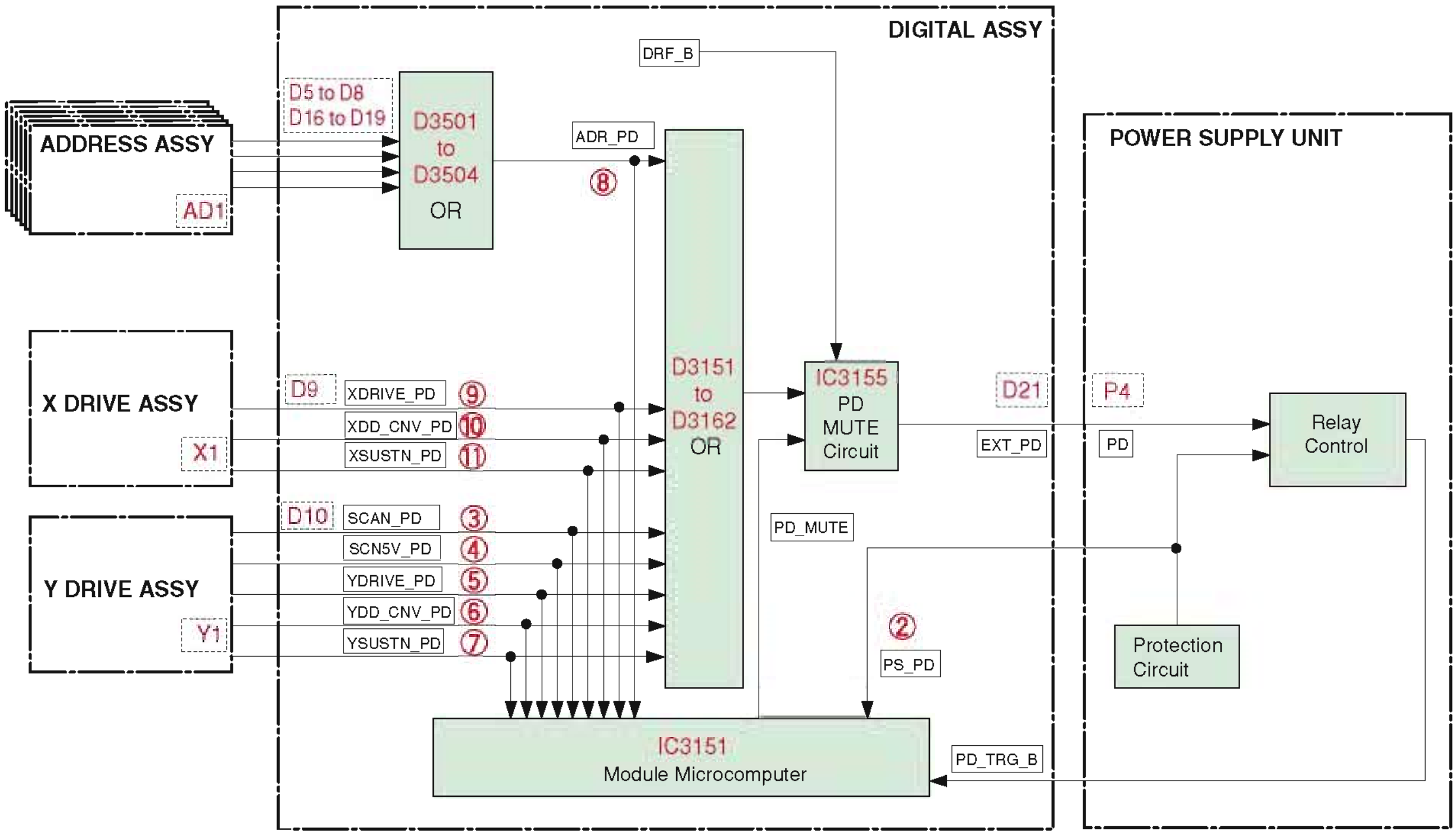
Frequency of LED Flashing	Major Type	Detailed Type	Log Indication in Factory Mode		Checkpoint	Possible Defective Part	Remarks
			MAIN	SUB			
1	Abnormality in the Sequence Processor	Communication error	SQ-IC	RTRY	CLK_SQ/TXD_SQ, etc	IC3151, IC3401	SQ_IC communication not established
		Drive stop		SQNO	Check if the video sync signal is inputed to IC3401	CN3001, IC3401	If the signal detection by the module microcomputer is properly performed, the unit operates on an external sync
		Busy		BUSY	BUSY_SQ	IC3401	If BUSY_SQ remains high, a shutdown is generated
		Incoherent version (hardware, software)		VER-HS	Check the model number of the DIGITAL Assy and the destination of the sequence processor	IC3301, IC3401	The written SQ_PROG is incoherent with data on the DIGITAL Assy
2	Failure in IIC communication with the module microcomputer	DIGITAL Assy EEPROM	MD-IIC	EEPROM	IIC communication line of IC3156	IC3151, IC3156	Check the pull-up resistor of the IIC control line and the power to the corresponding IC
		PANEL SENSOR EEPROM		BACKUP	IIC communication line of IC3652	IC3151, IC3652	Check the pull-up resistor of the IIC control line and the power to the corresponding IC
		DAC		DAC	IIC communication line of IC3157	IC3151, IC3157	Check the pull-up resistor of the IIC control line and the power to the corresponding IC
3	Abnormality in RST2 power decrease	–	RST2	–	Is the output voltage of the DC-DC converter low?	DD Assy	If RST2 does not become high after the unit is turned on, a shutdown will be generated in several seconds
					The 12 V power is not output	POWER SUPPLY Unit	Check if V + 12 V is started
4	High temperature of the panel	–	TMP_NG	TEMP1	Ambient temperature	–	If TEMP1 that is read by the module microcomputer is 75°C or higher, a shutdown will be generated
					Abnormality in the panel temperature sensor	IC3151	Check the connection with the SENSOR Assy
5	Short-circuiting of the speakers	–	–	–	AMP IC	IC3002	AMP IC in failure Note Check the connections of the speakers A wrong usage of speakers by customers, such as extended time of short-circuiting of the speaker outputs or use of speakers with impedance of 6 ohms or less, may have caused a failure in the AMP IC
6	Failure in communication with the module microcomputer	–	–	–	MODULE UCOM BLOCK	IC3151	Failure in communication with the module microcomputer or the defective surrounding circuitry is suspected Check if the communication line (TXD0/RXD0) is short-circuited or open
					MODULE UCOM BLOCK	IC3151	Failure in writing in the module microcomputer
					AD2 connector	–	Check if cables are firmly connected
7	Not used	–	–	–	–	–	–
8	Failure in IIC communication with the main microcomputer	Temperature sensor	–	–	Temperature sensor	–	The temperature sensors do not operate properly Check if the cables are properly connected to each of the three temperature sensors
		AUDIO	–	–	AMP IC	IC3002	AMP IC in failure Note Check the connections of the speakers A wrong usage of speakers by customers, such as extended time of short-circuiting of the speaker outputs or use of speakers with impedance of 6 ohms or less, may have caused a failure in the AMP IC
9	Not used	–	–	–	–	–	–
10	Abnormality in the fan	–	–	–	FAN	FAN or MAIN Assy or DD Assy or Cable	The fan is in failure First check if a foreign object is caught in the fan Then check if the FAN cable is properly connected **Note:** If you set the Main Power switch to ON while holding the MENU key on the main unit pressed, the alarm is canceled, and the fan starts rotating at H speed The output status of each connector pin and the defective point when typical failures have been generated are shown in the table below

Failure Status	Check Point						Defective Point
	CN9004		CN311		CN312 or CN313 or CN315		
	Pin 1	Pin 3	Pin 1	Pin 4	Pin 1	Pin 5	
1	11.6 V	3.3 V	11.6 V	3.3 V	11.6 V	3.3 V	Fan
2	11.6 V	3.3 V	11.6 V	3.3 V	11.6 V	–	DD Assy
3	11.6 V	3.3 V	11.6 V	3.3 V	–	3.3 V	DD Assy
5	11.6 V	3.3 V	–	–	–	3.3 V	Cable (ADX3456) between CN9004 and CN311
6	11.6 V	–	11.6 V	–	11.6 V	–	MAIN Assy
7	–	3.3 V	–	3.3 V	–	3.3 V	MAIN Assy

11	Abnormality in temperature	–	–	–	–	–	The temperature of the unit or the ambient temperature may be abnormally high
12	Not used	–	–	–	–	–	–
13	Abnormality in the power supply voltage	–	–	–	–	–	As it is very difficult to identify the defective part, replacement of the Assy or the power unit is required
14	Not used	–	–	–	–	–	–
15	Not used	–	–	–	–	–	–

■ Block Diagram of the Power-Down Signal

Note:
The figures ② to ⑪ indicate the number of times the LED flashes when power-down occurs in the corresponding route.



PD (Power-down) diagnosis

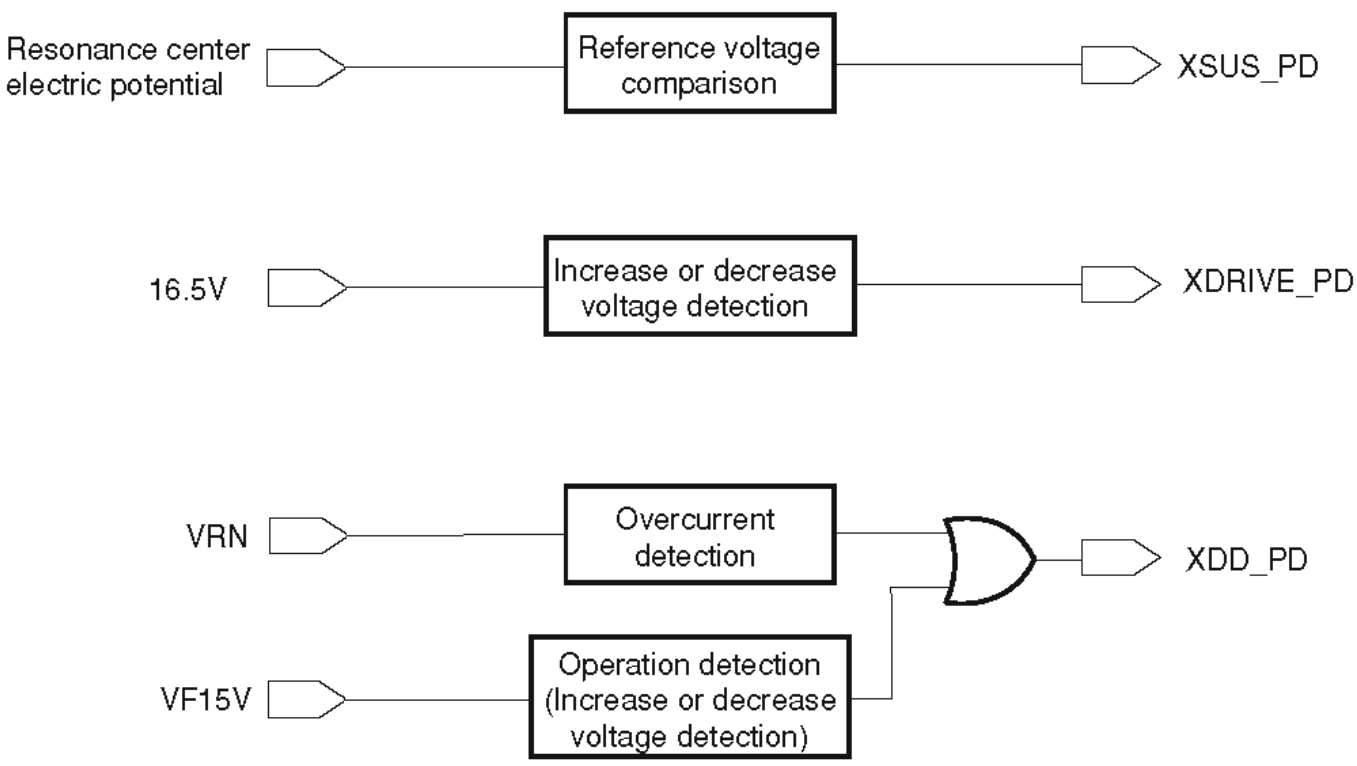
■ Prediction of failure symptoms when a PD (power-down) is generated

LED Flashing Count	PD Circuit	Checkpoint	Main Cause
2	Power supply PD	POWER SUPPLY Unit	Failure in the POWER SUPPLY Unit
		X, Y DRIVE Assy	MSK_MOD is damaged (short-circuiting between VS and GND)
		Each Assy	16.5V/ 12V/ 6.5V/ 5.1V short-circuit within one of PCB.
3	SCAN PD	SCAN Assy	SCAN IC is damaged (short-circuiting between VH and GNDH)
		Y DRIVE Assy	Connectors disconnected between the POWER SUPPLY Unit and the Y DRIVE Assy
			Connectors disconnected between the DIGITAL and the Y DRIVE Assys
			Failure in the VH power
4	IC5V PD	SCAN Assy	SCAN IC is damaged (short-circuiting between IC5V and GNDH)
			Disconnection of the scan-bridge (15-pin) connector
		Y DRIVE Assy	Failure in the photo coupler
			Abnormality in the IC5V DC/DC converter
5	Y-DRIVE PD	Y DRIVE Assy	Abnormality in the 16.5 V power
6	Y DCDC PD	Y DRIVE Assy	MSK_MOD is damaged (short-circuiting of the mask switch)
			Abnormality in the VOFS DC/DC converter
			Abnormality in the VPRST DC/DC converter
			Abnormality in VC_15V DC/DC converter
7	Y SUS PD	Y DRIVE Assy	Abnormality in the DK module
			Abnormality in the control signal line
8	Address PD	ADDRESS Assy	Short-circuiting of Vadr
			TCP damaged
9	X-DRIVE PD	X DRIVE Assy	Connectors disconnected between the DIGITAL and the X DRIVE Assys
			Abnormality in the 16.5 V power
10	X DCDC PD	X DRIVE Assy	Abnormality in VC_15V power
			Abnormality in VXNRST power
11	X SUS PD	X DRIVE Assy	Abnormality in the DK module
			Abnormality in the control signal line
			Connectors disconnected between the POWER SUPPLY Unit and the X DRIVE Assy

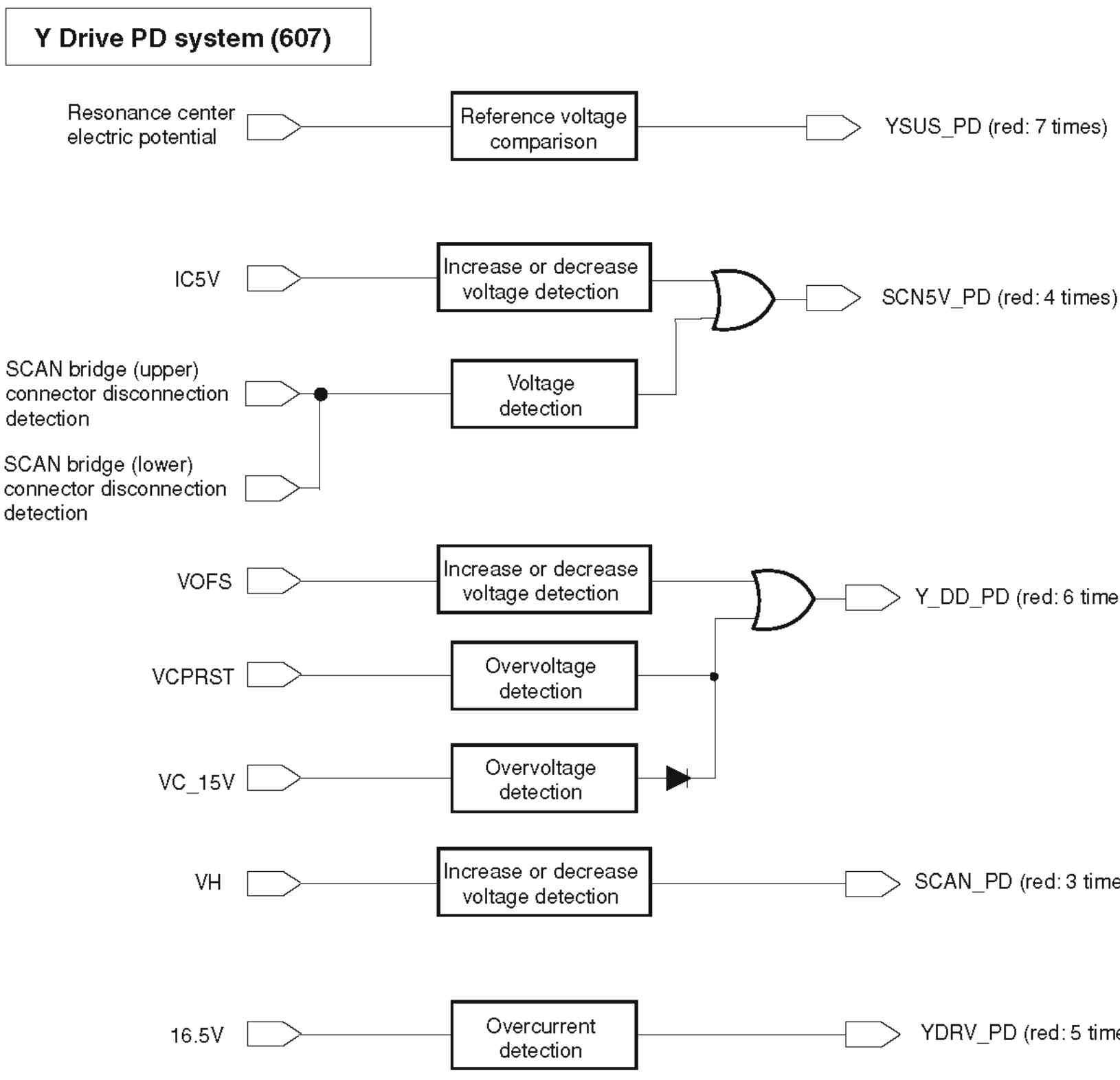
• List of detection of disconnected connectors

Assy Name	Connector	Connection Assy	LED Flashing Count	Screen Display
60 X DRIVE	CN1001	60 DIGITAL Assy	9 (X DRIVE)	
	CN1204	POWER SUPPLY Unit (ADR system)	–	White screen
	CN1206	POWER SUPPLY Unit (drive system)	10 (X-DCDC)	
	CN1201, CN1203	ADDRESS Assy	8 (ADR)	
60 Y DRIVE	CN2001	60 DIGITAL Assy	3 (SCAN)	
	CN2351	POWER SUPPLY Unit (drive system)	3 (SCAN)	
	CN2353	POWER SUPPLY Unit (ADR system)	–	White screen
	CN2354, CN2356	60 ADDRESS Assy	8 (ADR)	
	CN2401, CN2402	607 SCAN Assy	4 (SCN-5V)	
607 SCAN	CN2901, CN2801	60 Y DRIVE Assy	4 (SCN-5V)	
60 ADDRESS	CN1602, CN1802	60 DIGITAL Assy	8 (ADRS)	
	CN1601, CN1801	60 X/Y DRIVE Assy	8 (ADRS)	

X Drive PD system (607)



Y Drive PD system (607)



3.3 RS-232C COMMANDS

■ Communication protocol : Asynchronous serial communication by RS-232C

Start bit length : 1 bit
Data width : 8 bit (ASCII code/ no distinction between upper case and lower case)
Parity : Odd
Stop bit length : 1 bit
Baud rate : 9600 bps (fixed)
232C control for module microcomputer
If the unit cannot be turned on, abnormality detection is possible, by issuing an RS-232C command to the module. If the unit is in Standby mode, communication with the Module microcomputer becomes possible, by pressing the following keys:

OFF TIMER + OFF TIMER + EXIT + DISPLAY

1-1 Command format

■ Data format

The format of the control signal transmitted from the user side controller is as described below.
STX (02Hex) is arranged at the time of communication start and ETX (03Hex) is arranged at the time of data transmission complete, and ID, command and parameter are arranged in between. Data consists of ASCII type alphanumeric characters, and there is no distinction between the upper case and the lower case.

• In the case of command only [single function command]

STX (02hex)	ID (2 byte)	Command (3 byte)	ETX (03hex)

■ Command processing

Command processing starts as soon as the command is entered.
ID shall be the two asterisks, "**". Do not input any other ID.

■ Acknowledgement (confirmation of reception)

The user-end controller will report its operational status and the settings to the system. The data to be sent back are in uppercase after deleting the ID code from the received command.
After receiving a command from the system, the user-end controller will read out appropriate data from memory, according to the type of command, and send them back to the system. The command section is composed of three characters. The first character is fixed at Q, and the second and third characters are determined according to the content of the received command. The return data include the received 3-character command, various data that have been converted to ASCII codes, and a checksum. The number of bytes of the return data can vary, because the content of return data varies according to the type of QUEST commands.

Data transmitted by the system

STX	ID	COMMAND	ETX
0x02	**	QS1	0x03

Data transmitted to the system

STX	COMMAND	DATA	ETX
0x02	QS1	54AHM2....	0x03

The module microcomputer will make a judgment regarding the command received, and if the command is judged to be an invalid one, the following acknowledgement is sent back. In such a case, if the command is unknown, ERR is sent back. XXX is sent back if the command itself is valid, but it cannot be processed, because of its status.

Data transmitted by the system

• In a case of an invalid command ○○○ :

STX	ID	COMMAND	ETX
0x02	**	○○○	0x03

Data transmitted to the system

STX	COMMAND	ETX
0x02	**ERR**	0x03

• In a case of a command not executable because of its status
(Example: The QS2 command is issued immediately after the same command was issued.)

STX	ID	COMMAND	ETX
0x02	**	QS2	0x03

STX	COMMAND	ETX
0x02	**XXX**	0x03

1-2 Command

Command	Function Outline
QS1	Acquiring data on the unit, such as the version of the program
QS2	Acquiring data on the status of the unit, such as temperature
QIP	Acquiring data on operations of the panel
QPD	Acquiring data from the 8 latest power-down (PD) logs
QSD	Acquiring data from the 8 latest shutdown (SD) logs
QSI	Acquiring data on input video signals

1-2-1 Acquisition of panel statuses • • • [QS1]

The command QS1 is for acquiring data necessary for authentication of both the main unit's microcomputer and the module's microcomputer.

Command Format	Effective Operation Modes	Function	Remarks
[QS1]	All operations	To acquire data on product status	Return data: 3 (ECO) + 43 (DATA) + 2 (CS) = 48 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QS1
1	Resolution/size	1 Byte	F
2	Generation	1 Byte	7
3	Reserved	1 Byte	*
4	Reserved	1 Byte	*
5	Reserved	1 Byte	M
6	MDUcom-Boot	3 Byte	01A
7	MDUcom-PRG	8 Byte	001A_M "space × 2"
8	ASTRA-Boot	3 Byte	01A
9	ASTRA-PRG	8 Byte	001Y "space × 4"
10	SQ-VIDEO	4 Byte	001Y
11	SQ-PC	4 Byte	001Y
12	Reserved	1 Byte	P
13	Reserved	7 Byte	*******
CS		2 Byte	7B

1: Resolution/size	
3	1024*768-42
4	1024*768-43
5	1280*768-50
6	1365*768-50
7	1365*768-60
F	1920*1080-50

2: Generation	
6	G6
7	G7
8	G8
9	G9
0	G10

6 to 11 : Version information (at Power ON)	
Numeric and alphabet display	Normal
" * " display	Failure

1-2-2 Acquisition of panel operation data • • • [QS2]

The command QS2 is for acquiring data on the panel's operations. Basically, this command is used for the module's microcomputer to inform the main unit's microcomputer of changes in panel operation.

Command Format	Effective Operation Modes	Function	Remarks
[QS2]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO) + 23 (DATA) + 2 (CS) = 28 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QS2
1	Notification of mode shifting to STB	1 Byte	1
2	Flag for adjustment of the main unit	1 Byte	0
3	Flag for adjustment-data backup	1 Byte	0
4	"1st PD" data	1 Byte	0
5	"2nd PD" data	1 Byte	0
6	Still picture detection	1 Byte	0
7	Reserved	2 Byte	**
8	Temperature data (TEMP 1)	3 Byte	128
9	SD main data	1 Byte	0
10	SD subdata	1 Byte	0
11	Operation status induced by SD	1 Byte	0
12	Data from the hour meter	8 Byte	00000259
13	MASK indication	1 Byte	0
CS		2 Byte	4A

1: Notification of mode shifting to Standby	
0	Entering Standby mode failed
1	Entering Standby mode succeeded

2: Adjustment of the main unit	
0	Adjustment completed
1	Adjustment not completed

3: Adjustment-data backup	
0	With backup data
1	No data

4, 5: PD data	
0	No PD data
1	Not used
2	POWER
3	SCAN
4	SCN-5V
5	Y-DRV
6	Y-DCDC
7	Y-SUS
8	ADRS
9	X-DRV
A	X-DCDC
B	X-SUS
C	Not used
D	Not used
E	Not used
F	UNKNOWN

6: Still picture detection	
0	Normal screen
1	Still picture

9: SD main data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

10-1: SD-Sub (SQ-IC)	
0	No SD-Sub data
1	Communication error (LR/G7)
2	Drive stop (LR/G7)
3	BUSY
4	Communication error (L)
5	Drive stop (L)
6	Incoherent versions (H/S)
7	Incoherent versions (L/R)
8	VICTRIA communication error
9	Communication error (R)
A	Drive stop (R)

10-2: SD-Sub (IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

10-3: SD-Sub (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved
3	TEMP0
4	FAN

11: Operation status induced by SD	
0	Normal
1	Relay-off completed
2	During warning indication

13: MASK indication	
0	MASK-OFF
1	MASK-ON

- The high-order 6 bytes of a value indicated by the Hour Meter represent hours, and the lower-order 2 bytes represent minutes. The maximum record time is 279,620 hours 16 minutes. If the value exceeds that number, it will be reset to 0.
- The TEMP1 input value (10 bits) is transmitted in 3 bytes in decimal notation (range: 000-999) as temperature data. Values of 1000-1023 are handled as 999. (During Standby mode, the value retained in RAM is transmitted.)

1-2-3 Acquisition of other data on the panel • • • [QIP]

The command QIP is for acquiring data other than those available with QS1 (data necessary before turning the power on) and QS2 (data to inform of operational status change).

Command Format	Effective Operation Modes	Function	Remarks
[QIP]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO) + 58 (DATA) + 2 (CS) = 63 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QIP
1	SERIAL	15 Byte	- - - - - - - - - - - - - - -
2	HOUR METER	8 Byte	00000000
3	TOTAL HR MTR	8 Byte	00000000
4	PON COUNTER	8 Byte	00000000
5	TEMP1 acquisition (Temperature value)	5 Byte	+23.5
6	TEMP0 acquisition (Temperature value)	5 Byte	+28.7
7	MAX-TEMP1 acquisition (Temperature value)	5 Byte	+78.3
8	Reserved	4 Byte	****
CS		2 Byte	94

- The high-order 6 bytes of a value indicated by the Hour Meter represent hours, and the lower-order 2 bytes represent minutes. The maximum record time is 279,620 hours 16 minutes. If the value exceeds that number, it will be reset to 0.

1-2-4 Acquisition of PD logs • • • [QPD]

The command QPD is for acquiring data from the 8 latest power-down (PD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QPD]	All operations	To acquire data on the power-down logs	Return data: 3 (ECO) + 80 (DATA) + 2 (CS) = 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QPD (fix)
1	Latest "1st PD" data	1 Byte	A
2	Latest "2nd PD" data	1 Byte	2
3	Data from the hour meter for the latest PD	8 Byte	00010020
4	Second latest "1st PD" data	1 Byte	E
5	Second latest "2nd PD" data	1 Byte	9
6	Data from the hour meter for the second latest PD	8 Byte	00008523
7	Third latest "1st PD" data	1 Byte	4
8	Third latest "2nd PD" data	1 Byte	3
9	Data from the hour meter for the third latest PD	8 Byte	00004335
10	Fourth latest "1st PD" data	1 Byte	2
11	Fourth latest "2nd PD" data	1 Byte	0
12	Data from the hour meter for the fourth latest PD	8 Byte	00000945
13	Fifth latest "1st PD" data	1 Byte	4
14	Fifth latest "2nd PD" data	1 Byte	0
15	Data from the hour meter for the fifth latest PD	8 Byte	00000715
16	Sixth latest "1st PD" data	1 Byte	A
17	Sixth latest "2nd PD" data	1 Byte	2
18	Data from the hour meter for the sixth latest PD	8 Byte	00000552
19	Seventh latest "1st PD" data	1 Byte	A
20	Seventh latest "2nd PD" data	1 Byte	0
21	Data from the hour meter for the seventh latest PD	8 Byte	00000213
22	Eighth latest "1st PD" data	1 Byte	D
23	Eighth latest "2nd PD" data	1 Byte	0
24	Data from the hour meter for the eighth latest PD	8 Byte	000001A7
CS		2 Byte	27

● PD data	
0	No PD
1	Not used
2	P-POWER
3	SCAN
4	SCN-5V
5	Y-DRIVE
6	Y-DCDC
7	Y-SUS
8	Address
9	X-DRIVE
A	X-DCDC
B	X-SUS
C	DIG-DCDC
D	Not used
E	Not used
F	UNKNOWN

Unit of HOUR METER : minutes

1-2-5 Acquisition of SD logs • • • [QSD]

The command QSD is for acquiring the data from the 8 latest shutdown (SD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QSD]	All operations	To acquire data on the shutdown logs	Return data: 3 (ECO) + 80 (DATA) + 2 (CS) = 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QSD (fix)
1	Latest SD data	1 Byte	1
2	Latest SD subcategory data	1 Byte	0
3	Data from the hour meter for the latest SD	8 Byte	00752013
4	Second latest SD data	1 Byte	5
5	Second latest SD subcategory data	1 Byte	0
6	Data from the hour meter for the second latest SD	8 Byte	00456378
7	Third latest SD data	1 Byte	2
8	Third latest SD subcategory data	1 Byte	3
9	Data from the hour meter for the third latest SD	8 Byte	00347845
10	Fourth latest SD data	1 Byte	2
11	Fourth latest SD subcategory data	1 Byte	4
12	Data from the hour meter for the fourth latest SD	8 Byte	00175635
13	Fifth latest SD data	1 Byte	1
14	Fifth latest SD subcategory data	1 Byte	0
15	Data from the hour meter for the fifth latest SD	8 Byte	00083450
16	Sixth latest SD data	1 Byte	2
17	Sixth latest SD subcategory data	1 Byte	2
18	Data from the hour meter for the sixth latest SD	8 Byte	00045662
19	Seventh latest SD data	1 Byte	0
20	Seventh latest SD subcategory data	1 Byte	0
21	Data from the hour meter for the seventh latest SD	8 Byte	00000000
22	Eighth latest SD data	1 Byte	0
23	Eighth latest SD subcategory data	1 Byte	0
24	Data from the hour meter for the eighth latest SD	8 Byte	00000000
CS		2 Byte	7D

● SD data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

● SD subcategory (SQ-IC)	
0	No SD-Sub data
1	Communication error (LR)
2	Drive stop (LR)
3	BUSY
4	Communication error (L)
5	Drive stop (L)
6	Incoherent versions (H/S)
7	Incoherent versions (L/R)
8	VICTRIA communication error
9	Communication error (R)
A	Drive stop (R)

● SD subcategory (MDU-IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

● SD subcategory (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved
3	TEMP0
4	FAN

1-2-6 Acquisition of input signal data • • • [QSI]

The command QSI is for acquiring all data on input video signals.

Command Format	Effective Operation Modes	Function	Remarks
[QSI]	All operations	To acquire all data on input video signals	Return data: 3 (ECO) + 66 (DATA) + 2 (CS) = 71 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QSI
1	Reserved	3 Byte	***
2	Reserved	1 Byte	*
3	Reserved	2 Byte	**
4	Reserved	4 Byte	****
5	Reserved	4 Byte	****
6	Reserved	4 Byte	****
7	Reserved	4 Byte	****
8	Reserved	4 Byte	****
9	Reserved	4 Byte	****
10	Reserved	4 Byte	****
11	Reserved	4 Byte	****
12	Reserved	3 Byte	***
13	Detection of V frequency	4 Byte	6002
14	Detection of existence of H	1 Byte	Y
15	Reserved	3 Byte	***
16	Reserved	4 Byte	****
17	Reserved	4 Byte	****
18	Reserved	1 Byte	*
19	Reserved	1 Byte	*
20	Reserved	1 Byte	*
21	Reserved	1 Byte	*
22	Reserved	1 Byte	*
23	Reserved	4 Byte	****
CS		2 Byte	27

14: Detection of existence of H	
N	No H
Y	H detected

• Detection of V frequency:
The V signal input to the panel is measured in the range of 30.51 Hz to 99.99 Hz. The measured value is multiplied by 100 and then output.

3.4 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM

Function: It is an operational mode where the digital signal processing performs circuit operation but the power is not supplied to the panel driving system (large signal system) in order to avoid a power down.

Application:

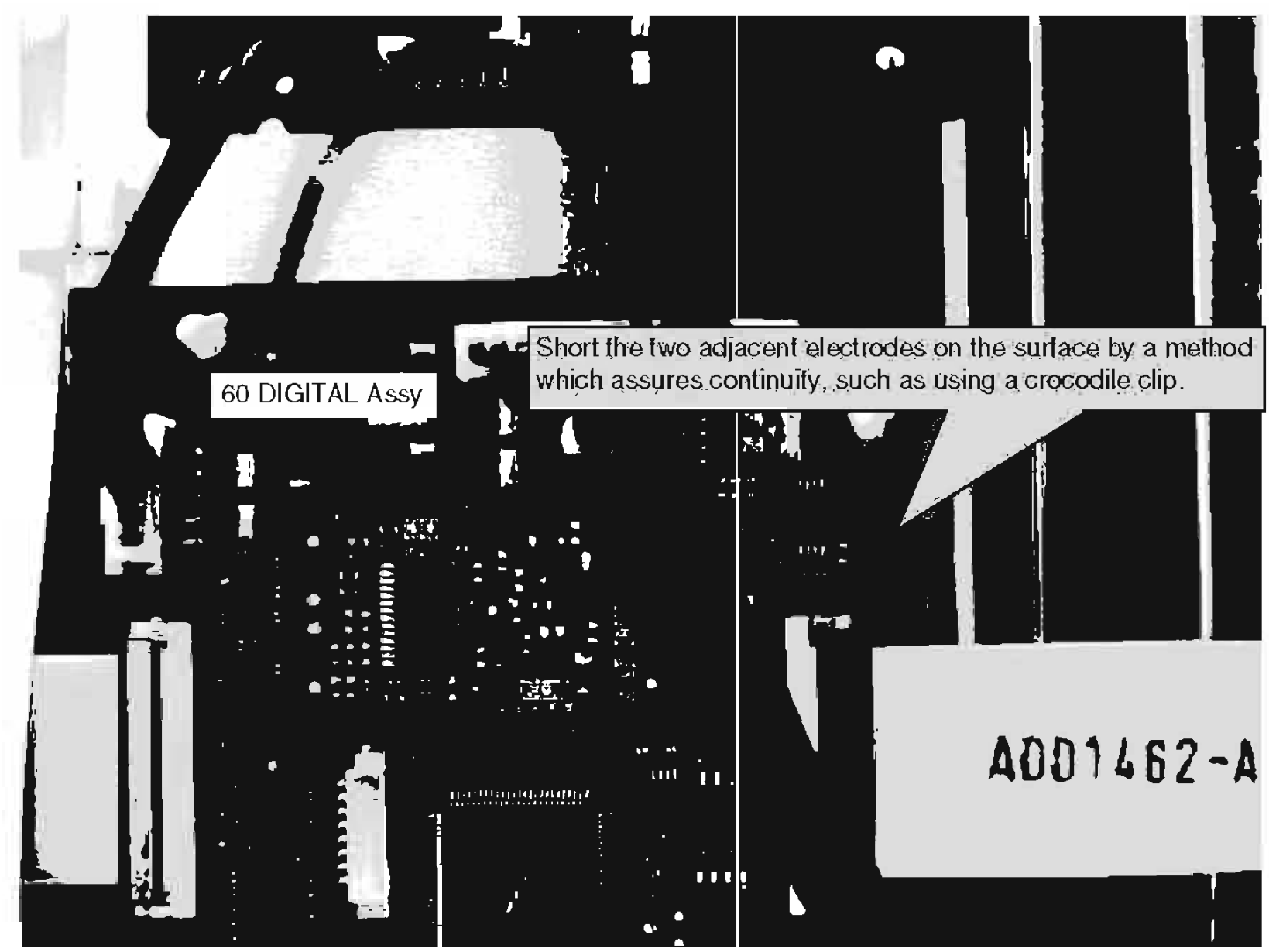
1. When it is necessary to check whether the signal output is correctly reaching the drive system in a repairing activity etc.
2. In the case of a PD, to determine whether the problem is with the large signal system power supply or with the small signal system power supply.

Method:

1. Make shorting between the specified location (refer to the illustration below) of the PCB surface of the 60 DIGITAL ASSY and the nearby pattern.
2. Execute [DRV S00] by RS232C command. ([DRV S01] for release)

Supplemental explanation:

- When the large signal system power supply is in OFF state, there will be no PD, except PD of power supply, as the PD signal has been muted.
- If the clip is removed in the OFF state of the large signal system power supply, PD will take place at the instance of clip removal. Therefore, be sure to remove the clip after turning the power OFF.
- Under RS232C command control, [DRVS01] (release) is possible during power ON. However, there is a possibility of damaging the set. Therefore, make this operation only after turning the power OFF.
- Command [DRVS00/S01] is effective even during standby. When the main power is turned OFF, however, [DRVS01] (release) will be effective.



3.5 FAN CONTROL

According to temperature data from the temperature sensor(s), the Main microcomputer controls the speed of the fan, as shown in the table below.
You can confirm the temperature inside the unit, using the Service Menu.

Unit: °C

Fan Speed	PD5001	PD6001
OFF → L	59	43
L → M	64	46
M → H	69	50
Temperature Alarm	82	82

Note:

PD5001 : The speed is controlled, using the maximum temperature detected by any of the T1 to T3 sensors.
PD6001 : The speed is controlled, using the temperature detected by the T3 sensor.

4. ADJUSTMENT

1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

4.1 ADJUSTMENT REQUIRED WHEN THE SET IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

POWER SUPPLY Unit	Refer to the "4.5 HOW TO CLEAR HISTORY DATA". Accumulated number of power-ons. **Note:** NEVER turn the variable control.
60 DIGITAL Assy	Refer to the "4.3 BACKUP OF THE EEPROM (DIGITAL ASSY)".
60 X DRIVE Assy	No adjustment required
60 Y DRIVE Assy	No adjustment required
607 SCAN A Assy	No adjustment required
607 SCAN B Assy	No adjustment required
Service Panel Assy	Refer to the "4.4 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED". Refer to the "4.5 HOW TO CLEAR HISTORY DATA".
MAIN Assy	Refer to the "4.2 ADJUSTMENT". Refer to the "4.6 HOW TO BACKUP EEPROM MEMORY (MAIN ASSY)".
SUB Assy (Audio, 232C, Sensor, etc.)	No adjustment required
PANEL SENSOR Assy	Writing of backup data is required. Refer to the "4.3 BACKUP OF THE EEPROM (DIGITAL ASSY)".
Other assemblies	No adjustment required

■ When any part in the following assemblies is replaced

Notes on replacing parts
For the parts described in the list below, replacement is required for the whole Assy, not only the defective part.
If any part listed below is identified as defective and needs replacement, replace the whole Assy, and make necessary adjustments after replacement.

Reason: The whole Assy must be replaced, because adjustments and data rewriting for the Assy at the level of production line are required.

POWER SUPPLY Unit	The assembly must be replaced as a unit, and no part replacement is allowed.
60 DIGITAL Assy	The assembly must be replaced as a unit, and no part replacement is allowed.
60 X DRIVE Assy	No adjustment required
60 Y DRIVE Assy	No adjustment required
607 SCAN A Assy	No adjustment required
607 SCAN B Assy	No adjustment required
MAIN Assy	Only the parts mentioned in (Note 1) below can be replaced. Other parts must not be replaced. If a replacement is required, replace the whole Assy.
SUB Assy (Audio, 232C, Sensor, etc.)	Only the parts mentioned in (Note 2) below can be replaced. Other parts must not be replaced. If a replacement is required, replace the whole Assy.
PANEL SENSOR Assy	No adjustment is required after replacement of parts other than those mentioned above.
Other assemblies	The assembly must be replaced as a unit, and no part replacement is allowed.

Note 1: **Replaceable parts in the MAIN Assy**
IC5006, IC5301, IC5302, IC5605, IC5902, IC5903, IC5906, IC6403, IC7002, IC7003, IC7004, IC8002, IC8003, IC9502 , IC9503 , IC9504, X8001 , X8002 , X9501

Note 2: **Replaceable parts in the SUB Assy**
AUDIO Assy : IC3001, IC3002, IC3004
232C Assy : IC2002, IC2004, JA2001, JA2002
PWR Assy : S2601
LED Assy : U2102

4.2 ADJUSTMENT

■ Adjusting conditions

Adjustments should be carried out in the procedures of A to B specified below. However, any adjustments other than the items A to B below are not required.

A. When the "Panel ASSY (PDP Service ASSY 42H6D1)" is replaced, adjustments should conform to the adjusting items of [1] specified below.

B. When the "MAIN ASSY" is replaced, adjustments should conform to the adjusting item of [2, 3] specified below.

■ Adjusting items

1. Clearing of the usage time (Using the remote control)

(1) Press the keys in the order of [POWER ON] → [POWER ON] → [EXIT] → [DISPLAY] in order to enter the factory adjustment menu.

(2) Press the [MENU/ENTER] key to select the [USAGE TIME] menu (8/11). Then, the integrated time [34567 (hours)] (example) accumulated till the present time is displayed when the main power supply is turned on (except for the standby mode).

```
                USAGE  TIME

                34567H


232C-ALARM  RX  0
            TX  0




[MENU/ENTER] NEXT   [EXIT] PREV  8/10
```

How to count the usage time
Usage time is counted in units of hours, rounded downward.
Note: If the unit is turned off with the Main Power switch or by unplugging the AC power cord, the usage time is not counted, even if the unit had been used for more than one hour, because no power is supplied to the microcomputer. However, the usage time is counted if the unit is turned off with the remote control unit.
Examples:
- If the unit is turned off by cutting power at the Main Power switch, unplugging the AC power cord, or using the remote control unit, after only 50 minutes of usage, the usage time is not counted.
- If the unit is turned off by cutting power at the Main Power switch or unplugging the AC power cord after being used for an hour and a half then turned on by pressing the Main Power switch or plugging in the AC power cord after 50 minutes, the usage time is counted as an hour.
- If the unit is turned off by using the remote control unit after usage for an hour and a half then turned on by using the remote control unit after 50 minutes, the usage time is counted as 2 hours.

(3) When the keys are pressed in the order of [MUTE] → POSITION/CONTROL [▲] → POSITION/CONTROL [▼] → [OFF TIMER], the display is cleared to [00000H]. At that time, the characters of [RESET] are displayed for about 5 seconds on the right side of time display.

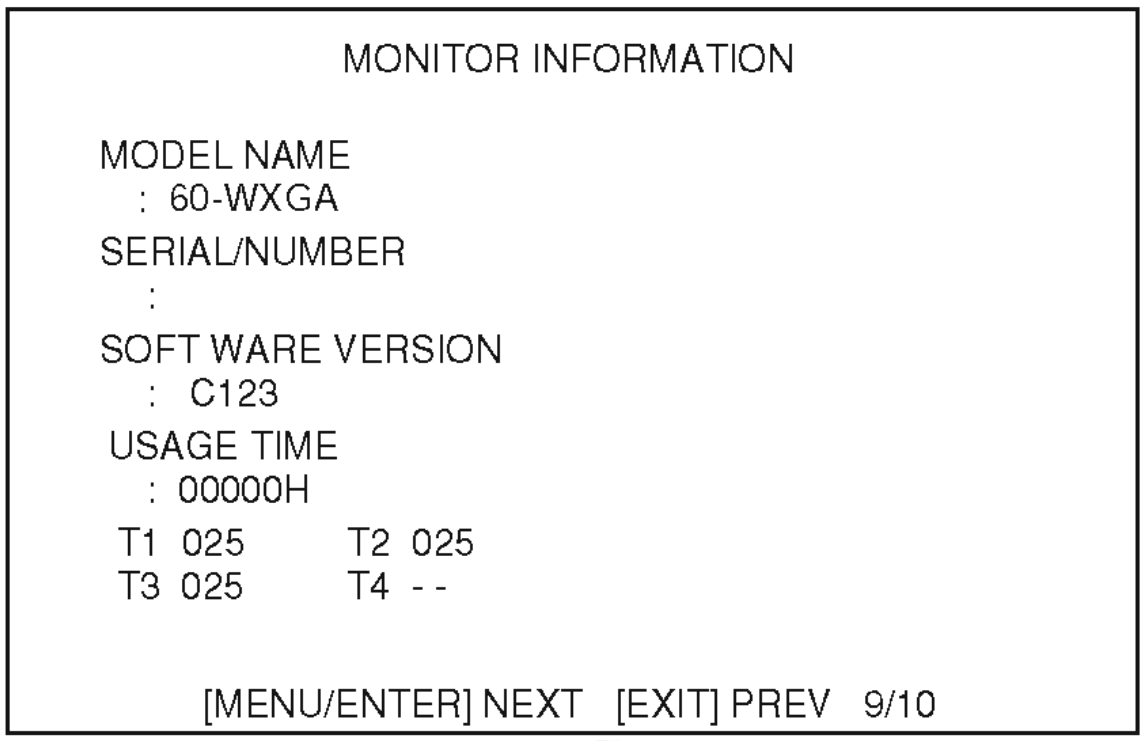
```
                USAGE  TIME

                00000H  RESET


232C-ALARM  RX   0
            TX   0




[MENU/ENTER] NEXT   [EXIT] PREV  8/10
```

2. Adjustments after the replacement of the MAIN ASSY (Using the remote control)

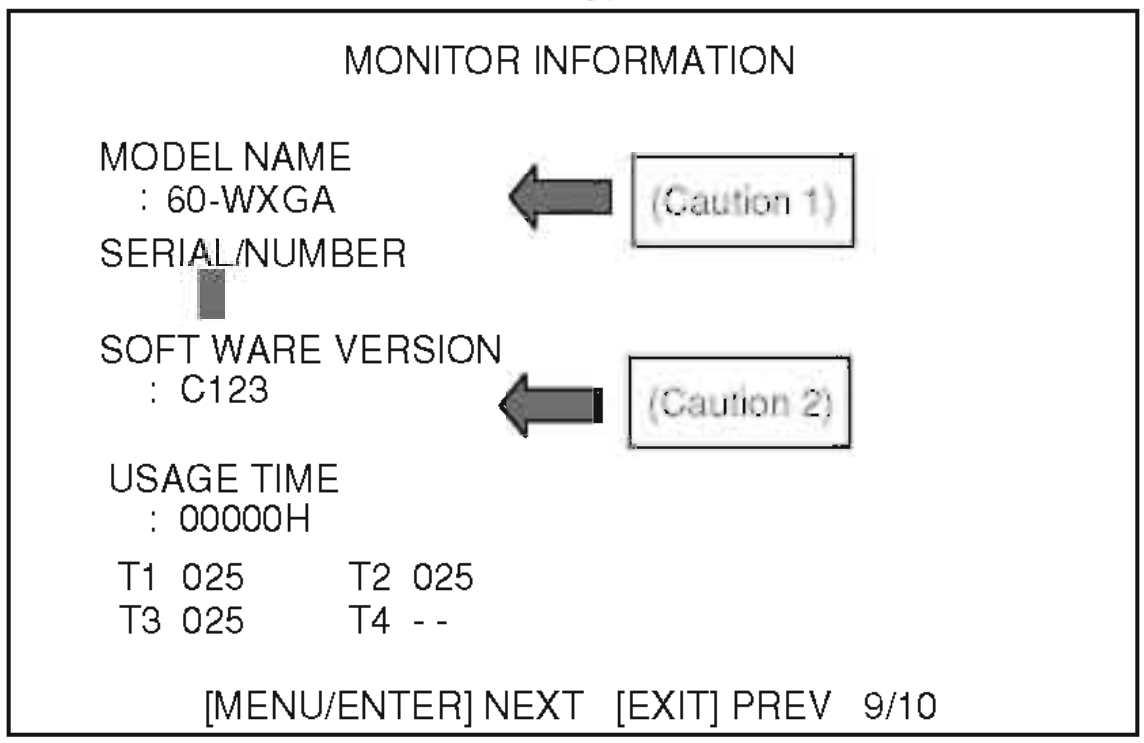
2-1. Product serial No. registration

(1) Press the keys in the order of [POWER ON] → [POWER ON] → [EXIT] → [DISPLAY] in order to enter the factory adjustment menu.

(2) Press the [MENU/ENTER] key to select the [MONITOR INFORMATION] No. menu. (Example : 60-WXGA)



(3) Press the [WIDE] key 4 times to display a cursor in the lower column of [SERIAL/NUMBER].



(Caution 1) No modification is possible here because this modification is already finished by 3-2. Factory shipment setting (initial setting).

(Caution 2) No modification is possible here because registration is already finished at the time of shipment in terms of maintenance parts.

(4) Moving the POSITION/CONTROL keys of [▲] and [▼], select the numerals and characters of the serial number that is listed in the serial label located on the rear surface of the product. Register the serial number. (Blank → 0 – 9→A – Z)

(5) Moving the POSITION/CONTROL keys of [◀] and [▶], select the next digit by means of a cursor.

(6) Repeat the processes of (4) and (5) above and register the serial number completely.

• What each digit of the serial number represents

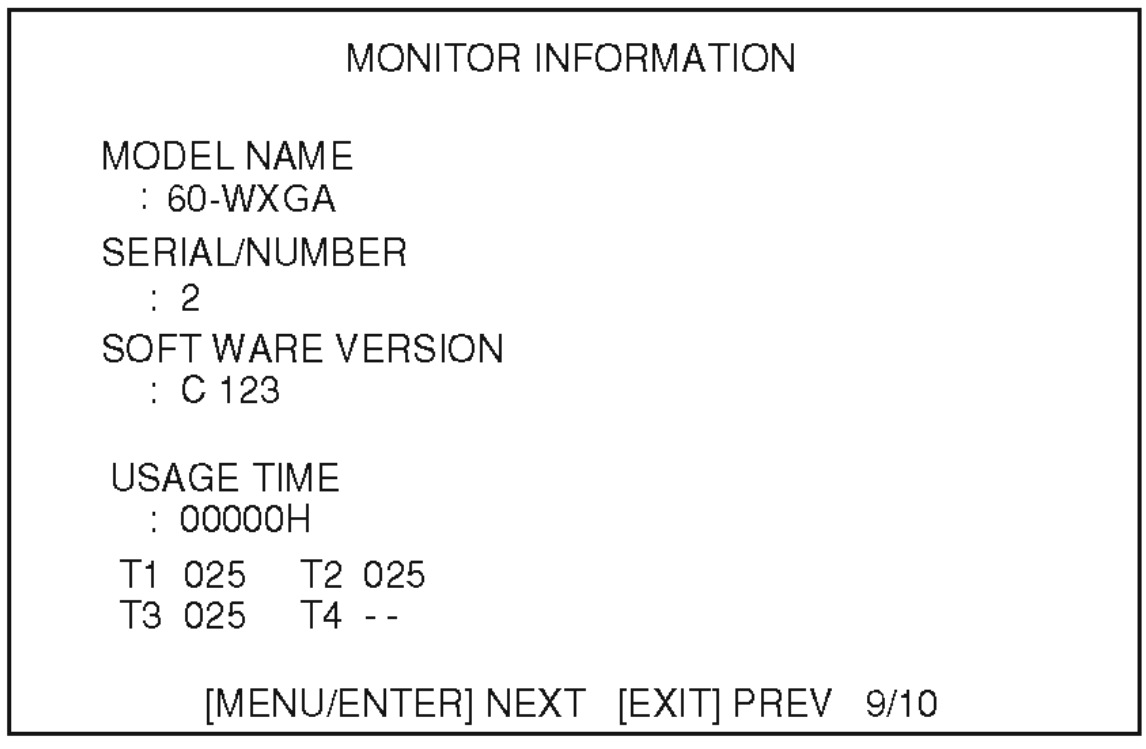
Serial No. ① ② ③ ④⑤⑥⑦ ⑧ ⑨

① Production year (last digit of the Gregorian year)
② Production month (Jan-Sep: 1-9, Oct: X, Nov: Y, Dec: Z)
③ GS model: 1, Models other than GS: 0
④, ⑤, ⑥, ⑦
Serial number from 0001 to 9999, freshly started from 0001 in each production month, no duplication nor unused number within one month
⑧ Production place
⑨ Management code (the first code is arbitrary)
S→A→M→T→Z→N→K→U→C→W→J→P

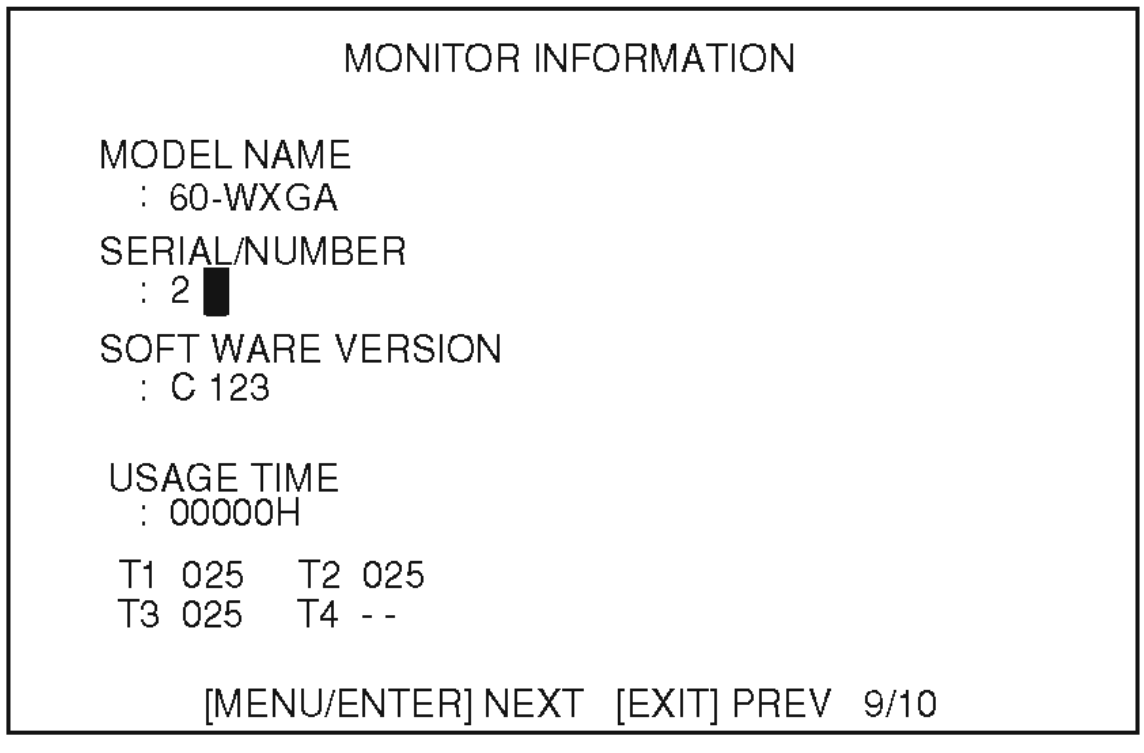
Example:
First product in March 1999 → 93000019C
First product in November 2000 → 0Y000019W

(Example) When entering a serial number of [2900123 9Z]

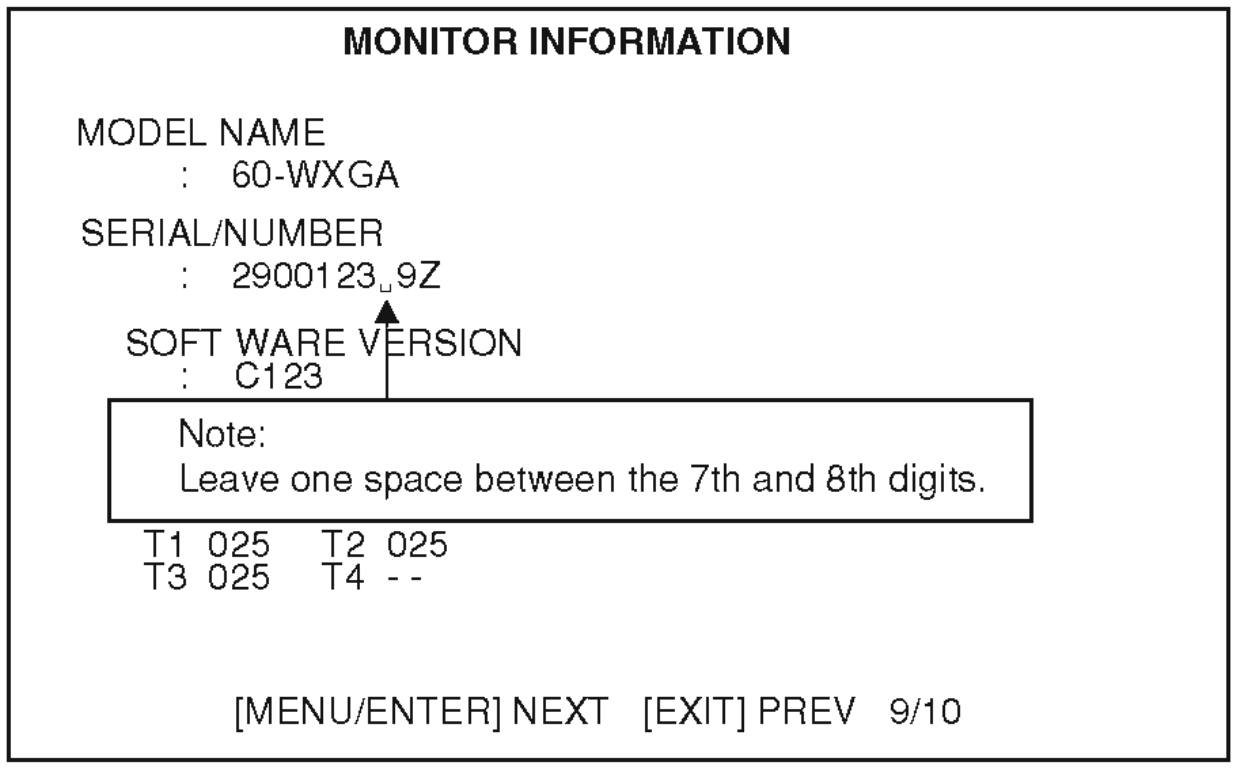
① Move the POSITION/CONTROL keys of [▲] and [▼] to select [2].



② Move the POSITION/CONTROL keys of [◀] and [▶] to select the next digit.



③ Repeat the procedures of ① and ② above, and enter all inputs of [2900123 9Z] from the left side.



(7) Following the above, setting must be carried out without fail according to "2-2. Factory shipment setting (Initial setting)"

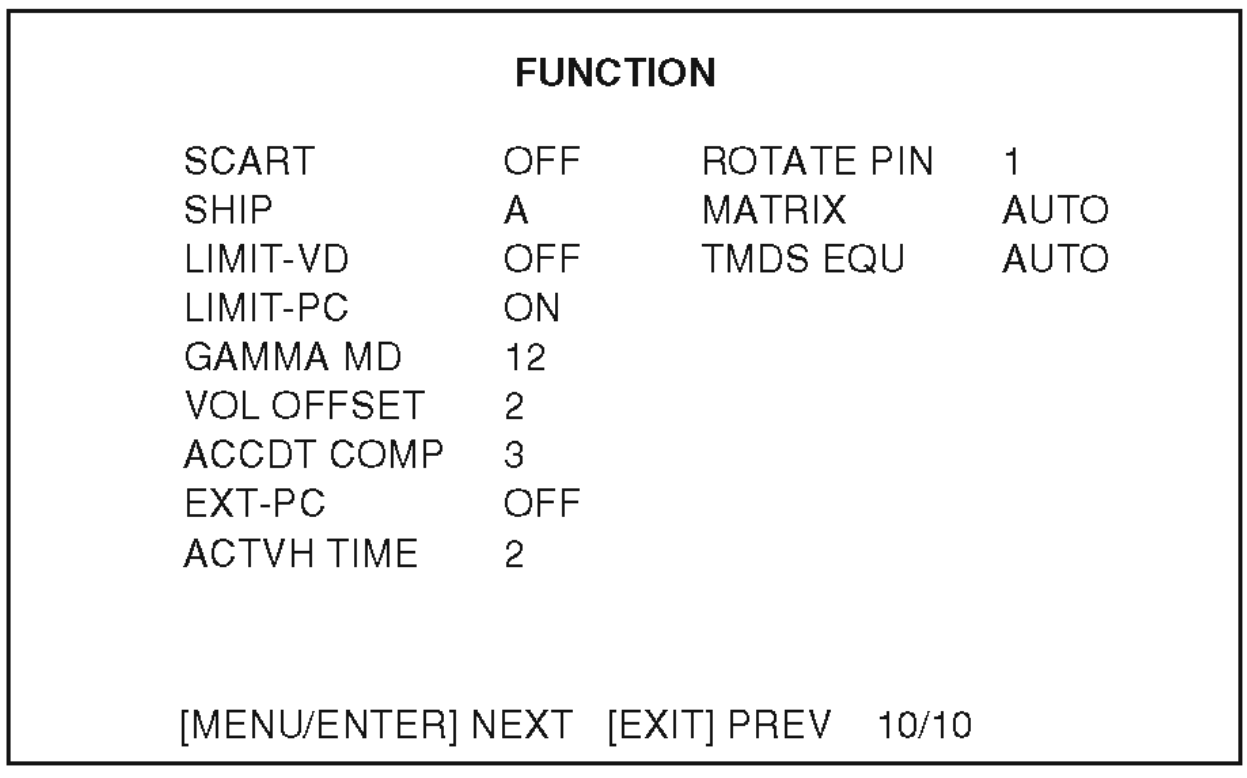
2-2. Factory shipment setting (Initial setting)

(1) Press the [MENU/ENTER] ke to select the [FUNCTION] menu.

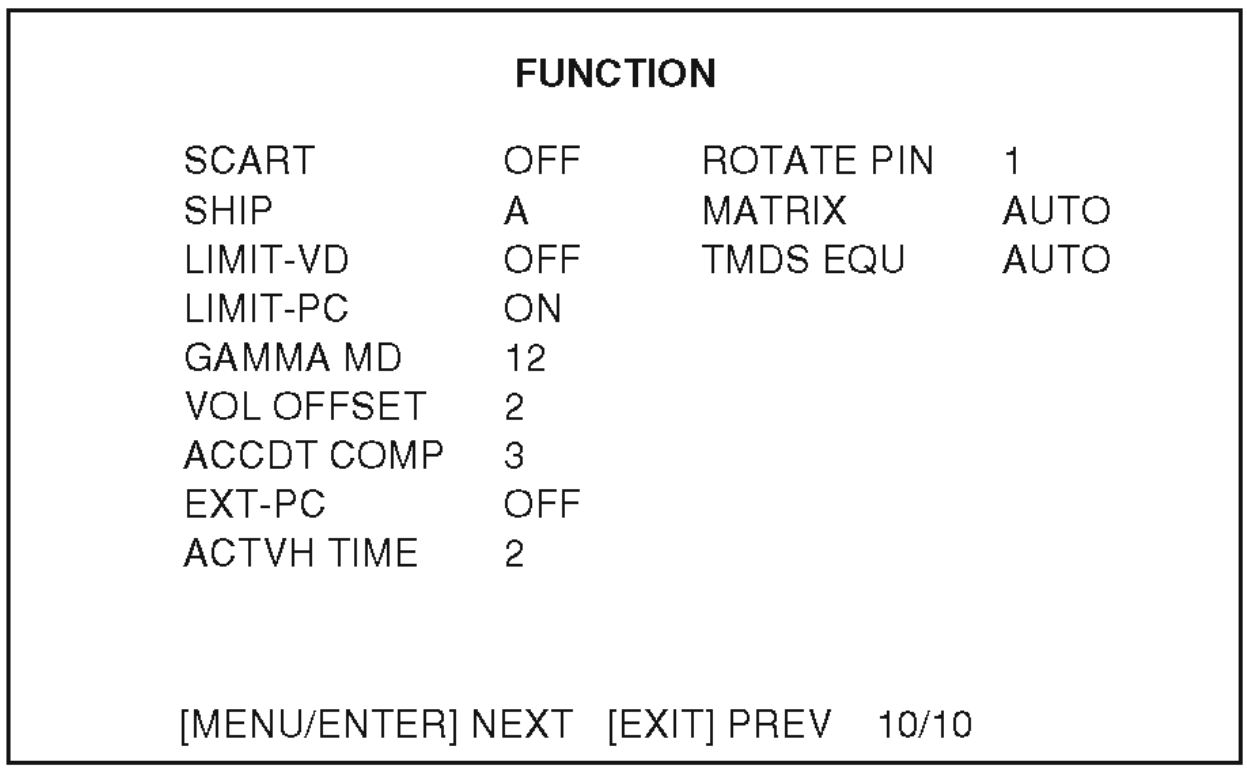
(2) Move the POSITION/CONTROL keys of [▲] and [▼] to the item of [SHIP]. Then, move the POSITION/CONTROL keysof [◀] and [▶] to select [DESTINATION ALPHABETS] shown below. (The asterisks * shown below denote the numerals or the characters.)

Note: Do make the factory shipment setting even if a proper destination has been set.

A : PD6001/U1B



(3) Press the keys in the order of [MUTE]→POSITION/CONTROL [▲] → POSITION/CONTROL [▼] →[OFF TIMER] to make "Factory shipment setting". When "Factory shipment setting" is executed, the red characters of [SET] is shown for about 5 seconds on the right side of the [DESTINATION ALPHABETS]. The setting is finished when these red characters of [SET] go out. In regard to the factory shipment setting values, refer to the descriptions given below.



(4) Press the keys of the remote control in the order of [POWER ON] → [POWER ON] → [EXIT] → [DISPLAY] in order to withdraw from the Factory shipment setting.

[Factory shipment setting values]

1. Initial setting values for the user menu (applicable in common to all models)

MENU	A
POWER ON/OFF	ON
VOLUME	10step
INPUT MODE	VIDEO1
WIDE MODE	STADIUM
AUTO PICTURE	OFF (RGB)
HD SELECT	1080I
LANGUAGE	ENGLISH
COLOR SYSTEM	AUTO
All items intended to recover the initial values through the selection of [All Reset] in the user menu	Initial values

2. Field menu initial setup values (applicable in common to all models)

MENU		A
SERVICE	SHIP	A
	PSC-LIMIT	OFF
	LIMIT-PC	ON
	V-FREQ OT	AUTO
	V-FREQ VD	AUTO
	SYNCLEVEL1	TTL
	SYNCLEVEL2	TTL
	SUB-ORB	ON
	PIC FREEZE	ON
MONITOR INFORMATION	MODEL NAME	PD5001/U1B

3. Initial setting values for the Factory shipment setting menu

The table shown below specifies only the items that can be changed in the factory adjusting mode. Therefore, any setting values of the items not specified below cannot be modified.

MENU		A
FUNCTION	SHIP	A
	LIMIT-PC	ON
MONITOR INFORMATION	SERIAL/ NUMBER	-

[Materia ls for reference]

1. Signal generator

(1) Digital RGB , Component signal generator

- Equivalent to the VIDEO GENERATOR LT1615 (made by LEADER)
- Equivalent to the PANEL LINK ADAPTER LT9217 (made by LEADER)
- Equivalent to the VIDEO ENCODE R LT1606 (made by LEADER)

(2) NTSC signal generator

- Equivalent to the NTSC PATTERN GENERATER LCG-403YC (made by LEADER)

(3) PAL signal generator

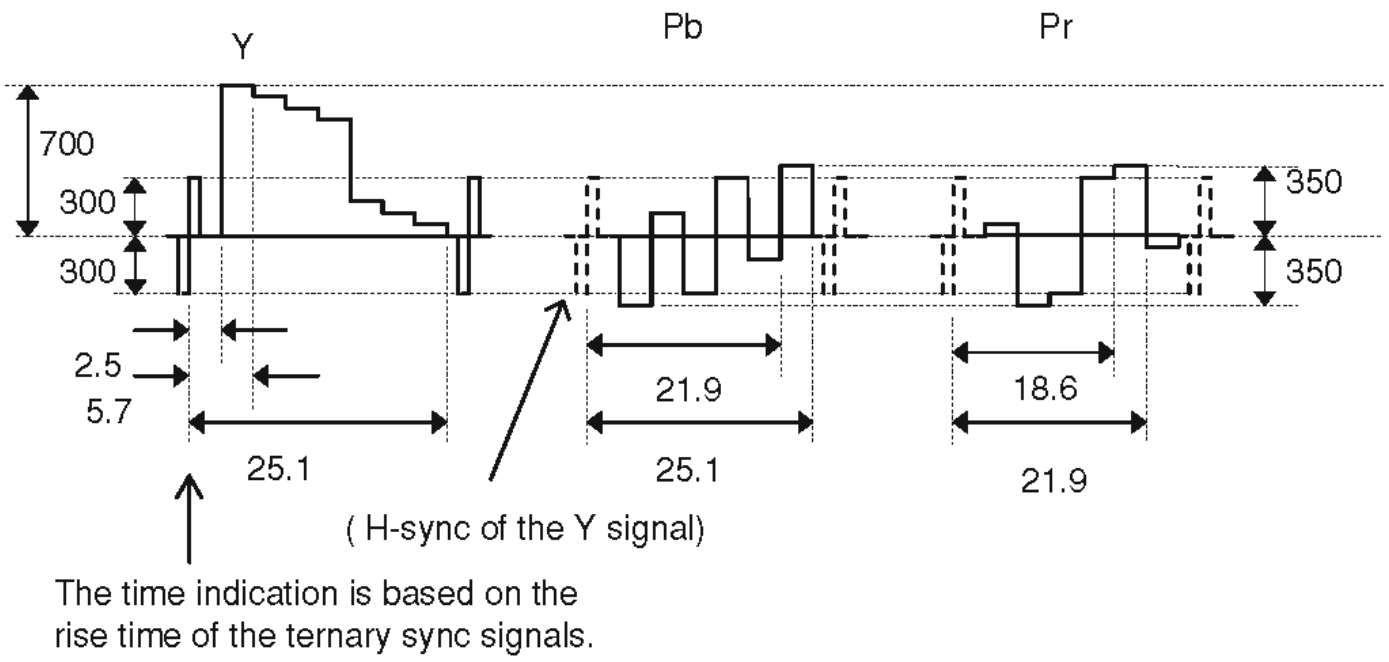
- Equivalent to the COLOR BAR PATTERN GENERATOR PM5518 (made by PHILIPS)

2. VIDEO input

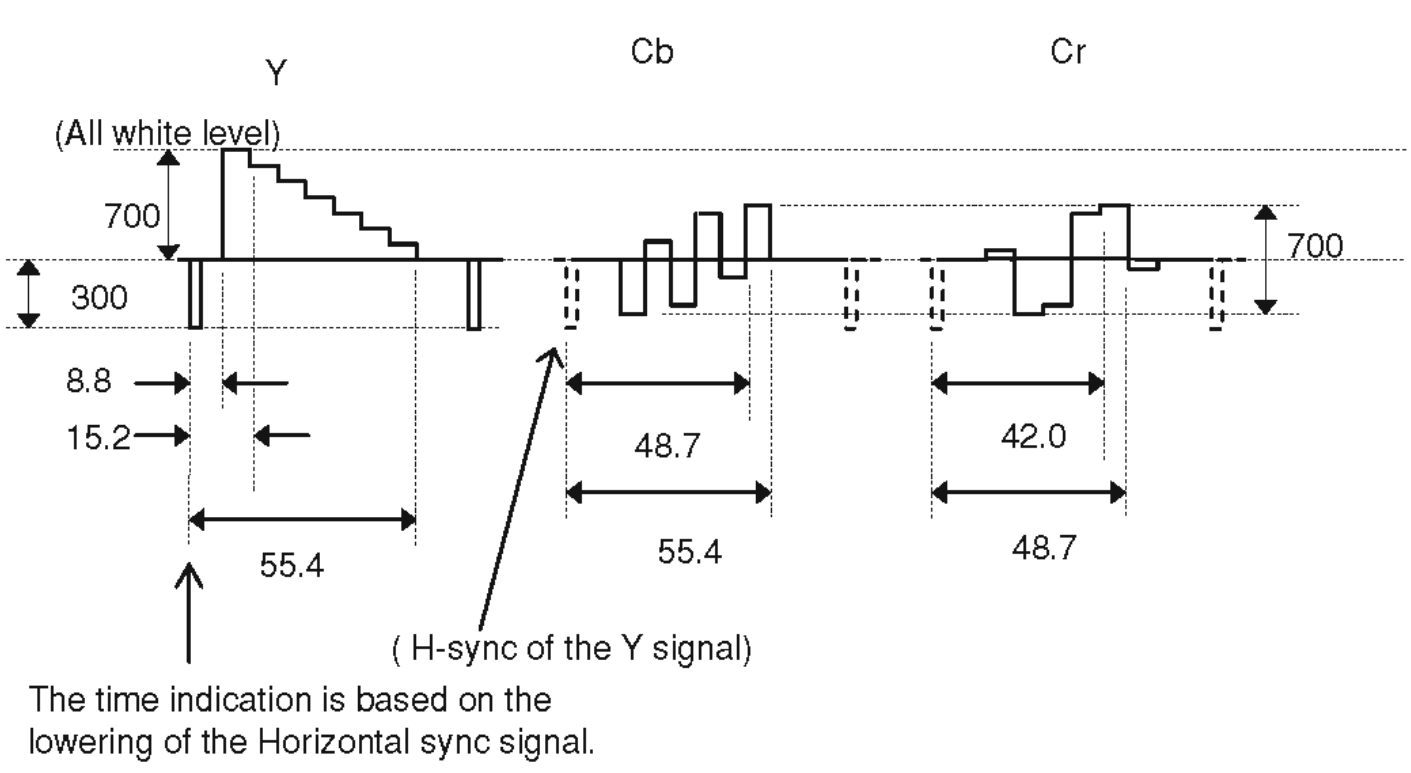
Input : Composite video input or S-terminal input

3. DVD/HD/DTV inputs

3-1. HD: Y/Pb/Pr component inputs, ternary sync signals



3-2. DVD: Y/Cb/Cr component inputs



4. RGB inputs

1) Horizontal sync period

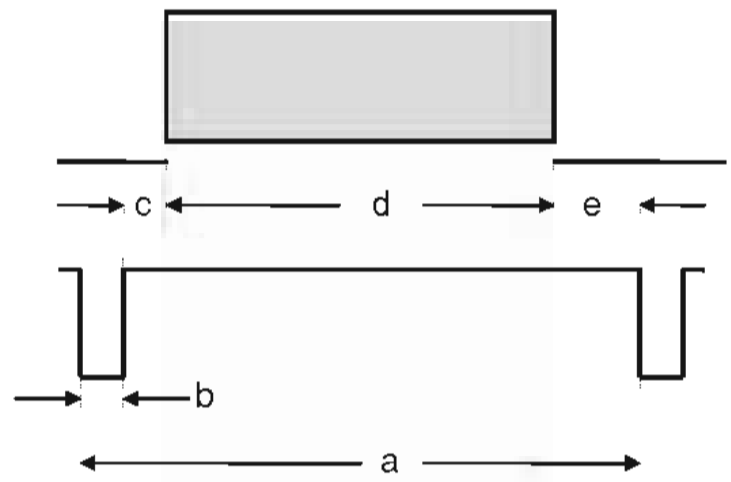
Video signal

0.7Vp-p

Sync signal

TTL level

Positive/negative polarity



2) Vertical sync period

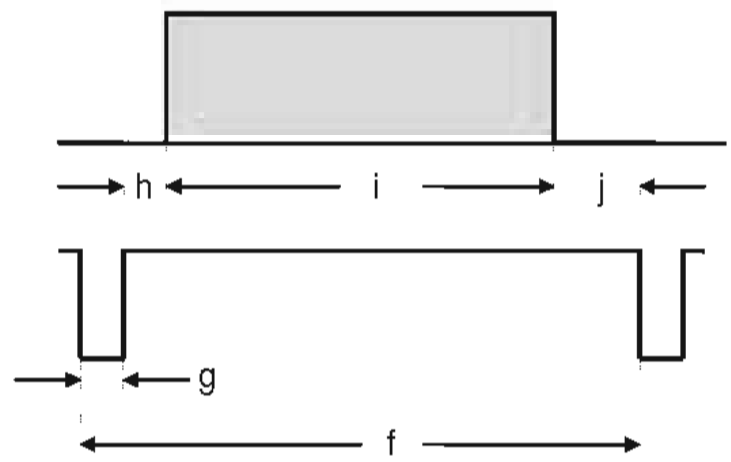
Video gnasil

0.7Vp-p

Sync signal

TTL level

Positive/negative polarity



For the respective inspection signals, the above " a " to " j " shall be listed on the next page and thereafter.

5. RGB/PC signal timing table

(Caution 1) The received PC mode number specified below is displayed in the memory column of the user menu "Information."

PC mode	1	2	3	4	5
Signal name	NOT USED	NOT USED	NOT USED	PC98 400@70Hz	PC98 480@60Hz
Definition				640*400	640*480
Dot clock frequency (MHz)				25.175	25.175
H frequency (kHz)				31.469	31.469
V frequency (Hz)				70.086	59.94
H total (uS) (dots) [a]				31.778 800	31.778 800
H display period (uS) (dots) [d]				25.422 640	25.422 640
H front porch (uS) (dots) [c]				0.675 17	0.596 15
H sync pulse width (uS) (dots) [b]				2.542 64	3.813 96
H back porch (uS) (dots) [e]				3.138 79	1.946 49
V total (mS) (line) [f]				14.268 449	16.683 525
V display period (mS) (line) [i]				12.711 400	15.253 480
V front porch (mS) (line) [h]				0.413 13	0.191 6
V sync pulse width (mS)(line) [g]				0.064 2	0.064 2
V back porch (mS) (line) [j]				1.08 34	1.176 37
H sync polarity V sync polarity				Neg Neg	Neg Neg
Scan type				Non Interlaced	Non Interlaced
Remarks					

PC mode	6	7	8	9	10
Signal name	MAC@13"	VESA 480@72Hz	VESA 480@75Hz	VESA 480@85Hz	
Definition	640*480	640*480	640*480	640*480	
Dot clock frequency (MHz)	30.24	31.5	31.5	36.0	
H frequency (kHz)	35	37.861	37.5	43.269	
V frequency (Hz)	66.667	72.809	75	85.008	
H total (uS) (dots)	28.571 864	26.413 832	26.667 840	23.111 832	
H display period (uS) (dots)	21.164 640	20.317 640	20.317 640	17.778 640	
H front porch (uS) (dots)	2.116 64	0.762 24	0.508 16	1.556 56	
H sync pulse width (uS) (dots)	2.116 64	1.27 40	2.032 64	1.556 56	
H back porch (uS) (dots)	3.175 96	4.064 128	3.81 120	2.222 80	NOT USED
V total (mS) (line)	15 525	13.735 520	13.333 500	11.764 509	
V display period (mS) (line)	13.714 480	12.678 480	12.8 480	11.093 480	
V front porch (mS) (line)	0.086 3	0.237 9	0.027 1	0.023 1	
V sync pulse width (mS)(line)	0.086 3	0.079 3	0.08 3	0.069 3	
V back porch (mS) (line)	1.114 39	0.739 28	0.427 16	0.578 25	
H sync polarity V sync polarity	Sync on G Sync on G	Neg Neg	Neg Neg	Neg Neg	
Scan type	NonInterlaced	NonInterlaced	NonInterlaced	NonInterlaced	
Remarks					

PC mode	11	12	13	14	15
Signal name	VESA 600@56Hz	VESA 600@60Hz	VESA 600@72Hz	VESA 600@75Hz	VESA 600@85Hz
Definition	800*600	800*600	800*600	800*600	800*600
Dot clock frequency (MHz)	36	40	50	49.5	56.25
H frequency (kHz)	35.156	37.879	48.077	46.875	53.674
V frequency (Hz)	56.25	60.317	72.188	75	85.061
H total (uS) (dots)	28.444 1024	26.4 1056	20.8 1040	21.333 1056	18.631 1048
H display period (uS) (dots)	22.222 800	20 800	16 800	16.162 800	14.222 800
H front porch (uS) (dots)	0.667 24	1 40	1.12 56	0.323 16	0.569 32
H sync pulse width (uS) (dots)	2 72	3.2 128	2.4 120	1.616 80	1.138 64
H back porch (uS) (dots)	3.556 128	2.2 88	1.28 64	3.232 160	2.702 152
V total (mS) (line)	17.778 625	16.579 628	13.853 666	13.333 625	11.756 631
V display period (mS) (line)	17.067 600	15.84 600	12.48 600	12.8 600	11.179 600
V front porch (mS) (line)	0.028 1	0.026 1	0.77 37	0.021 1	0.019 1
V sync pulse width (mS)(line)	0.057 2	0.106 4	0.125 6	0.064 3	0.056 3
V back porch (mS) (line)	0.626 22	0.607 23	0.478 23	0.448 21	0.503 27
H sync polarity V sync polarity	Pos. Pos.	Pos. Pos.	Pos. Pos.	Pos. Pos.	Pos. Pos.
Scan type	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	16	17	18	19	20
Signal name	MAC@16"	I/O data wide	NOT USED	VESA wide (NEC1)	NOT USED
Definition	832*624	852*480		848*480	
Dot clock frequency (MHz)	57.2832	34.006		33.75	
H frequency (kHz)	49.725	31.722		31.02	
V frequency (Hz)	74.55	59.966		60	
H total (uS) (dots)	20.111 1152	31.524 1072		32.237 1088	
H display period (uS) (dots)	14.524 832	25.055 852		25.126 848	
H front porch (uS) (dots)	0.559 32	0.659 22		0.474 16	
H sync pulse width (uS) (dots)	1.117 64	3.764 128		3.319 112	
H back porch (uS) (dots)	3.91 224	2.047 70		3.319 112	
V total (mS) (line)	13.414 667	16.676 529		16.667 517	
V display period (mS) (line)	12.549 624	15.132 480		15.474 480	
V front porch (mS) (line)	0.02 1	0.378 12		0.193 6	
V sync pulse width (mS)(line)	0.06 3	0.095 3		0.258 8	
V back porch (mS) (line)	0.784 39	1.072 34		0.741 23	
H sync polarity V sync polarity	Sync on G Sync on G	Neg Neg		Pos. Pos.	
Scan type	NonInterlaced	NonInterlaced		NonInterlaced	
Remarks					

PC mode	21	22	23	24	25
Signal name	W-XGA 800@60Hz	VESA wide (NEC4)	NOT USED	VESA 768@60Hz	VESA 768@70Hz
Definition	1280*800	1360*768		1024*768	1024*768
Dot clock frequency (MHz)	85.5	85.5		65	75
H frequency (kHz)	49.702	47.712		48.363	56.476
V frequency (Hz)	59.810	60.015		60.004	70.069
H total (uS) (dots)	20.120 1680	20.959 1792		20.677 1344	17.707 1328
H display period (uS) (dots)	15.329 1280	15.906 1360		15.754 1024	13.653 1024
H front porch (uS) (dots)	0.862 72	0.749 64		0.369 24	0.32 24
H sync pulse width (uS) (dots)	1.533 128	1.31 112		2.092 136	1.813 136
H back porch (uS) (dots)	2.395 200	2.994 256		2.462 160	1.92 144
V total (mS) (line)	16.720 831	16.662 795		16.666 806	14.272 806
V display period (mS) (line)	16.096 800	16.097 768		15.88 768	13.599 768
V front porch (mS) (line)	0.060 3	0.063 3		0.062 3	0.053 3
V sync pulse width (mS)(line)	0.121 6	0.126 6		0.124 6	0.106 6
V back porch (mS) (line)	0.443 22	0.377 18		0.6 29	0.513 29
H sync polarity V sync polarity	Pos. Pos.	Pos. Pos.		Neg. Neg.	Neg. Neg.
Scan type	NonInterlaced	NonInterlaced		NonInterlaced	NonInterlaced
Remarks					

PC mode	26	27	28	29	30
Signal name	VESA 768@75Hz	VESA 768@85Hz	MAC@19"	VESA 1024@60Hz	VESA 1024@75Hz
Definition	1024*768	1024*768	1024*768	1280*1024	1280*1024
Dot clock frequency (MHz)	78.75	94.5	80	108	135
H frequency (kHz)	60.023	68.677	60.24	63.981	79.976
V frequency (Hz)	75.029	84.997	74.93	60.02	75.025
H total (uS) (dots)	16.66 1312	14.561 1376	16.600 1328	15.63 1688	12.501 1688
H display period (uS) (dots)	13 1024	10.836 1024	12.8 1024	11.852 1280	9.481 1280
H front porch (uS) (dots)	0.203 16	0.508 48	0.4 32	0.444 48	0.119 2
H sync pulse width (uS) (dots)	1.219 96	1.016 96	1.2 96	1.037 112	1.067 144
H back porch (uS) (dots)	2.235 176	2.201 208	2.2 176	2.296 248	1.837 248
V total (mS) (line)	13.328 800	11.765 808	13.347 804	16.661 1066	13.329 1066
V display period (mS) (line)	12.795 768	11.183 768	12.749 768	16.005 1024	12.804 1024
V front porch (mS) (line)	0.017 1	0.015 1	0.050 3	0.016 1	0.013 1
V sync pulse width (mS)(line)	0.05 3	0.044 3	0.050 3	0.047 3	0.038 3
V back porch (mS) (line)	0.466 28	0.524 36	0.498 30	0.594 38	0.475 38
H sync polarity V sync polarity	Pos. Pos.	Pos. Pos.	— —	Pos. Pos.	Pos. Pos.
Scan type	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	31	32	33	34	35
Signal name	IDC-3000G PAL 625P	IDC-3000G NTSC 525P	HDTV-J	TV(480P)	DTV(720P)
Definition	768*576	640*480	1920*1035	644*483	1280*720
Dot clock frequency (MHz)	29.687	24.39	74.25	24.37	74.25
H frequency (kHz)	31.389	31.47	33.75	31.469	45.000
V frequency (Hz)	50	59.9	60	59.94	60
H total (uS) (dots)	31.933 948	31.775 775	29.63 2200	31.777 774	22.222 1650
H display period (uS) (dots)	25.87 768	26.24 640	25.86 1920	26.427 644	17.239 1280
H front porch (uS) (dots)	0.269 8	0.41 10	0.59 44	0.75 18	0.943 70
H sync pulse width (uS) (dots)	2.526 75	2.46 60	0.59 44	2.35 57	1.077 80
H back porch (uS) (dots)	3.267 97	2.665 65	2.59 192	2.25 55	2.963 220
V total (mS) (line)	19.911 625	16.522 525	16.666 562.5	16.683 525	16.667 750
V display period (mS) (line)	18.35 576	15.106 480	15.348 517/518	15.348 483	16 720
V front porch (mS) (line)	0.223 7	0.252 8	0.163/0.148 5.5/5	0.191 6	0.111 5
V sync pulse width (mS)(line)	0.223 7	0.22 7	0.148 5	0.191 6	0.111 5
V back porch (mS) (line)	1.115 35	0.944 30	1.037/1.022 35/34.5	0.953 30	0.444 20
H sync polarity V sync polarity	Neg Neg	Neg Neg	Neg Neg	Neg Neg	Neg Neg
Scan type	NonInterlaced	NonInterlaced	Interlaced	NonInterlaced	NonInterlaced
Remarks					

PC mode	36	37	38	39	40
Signal name	HDTV-W	W-XGA 854@60Hz	W-SXGA+ 1050@60Hz	MAC@21"	VESA 1024@85Hz
Definition	1920*1080	1280*854	1680*1050	1152*870	1280*1024
Dot clock frequency (MHz)	74.25	89.25	146.25	100	157.5
H frequency (kHz)	33.75	53.125	65.290	68.681	91.146
V frequency (Hz)	60	59.893	59.954	75.062	85.024
H total (uS) (dots)	29.630 2200	18.824 1680	15.316 2240	14.560 1456	10.971 1728
H display period (uS) (dots)	25.859 1920	14.342 1280	11.487 1680	11.520 1152	8.127 1280
H front porch (uS) (dots)	0.593 44	0.807 72	0.711 104	0.320 32	0.406 64
H sync pulse width (uS) (dots)	1.185 88	1.434 128	1.203 176	1.280 128	1.016 160
H back porch (uS) (dots)	1.993 148	2.241 200	1.915 280	1.440 144	1.422 224
V total (mS) (line)	16.666 562.5	16.696 887	16.679 1089	13.322 915	11.761 1072
V display period (mS) (line)	16.000 540	16.075 854	16.082 1050	12.667 870	11.235 1024
V front porch (mS) (line)	0.074/0.059 2.5/2	0.056 3	0.046 3	0.044 3	0.011 1
V sync pulse width (mS)(line)	0.148 5	0.188 10	0.092 6	0.044 3	0.033 3
V back porch (mS) (line)	0.444/0.459 15/15.5	0.376 20	0.459 30	0.568 39	0.483 44
H sync polarity V sync polarity	Neg Neg	Neg Neg	Neg Neg	Sync on G Sync on G	Pos. Pos.
Scan type	Interlaced	Interlaced	Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	41	42	43	44	45
Signal name	I/O data 480@100Hz	I/O data 480@120Hz	I/O data 600@100Hz	I/O data 600@120Hz	I/O data 768@100Hz
Definition	640*480	640*480	800*600	800*600	1024*768
Dot clock frequency (MHz)	42.506	51.008	66.022	79.942	111.987
H frequency (kHz)	51.089	61.307	62.998	75.703	80.451
V frequency (Hz)	100.370	120.440	99.838	119.97	100.56
H total (uS) (dots)	19.573 832	16.311 832	15.873 1048	13.209 1056	12.43 1392
H display period (uS) (dots)	15.057 640	12.574 640	12.117 800	10.007 800	9.144 1024
H front porch (uS) (dots)	1.506 64	1.255 64	0.606 40	0.300 24	0.214 24
H sync pulse width (uS) (dots)	1.317 56	1.098 56	0.969 64	1.001 80	0.786 88
H back porch (uS) (dots)	1.694 72	1.412 72	2.181 144	1.901 152	2.286 256
V total (mS) (line)	9.963 509	8.302 509	10.016 631	8.335 631	9.944 800
V display period (mS) (line)	9.395 480	7.829 480	9.524 600	7.926 600	9.546 768
V front porch (mS) (line)	0.020 1	0.016 1	0.016 1	0.013 1	0.012 1
V sync pulse width (mS)(line)	0.059 3	0.049 3	0.048 3	0.04 3	0.037 3
V back porch (mS) (line)	0.489 25	0.408 25	0.429 27	0.357 27	0.348 28
H sync polarity V sync polarity	Neg Neg	Neg Neg	Pos. Pos.	Pos. Pos.	Neg Neg
Scan type	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	46	47	48	49	50
Signal name	I/O data 768@120Hz	I/O data 1024@100Hz	EWS 4800@71Hz	RCA-STB 1080A	DTV(570P)
Definition	1024*768	1280*1024	1280*1024	1920*1034	768*576
Dot clock frequency (MHz)	132.953	190.908	125	81	29.538
H frequency (kHz)	95.512	108.47	75.12	33.75	31.25
V frequency (Hz)	119.39	100.06	71.204	60	50
H total (uS) (dots)	10.47 1392	9.219 1760	13.312 1664	29.630 2400	31.993 945
H display period (uS) (dots)	7.702 1024	6.7 1280	10.24 1280	23.7 1920	26 768
H front porch (uS) (dots)	0.181 24	0.545 104	0.256 32	0.59 48	0.745 22
H sync pulse width (uS) (dots)	0.662 88	0.75 143	1.024 128	3.56 288	2.35 69
H back porch (uS) (dots)	1.925 256	1.22 233	1.792 224	1.78 144	2.9 86
V total (mS) (line)	8.376 800	9.994 1084	14.044 1055	16.652 562	20 625
V display period (mS) (line)	8.041 768	9.44 1024	13.631 1024	15.319 517	18.432 576
V front porch (mS) (line)	0.010 1	0.01 1	0.04 3	0.059 2	0.16 5
V sync pulse width (mS)(line)	0.031 3	0.03 3	0.04 3	0.089 3	0.16 5
V back porch (mS) (line)	0.293 28	0.52 56	0.333 25	1.185 40	1.248 39
H sync polarity V sync polarity	Neg Neg	Pos. Pos.	Neg Neg	Pos. Pos.	Neg Neg
Scan type	Non Interlaced	Non Interlaced	Non Interlaced	Interlaced	Non Interlaced
Remarks					

PC mode	51	52	53	54	55
Signal name	VESA 864@75Hz	I/O data W_XGA@56Hz	I/O wide XGA	VESA 1200@60Hz	VESA 1200@65Hz
Definition	1152*864	1280*768	1376*768	1600*1200	1600*1200
Dot clock frequency (MHz)	108	76.064	87.34	162	175.5
H frequency (kHz)	67.5	45.064	48.307	75	81.25
V frequency (Hz)	75	56.187	59.934	60	65
H total (uS) (dots)	14.815 1600	22.192 1688	20.701 1808	13.333 2160	12.308 2160
H display period (uS) (dots)	10.667 1152	16.828 1280	15.755 1376	9.877 1600	9.117 1600
H front porch (uS) (dots)	0.593 64	0.631 48	0.366 32	0.395 64	0.365 64
H sync pulse width (uS) (dots)	1.185 128	1.472 112	1.466 128	1.185 192	1.094 192
H back porch (uS) (dots)	2.37 256	3.26 248	3.114 272	1.877 304	1.732 304
V total (mS) (line)	13.333 900	17.78 802	16.685 806	16.667 1250	15.385 1250
V display period (mS) (line)	12.8 864	17.043 768	15.898 768	16 1200	14.769 1200
V front porch (mS) (line)	0.015 1	0.044 2	0.062 3	0.013 1	0.012 1
V sync pulse width (mS)(line)	0.044 3	0.067 3	0.124 6	0.04 3	0.037 3
V back porch (mS) (line)	0.474 32	0.644 29	0.6 29	0.613 46	0.566 46
H sync polarity V sync polarity	Pos. Pos.	Pos. Pos.	Neg Pos.	Pos. Pos.	Pos. Pos.
Scan type	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	56	57	58	59	60
Signal name	VESA 1200@70Hz	VESA 1200@75Hz	VESA 1200@85Hz	HP 1024@72Hz	SUN 900@66Hz
Definition	1600*1200	1600*1200	1600*1200	1280*1024	1152*900
Dot clock frequency (MHz)	189	202.5	229.5	135	92.941
H frequency (kHz)	87.5	93.75	106.25	78.130	61.796
V frequency (Hz)	70	75	85	72.009	65.95
H total (uS) (dots)	11.429 2160	10.667 2160	9.412 2160	12.8 1728	16.182 1504
H display period (uS) (dots)	8.466 1600	7.901 1600	6.972 1600	9.481 1280	12.395 1152
H front porch (uS) (dots)	0.339 64	0.316 64	0.279 64	0.474 64	0.312 29
H sync pulse width (uS) (dots)	1.016 192	0.948 192	0.837 192	1.442 192	1.377 128
H back porch (uS) (dots)	1.608 304	1.501 304	1.325 304	1.442 192	2.098 195
V total (mS) (line)	14.286 1250	13.333 1250	11.765 1250	13.887 1085	15.163 937
V display period (mS) (line)	13.714 1200	12.8 1200	11.294 1200	13.107 1024	14.564 900
V front porch (mS) (line)	0.011 1	0.011 1	0.009 1	0.038 3	0.032 2
V sync pulse width (mS)(line)	0.034 3	0.032 3	0.028 3	0.038 3	0.065 4
V back porch (mS) (line)	0.526 46	0.491 46	0.433 46	0.704 55	0.502 31
H sync polarity V sync polarity	Pos. Pos.	Pos. Pos.	Pos. Pos.	SOG. SOG.	Csync Csync
Scan type	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	61	62	63	64	65
Signal name	SUN 900@76Hz	SGI 768@60Hz	VESA 960@60Hz	VESA 960@60Hz	VESA 1050@60Hz
Definition	1152*900	1024*768	1280*960	1280*960	1400*1050
Dot clock frequency (MHz)	105.561	70	108	148.5	108
H frequency (kHz)	71.710	49.716	60	85.938	63.981
V frequency (Hz)	76.047	60.043	60	85.002	60.020
H total (uS) (dots)	13.945 1472	20.114 1408	16.667 1800	11.636 1728	15.630 1688
H display period (uS) (dots)	10.913 1152	14.629 1024	11.852 1280	8.62 1280	12.963 1400
H front porch (uS) (dots)	0.152 16	2.057 144	0.889 96	0.431 64	0.444 48
H sync pulse width (uS) (dots)	0.909 96	1.371 96	1.037 112	1.077 160	1.037 112
H back porch (uS) (dots)	1.97 208	2.507 144	2.889 312	1.508 224	1.185 128
V total (mS) (line)	13.15 943	16.655 828	16.667 1000	11.764 1011	16.661 1066
V display period (mS) (line)	12.55 900	15.448 768	16 960	11.171 960	16.411 1050
V front porch (mS) (line)	0.028 2	0.443 22	0.017 1	0.012 1	0.016 1
V sync pulse width (mS)(line)	0.112 8	0.06 3	0.05 3	0.035 3	0.047 3
V back porch (mS) (line)	0.460 33	0.704 35	0.6 36	0.547 47	0.188 12
H sync polarity V sync polarity	Csync Csync	SOG. SOG.	Pos. Pos.	Pos. Pos.	Neg Neg
Scan type	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	66	67–74
Signal name	W-XGA 70Hz	
Definition	1280*768	
Dot clock frequency (MHz)	95	
H frequency (kHz)	56.014	
V frequency (Hz)	69.843	
H total (uS) (dots)	17.853 1696	
H display period (uS) (dots)	13.474 1280	
H front porch (uS) (dots)	0.842 80	
H sync pulse width (uS) (dots)	1.347 128	NOT USED
H back porch (uS) (dots)	2.189 208	
V total (mS) (line)	14.318 802	
V display period (mS) (line)	13.711 768	
V front porch (mS) (line)	0.054 3	
V sync pulse width (mS)(line)	0.125 7	
V back porch (mS) (line)	0.428 24	
H sync polarity V sync polarity	Neg. Pos.	
Scan type	Non Interlaced	
Remarks		

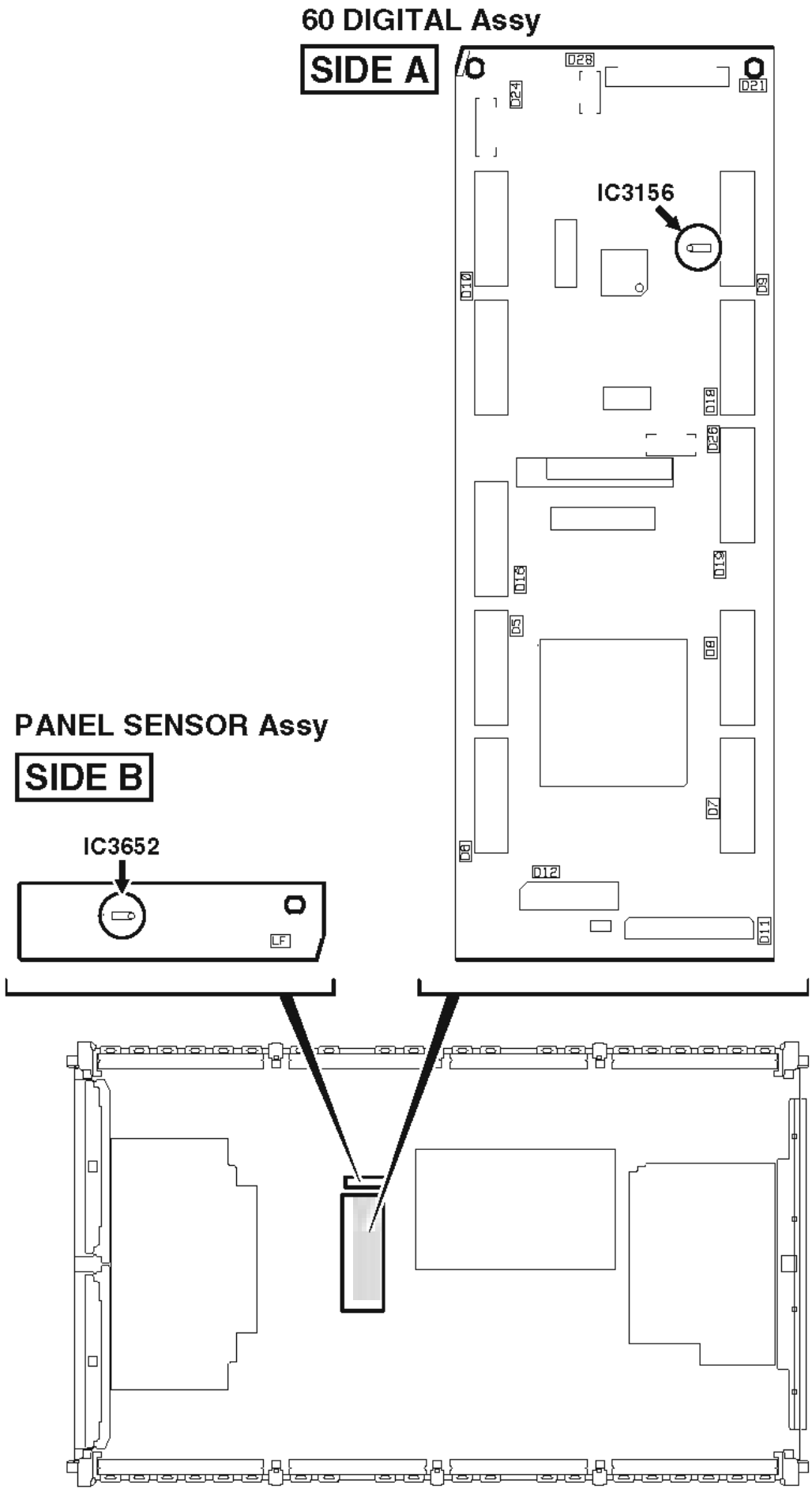
PC mode	75	80	81	82	83
Signal name	1080I 50Hz	W_XGA	W-UXGA 60Hz	400H	350H
Definition	1920*1080	1280*768	1920*1200	720*400	720*350
Dot clock frequency (MHz)	74.25	81.0	193.25	28.3	28.3
H frequency (kHz)	28.125	47.99	74.56	31.5	31.5
V frequency (Hz)	50	59.34	59.885	70.1	70.1
H total (uS) (dots)	35.556 2640	20.84 1688	13.413 2592	31.78 900	31.78 900
H display period (uS) (dots)	25.859 1920	15.80 1280	9.935 1920	25.42 720	25.42 720
H front porch (uS) (dots)	6.519 484	0.593 48	0.704 136	0.636 18	0.636 18
H sync pulse width (uS) (dots)	1.185 88	1.38 112	1.035 200	3.81 108	3.81 108
H back porch (uS) (dots)	1.993 148	3.06 248	1.739 336	1.91 54	1.91 54
V total (mS) (line)	10 562.5	16.713 802	16669 1245	14.269 449	14.269 449
V display period (mS) (line)	9.6 540	16.005 768	16095 1200	12.712 400	11.123 350
V front porch (mS) (line)	0.074/0.059 2.5/2	0.063 3	0.040 3	0.424 12	1.307 37
V sync pulse width (mS)(line)	0.148 5	0.125 6	0.080 6	0.064 2	0.064 2
V back porch (mS) (line)	0.444/0.459 15/15.5	0.521 25	0.483 36	1.112 35	1.907 60
H sync polarity V sync polarity	Neg. Neg.	Pos. Neg.	Neg. . Neg.	Neg. Pos.	Pos. Neg.
Scan type	Interlaced	Non Interlaced	Non Interlaced	Non Interlaced	Non Interlaced
Remarks					

PC mode	84	85	86	87	88
Signal name			720P 50Hz		W-UXGA 60HzRB
Definition			1280*720		1920*1200
Dot clock frequency (MHz)			74.25		154
H frequency (kHz)			37.5		74.038
V frequency (Hz)			50		59.950
H total (uS) (dots)			26.667 1980		13.506 2080
H display period (uS) (dots)			17.239 1280		12.468 1920
H front porch (uS) (dots)			5.387 400		0.311 48
H sync pulse width (uS) (dots)	NOT USED		1.078 80	NOT USED	0.208 32
H back porch (uS) (dots)			2.963 220		0.519 80
V total (mS) (line)			20 750		16.681 1235
V display period (mS) (line)			19.2 720		16.208 1200
V front porch (mS) (line)			0.133 5		0.041 3
V sync pulse width (mS)(line)			0.133 5		0.081 6
V back porch (mS) (line)			0.533 20		0.351 26
H sync polarity V sync polarity			Neg Neg		Neg Neg
Scan type			Non Interlaced		Non Interlaced
Remarks					

4.3 BACKUP OF THE EEPROM (DIGITAL ASSY)

■ Outline

Adjustment data are stored in the EEPROM (IC3156/4K) on the DIGITAL Assy in the production process. Those adjustment data are also automatically stored in the EEPROM (for backup: IC3652) on the SENSOR Assy.
If the DIGITAL Assy is replaced, those adjustment data for backup can be copied from the EEPROM on the SENSOR Assy to a new DIGITAL Assy.



■ Backed up data

- Drive voltage adjustment value
- Hour-meter count
- Pulse-meter count
- Panel white balance adjustment value
- Serial No.
- Drive waveform adjustment value
- P-ON counter value
- PD/SD histories

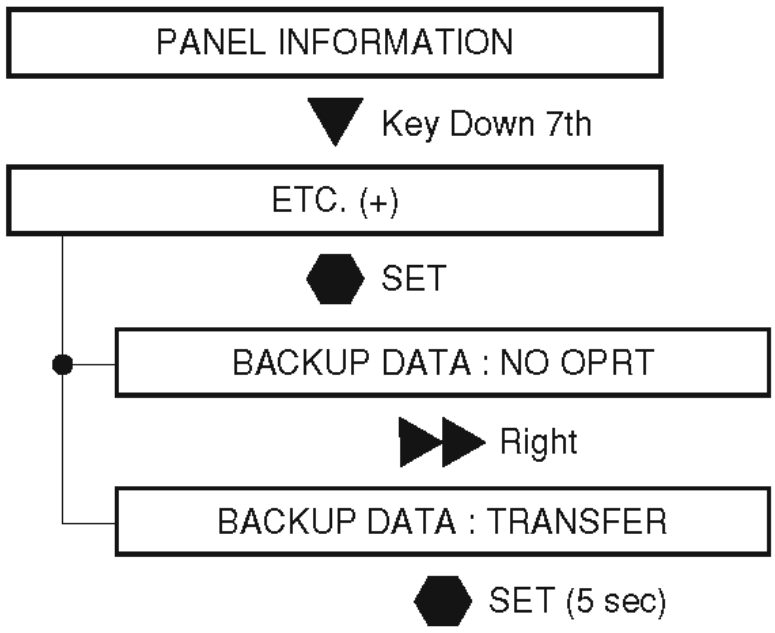
■ How to copy backup data

1. When the DIGITAL Assy is replaced with one for service (usual service)

Adjustment data can be restored by copying the data backed up in the SENSOR Assy to the EEPROM on a new DIGITAL Assy.
The EEPROM on the new DIGITAL Assy has no adjustment data, and the EEPROM for backup in the SENSOR Assy has adjustment data. After replacing the DIGITAL Assy, enter PANEL FACT. mode, display the PANEL INFORMATION page, then check if "NO DATA!" is set for "DIG. EEP" and "ADJUSTED" is set for "BACKUP". Then, proceed in the following steps:
(Refer to 4.7.4.1 PANEL INFORMATION)

(1) Copying, using the Factory menu

① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Copy the backup data, as shown in the figure below.



③ Turn the power off.

- After the DIGITAL Assy is replaced with one for service, be sure to check if "NO DATA!" is set for "DIG. EEP" on the PANEL INFORMATION page of the PANEL FACT. mode.
- If copying of the backup data fails in the above procedure, the red LED lights, and the green LED blinks, as a warning that no backup data were copied.
- If both the DIGITAL and SENSOR Assys are to be replaced, first replace the SENSOR Assy, turn the unit on and back off again, then replace the DIGITAL Assy.

(2) Copying, using the RS-232C commands

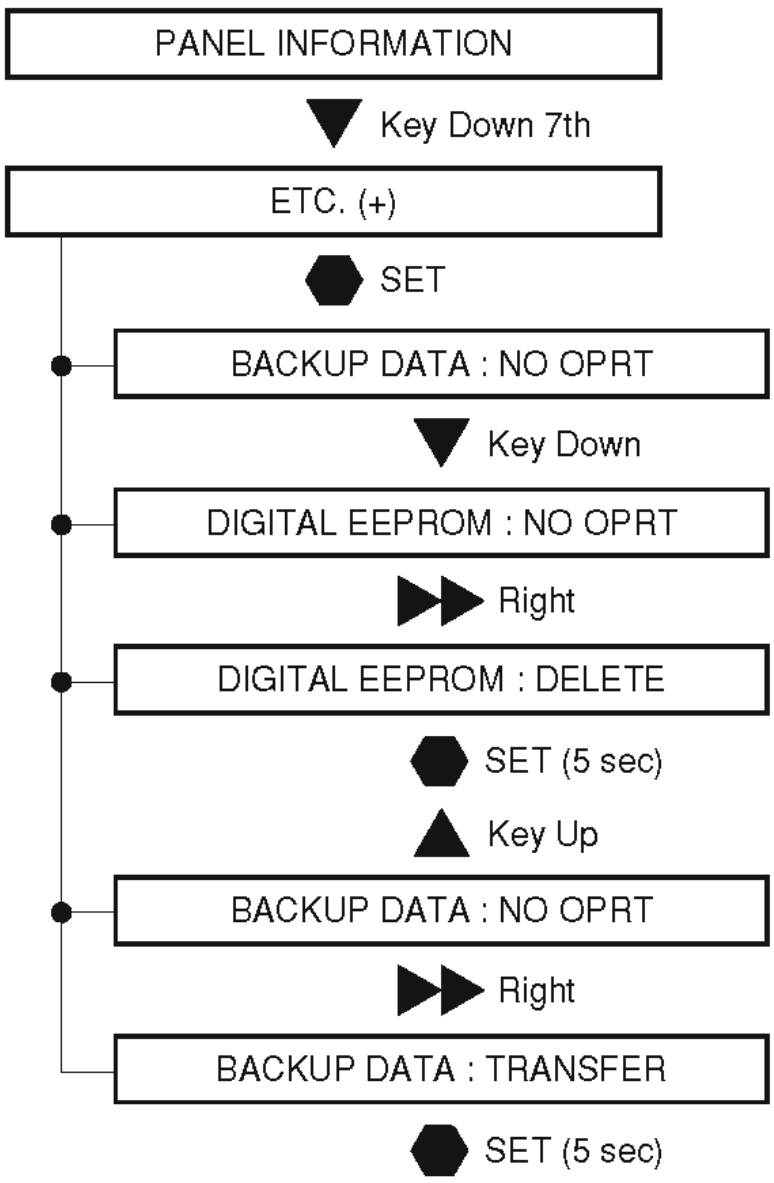
① Switch the RS-232C/SR+ setting to RS-232C so that RS-232C commands can be received.
② Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
③ Issue the BCP command to transfer the data stored in the EEPROM for backup.
④ Turn the power off.

2. When a secondhand DIGITAL Assy that had been mounted in another product is to be reused

As adjustment data for another product are already stored in the secondhand DIGITAL Assy, first delete those data then copy the backup data stored in the EEPROM on the SENSOR Assy.

(1) Copying, using the Factory menu

① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Copy the backup data, as shown in the figure below.



③ Turn the power off.

Note:

If the secondhand DIGITAL Assy is mounted in the product then the unit is turned on then back off again, the data in the EEPROM on the DIGITAL Assy are copied over the EEPROM in the SENSOR Assy. Thus the backup data can never be restored. During the first power-on after the DIGITAL Assy is replaced, be sure to enter Factory mode to copy the backup data. Or, before removing the secondhand DIGITAL Assy from the original product, delete the adjustment data on it, using the Factory mode (DIGITAL EEPROM: DELETE), mount it to the product to be repaired, then copy the data from the backup EEPROM.

(2) Copying, using the RS-232C commands

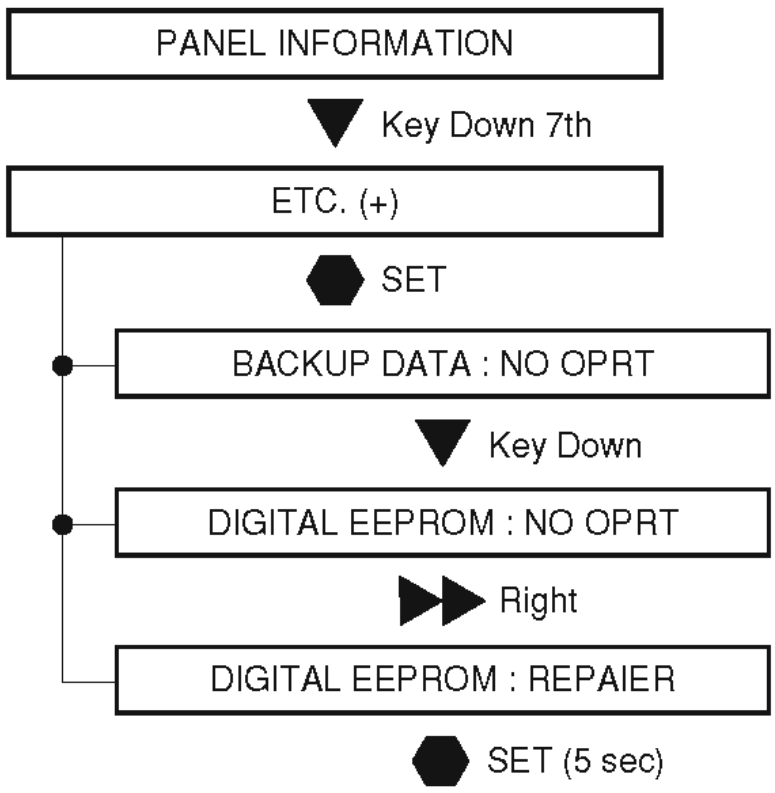
① Switch the RS-232C/SR+ setting to RS-232C so that RS-232C commands can be received.
② Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
③ Issue the UAJ command to delete data stored in the EEPROM on the DIGITAL Assy.
④ Issue the BCP command to transfer the data stored in the EEPROM for backup.
⑤ Turn the power off.

3. In a case where normal backup data are not stored in the backup EEPROM because the EEPROM on the DIGITAL Assy is defective, etc., and where manually adjusted values are to be applied to the product

Note: In this section, it is assumed that settings for various items have been completed, using Factory menu or RS-232C commands.

(1) Method using the Factory menu

① Set various setting/adjustment values.
② Proceed in the following steps.



③ Turn the power off.

Note:
When a DIGITAL Assy with an EEPROM in which adjustment data are stored is mounted, this step is not required after manual adjustment. ("DIGITAL EEPROM: REPAIR" is not indicated.)

(2) Method using the RS-232C commands

Issue the FAJ command.

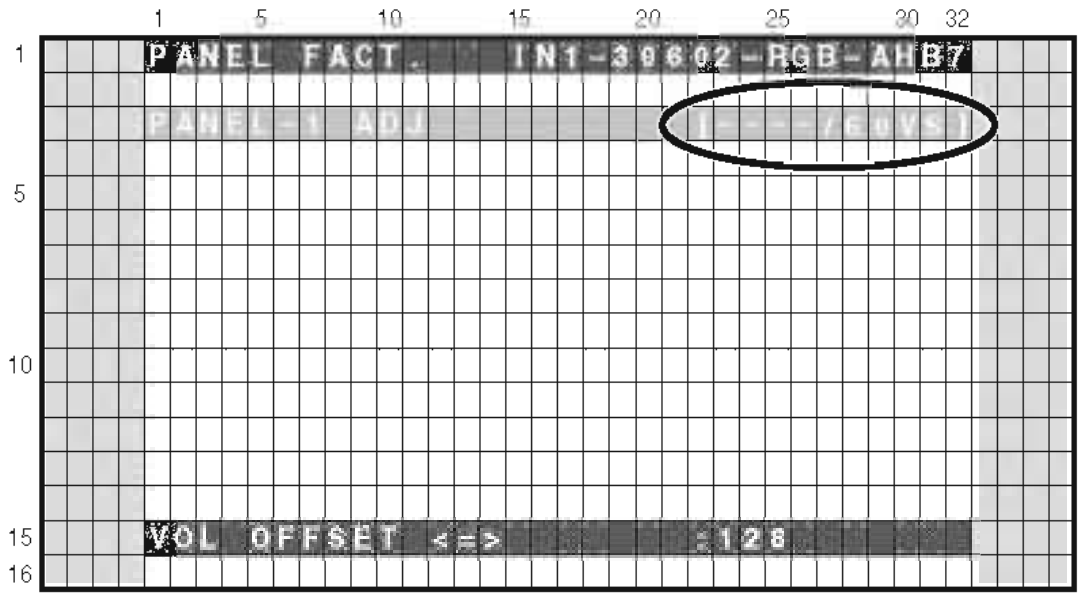
4.4 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED

■ Flowchart for panel replacement

After replacing the panel with one for service, readjustment of the Vofs voltage margin is required.

[Preparations]

- Basically, the Panel Factory menu is used for the voltage margin adjustment.
- The 60-Hz video sequence is used as the drive sequence.
- While adjusting the voltage margin using the Panel Factory menu, the current drive sequence is indicated on the screen, as shown below. Make sure that "60VS" is always indicated during adjustment.



Example of the OSD while the Panel Factory menu is displayed

[Supplement]

- When the raster mask for margin adjustment is displayed during Panel Factory mode, the Panel White Balance is set to default, and the Panel Gamma is set to Straight in the "PANEL-1 ADJ" layer.
  On the third line, the OSD reads "- - - - /****" (**** stands for the type of the drive sequence set).

- If you perform adjustment using RS-232C commands, use the commands shown below.
  These commands are different from those used during Factory Menu mode.

  PAV S00 : Used to set the Panel Drive mode to Factory.
  VFQ S03 : Used to set the Drive Sequence to Video 60 Hz.
  WBI S01 : Used to temporarily set the adjustment value of the Panel WB to default. (To return the value to its original value, use WBI S00.)
  PGM S00 : Used to set the gamma setting to Factory.

Note: If the power is shut off in the process of the adjustment procedures, send the above commands again.

■ OUTLINE

Mode switching

Switch modes to start the voltage adjustment, as follows:

Enter Factory mode.
Display RST MASK 01 (white).

FAY
MKS S51

↓

Voltage setting

Set Vsus and Vyprst, and tentatively set Vofs:

VOL SUS : Set to 136 (207[V]).
VOL RST P : Set to the voltage indicated on the drive voltage label. (*)
VOL OFFSET : Tentatively set to the voltage indicated on the drive voltage label. (*)

VSU136
VRP***
VOF***

(*): Refer to next page.

↓

Aging

Perform aging with the fully white screen for 10 minutes

To prevent an error caused by the temperature characteristics and to let the unit show its full properties after letting it sit, perform aging for 10 minutes to raise the panel temperature to a certain extent. This ensures the accuracy of inspection and adjustment.

↓

Actual Vofs adjustment (② to ⑥)

Measuring the lower limit of Vofs

Signals to be measured: Pale purple, Sky color, Yellow egg color

Measuring the upper limit of Vofs

Signals to be measured: red 1023+, green 1023+, and blue 1023+

Vofs setting

In a case where the margin of Vofs is between 19 and 22 [V]:
Vofs set voltage = Vofs_max - 8 [V]

In a case where the margin of Vofs is 23 [V] or more:
Vofs set voltage = Vofs_max - 12 [V]

↓

CA check with black

With the black mask displayed, check if there are stationary or horizontally moving lit cells.

↓

Confirmation of settings

Check that each voltage value is correctly set.

↓

Command transfer

After the voltage adjustment is finished, make the following settings:

Mask: OFF, Factory: OUT

↓

Confirmation of setting data

Check that the each voltage is properly set.

→

CA check

Check that the picture is properly displayed.

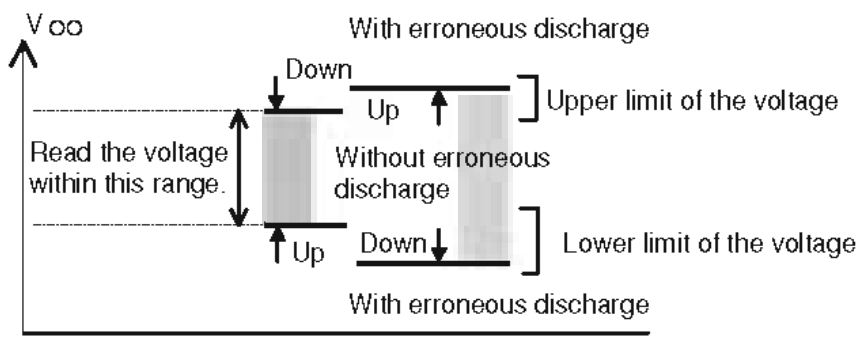
Use DVD, LD, and broadcast signals for checking.

Ranges of the adjustable voltages
(Ranges of the adjustable voltage when the upper and lower limits of each voltage are to be checked in this flowchart)
Vsus = 207 [136] [V]
Vofs = 15 [024] to 60 [255] [V]
Vyprst = 240 [000] to 302 [158] [V]
Vxnrst = 180 [V]
Vh = 130 [V]
Vadr = 60 [V]

Ranges of the voltage settings
(Ranges of voltage settings for this unit)
Vsus = 207 [136] [V]
Vofs = 24 [071] to 49 [199] [V]
Vyprst = 250 [026] to 310 [179] [V]
Vxnrst = 180 [V]
Vh = 130 [V]
Vadr = 60 [V]

When calculating the voltage, **round off the fractional part**.
(For circuit protection, it is desirable to set the voltage to a lower value.)

For margin measuring, be sure to read the value within the hysteresis (stricter value).



The Definition of Abnormal Cells
Abnormal bright cells: Within five cells on screen.
(fewer than 2 cells within a radius of 1 cm)

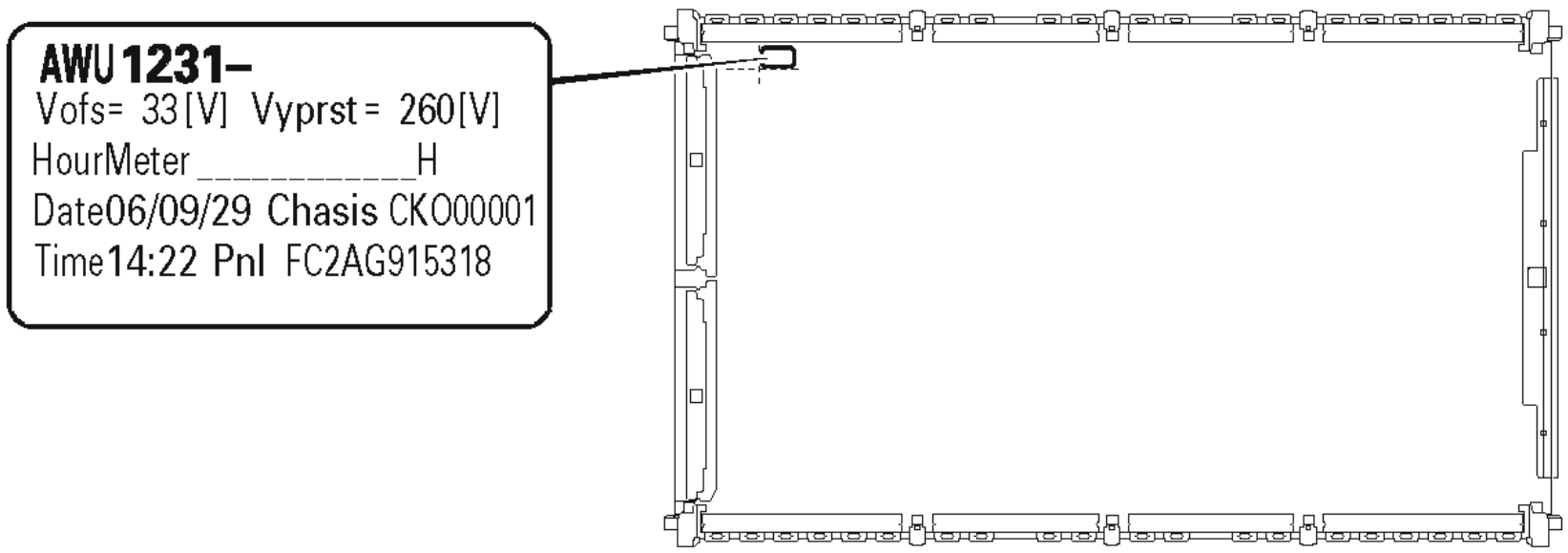
Abnormal dark cells: Under fifteen cells on screen.
(fewer than 2 cells within a radius of 1 cm)

Count abnormal cells at a distance of 1 m from panel.
If abnormal cells won't occur longer than one second, do not count the abnormal cells.
Do not count still dark cells and bright cells.

Standard settings of the unit at shipment:
Vsus setting = 207 [V]
Vsus margin = 17 [V] or more
Vofs setting = 24 to 49 [V]
Vofs margin = 19 [V] or more
Vyprst setting = 250 to 300 [V]

Note: The voltages in the flowcharts are given in absolute values (without ±).

- **Drive Voltage Label Position**



① Preparations

Initial setting

After turning the unit on, enter Factory mode. FAY

with command
PAV S00
VFQ S03
WBI S01
PGM S00

Display RST MASK 01 (white). MKS S51

Voltage setting

Set VOL SUS to 136 (Vsus = 207 V).

VOL RST P: Set to the voltage indicated on the panel label.
(See the conversion table for the electronic VR.)

VOL OFFSET: Tentatively set to the voltage indicated on the panel label. (See the conversion table for the electronic VR.)

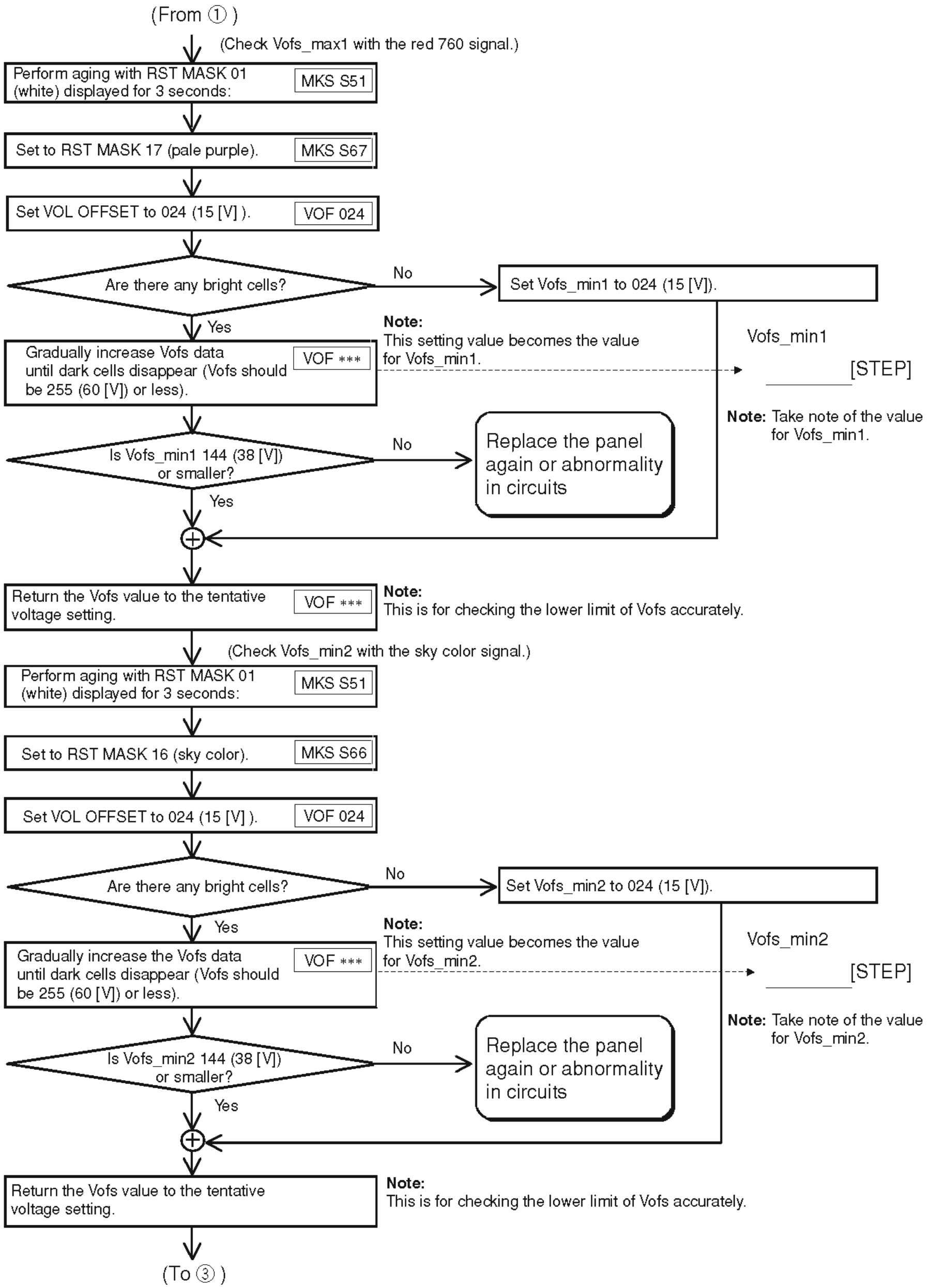
Aging

Perform aging with the fully white screen for 10 minutes

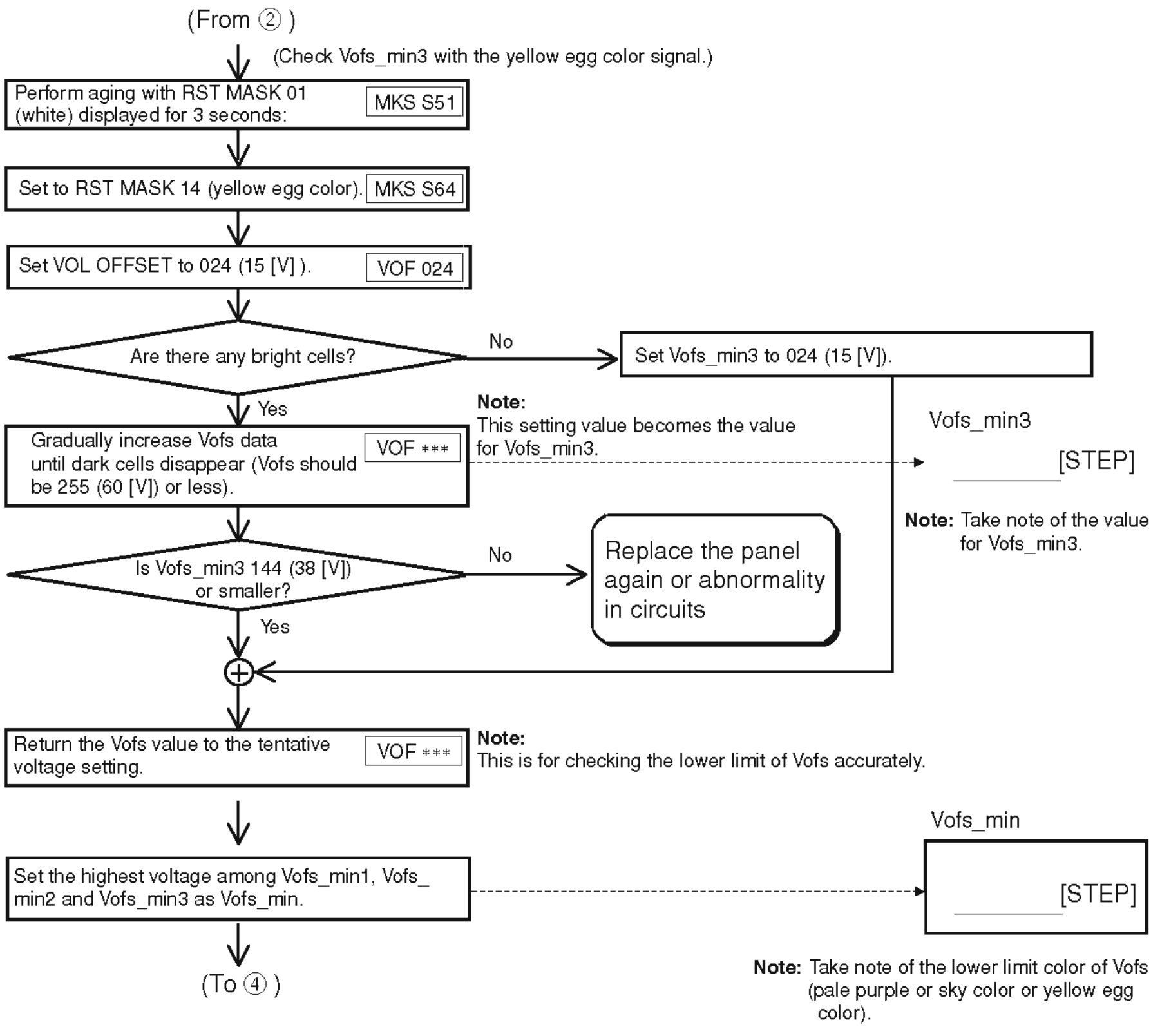
Note:
To prevent an error caused by the temperature characteristics and to let the unit show its full properties after letting it sit, perform aging for 10 minutes to raise the panel temperature to a certain extent.
This ensures the accuracy of inspection and adjustment.

(To ②)

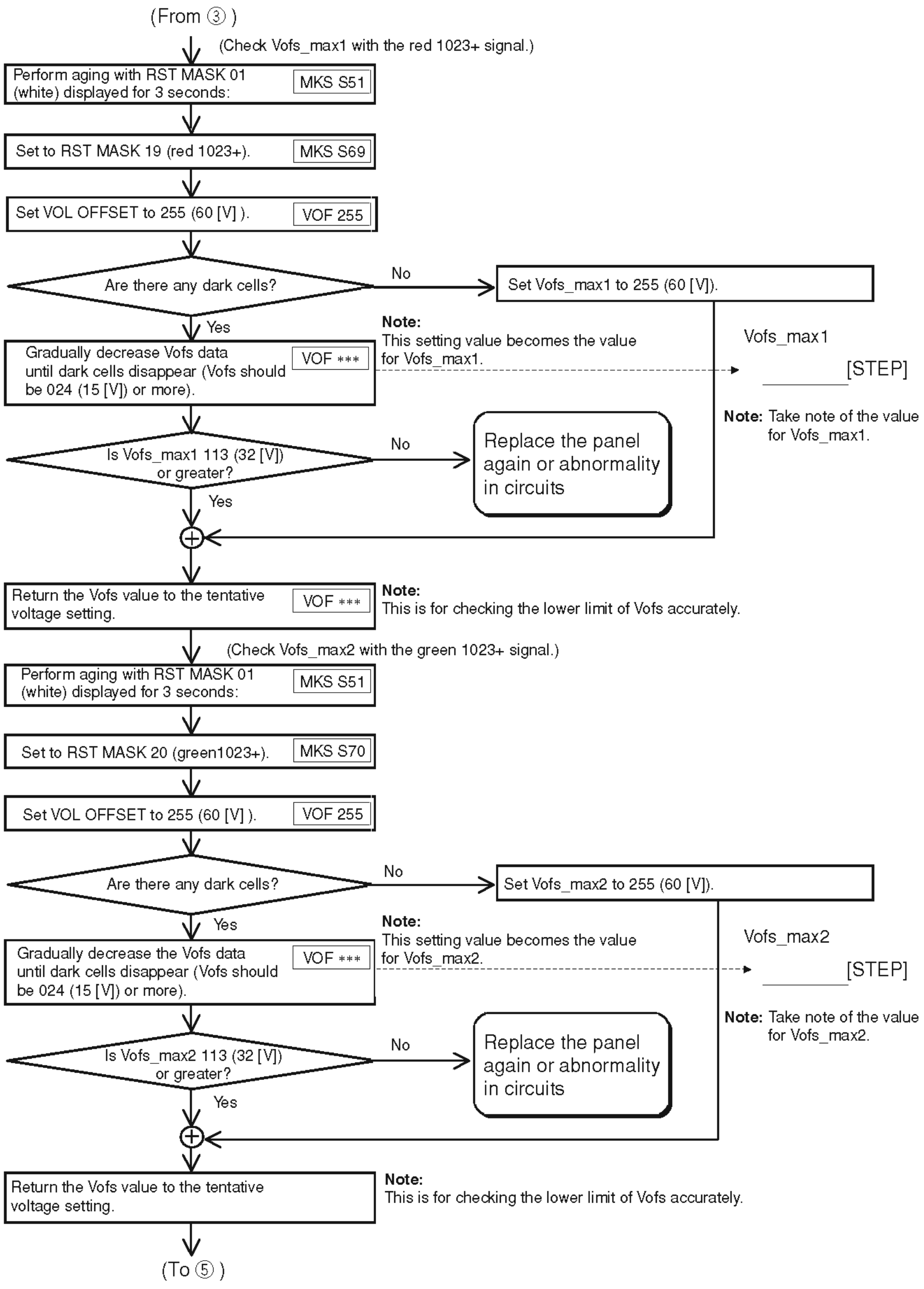
② Actual Vofs adjustment (1)



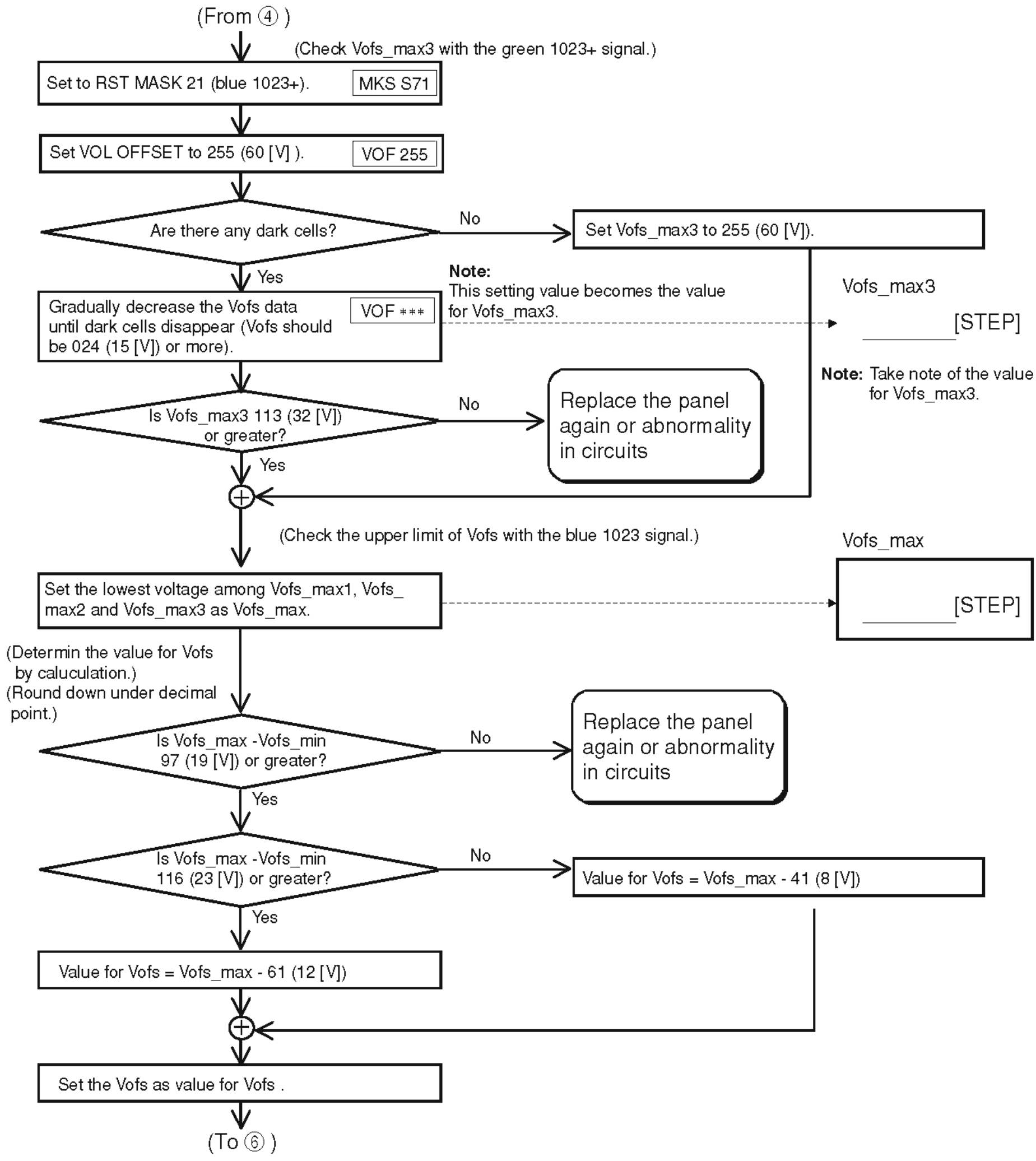
③ Actual Vofs adjustment (2)



④ Actual Vofs adjustment (3)



⑤ Actual Vofs adjustment (4)

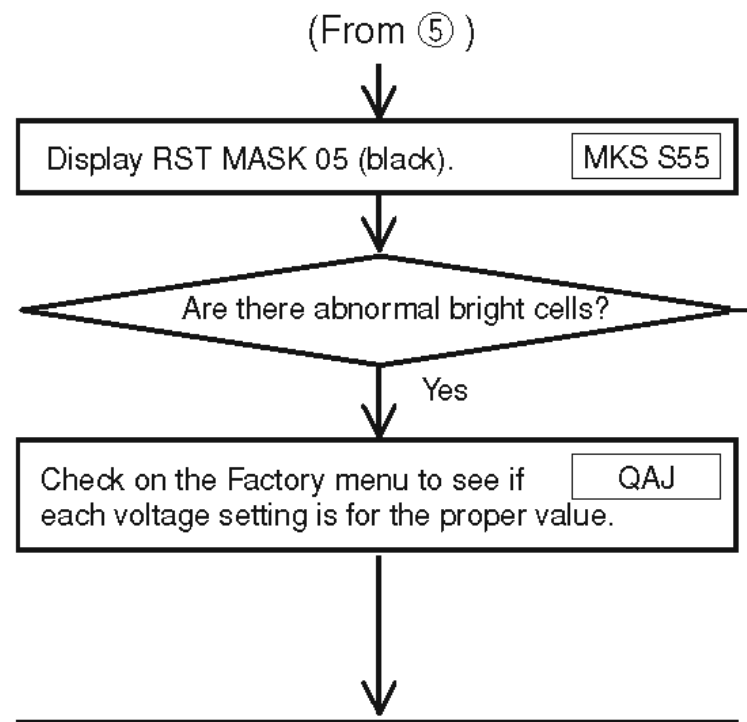


* Vofs= _____ [V] determined

Vofs margin = Vofs_max - Vofs_min

* Vofs Margin = _____ [V]

⑥ CA CHECK



Replace the panel again or abnormality in circuits

- If a PC is connected to the unit, issue the QAJ command to check each voltage.
  Example: Received data: QAJ**136113026*****128128128128128330F7

  The numbers after QAJ represent each voltage after adjustment, as follows:
  136: Vsus = 207 [V]
  113: Vofs = 32 [V]
  026: Vyprst = 250 [V]

Return to initial settings.

Check that no bright cells or dark cells.

■ Conversion charts for electronic VRs (Vyprst/Vofs)

Vyprst [V]	Setting value [STEP]
250	026
251	028
252	031
253	033
254	036
255	038
256	041
257	043
258	046
259	048
260	051
261	054
262	056
263	059
264	061
265	064
266	066
267	069
268	071
269	074
270	077
271	079
272	082
273	084
274	087
275	089
276	092
277	094
278	097
279	099
280	102
281	105
282	107
283	110
284	112
285	115
286	117
287	120
288	122
289	125
290	128
291	130
292	133
293	135
294	138
295	140
296	143
297	145
298	148
299	150
300	153

Vofs [V]	Setting value [STEP]
15	024
16	029
17	034
18	039
19	045
20	050
21	056
22	061
23	066
24	071
25	076
26	082
27	087
28	092
29	097
30	102
31	108
32	113
33	118
34	123
35	128
36	133
37	139
38	144
39	149
40	154
41	158
42	163
43	168
44	173
45	178
46	184
47	189
48	194
49	199
50	204
51	209
52	215
53	220
54	225
55	230
56	235
57	241
58	246
59	251
60	255

4.5 HOW TO CLEAR HISTORY DATA

■ Clearance of various logs after the Assys are replaced

Besides adjustment data, data on accumulated power-on time and logs on defective parts of the product are backed up. Some of those data must be cleared after the Assys are replaced for service.

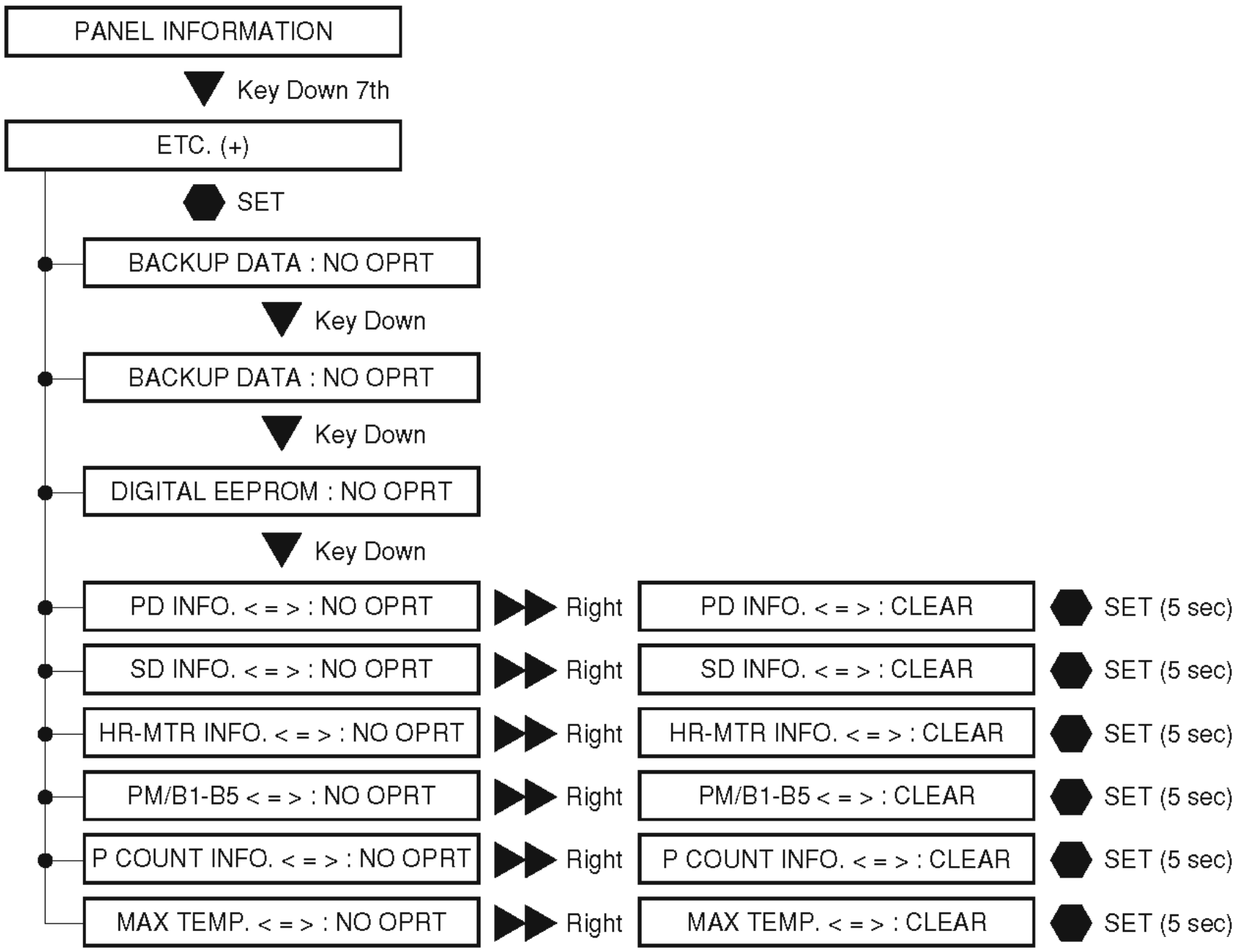
(1) Clearance of logs, using the RS-232C commands

Item	Content	When the Panel is replaced	When the POWER SUPPLY Unit is replaced	When the Other parts is replaced	RS-232C Commands
Hour-meter	Accumulated power-on time	Must be cleared	No need to be cleared	No need to be cleared	CHM
Pulse-meter	Accumulated number of pulses emitted	Must be cleared (mandatory)	No need to be cleared	No need to be cleared	CPM
Shutdown history	Cause of an SD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CSD
Power-down history	Cause of an PD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CPD
Power-on counter	Relay-on count	No need to be cleared	Must be cleared (mandatory)	No need to be cleared	CPC
MAX TEMP	Historical max. temperature	Must be cleared	Must be cleared	Must be cleared when 60 DIGITAL Assy or PANEL SENSOR Assy is replaced.	CMT

Notes:
- As the pulse-meter count is used for each correction function, it must be cleared when an Assy relevant to correction functions is replaced.
- When clearing logs, using the RS-232C commands, first enter Factory mode (by issuing FAY or PFY), then issue the corresponding command.

(2) Clearance of logs, using the Factory menu

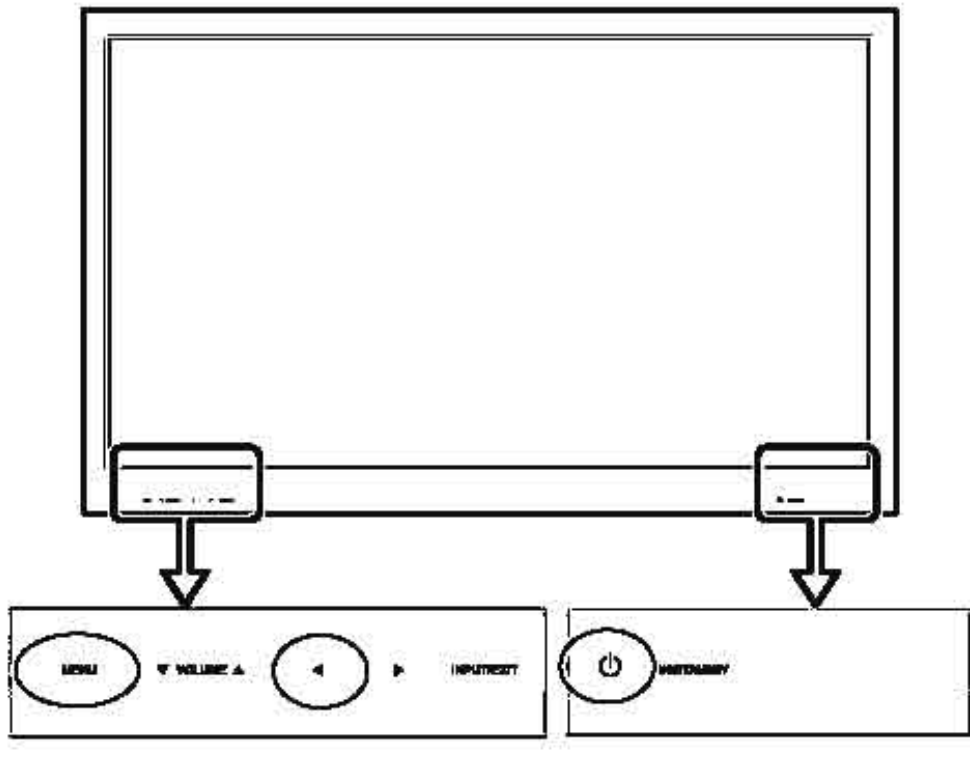
① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Delete various logs, as shown in the figure below.



③ Turn the power off.

4.6 HOW TO BACKUP EEPROM MEMORY (MAIN ASSY)

How to back up memory of the main microcomputer of the unit is described below.
Note that factory preset data (white balance, etc.) on the boards cannot be backed up.



1. System requirements

PC with Microsoft Windows 95/98/Me or NT/2000/XP and at least one serial port.
Cross (reverse) cable for connection between the PC and the PDP.

Note: Depending on the specifications of the PC's hardware, there may be some limitations, such as on the baud rate.

2. File configuration

MCUT22S_E.EXE	Utility (English version)
MCU_DATA.INI	MCU data file
MCU_01.INI	MCU information file

3. Installation procedures

Create a new folder and copy the following files to that folder.

- MCUT22S_E.EXE
- MCU_DATA.INI
- MCU_01.INI

4. Uninstalling procedures

Delete all the files copied during installation.
If the MCUT.INI file exists, delete that file, too. (You may delete the folder containing the above files.)

Note: MCUT.INI is a file automatically created during program execution.

5. Startup of the PDP display in Memory Data Updating mode

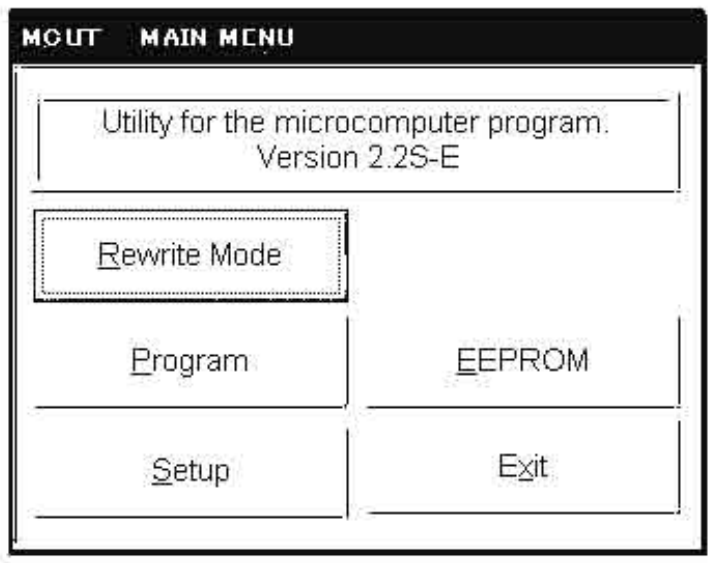
(1) Set the Main Power switch of the PDP display to OFF.
(2) While holding pressed the MENU and LEFT keys (located at the lower left of the front panel of the PDP display), press the POWER/STANDBY key to set it to ON. Continue holding the PROCEED and LEFT keys pressed for another 5 seconds.
(3) If the unit starts up after waiting 5 seconds, it will enter Memory Data Updating mode. Then release the keys.
(4) During startup, the LED of the unit lights in green, but neither the input OSD indication nor an image is displayed on the screen.
(5) If the unit starts immediately after Step 3, and if the input OSD indication and an image are displayed on the screen, the unit is not in Memory Data Updating mode. Retry the procedures from Step 1.

6. Setting of the Utility Software

• Screen

(1) Main Menu screen

The following screen is displayed when the unit enters Memory Data Updating mode.



① FLASH MEMORY button
Use of this button is limited to Factory Presetting and evaluation by engineers.

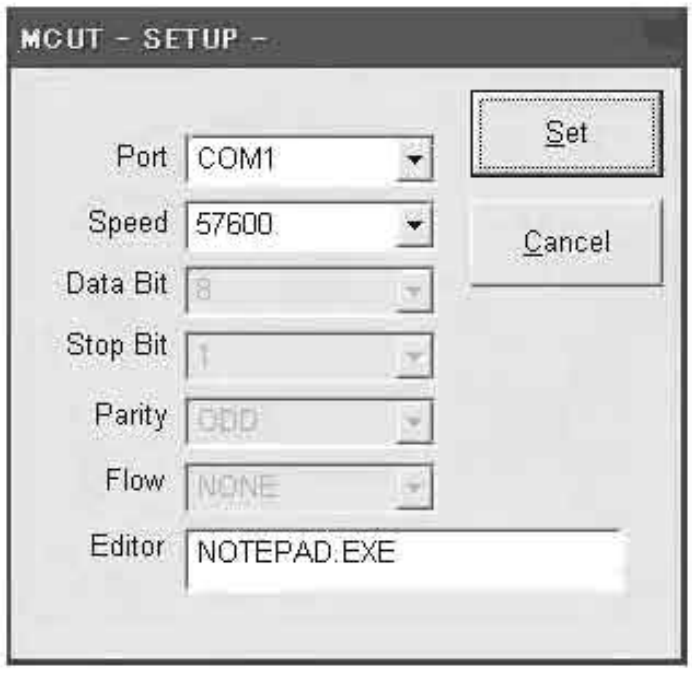
② EEPROM button
To proceed to the EEPROM Operation screen (3)

③ Set button
To proceed to the Setting screen (2)

④ Exit button
To exit from the utility program

(2) Setting screen

If you click on the Set button on the main menu screen, the following screen will be displayed:



① Port
To select the communication port (COM1-COM4)
Initial setting: COM1

② BAUD rate
To set the baud rate (9,600 bps, 38,400 bps, 57,600 bps)
Initial setting: 57,600

③ Data bit
Data-bit setting (not modifiable) (Fixed at 8)

④ Stop bit
Stop-bit setting (not modifiable) (Fixed at 1)

⑤ Parity
Parity setting (not modifiable) (Fixed at ODD)

⑥ Flow
Flow setting (not modifiable) (Fixed at NONE)

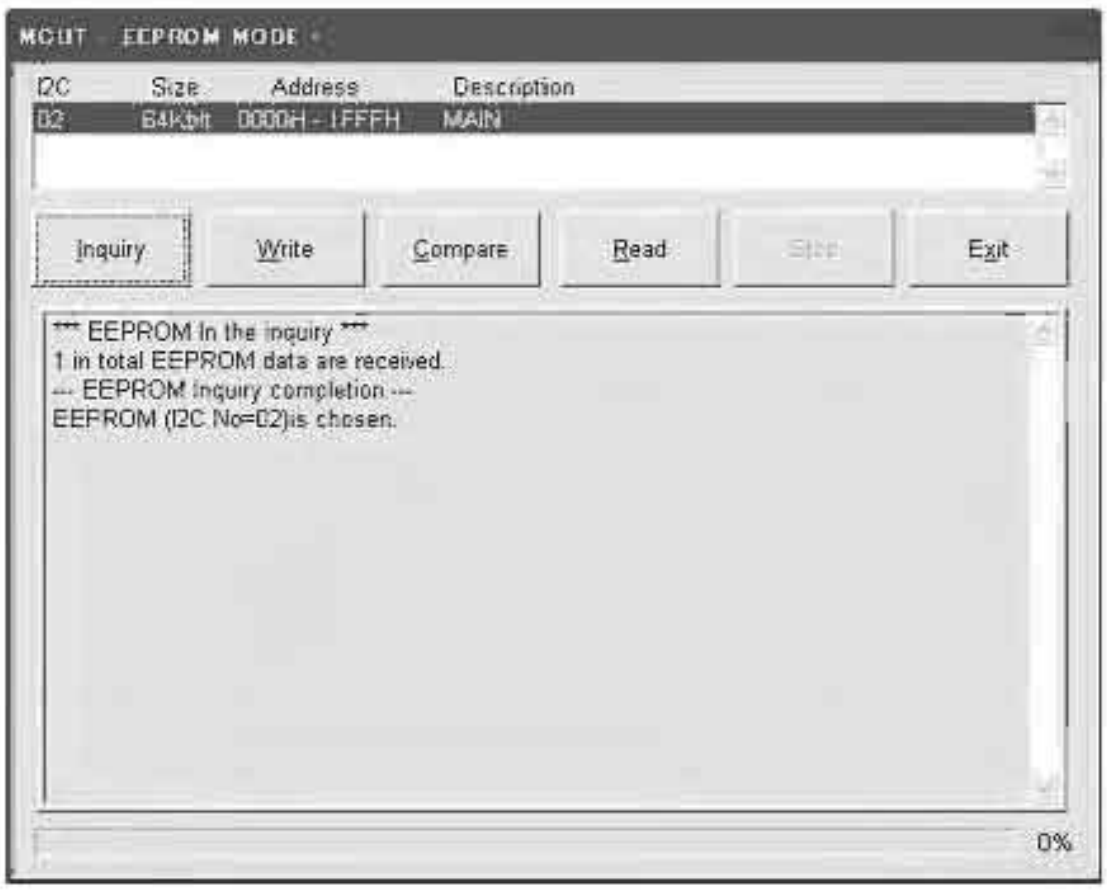
⑦ Editor
To assign the Text Editor. If there is no path, assign Full path.
Initial setting: NOTEPAD.EXE

⑧ Set button
To execute the renewed setting and return to the main menu screen (1)

⑨ Cancel button
To cancel a new setting and return to the main menu screen (1)

(4) EEPROM Operation screen

If you click on the EEPROM button on the main menu screen, the following screen will be displayed:



① List box
A list of the mounted EEPROMs is displayed.
If no EEPROM is selected on the list, writing, comparing, or reading will not be performed.
② EEPROM inquiry button
To issue an inquiry command for the mounted EEPROMs and have the results of the inquiry displayed on the list box ①
③ Write button
To read the data from a designated file and issue a write command
④ Compare button
To issue a command to acquire data in flash memory, compare the results and the data of the designated file, and output the result
⑤ Read button
To issue a command to acquire data in flash memory and output the result to the designated file
⑥ Stop button
To temporarily stop the process of writing, comparing, or reading
⑦ Close button
To return to the main menu screen (1)

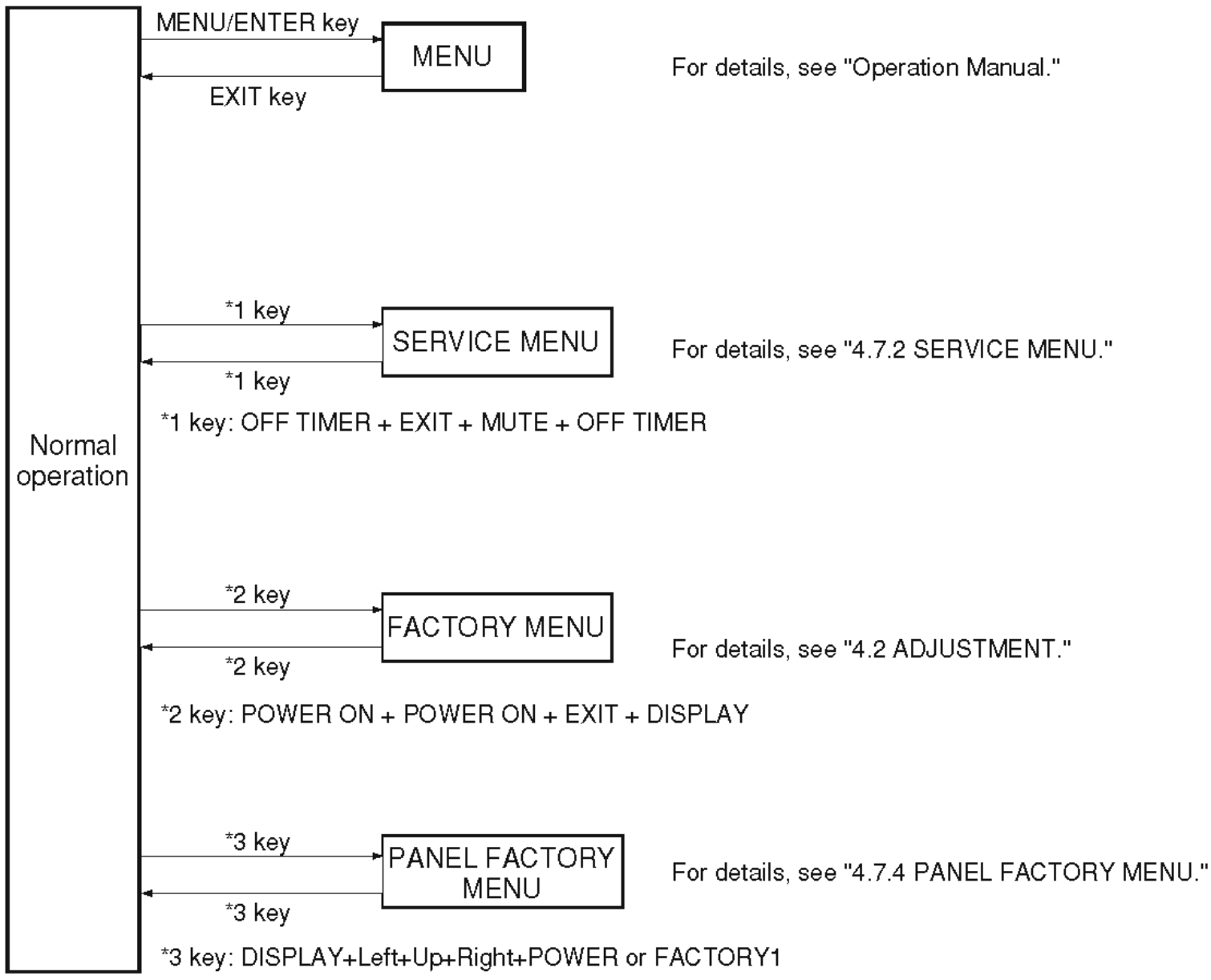
7. How to read (backup of the unit's memory data)

① If you click on the EEPROM button on the main menu screen, inquiry of EEPROMs will be automatically performed, and the addresses of the mounted EEPROMs will be displayed in the list box. Select the address of the desired EEPROM, using the mouse pointer.
② Click on the Read button. The Save as window will be displayed. Enter any filename and click on the Save button. (Filename extension of an EEPROM data file: eep)

8. How to write (writing in of backed up memory data)

① Click on the Write button. The Open window will be displayed. Select the backed up memory data file and click on the Open button. (Filename extension of an EEPROM data file: eep)
② Writing of the backed up memory data starts.

4.7 MENU INFORMATION
4.7.1 ALL MENUS



4.7.2 SERVICE MENU

1. How to Enter the Service Menu

A screen shifts to the Service Menu by the next key operation.

OFF TIMER + EXIT + MUTE + OFF TIMER

MENU/ENTER : The key which moves to a next page group

EXIT : The key which moves to a previous page group

Similarly, a screen ends the Service Menu by the next key operation.

OFF TIMER + EXIT + MUTE + OFF TIMER

2. Service Menu Screen

```
                    SERVICE MENU

SHIP          A     SCR-SPEED     1
PSC LIMIT     OFF   PIC-SIZE      ON
LIMIT-VD      OFF   AT-SMASK
LIMIT-PC      ON
L-BOOST       OFF
V-FREQ OT     60HZ
V-FREQ VD     60HZ
SYNCLEVEL1    TTL
SYNCLEVEL2    TTL
DVI-SEL       HDCP
SUB ORB       ON
PIC FREEZE    ON

   [MENU/ENTER] NEXT    [EXIT] PREV   1/2
```

Menu	Functions	Item	Default Setting	
SHIP (shipment mode)	Selects the place of shipment		A	
PSC-LIMIT (PLE output limit)	Unsupport.	OFF / 1- 255	OFF	OFF
LIMIT-VD (PLE output limit for video)	Unsupport.	ON/OFF	OFF	OFF
LIMIT-PC (PLE output limit for PC)	Unsupport.	ON/OFF	ON	ON
L-BOOST (Luminance boost)	Unsupport.	ON/OFF	OFF	OFF
V-FREQ OT (Vertical freq. for other)	The AUTO/60Hz change function of Vertical freq. (for other)	AUTO/60HZ	AUTO	60Hz
	60Hz mode -> convert to 60Hz			
V-FREQ VD (Vertical freq. for video)	The AUTO/60Hz change function of Vertical freq. (for video)	AUTO/60HZ	AUTO	60Hz
	60Hz mode -> convert to 60Hz			
SYNCLEVEL 1	Unsupport.	TTL/75	TTL	TTL
SYNCLEVEL 2	Unsupport.	TTL/75	TTL	TTL
DVI-SEL	This setup is for the engineer	HDCP/ORG	HDCP	HDCP
SUB ORB (Sub picture orbiter)	Set sub picture orbiter to off.	ON/OFF	ON	ON
PIC FREEZE	Picture freeze setting.	ON/OFF	ON	ON
SCR-SPEED (Screen wiper speed)	Screen wiper speed selection	1-5	1	1
PIC-SIZE (Picture size)	Picture size select.	ON/OFF	ON	ON
AT-SMASK (AUTO SIDE MASK)	Validate a auto side mask process.	ON/OFF	OFF	OFF

4.7.3 FACTORY MENU

Refer to the "4.2 ADJUSTMENT".

4.7.4 PANEL FACTORY MENU

■ How to Enter the Panel Factory Menu

Press the remote control unit in order of "MUTE", "DISPLAY", "EXIT", "DISPLAY" and "MUTE".

■ Operation Items

This is the menu screen for the adjustment of the panel. Data acquisition and value adjustment can be performed for the following items:

No.	Indication	Description of functions
4.7.4.1	PANEL INFORMATION	Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed.
4.7.4.2	PANEL WORKS	Operation data, such as accumulated pulse-meter count, accumulated hour-meter count, accumulated power-on count, and the temperature detected by the sensor, are displayed.
4.7.4.3	POWER DOWN	The power-down history is displayed, with the hour-meter values that indicate the hour values when power-downs occurred.
4.7.4.4	SHUT DOWN	The shutdown history is displayed, with the hour-meter values that indicate the hour values when shutdowns occurred.
4.7.4.5	PANEL-1 ADJ (+)	Settings of the driving pulse timing and driving voltage can be performed.
4.7.4.6	PANEL-2 ADJ (+)	White balance and ABL (power consumption) for the panel can be set.
4.7.4.7	PANEL REVISE (+)	The level for correction of panel degradation can be set.
4.7.4.8	ETC. (+)	Copying of backup data and clearance of various data can be performed.
4.7.4.9	RASTER MASK SETUP (+)	The mask indication (RASTER) can be set and indicated.
4.7.4.10	PATTEN MASK SETUP (+)	The mask indication (PATTERN) can be set and indicated.
4.7.4.11	COMBI MASK SETUP (+)	The mask indication (COMBI) can be set and indicated.

■ OPERATION ITEMS FOR THE PANEL FACTORY MENU

The PANEL FACT. menu consists of the items below. Some items have lower nested layers.

No.	Uppermost Layer Item / Lower Nested Layer Item	Variable/adjustable Range	Remarks
1	**PANEL INFORMATION**		
2	**PANEL WORKS**		
3	**POWER DOWN**		
4	**SHUT DOWN**		
5	**PANEL-1 ADJ (+)**		
5-1	X-SUS B <=>	120 to 136	Equivalent to XSB
5-2	Y-SUS B <=>	120 to 136	Equivalent to YSB
5-3	Y-SUSTAIL T1 <=>	120 to 136	Equivalent to YTG
5-4	Y-SUSTAIL T2 <=>	120 to 136	Equivalent to YTB
5-5	Y-SUSTAIL W <=>	120 to 136	Equivalent to YTW
5-6	XY-RST W1 <=>	120 to 136	Equivalent to RSW
5-7	XY-RST W2 <=>	120 to 136	Equivalent to RYW
5-8	VOL SUS <=>	000 to 255	Equivalent to VSU
5-9	VOL OFFSET <=>	000 to 255	Equivalent to VOF
5-10	VOL RST P <=>	000 to 255	Equivalent to VRP
5-11	SUS FREQ. <=>	MODE1 to MODE8	Equivalent to SFR
6	**PANEL-2 ADJ (+)**		
6-1	R-HIGH <=>	000 to 511	Equivalent to PRH
6-2	G-HIGH <=>	000 to 511	Equivalent to PGH
6-3	B-HIGH <=>	000 to 511	Equivalent to PBH
6-4	R-LOW <=>	000 to 999	Equivalent to PRL
6-5	G-LOW <=>	000 to 999	Equivalent to PGL
6-6	B-LOW <=>	000 to 999	Equivalent to PBL
6-7	ABL <=>	000 to 255	Equivalent to ABL
7	**PANEL REVISE (+)**		
7-1	R-LEVEL <=>	LV-0 to LV-7	Equivalent to RRL
7-2	G-LEVEL <=>	LV-0 to LV-7	Equivalent to RGL
7-3	B-LEVEL <=>	LV-0 to LV-7	Equivalent to RBL
8	**ETC (+)**		
8-1	BACKUP DATA <=>	NO OPRT <=> TRANSFER or ERR	Equivalent to BCP
8-2	DIGITAL EEPROM <=>	NO OPRT <=> DELETE/REPAIR	Equivalent to FAJ/UAJ
8-3	PD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPD
8-4	SD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CSD
8-5	HR-MTR INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CHM
8-6	PM/B1-B5 <=>	NO OPRT <=> CLEAR	Equivalent to CPM
8-7	P-COUNT INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPC
8-8	MAX TEMP. <=>	NO OPRT <=> CLEAR	Equivalent to CMT
9	**RASTER MASK SETUP (+)**		
9-1	MASK OFF	<=>48V<=>50V<=>60V<=>60P<=>70P<=>72V<=>75V<=>	Equivalent to MKS+S00
9-2	RST MASK 01 <=>		Equivalent to MKS+S51
• • •	• • •		• • •
9-25	RST MASK 24 <=>		Equivalent to MKS+S74
10	**PATTERN MASK SETUP (+)**		
10-1	MSK OFF	<=>48V<=>50V<=>60V<=>60P<=>70P<=>72V<=>75V<=>	Equivalent to MKS+S00
10-2	PTN MASK 01 <=>		Equivalent to MKS+S01
• • •	• • •		• • •
10-40	PTN MASK 39 <=>		Equivalent to MKS+S39
11	**COMBI MASK SETUP (+)**		
11-1	MSK OFF	<=>48V<=>50V<=>60V<=>60P<=>70P<=>72V<=>75V<=>	Equivalent to MKC+S00
11-2	CMB MASK 01 <=>		Equivalent to MKC+S01
• • •	• • •		• • •
11-11	CMB MASK 10 <=>		Equivalent to MKC+S10

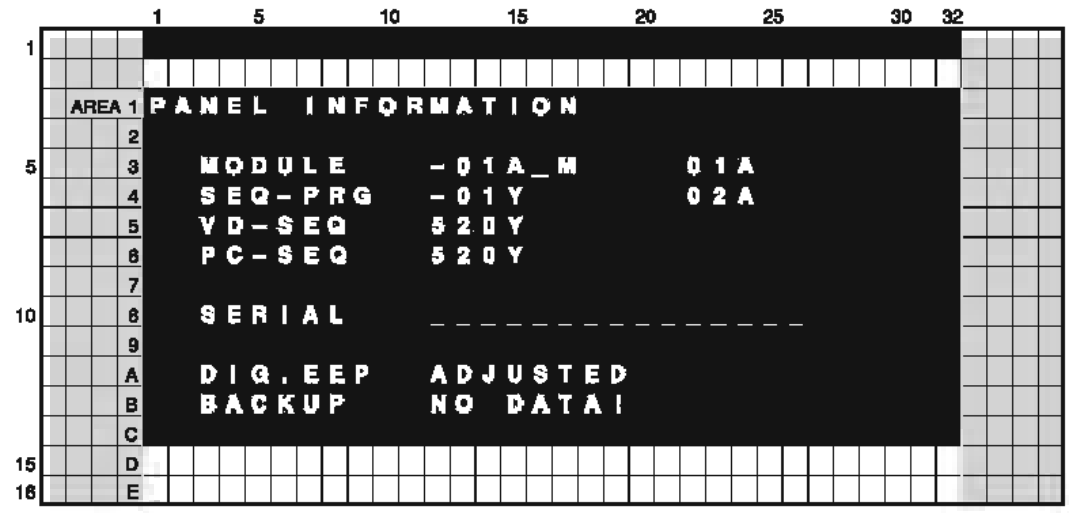
Note: Use only the menus for adjustments that are indicated in the red frame. Never use the other menus.

■ **Details of indications in each layer**

• In the following examples, GUI images for a 50-inch model are indicated.

4.7.4.1 PANEL INFORMATION

• Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed. No other layers are nested below this layer, and there are no adjustment items.



■ **Key operation**

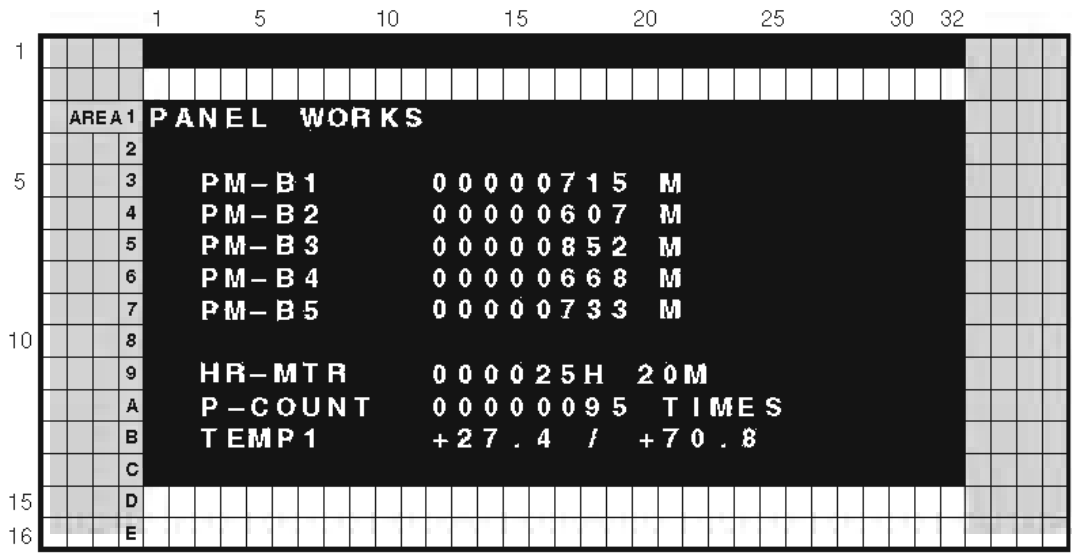
<DOWN> : Shifting to PANEL WORKS
<UP> : Shifting to COMBI MASK SETUP (+)
<L/R> : Updating displayed information

■ **Display items:**

MODULE : The version of data written in the Module microcomputer (IC3151) is indicated.
SEQ-PRG : The version of data written in the Sequence Program Storage Memory (IC3301) is indicated.
VD-SEQ : The Drive Sequence version for Video mode is indicated.
PC-SEQ : The Drive Sequence version for PC mode is indicated.
SERIAL : The serial number of the module is indicated.
DIG.EEP : The adjusted status of the EEPROM that is mounted on the DIGITAL Assy is indicated.
BACKUP : The adjusted status of the EEPROM for backup that is mounted on the SENSOR Assy is indicated.

4.7.4.2 PANEL WORKS

• Data on operations, such as the accumulated pulse-meter counts, hour-meter count, power-on count, and temperature detected by the sensor, are sent back. No other layers are nested below this layer, and there are no adjustment items.



■ **Key operation**

<DOWN> : Shifting to POWER DOWN
<UP> : Shifting to PANEL INFORMATION
<L/R> : Updating displayed information

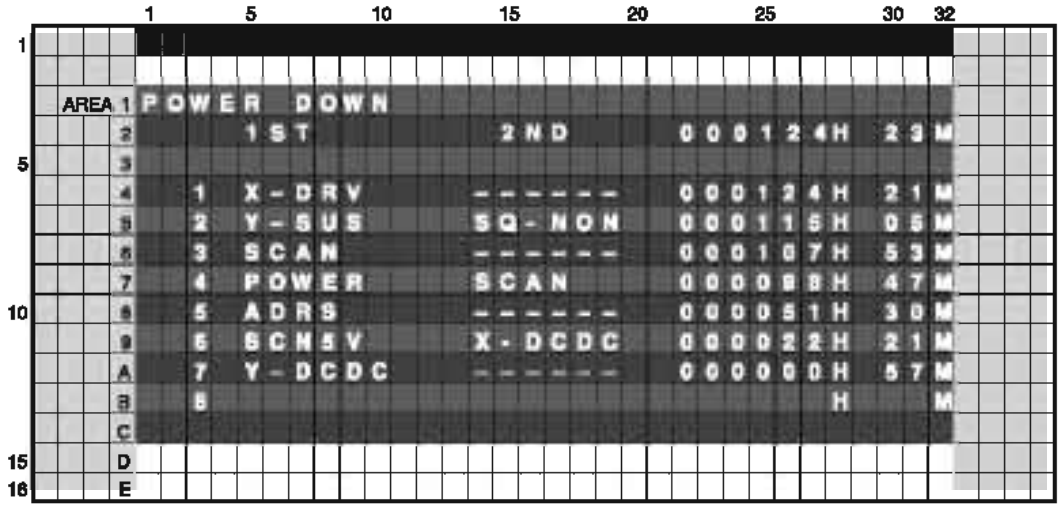
← Temperature unit is " °C (Centigrade) ".

■ **Contents of the Display item**

• PM-B1 to B5: The accumulated pulse-meter counts for the 5 blocks on the screen are indicated. (the lowest-order digit represents millions of pulses.)
• HR-MTR: The hour-meter value (accumulated power-on hours) is indicated.
• P-COUNT: The accumulated power-on count is indicated.
• TEMP1: The current panel temperature and the historical maximum temperature recorded in memory are indicated.
The range of temperature indication is from -50.0 to +99.9. (The temperature unit is " °C (Centigrade) ".)

4.7.4.3 POWER DOWN

- The power-down history is displayed. The last most 8 power-down histories are displayed with the hour-meter values that indicate the hours when power-downs occurred. No other layers are nested below this layer, and there are no adjustment items.



■ **Key operation**

<DOWN> : Shifting to SHUT DOWN
<UP> : Shifting to PANEL WORKS
<L/R> : Updating displayed information

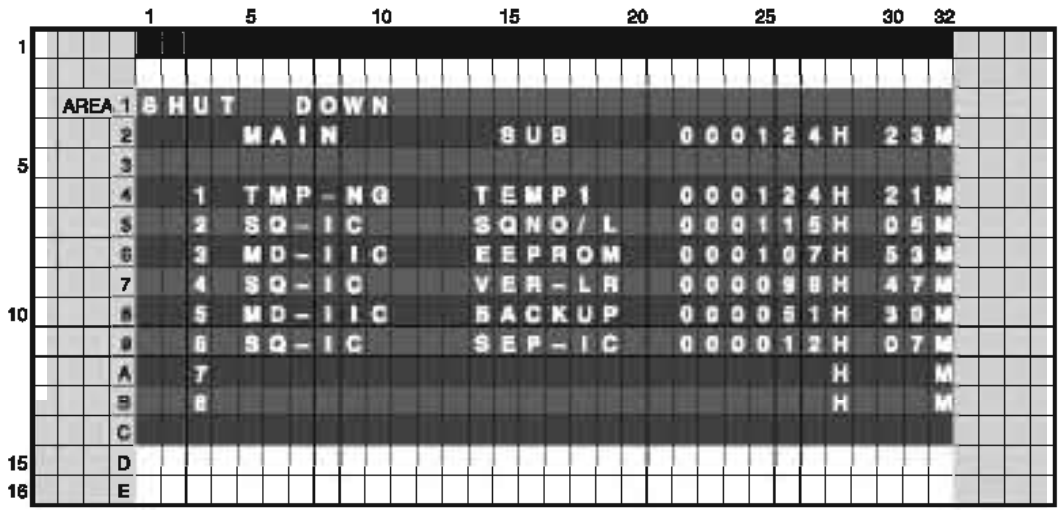
<Causes of power-down and corresponding OSD indications>

Cause of power-down	OSD Indication	Cause of power-down	OSD Indication
POWER SUPPLY Unit	P-PWR	ADDRESS Assy	ADRS
SCAN Assy	SCAN	X DRIVE Assy	XDRV
5V power for SCAN Assy	SCAN5V	DC/DC converter for X drive	X-DCDC
Y DRIVE Assy	YDRV	X-drive SUS circuit	X-SUS
DC/DC converter for Y drive	Y-DCDC	Specification inability	UNKNOWN
Y-drive SUS circuit	Y-SUS		

* When power-down is confirmed, the factor is displayed as "1st", "2nd", according to the accuracy order.
* The power-down history is not recorded when the power-down occurred at the same place and same time.

4.7.4.4 SHUT DOWN

- The shutdown history is displayed. The last most 8 shutdown histories are displayed with the hour-meter values that indicate the hours when shutdowns occurred. No other layers are nested below this layer, and there are no adjustment items.



■ **Key operation**

<DOWN> : Shifting to PANEL-1 ADJ (+)
<UP> : Shifting to POWER DOWN
<L/R> : Updating displayed information

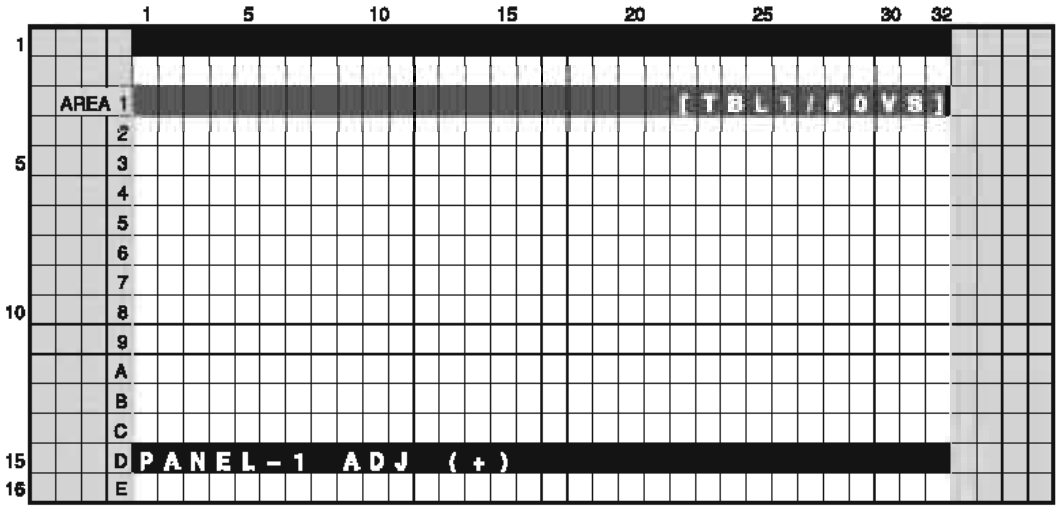
* When there is detail information when shutdown occurred, the possible defective part is displayed as Sub information.

<Causes of shut-down and corresponding OSD indications>

Cause of shut-down (MAIN)		Subcategory of Cause of shut-down (SUB)	
Item	**OSD Indication**	**Item**	**OSD Indication**
Drive Sequence Processing IC	SQ-IC	Communication Error	RTRY
		Drive Sequence Stop	SQNO
		Communication Busy	BUSY
		Version Mismatching	VER-HS
MDU-IIC	MD-IIC	MAIN EEPROM Communication Error	EEPROM
		BACKUP EEPROM Communication Error	BACKUP
		DAC Communication Error	DAC
High temperature of the panel	TMP-NG	Temperature NG	TEMP

4.7.4.5 PANEL-1 ADJ (+)

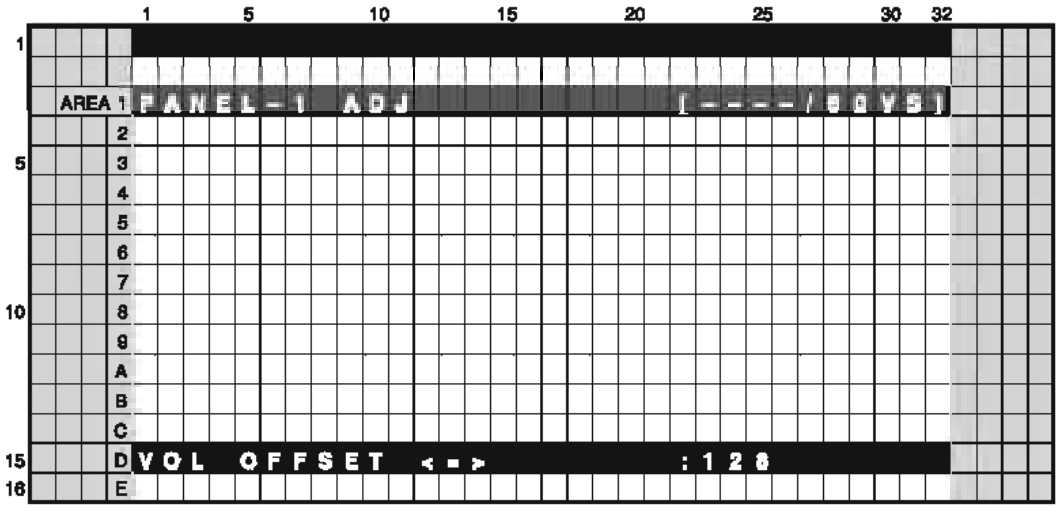
- Timing and voltage for the driving pulse are set. At third line of the screen, the WB (White Balance) table and frequency table indicating operation status are displayed, and at fifteenth line of the screen, the item for the upper nested layer (PANEL-1 ADJ [+]) is displayed. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to PANEL-2 ADJ (+)
<UP> : Shifting to SHUT DOWN
<MENU/ENTER>
: Shifting to the next nested layer

- When the screen is shifted to the next nested layer below, the item of the layer above is indicated at third line of the screen, and the item of the layer below is indicated at fifteenth line.
- The configuration of the menu screen is the same for any adjustment item that has lower layers.



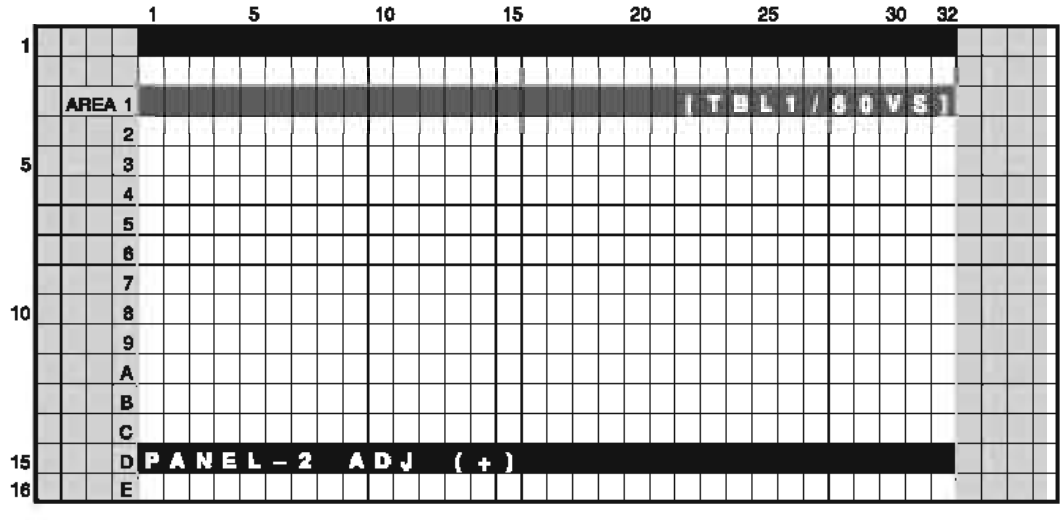
■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/ setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<MENU/ENTER>
: Determining the adjustment/setting value and shifting to the upper layer

Note: This menu is used for panel replacement.

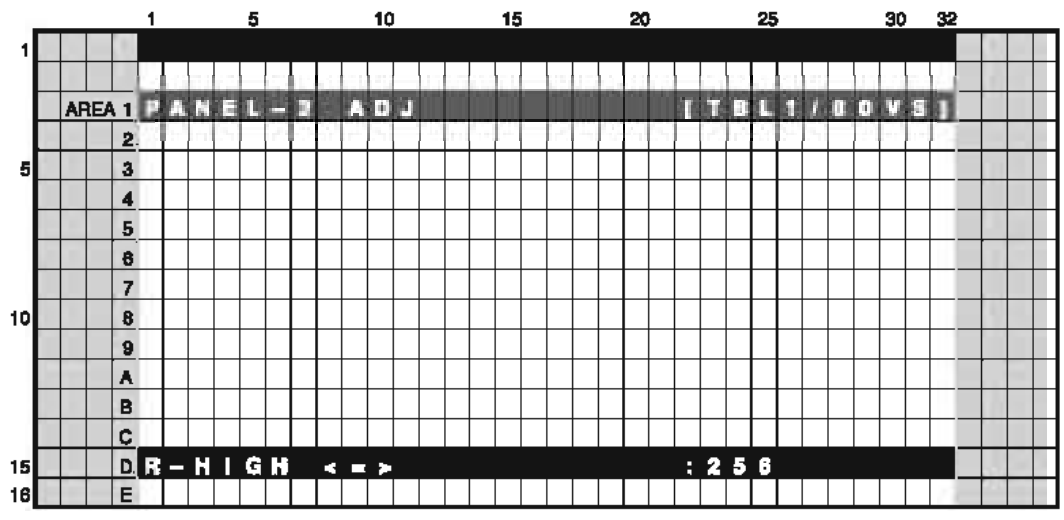
4.7.4.6 PANEL-2 ADJ (+)

- White balance can be adjusted by adjusting R, G, and B gain. Pressing the MENU/ENTER key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to PANEL REVISE (+)
<UP> : Shifting to PANEL-1 ADJ (+)
<MENU/ENTER>
: Shifting to the next nested layer



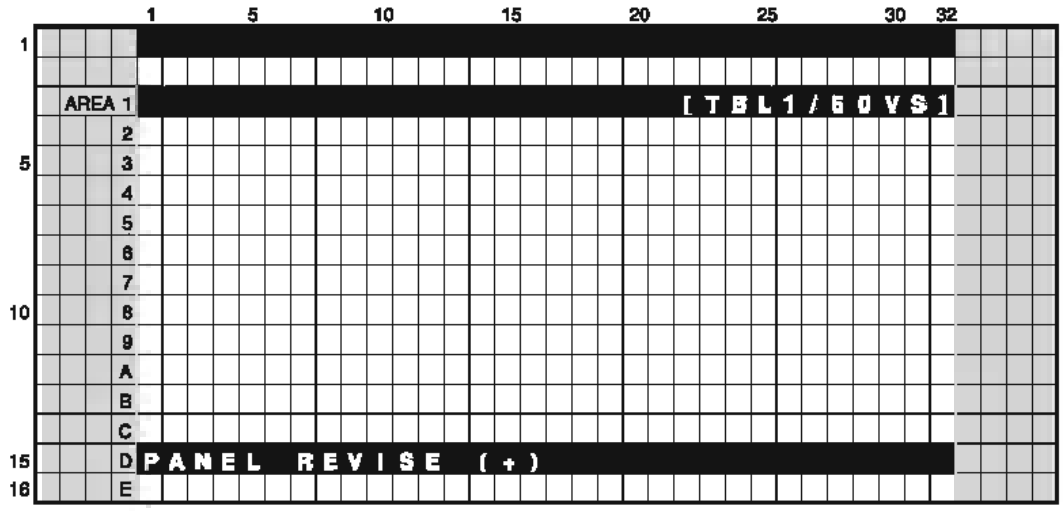
■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/ setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<MENU/ENTER>
: Determining the adjustment/setting value and shifting to the upper layer

Note: Never modify settings in this menu.

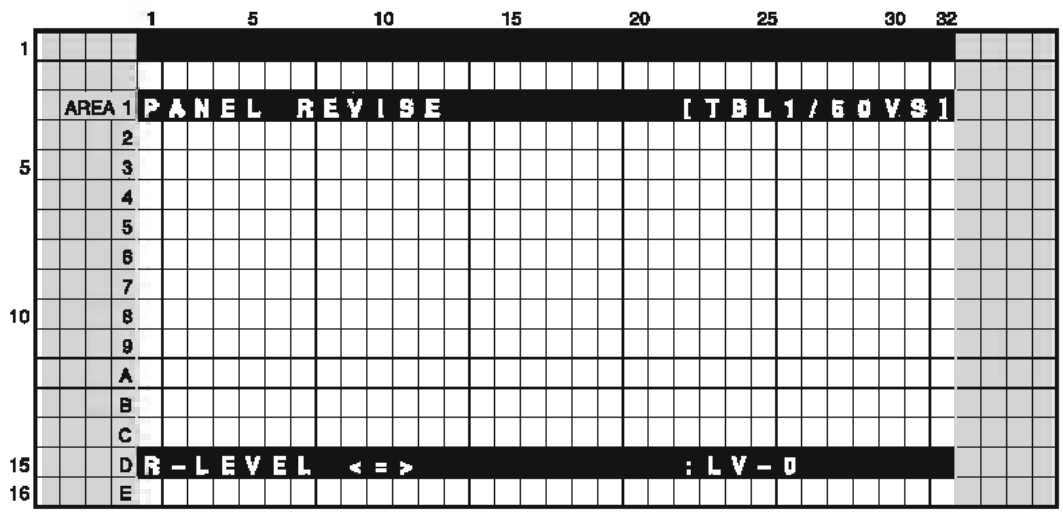
4.7.4.7 PANEL REVISE (+)

- A setting for panel degradation correction can be made. Pressing the MENU/ENTER key shifts the screen to the next nested layer below for item selection.



■ **Key operation**

<DOWN> : Shifting to ETC.(+)
<UP> : Shifting to PANEL-2 ADJ (+)
<MENU/ENTER>
: Shifting to the next nested layer



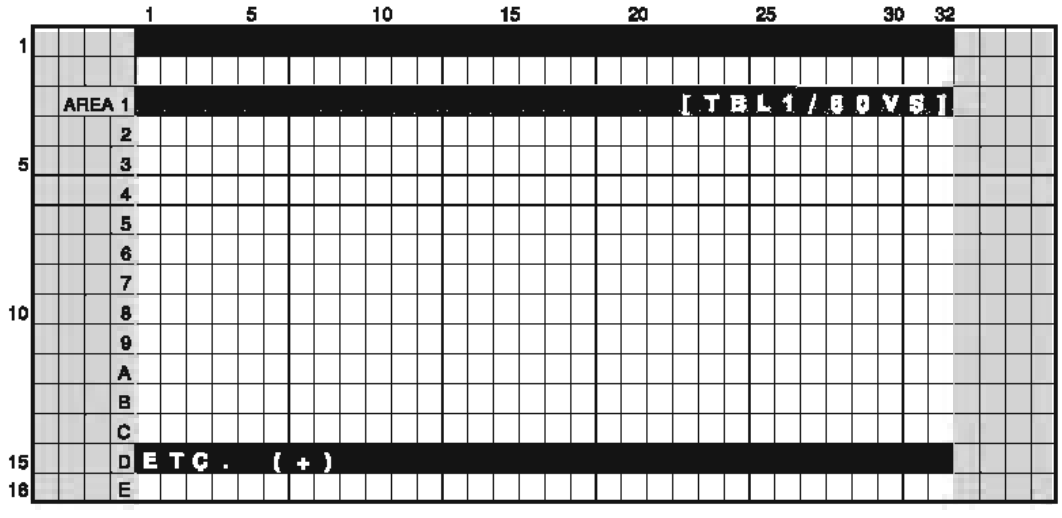
■ **Key operation**

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/ setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<MENU/ENTER>
: Determining the adjustment/setting value and shifting to the upper layer

Note: Never modify settings in this menu.

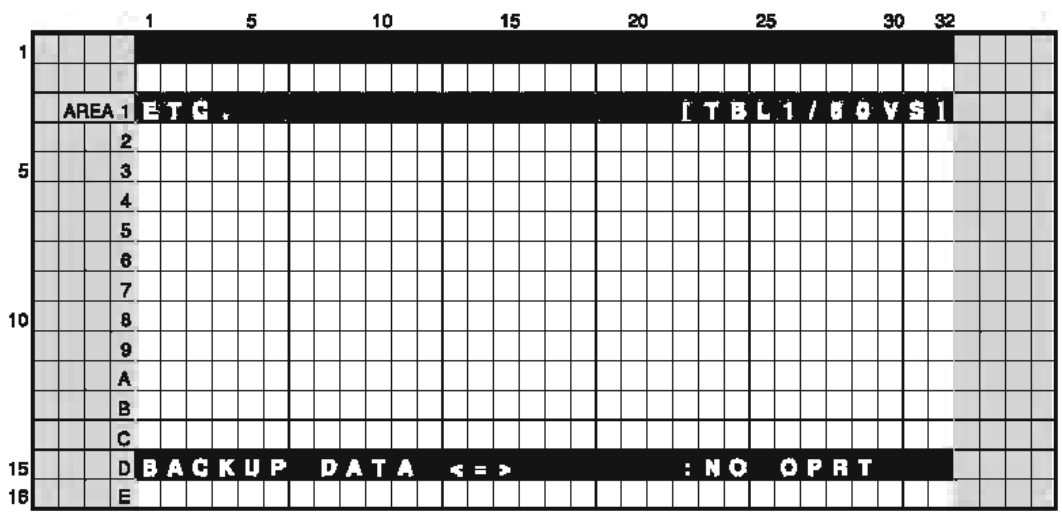
4.7.4.8 ETC. (+)

- The setting about the backup of panel adjusting value and various data on panel operational information can be cleared. Pressing the MENU/ENTER key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to RASTER MASK SETUP (+)
<UP> : Shifting to PANEL REVISE (+)
<MENU/ENTER>
: Shifting to the next nested layer



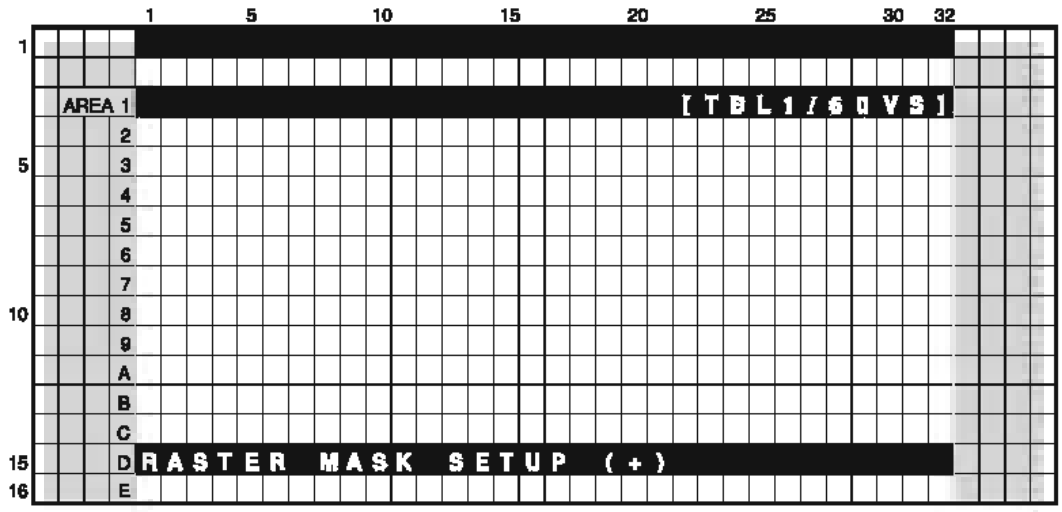
■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/ setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<MENU/ENTER>
: Determining the adjustment/setting value and shifting to the upper layer

Note: This menu is used for panel replacement.

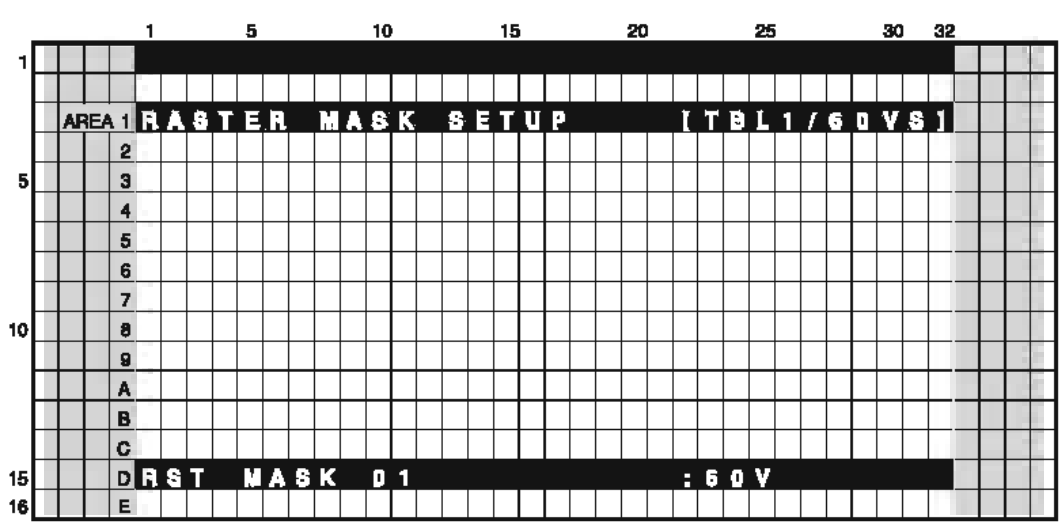
4.7.4.9 RASTER MASK SETUP (+)

- This menu set the RASTER MASK and the drive sequence at RASTER MASK state. Pressing the MENU/ENTER key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to PATTEN MASK SETUP (+)
<UP> : Shifting to ETC. (+)
<MENU/ENTER>
: Shifting to the next nested layer



■ Key operation

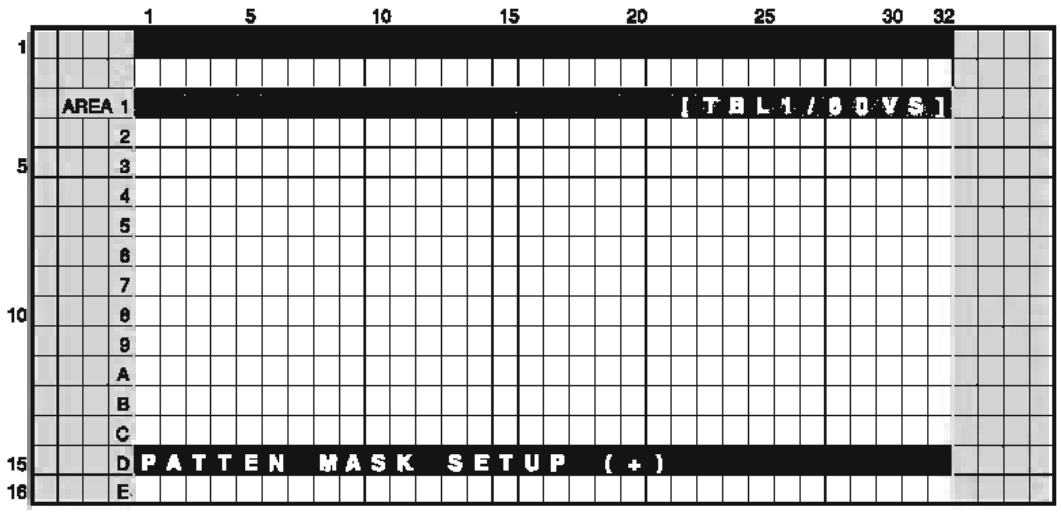
<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<MENU/ENTER>
: Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

Note: This menu is used for panel replacement.

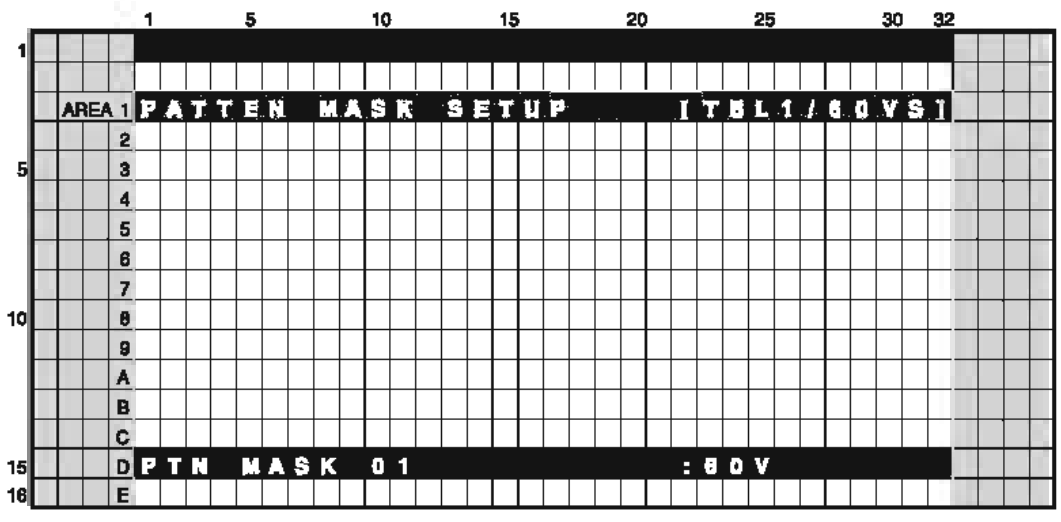
4.7.4.10 PATTEN MASK SETUP (+)

• This menu set the PATTEN MASK and the drive sequence at PATTEN MASK state.



■ Key operation

<DOWN> : Shifting to COMBI MASK SETUP (+)
<UP> : Shifting to RASTER MASK SETUP (+)
<MENU/ENTER>
: Shifting to the next nested layer



■ Key operation

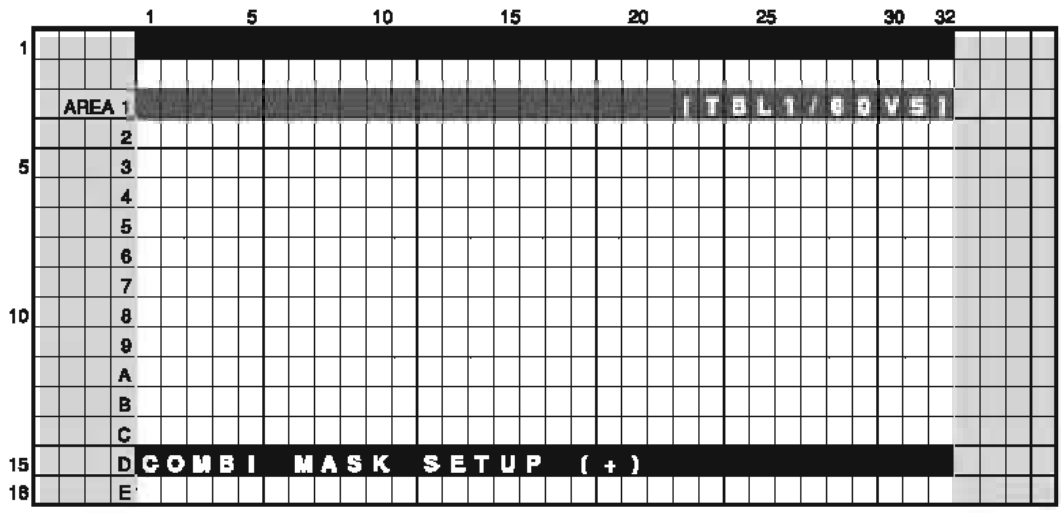
<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<MENU/ENTER>
: Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

Note: Never modify settings in this menu.

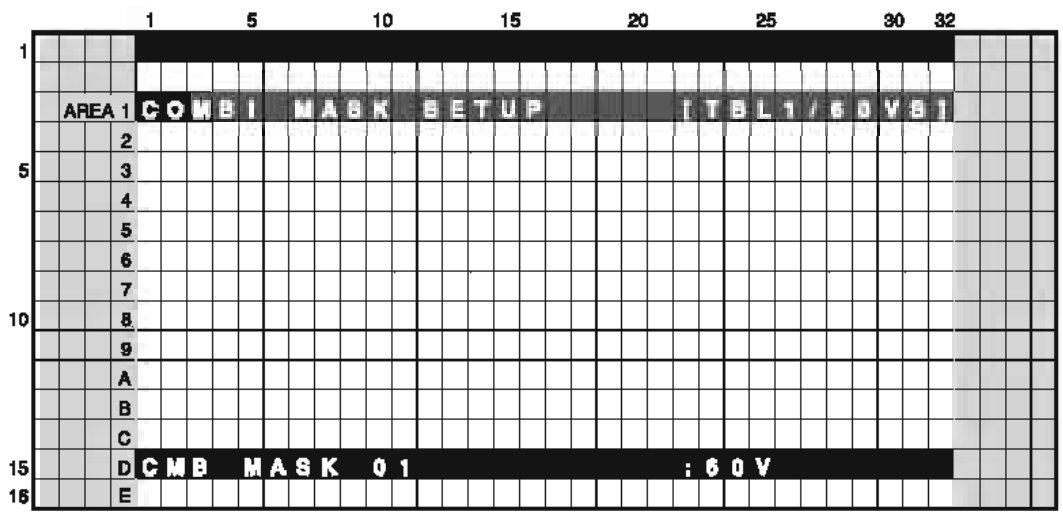
4.7.4.11 COMBI MASK SETUP (+)

• This menu set the COMBI MASK and the drive sequence at COMBI MASK state.



■ **Key operation**

<DOWN> : Shifting to PANEL INFORMATION
<UP> : Shifting to PATTEN MASK SETUP (+)
<MENU/ENTER>
: Shifting to the next nested layer



■ **Key operation**

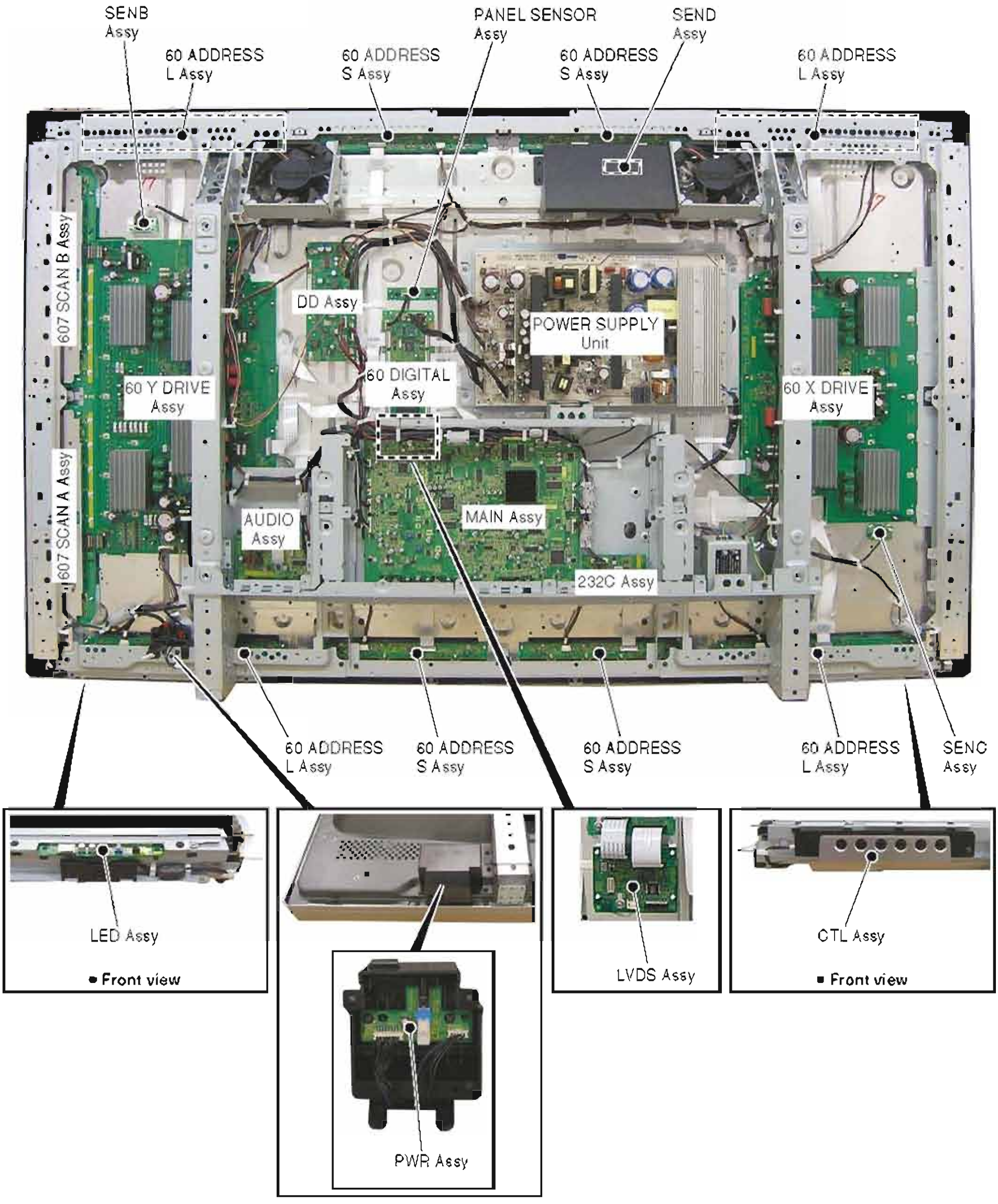
<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<MENU/ENTER>
: Determining the adjustment/setting value and shifting to the upper layer

• The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
• 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

Note: Never modify settings in this menu.

5. DISASSEMBLY

5.1 PCB LOCATION

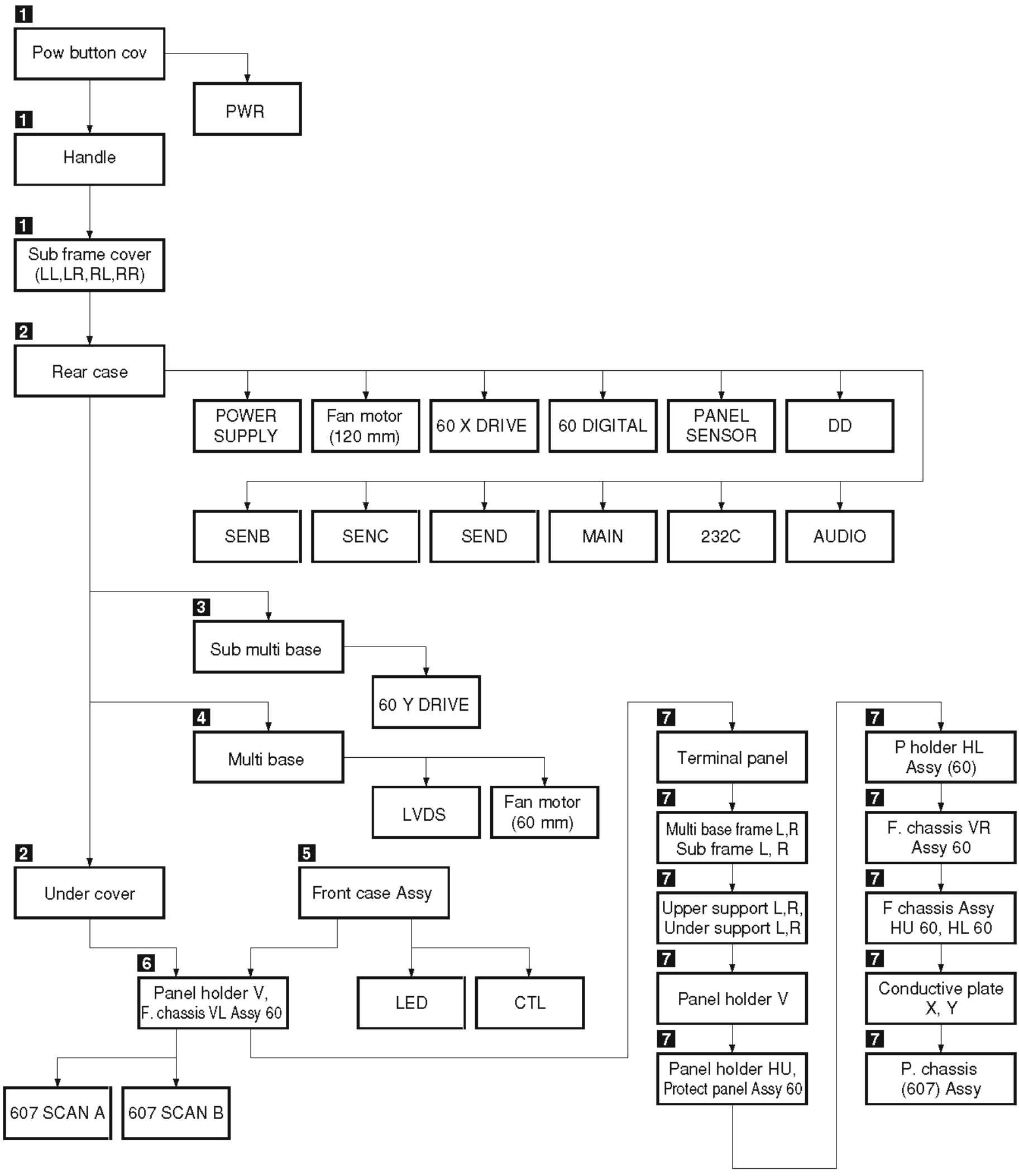


5.2 DISASSEMBLY

(Caution)
1. To avoid electrical shock, before disassembling the unit, turn it off, unplug the AC power cord, then wait for about 10 minutes.
2. Use a screwdriver with a fitting size. Otherwise, the screw threads may be damaged.
3. Reassembly can be carried out in the reverse order for disassembly.

Chart of removal order for the main parts and boards

It is efficient to proceed with removal of the main parts and boards in the order shown in the chart below:



Clampers and Screws

Clampers

PCB spacer (AEC1372)

Wire saddle (AEC1745)

Wire saddle (AEC1751)

Wire saddle (AEC1797)

Mini clamp (AEC1805)

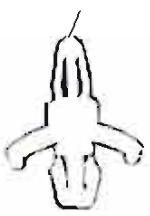
PCB spacer (AEC1819)

Flat clamp (AEC1879)

PCB support (AEC1938)

PCB spacer (AEC1941)

PCB spacer (AEC1944)



PCB spacer (AEC1947)

Wire clip (AEC1948)

PCB support (AEC1958)

Mini clamp (AEC1967)

HL28 (AEC1982)

Omega lock (AEC2084)

Reuse wire saddle (AEC2091)

Omega lock (AEC2108)

Mini card spacer (AEC2113)

Screws

ABA1341

ABA1351

ABA1363

ABA1364

ABA1366

ABZ30P080FTC

AMZ30P060FTB

AMZ40P080FTB

APZ30P080FTB

APZ30P100FTB

APZ30P120FTB

APZ40P100FTB

BBA1051

BMP40P080FBN

BMZ30P060FTB

BPZ30P080FTB

PMB30P080FTB

PMB30P100FTB

PMB40P120FTB

TBZ40P080FTB

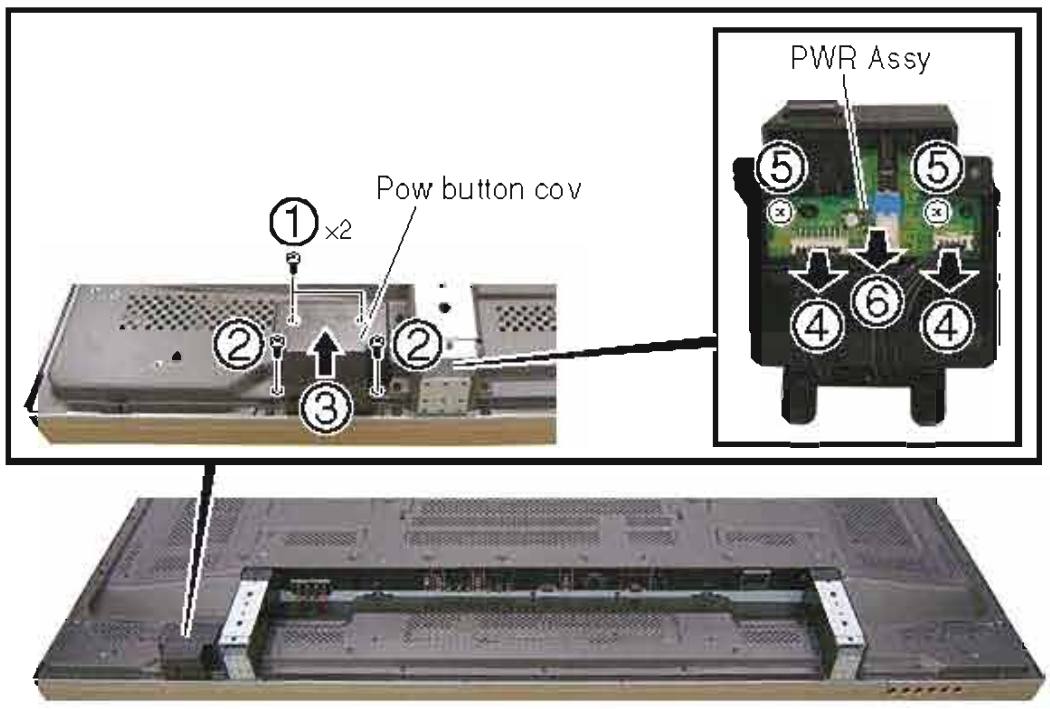
1 Pow Button Cov, Sub Frame Cover

● Pow button cov

① Remove the two screws
② Remove the two screws
③ Remove the pow button cov

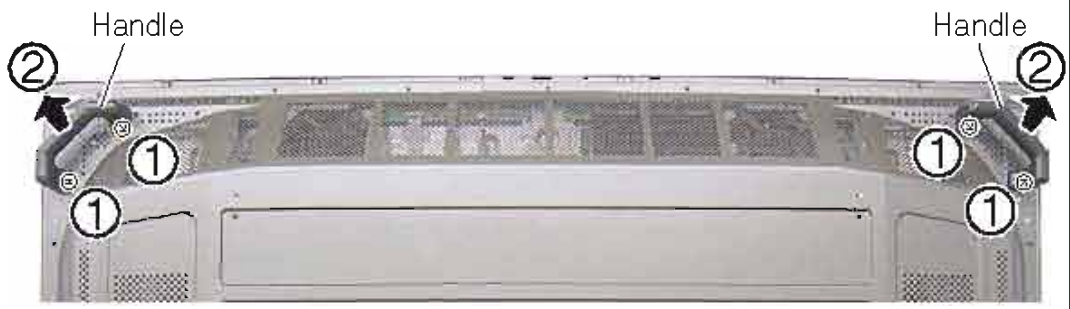
PWR Assy

④ Disconnect the two connectors
⑤ Remove the two screws
⑥ Remove the PWR Assy



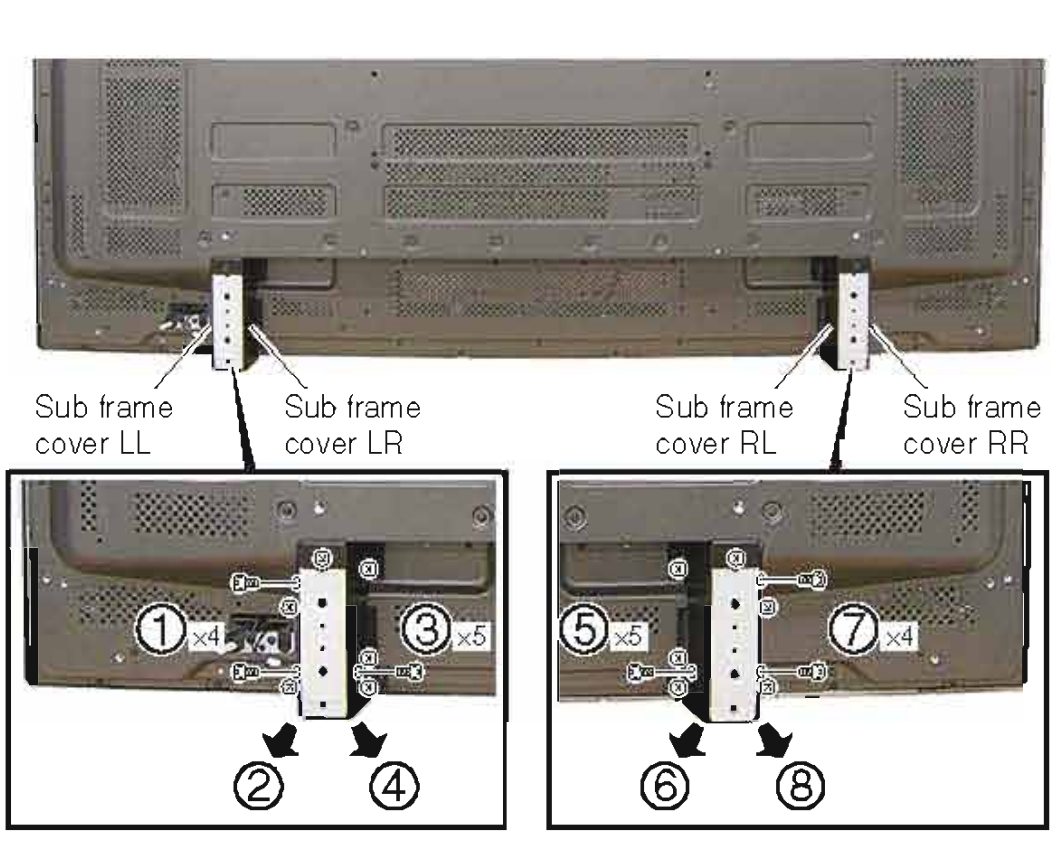
● Handle

① Remove the four screws
② Remove the two handles



● Sub frame cover

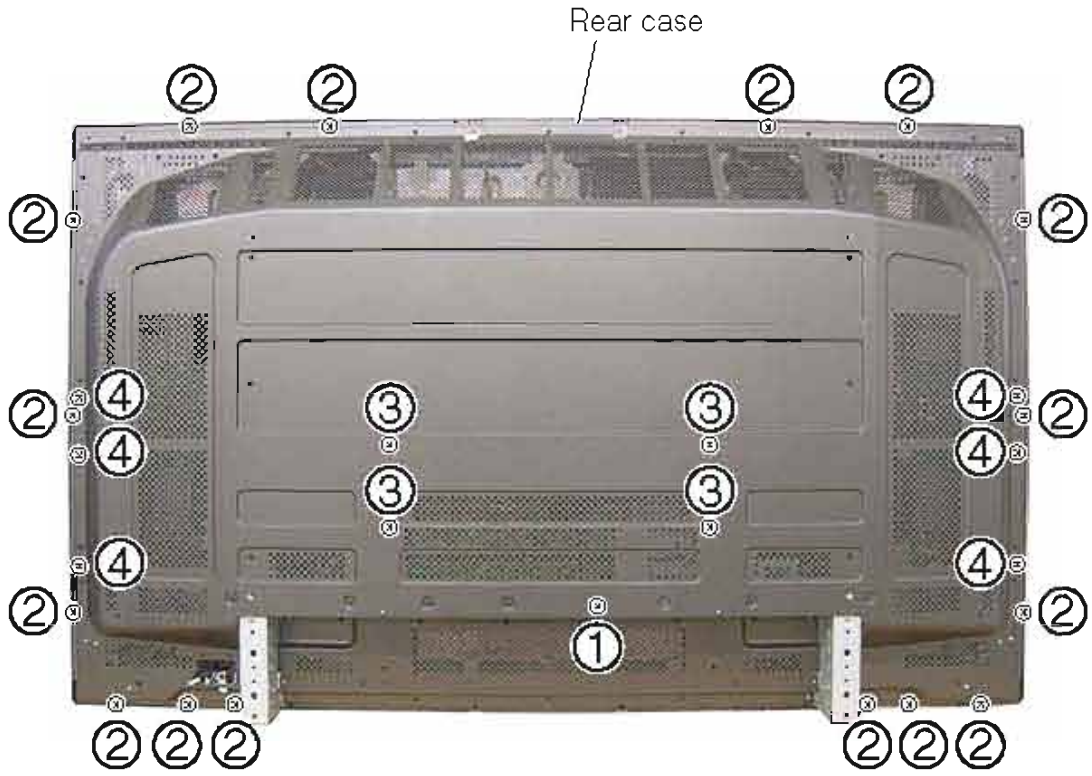
① Remove the four screws
② Remove the sub frame cover LL
③ Remove the five screws
④ Remove the sub frame cover LR
⑤ Remove the five screws
⑥ Remove the sub frame cover RL
⑦ Remove the four screws
⑧ Remove the sub frame cover RR



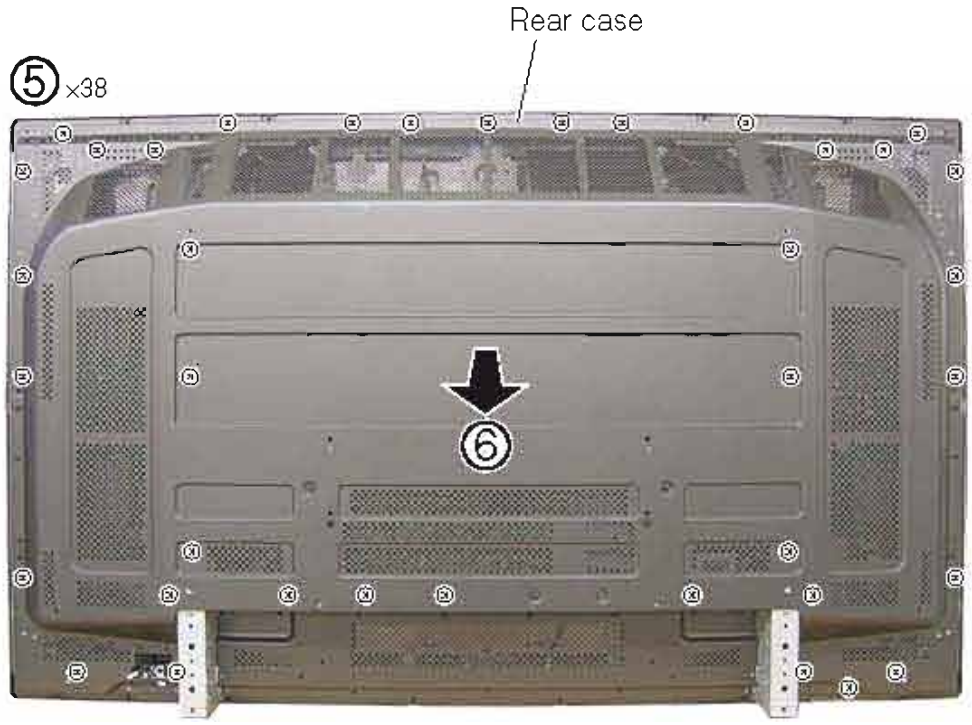
2 Rear Case, Under Cover

● Rear case

① Remove the one screw (ABA1341)
② Remove the 16 screws (APZ30P120FTB)
③ Remove the four screws (AMZ40P080FTB)
④ Remove the six screws (APZ40P100FTB)

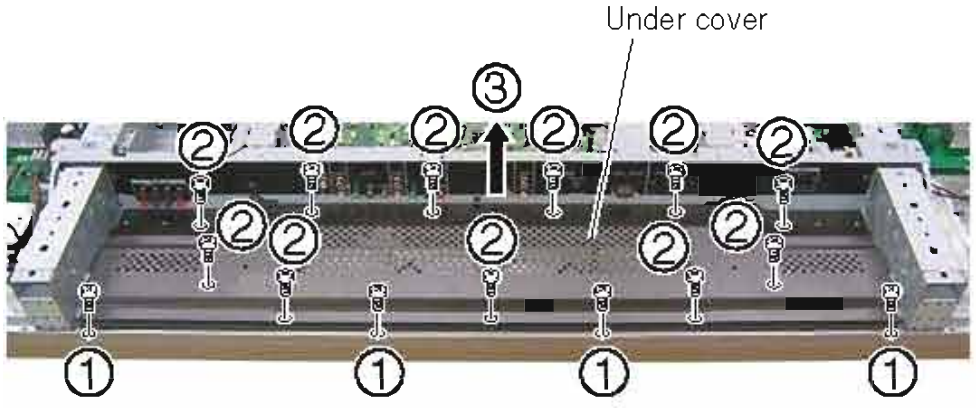


⑤ Remove the 38 screws (AMZ30P060FTB)
⑥ Remove the rear case



● Under cover

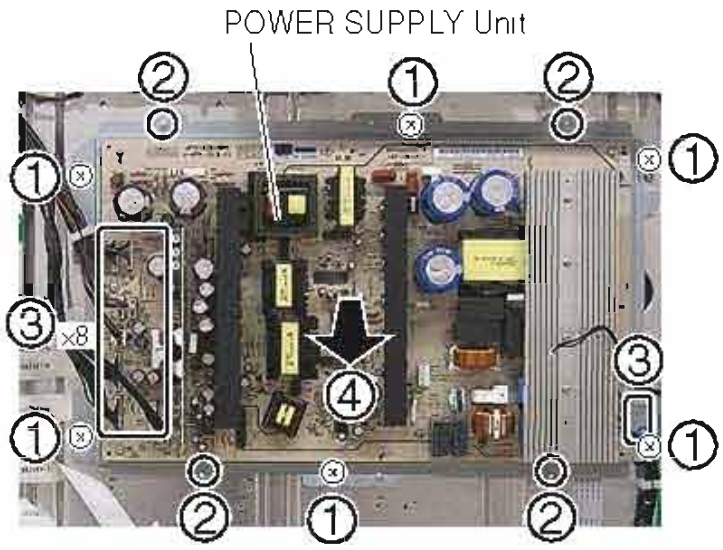
① Remove the four screws (APZ30P120FTB)
② Remove the 11 screws (AMZ30P060FTB)
③ Remove the under cover



● Access to PCB

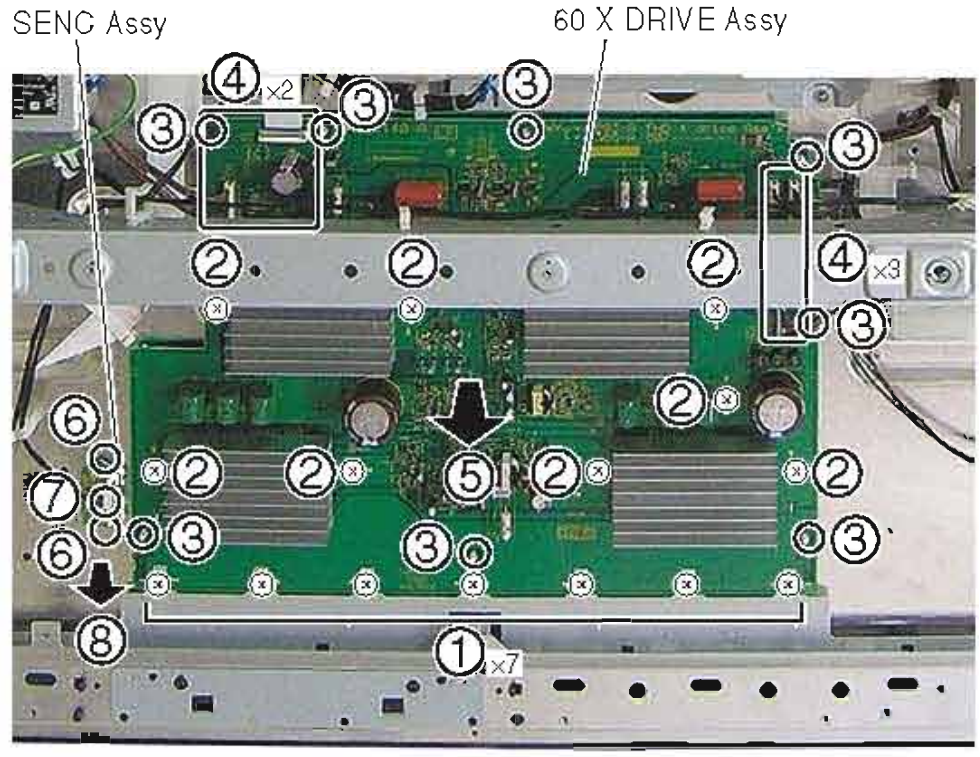
POWER SUPPLY Unit

① Remove the five screws
② Release the four PCB spacers
③ Disconnect the nine connectors
④ Remove the POWER SUPPLY Unit



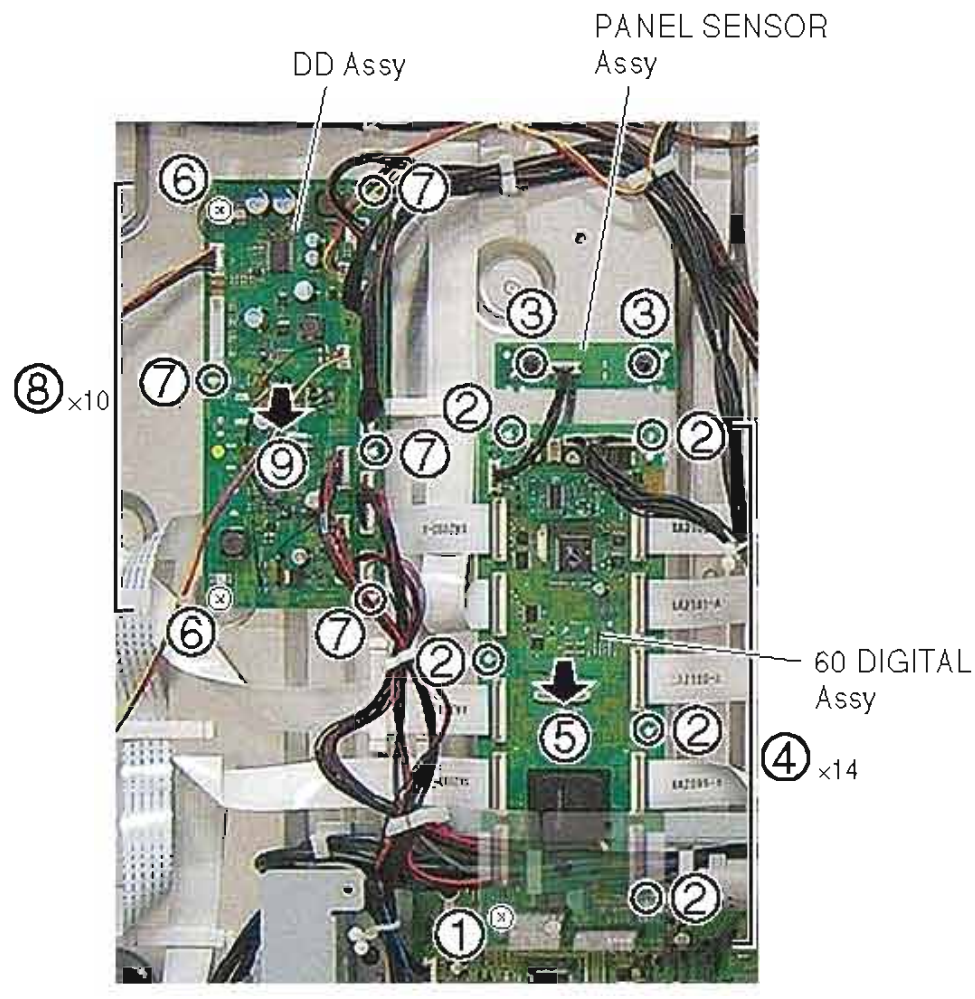
60 X DRIVE, SENC Assys

① Remove the seven screws
② Remove the eight screws
③ Release the eight PCB spacers
④ Disconnect the five connectors
⑤ Remove the 60 X DRIVE Assy、
⑥ Release the two PCB spacers
⑦ Disconnect the one connector
⑧ Remove the SENC Assy



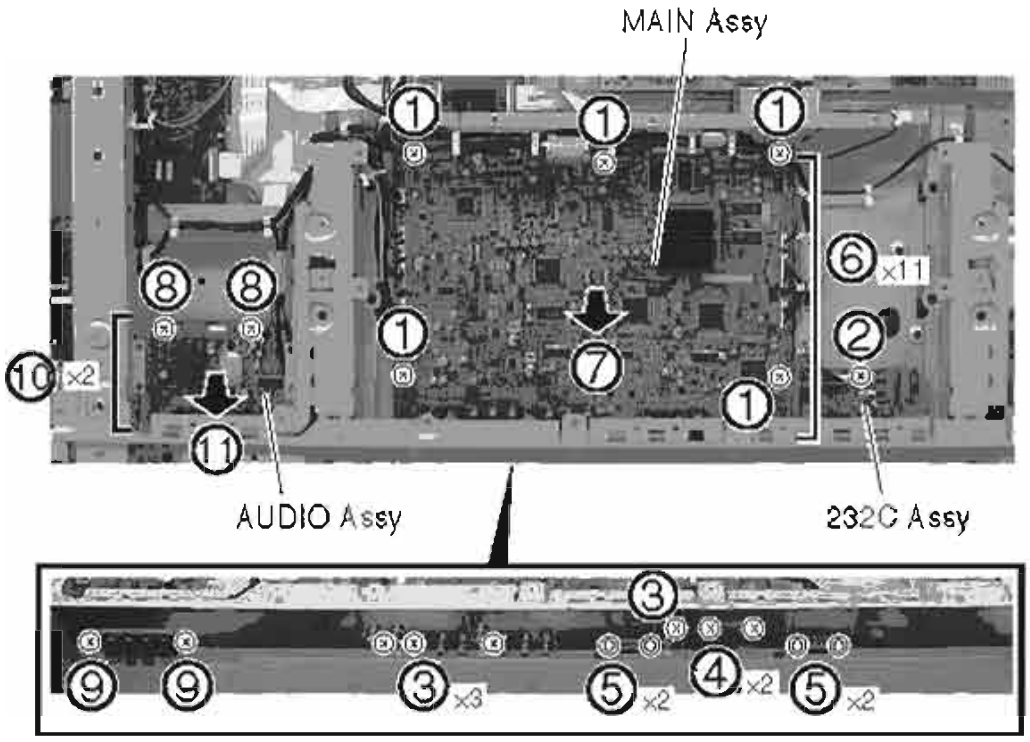
60 DIGITAL, PANEL SENSOR, DD Assys

① Remove the one screw
② Release the five PCB spacers
③ Remove the two nylon rivets
④ Disconnect the 14 connectors
⑤ Remove the 60 DIGITAL and PANEL SENSOR Assys
⑥ Remove the two screws
⑦ Release the four PCB spacers
⑧ Disconnect the 10 connectors
⑨ Remove the DD Assy



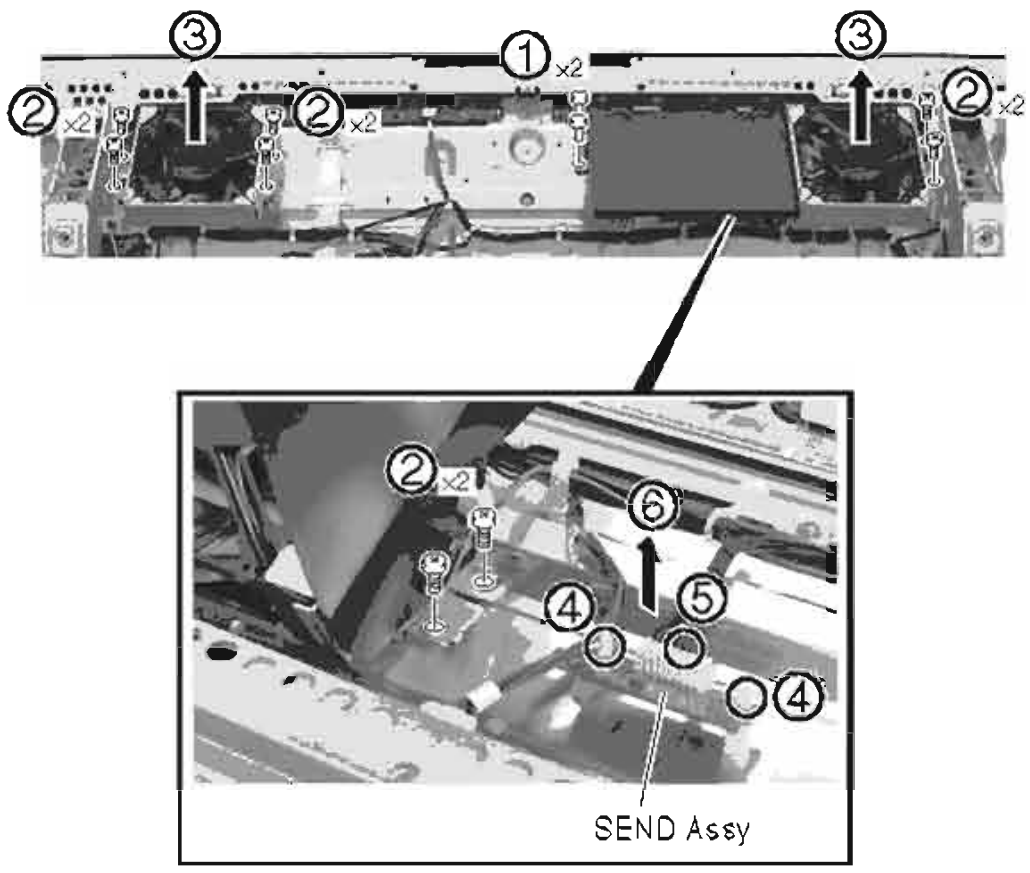
MAIN, 232C, AUDIO Assys

1. Remove the five screws.
2. Remove the one screw.
3. Remove the four screws.
4. Remove the two screws.
5. Remove the four hexagon headed screws
6. Disconnect the 11 connectors.
7. Remove the MAIN and 232C Assys.
8. Remove the two screws.
9. Remove the two screws.
10. Disconnect the two connectors.
11. Remove the AUDIO Assy.



SEND Assy, Fan motor

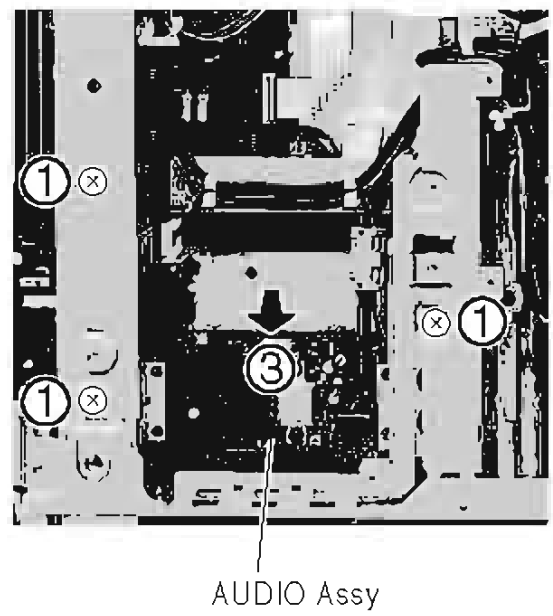
1. Remove the two nylon rivets.
2. Remove the eight screws.
3. Remove the two fan motors.
4. Release the two PCB spacers.
5. Disconnect the one connector.
6. Remove the SEND Assy.



3 Sub Multi Base

Note: This photo is the state that the PCB Assy was installed

① Remove the three screws
② Release cables, clampers, as required
③ Remove the sub multi base

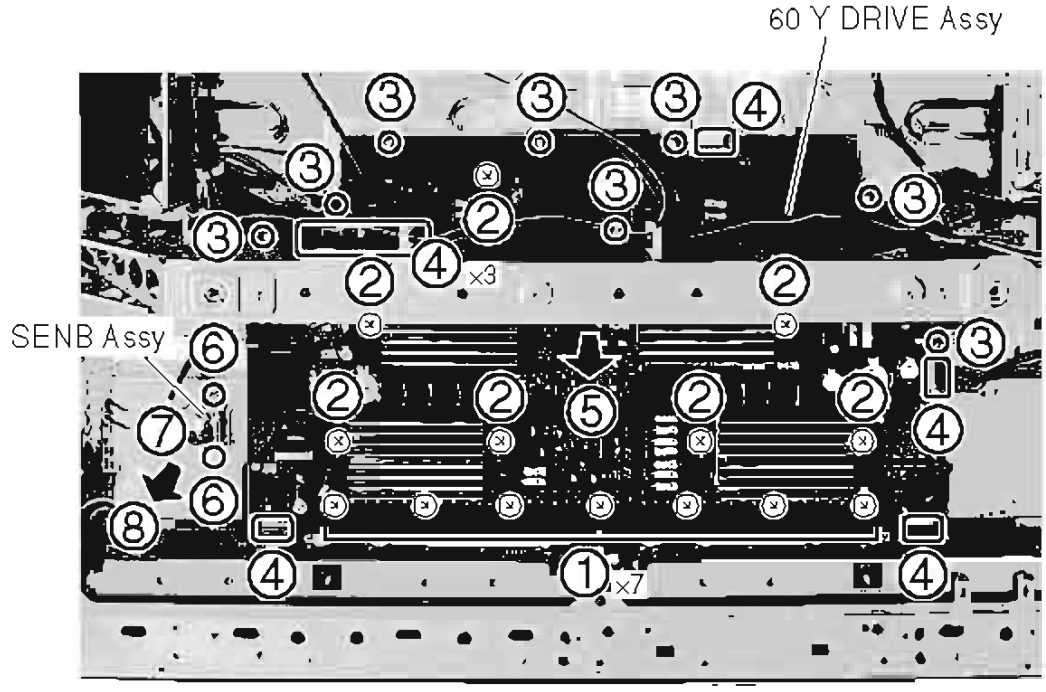


● Access to PCB

60 Y DRIVE, SENB Assys

① Remove the seven screws
② Remove the seven screws
③ Release the eight PCB spacers
④ Disconnect the seven connectors
⑤ Remove the 60 Y DRIVE Assy
⑥ Release the two PCB spacers
⑦ Disconnect the one connector
⑧ Remove the SENB Assy

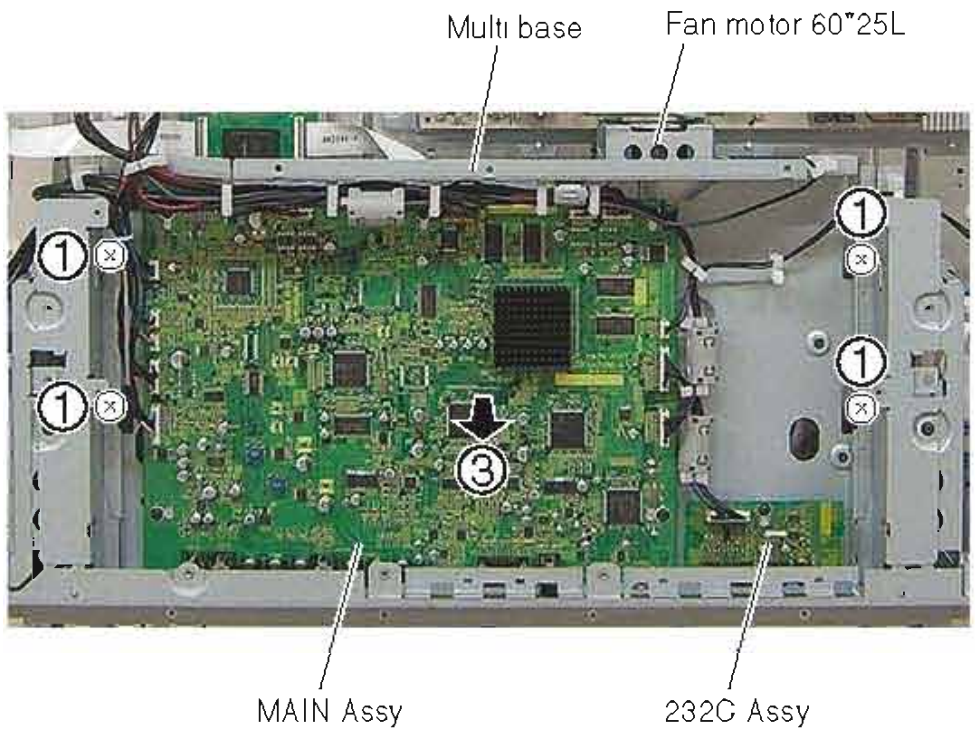
Note:
Even if SENB Assy do not remove sub multi base, can detach it



4 Multi Base

Note: This photo is the state that the PCB Assy was installed

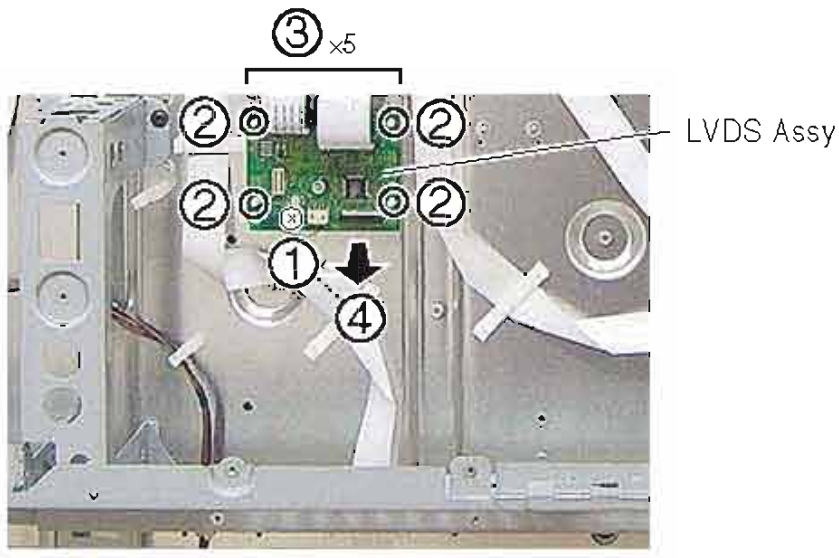
① Remove the four screws
② Release cables, clampers, as required
③ Remove the multi base



● Access to PCB

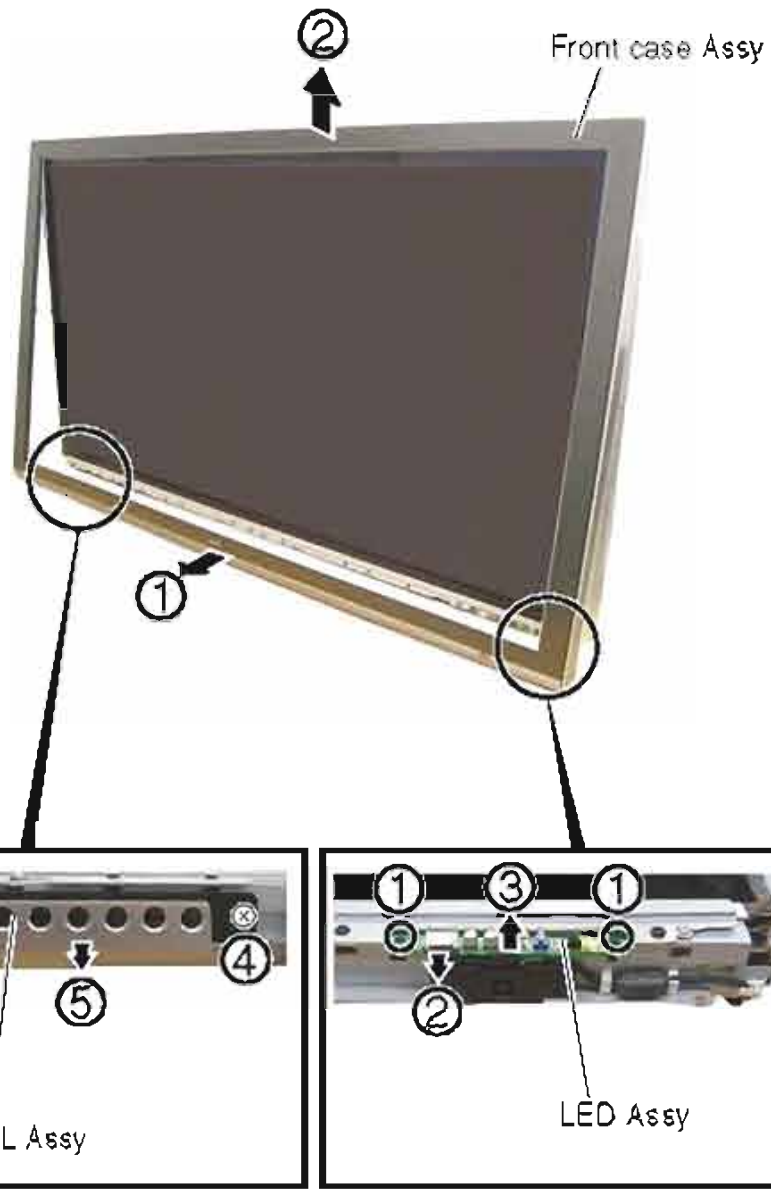
LVDS Assy, Fan motor

① Remove the one screw
② Release the four PCB spacers
③ Disconnect the five connectors
④ Remove the LVDS Assy
⑤ Remove the two screws
⑥ Remove the fan motor



5 Front Case Assy

① Pull the lower part of the front case Assy toward you and out.
② Remove the front case Assy. by pulling it upward.



● **Access to PCB**

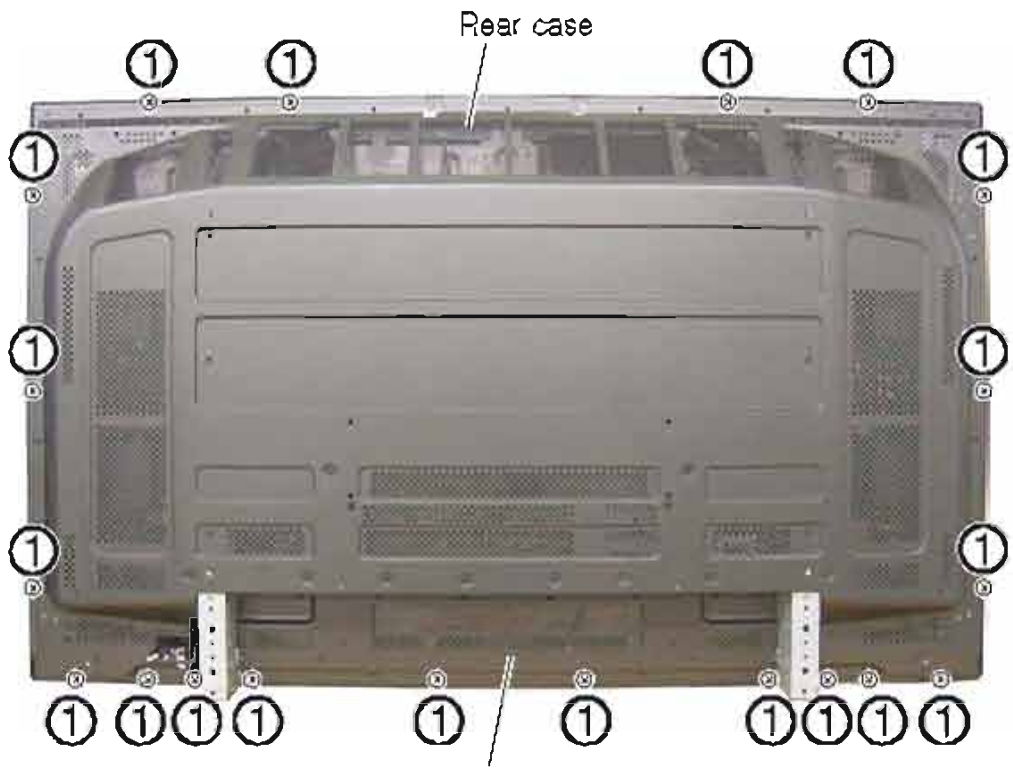
LED, CTL Assy

① Unhook the two hooks.
② Disconnect the one connector
③ Remove the LED Assy.
④ Remove the one screw.
⑤ Remove the CTL Assy.

● **Removal of only the Front Case Assy**

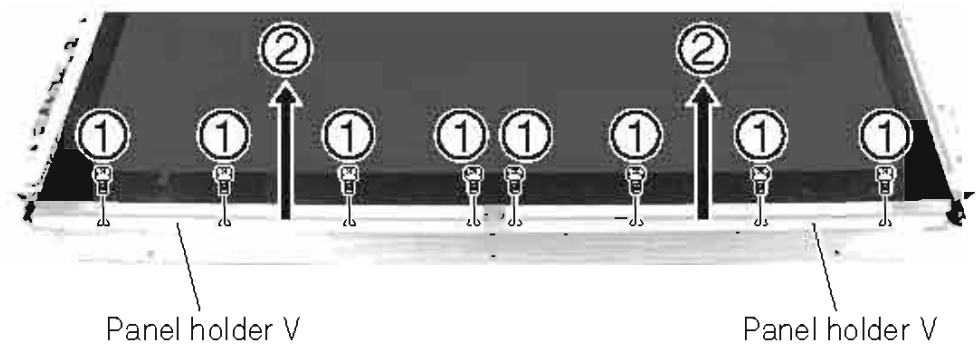
If only the front case Assy must be removed, follow the procedure below:

① Remove the 20 screws.

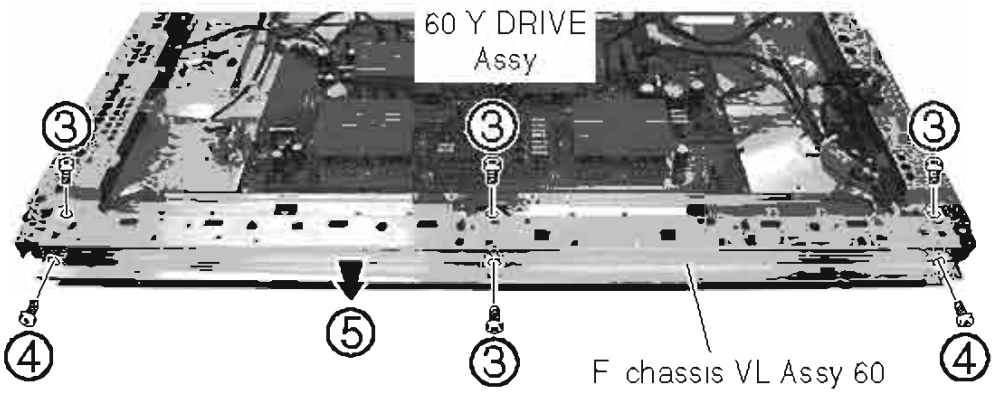


6 Exchange of 607 SCAN A and B Assys

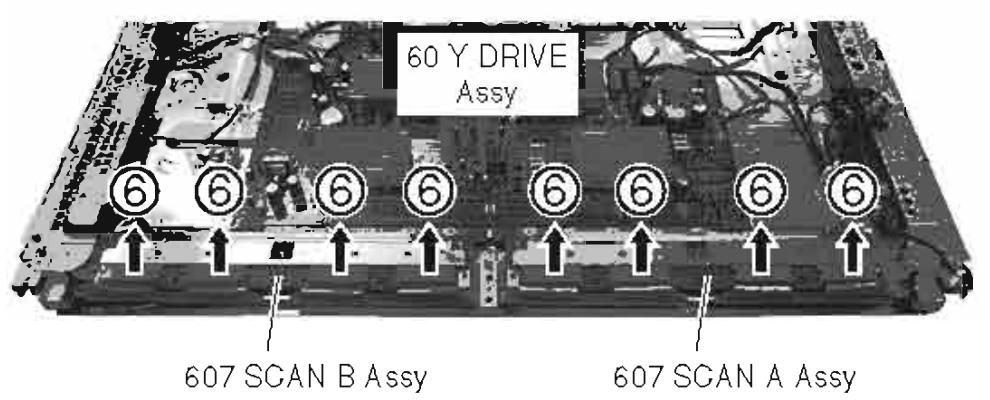
① Remove the eight screws
② Remove the two panel holders V



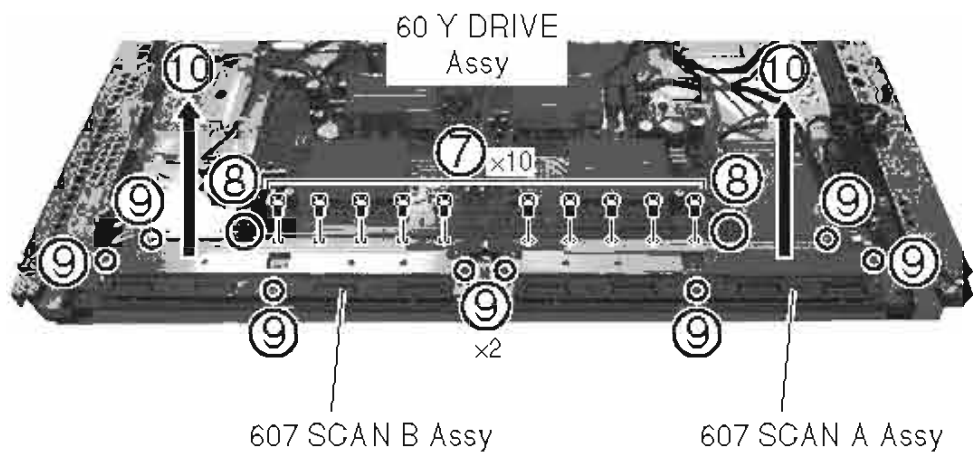
③ Remove the four screws
④ Remove the two screws
⑤ Remove the F chassis VL Assy 60



⑥ Disconnect the eight connectors



⑦ Remove the 10 screws
⑧ Disconnect the two pin connectors
⑨ Disconnect the eight spacers
⑩ Remove the 607 SCAN A and B Assys



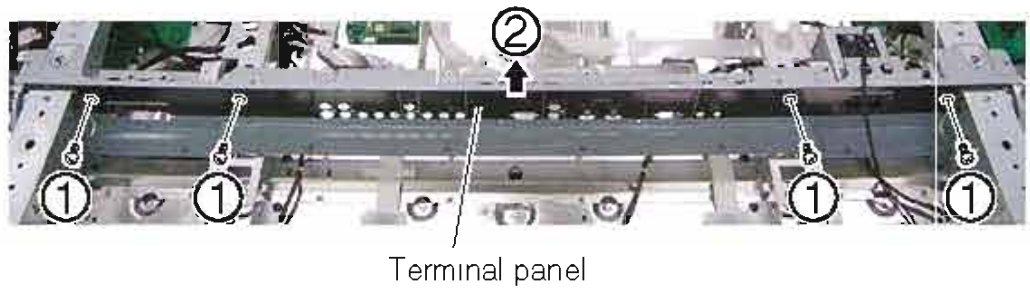
Exchange

7 Access to P. Chassis (607) Assy

● **Terminal panel**

① Remove the four screws

② Remove the terminal panel



● **Multi base fram L, R, Sub frame L, R**

① Remove the 2 screws

② Remove the 12 screws

③ Release cables, clampers, as required

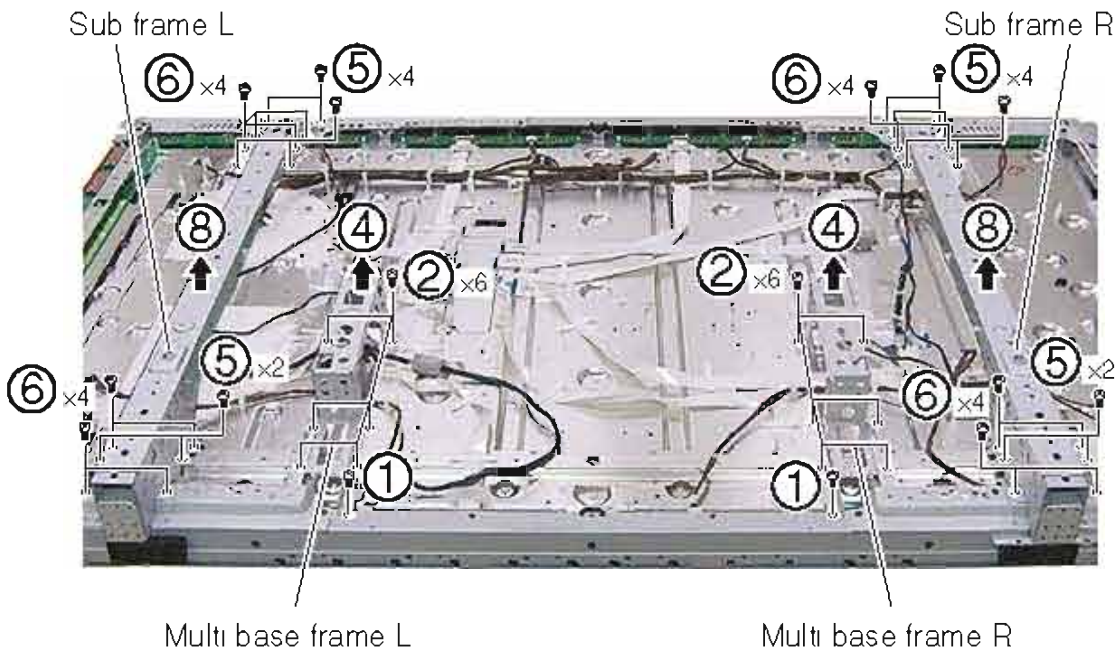
④ Remove the multi base frames L and R

⑤ Remove the 12 screws

⑥ Remove the 16 screws

⑦ Release cables, clampers, as required

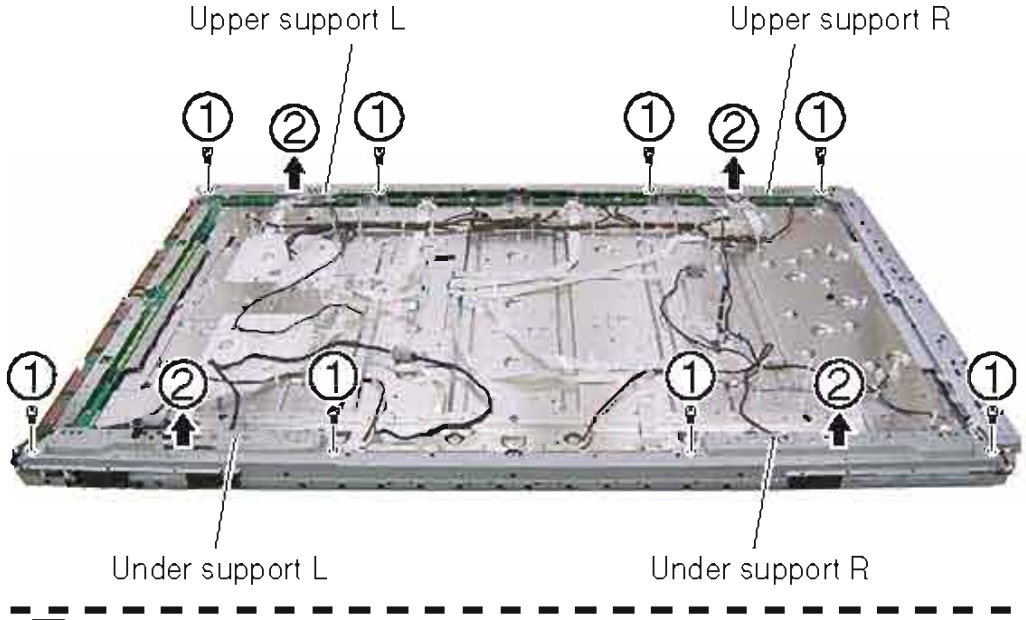
⑧ Remove the sub frames L and R



● **Upper support L, R, Under sippport L, R**

① Remove the eight screws

② Remove the upper support L, R, under support L and R



● **Panel holder V**

① Remove the eight screws

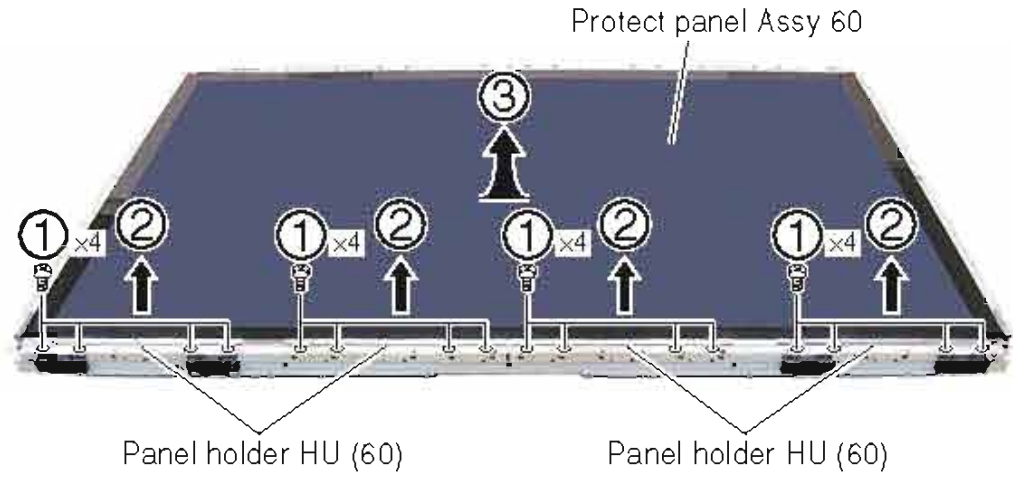
② Remove the two panel holders V

● **Panel holder HU, Protect panel Assy 60**

① Remove the 16 screws

② Remove the four panel holders HU (60)

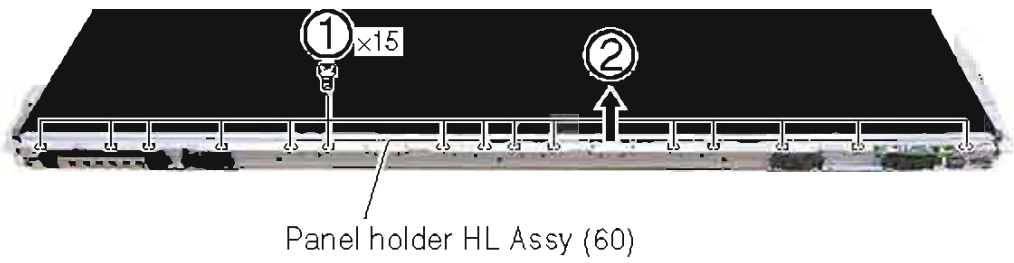
③ Remove the Protect panel Assy 60



● **P holder HL Assy (60)**

① Remove the 15 screws

② Remove the P holder HL Assy (60)

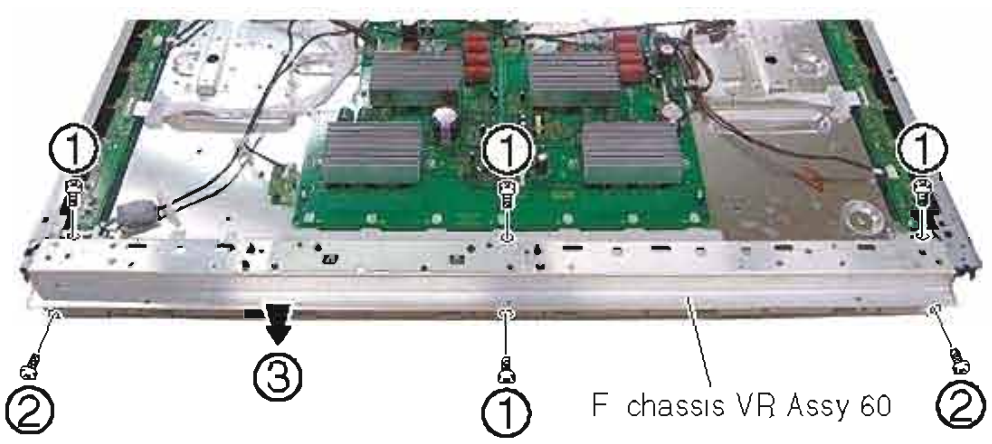


● **F. chassis VR Assy 60**

① Remove the four screws

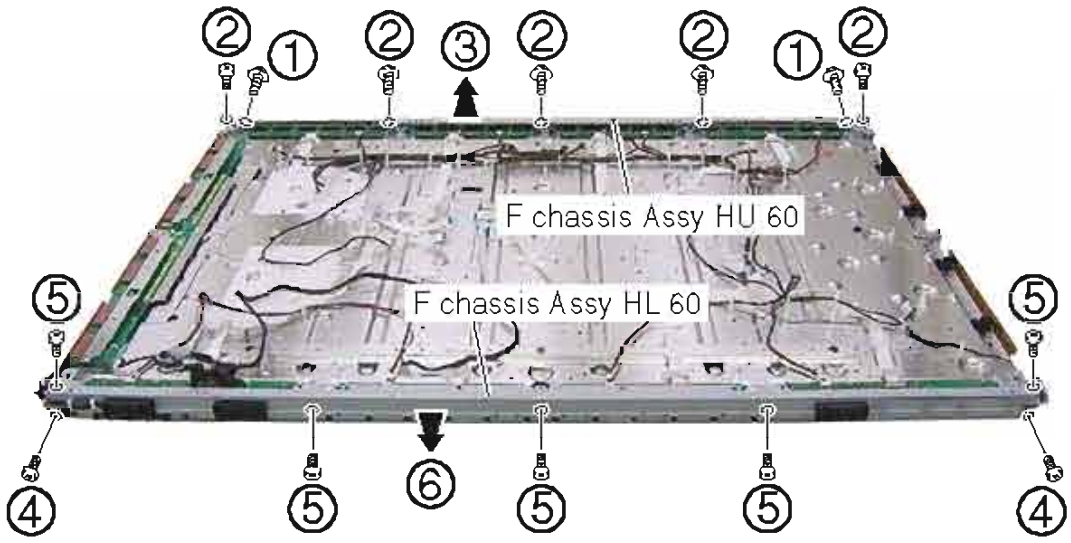
② Remove the two screws

③ Remove the F chassis VR Assy 60



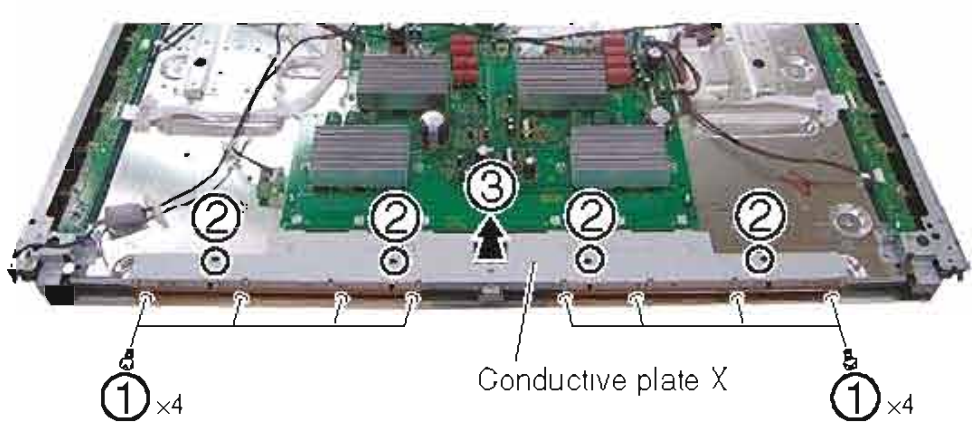
● **F chassis Assy HU 60, HL 60**

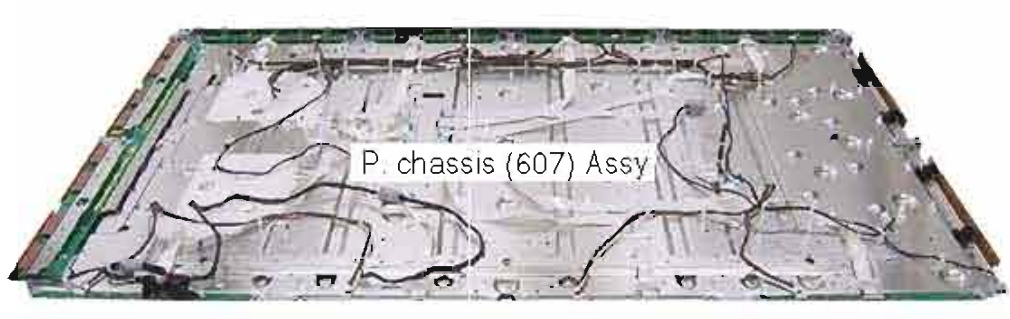
① Remove the two screws
② Remove the five screws
③ Remove the F chassis Assy HU 60
④ Remove the two screws
⑤ Remove the five screws
⑥ Remove the F chassis Assy HL 60



● **Conductive plate X**

① Remove the eight screws
② Release the four PCB spacer
③ Remove the conductive plate X

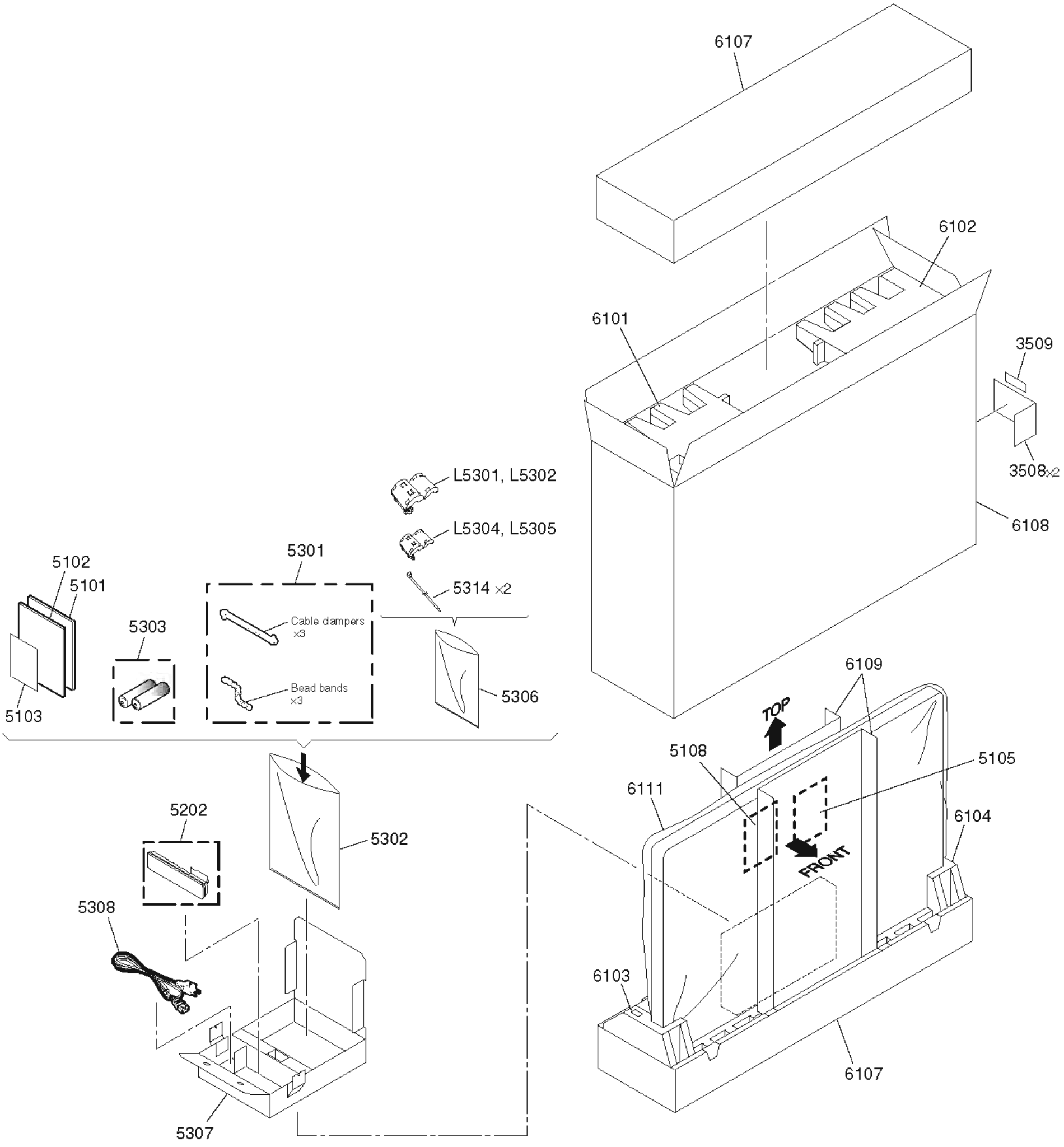




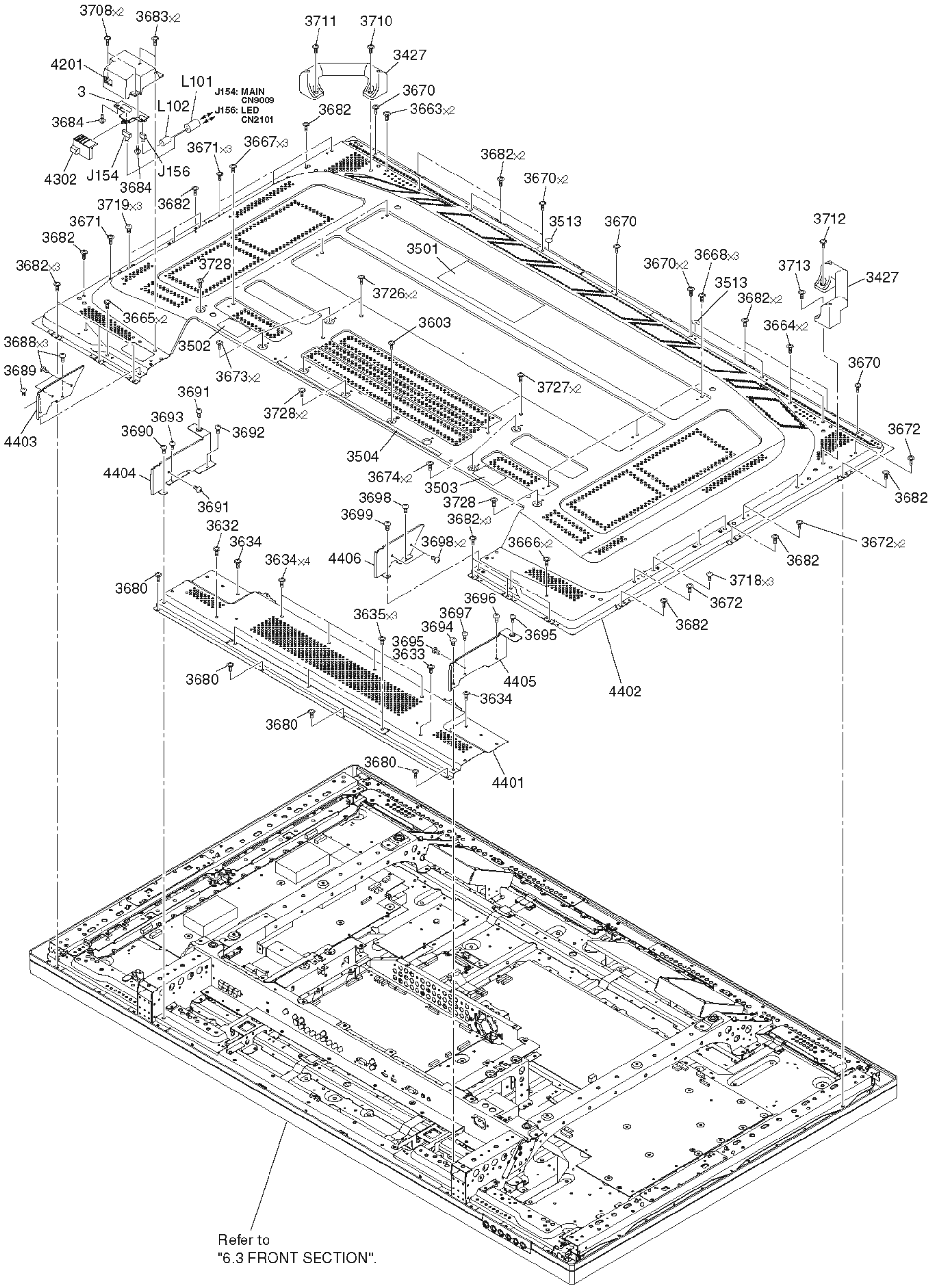
6. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

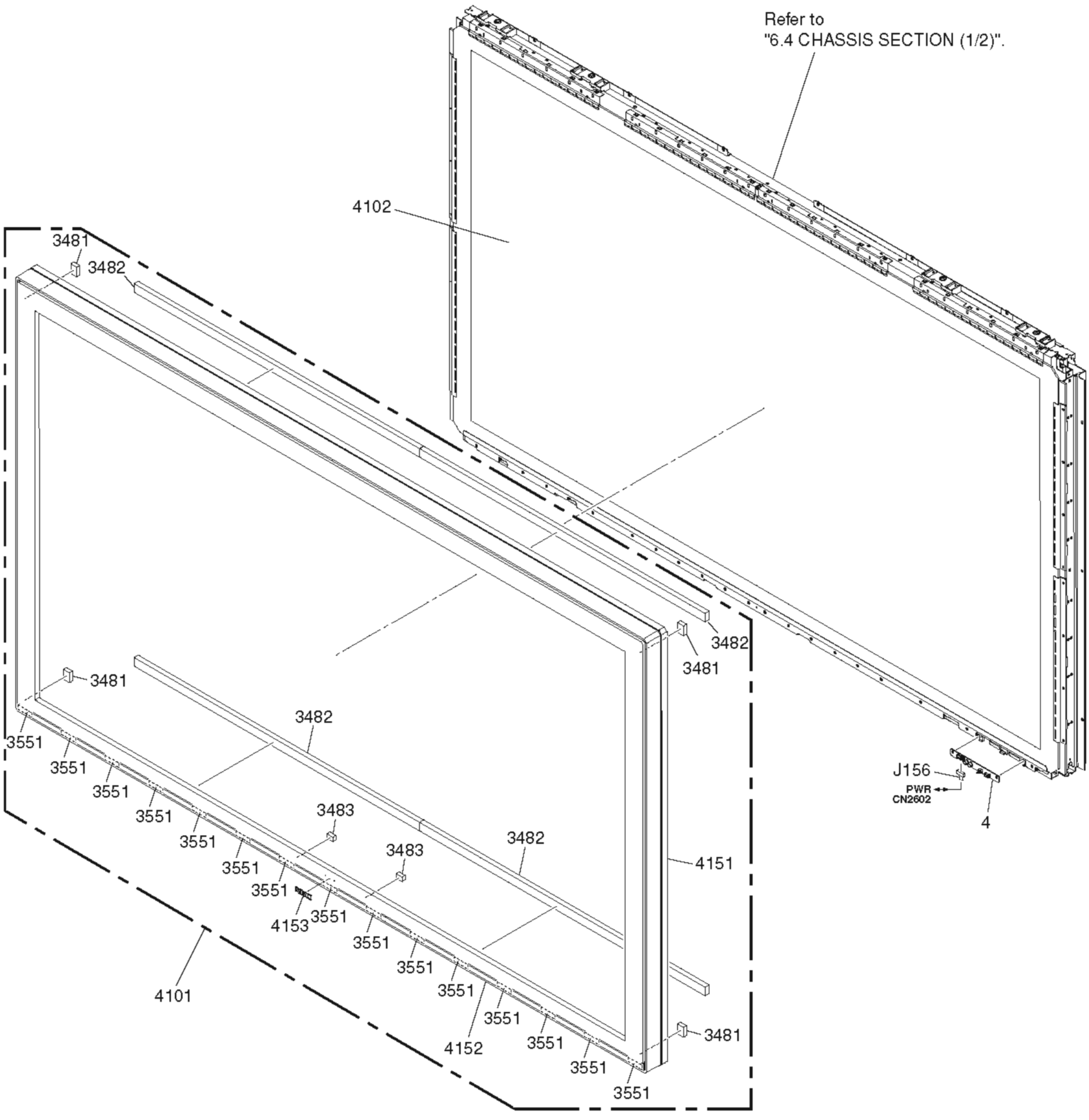
6.1 PACKING SECTION



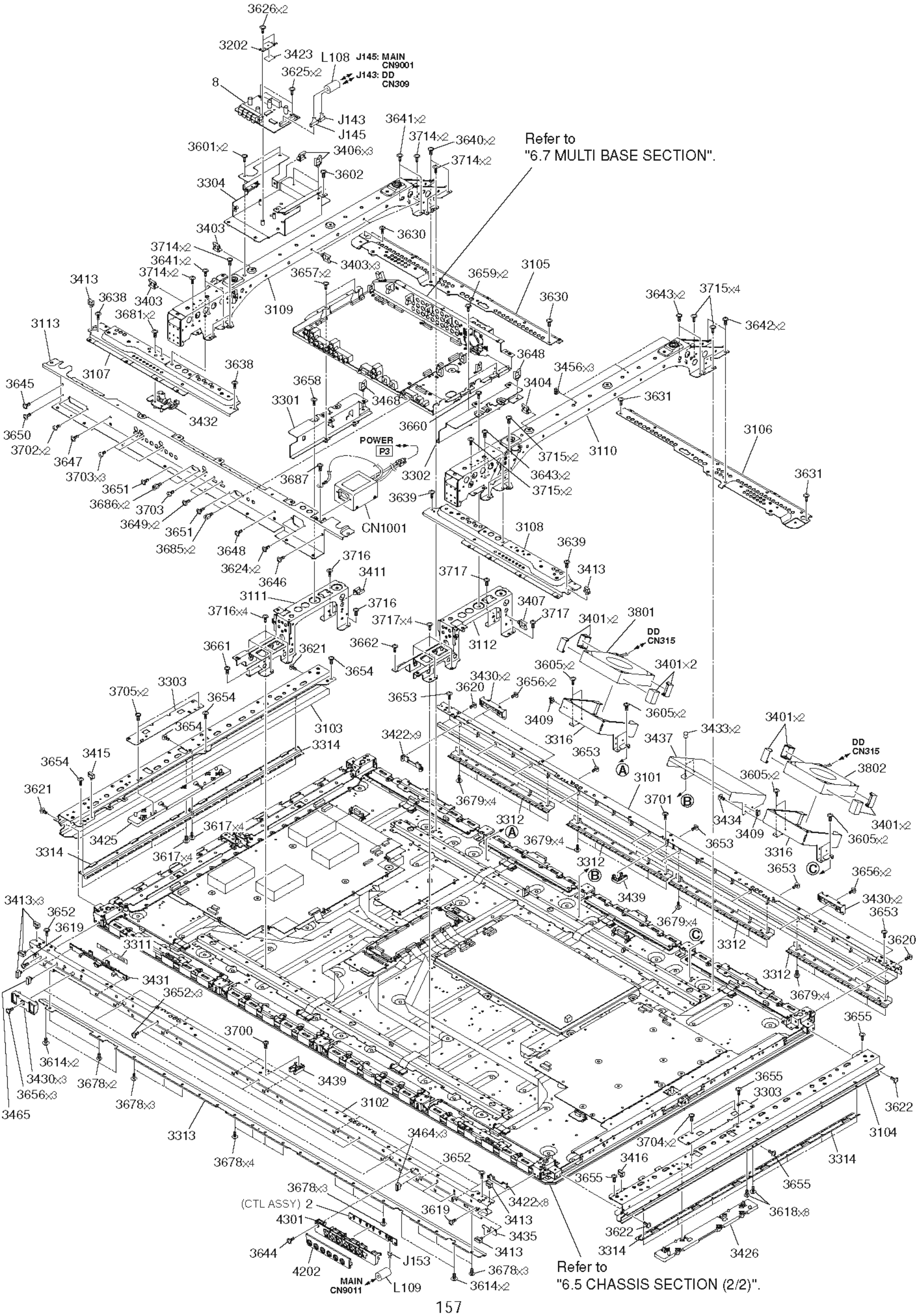
6.2 EXTERIOR SECTION



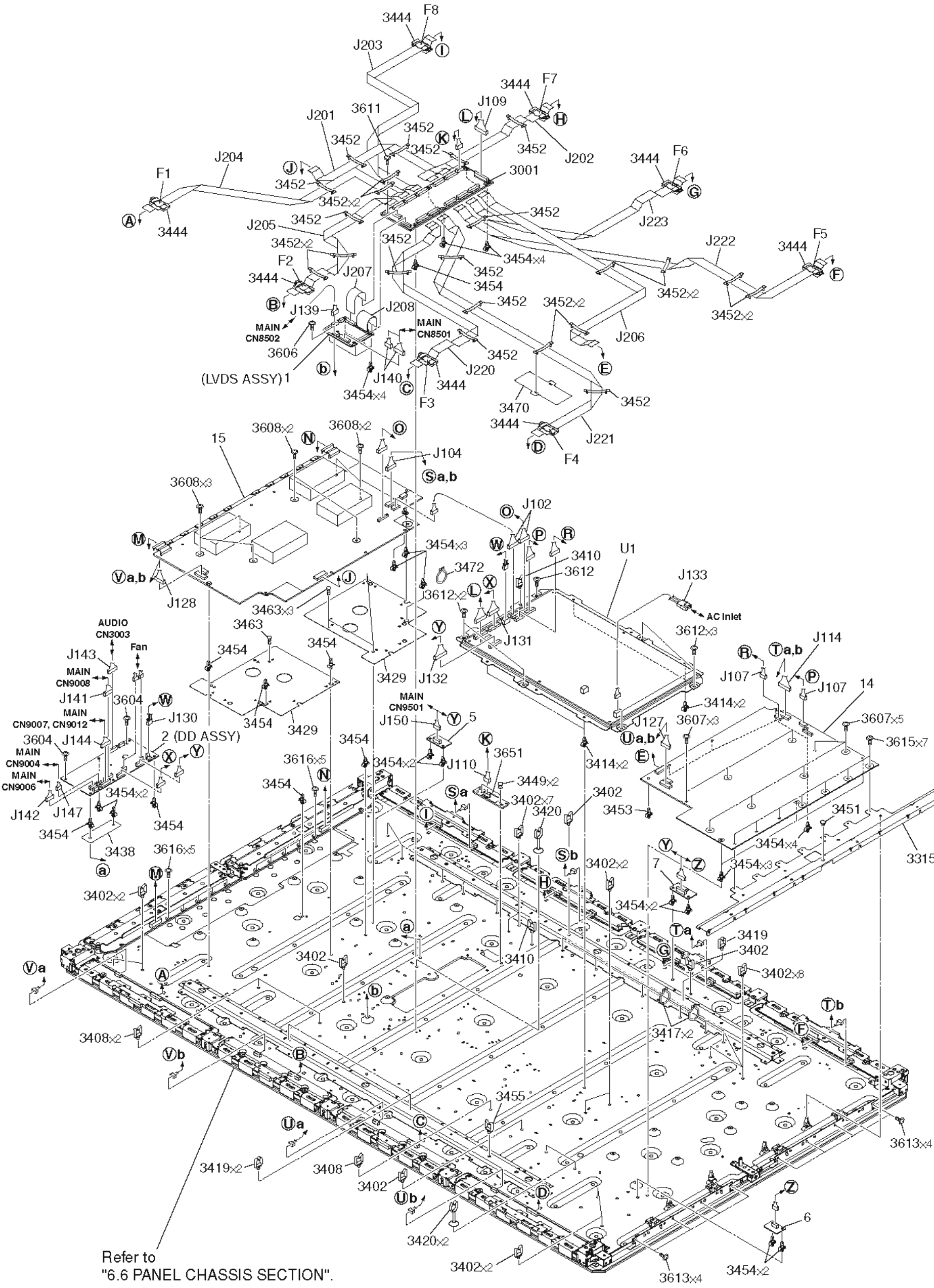
6.3 FRONT SECTION



6.4 CHASSIS SECTION (1/2)

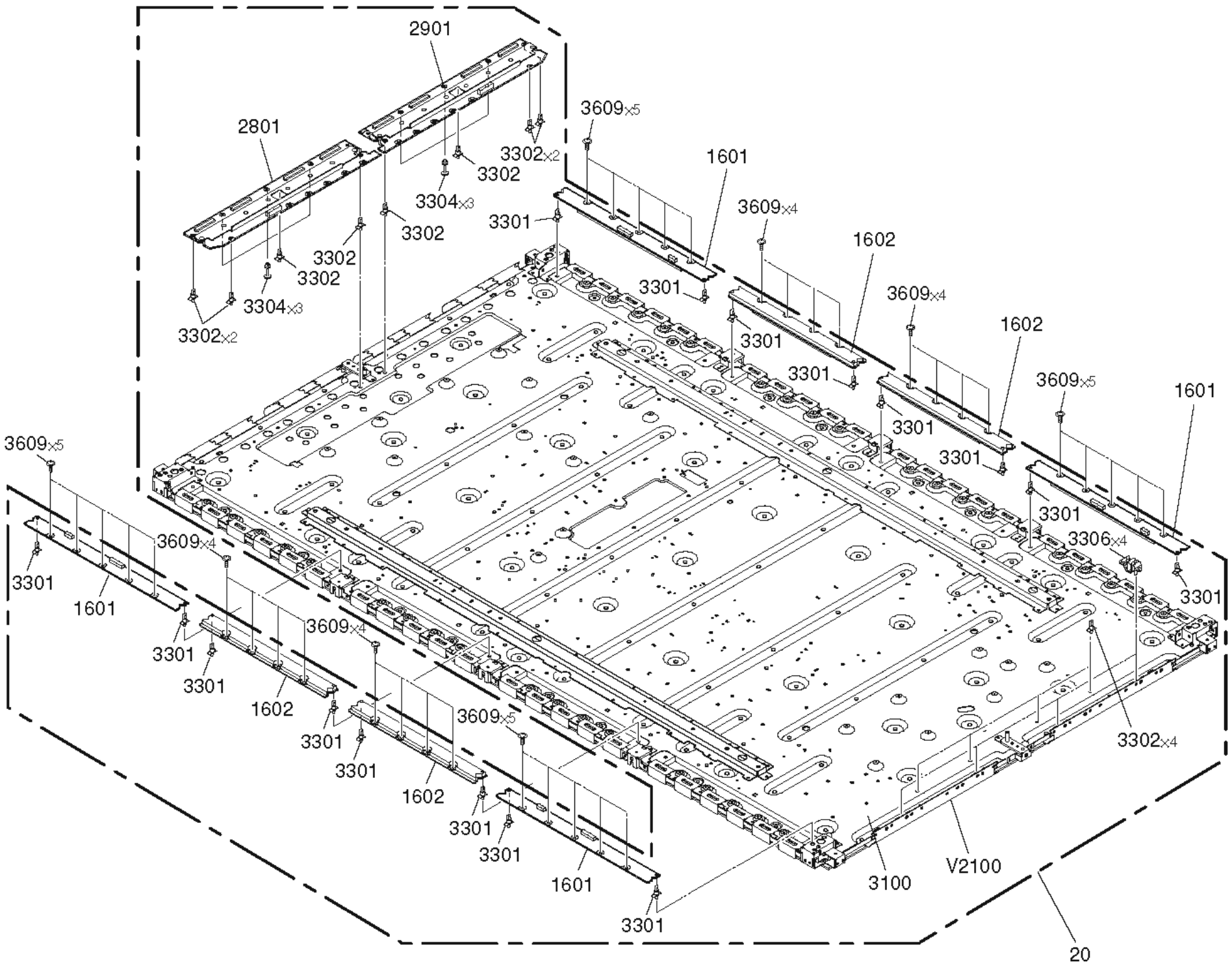


6.5 CHASSIS SECTION (2/2)

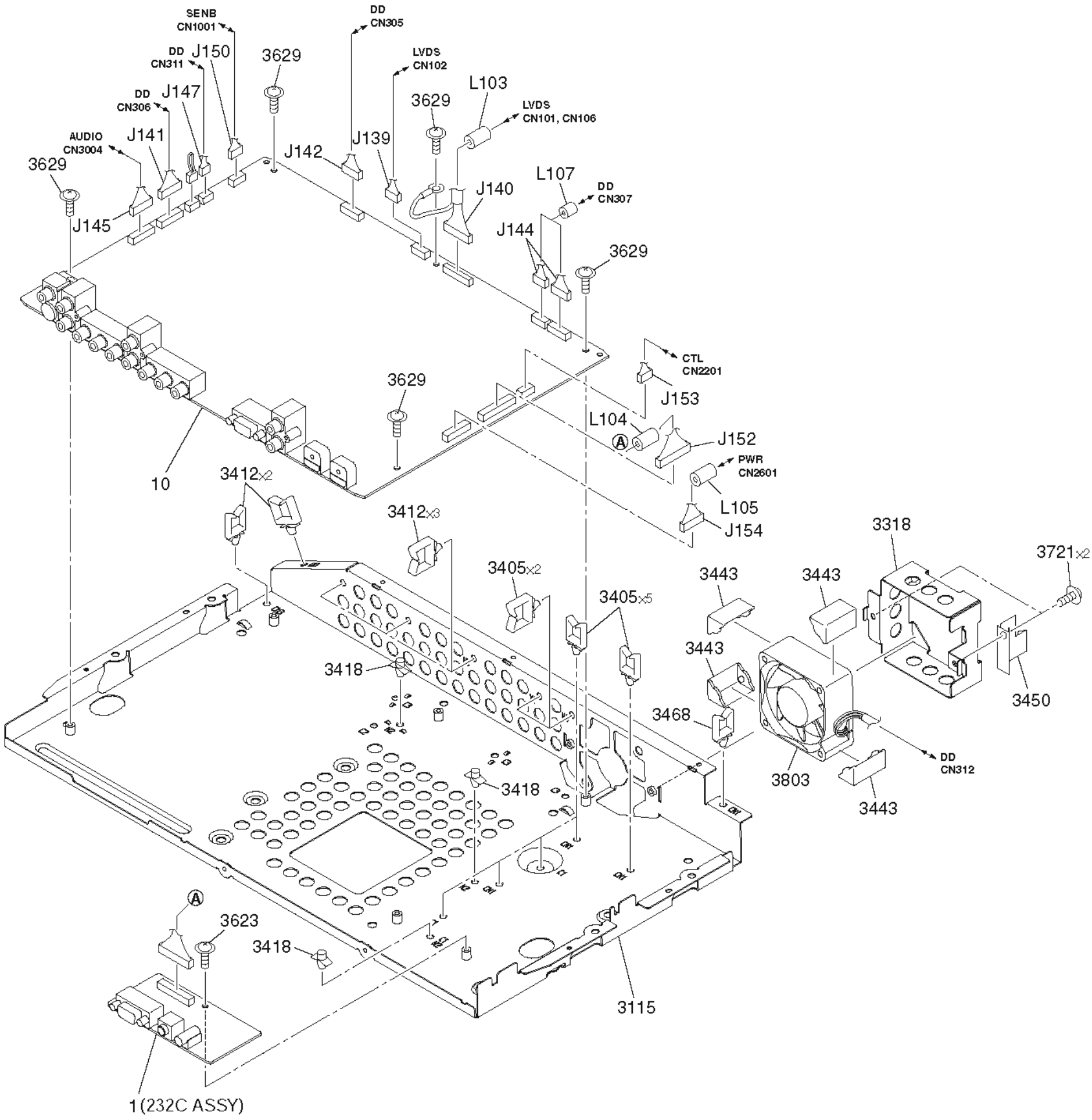


Refer to
"6.6 PANEL CHASSIS SECTION".

6.6 PANEL CHASSIS SECTION



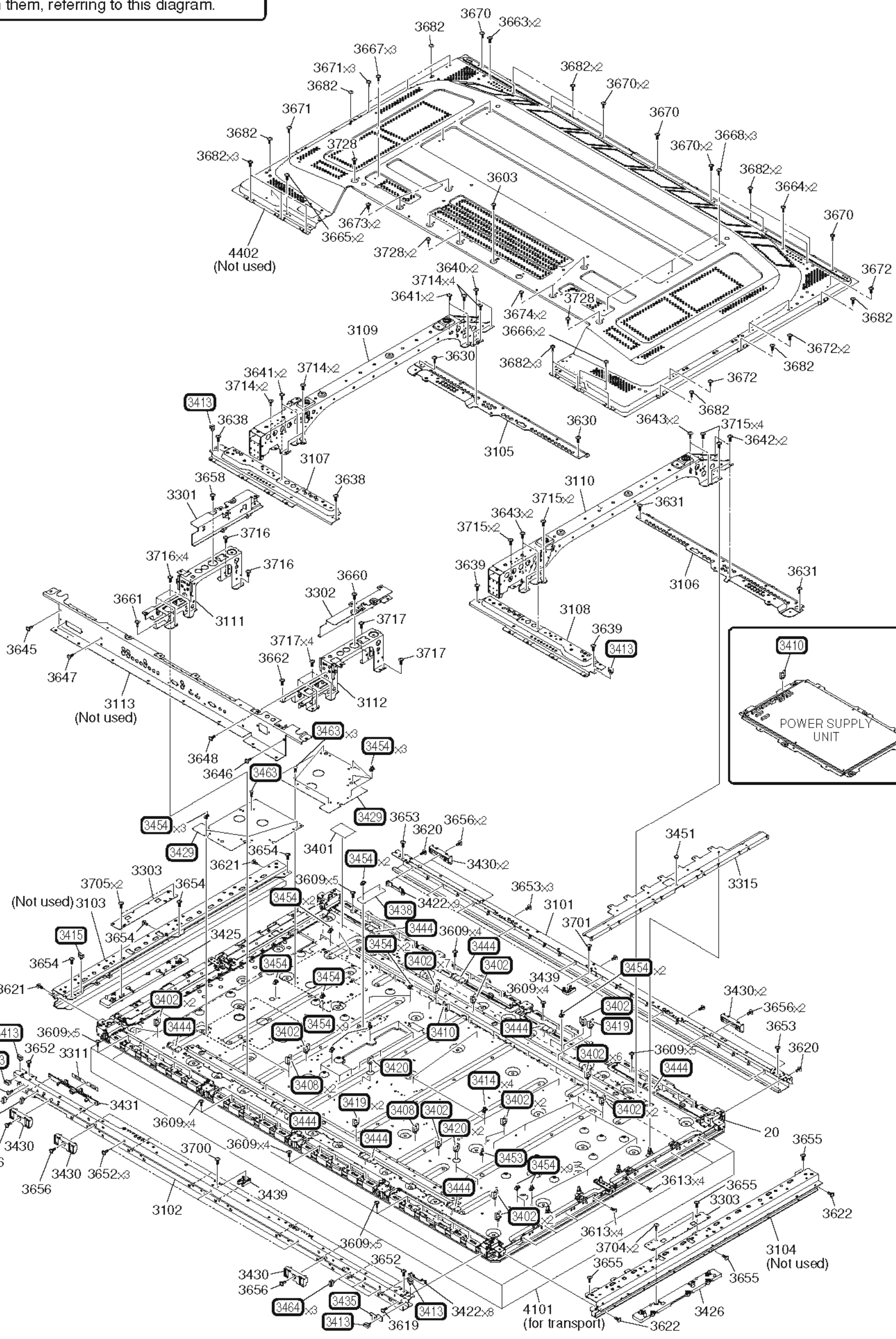
6.7 MULTI BASE SECTION



6.8 PDP SERVICE ASSY 607MX (AWU1231)

• EXTERIOR SECTION

Note:
The parts labeled here with circled numbers are supplied with the Assy for service. Attach them, referring to this diagram.



6.9 PARTS LIST

P.W.B. NAME	POS. NO.	VERS. COLOR	PART NO. (FOR EUR)	PART NO. (MZ)	PART NAME	DESCRIPTION	
				90M-ZK000650R	UNIT KIT	PDP SERV.ASSY607MX	AWU1231
	1			90M-ZZ004020R	PWB ASSY	232C ASSY(XM/XR)	AWW1207
	1			90M-ZZ004100R	PWB ASSY	LVDS ASSY	AWW1226
	2			90M-ZZ004030R	PWB ASSY	CTL ASSY(XM/XR)	AWW1208
	2			90M-ZZ004210R	PWB ASSY	DD ASSY(50)	AWW1228
	3			90M-ZZ004040R	PWB ASSY	PWR ASSY(XM/XR)	AWW1209
	4			90M-ZZ004200R	PWB ASSY	LED ASSY(60XR)	AWW1216
	5			90M-ZZ004050R	PWB ASSY	SENB ASSY(XM/XR)	AWW1211
	6			90M-ZZ004060R	PWB ASSY	SENC ASSY(XM/XR)	AWW1212
	7			90M-ZZ004070R	PWB ASSY	SEND ASSY(XM/XR)	AWW1213
	8			90M-ZZ004080R	PWB ASSY	AUDIO ASSY(50/60)	AWW1214
	10			90M-ZZ004220R	PWB ASSY	MAIN ASSY(60MRZ)	AWV2442
	14			90M-ZZ004180R	PWB ASSY	60 X DRIVE ASSY	AWV2366
	15			90M-ZZ004190R	PWB ASSY	60 Y DRIVE ASSY	AWV2367
	3001			90M-ZZ004160R	PWB ASSY	60 DIGITAL ASSY	AWW1190
	3427			00M26AV253010	HANDLE	HANDLE	AMR3564
	3651			90M-ZZ004170R	PWB ASSY	PANEL SENSOR ASSY	AWW1191
	3801			90M-MM001430R	MOTOR	FAN MOTOR120X25L	AXM1062
	3802			90M-MM001430R	MOTOR	FAN MOTOR120X25L	AXM1062
	3803			90M-MM001420R	MOTOR	FAN MOTOR 60X25L	AXM1060
	4101			00M26AV248510	PANEL	F.CASE ASSY(PD6001)	AMB2992
	4102			00M26AV158010	WINDOW	PROTECT PANEL ASSY60	AMR3611
	4201			00M26AV063020	ESCUTCHEON	POW BUTTON COVER	AMR3680
	4202			00M26AV063010	ESCUTCHEON	CONTROL BUTTON COVER	AMB2934
	4301			00M26AV270020	BUTTON	CONTROL BUTTON(6P)	AAC1563
	4302			00M26AV270010	BUTTON	POWER BUTTON	AAD4150
	4401			00M26AV257020	LID	UNDER COVER (60MX)	ANC2423
	4402			00M26AV257010	LID	REAR CASE(60N)	ANE1661
				00M25AV251010	BADGE	BADGE MARANTZ FOR PDP	---
	⚠ CN1001			90M-YT005300R	TERMINAL	AC INLET	AKP1312
	F1			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	F2			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	F3			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	F4			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	F5			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	F6			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	F7			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	F8			90M-FC500150R	FERRITE CORE	FERRITE CORE	ATX1048
	J201			90M-YU002610R	FFC	FLEXIBLE CABLE	ADD1453
	J202			90M-YU002620R	FFC	FLEXIBLE CABLE	ADD1454
	J203			90M-YU002630R	FFC	FLEXIBLE CABLE	ADD1455
	J204			90M-YU002640R	FFC	FLEXIBLE CABLE	ADD1456
	J205			90M-YU002650R	FFC	FLEXIBLE CABLE	ADD1457
	J206			90M-YU002660R	FFC	FLEXIBLE CABLE	ADD1462
	J207			90M-YU002590R	FFC	FLEXIBLE CABLE	ADD1471
	J208			90M-YU002600R	FFC	FLEXIBLE CABLE	ADD1472
	J220			90M-YU002670R	FFC	FLEXIBLE CABLE	ADD1458
	J221			90M-YU002680R	FFC	FLEXIBLE CABLE	ADD1459
	J222			90M-YU002690R	FFC	FLEXIBLE CABLE	ADD1460
	J223			90M-YU002700R	FFC	FLEXIBLE CABLE	ADD1461
	L101			90M-FC500140R	FERRITE CORE	FERRITE CORE	ATX1039
	L102			90M-FC500180R	FERRITE CORE	FILTER	CTX1090
	L103			90M-FC500140R	FERRITE CORE	FERRITE CORE	ATX1039
	L104			90M-FC500140R	FERRITE CORE	FERRITE CORE	ATX1039
	L105			90M-FC500140R	FERRITE CORE	FERRITE CORE	ATX1039
	L107			90M-FC500170R	FERRITE CORE	FILTER	CTX1054
	L108			90M-FC500140R	FERRITE CORE	FERRITE CORE	ATX1039
	L109			90M-FC500140R	FERRITE CORE	FERRITE CORE	ATX1039
	⚠ U1			90M-ZZ004230R	PWB ASSY	POWER SUPPLY UNIT	AXY1167
PACKING							
				00M25AV851250	USER GUIDE	USER GUIDE PD6001	---
	5202			00MZK25AV0010	UNIT KIT	REMOTE CONTROLLER	AXD1546
	⚠ 5308			90M-ZC000640R	MAINS CORD	CORD	ADG1229
	L5301			90M-FC500160R	FERRITE CORE	FERRITE CORE	ATX1031
	L5302			90M-FC500160R	FERRITE CORE	FERRITE CORE	ATX1031
	L5304			90M-FC500170R	FERRITE CORE	FILTER	CTX1054
	L5305			90M-FC500170R	FERRITE CORE	FILTER	CTX1054

NOTE "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS

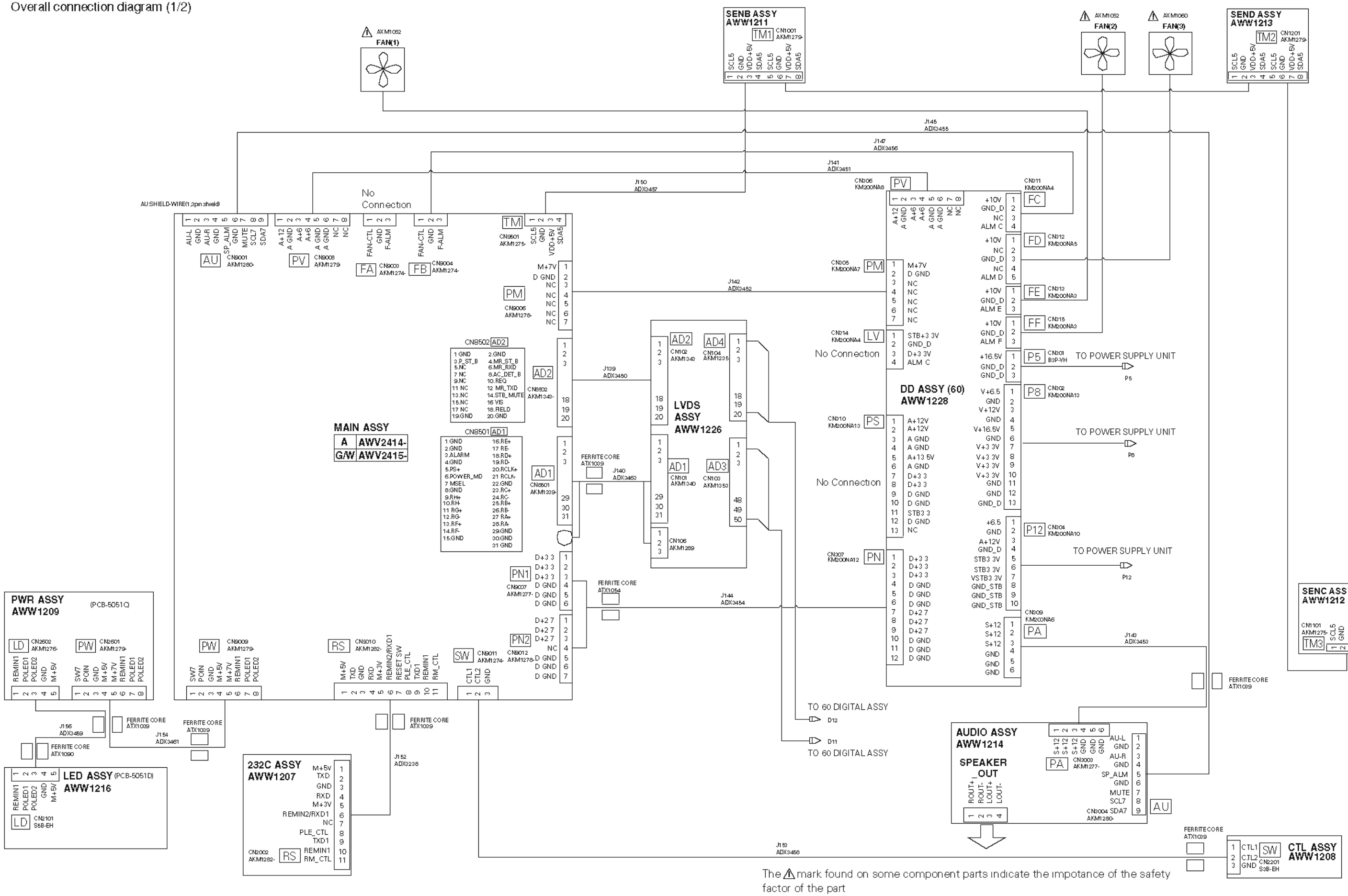
P.W.B. NAME	POS. NO.	VERS. COLOR	PART NO. (FOR EUR)	PART NO. (MZ)	PART NAME	DESCRIPTION	
NOT STANDARD SPAER PART							
	6101			00M26AV809030	CUSHION	PAD (60MX T-L)	AHA2602
	6102			00M26AV809040	CUSHION	PAD (60MX T-R)	AHA2603
	6103			00M26AV809010	CUSHION	PAD (60MX B-L)	AHA2604
	6104			00M26AV809020	CUSHION	PAD (60MX B-R)	AHA2605
	6107			00M26AV801020	PACKING CASE	UNDER CARTON(607)	AHD3486
	6108			00M26AV801010	PACKING CASE	UPPER CARTON(PD6001)	AHD3569
	6109			00M26AV807010	REINFORCING	REINFORCE CARTON(607	AHC1084

NOTE "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS

7. BLOCK DIAGRAM

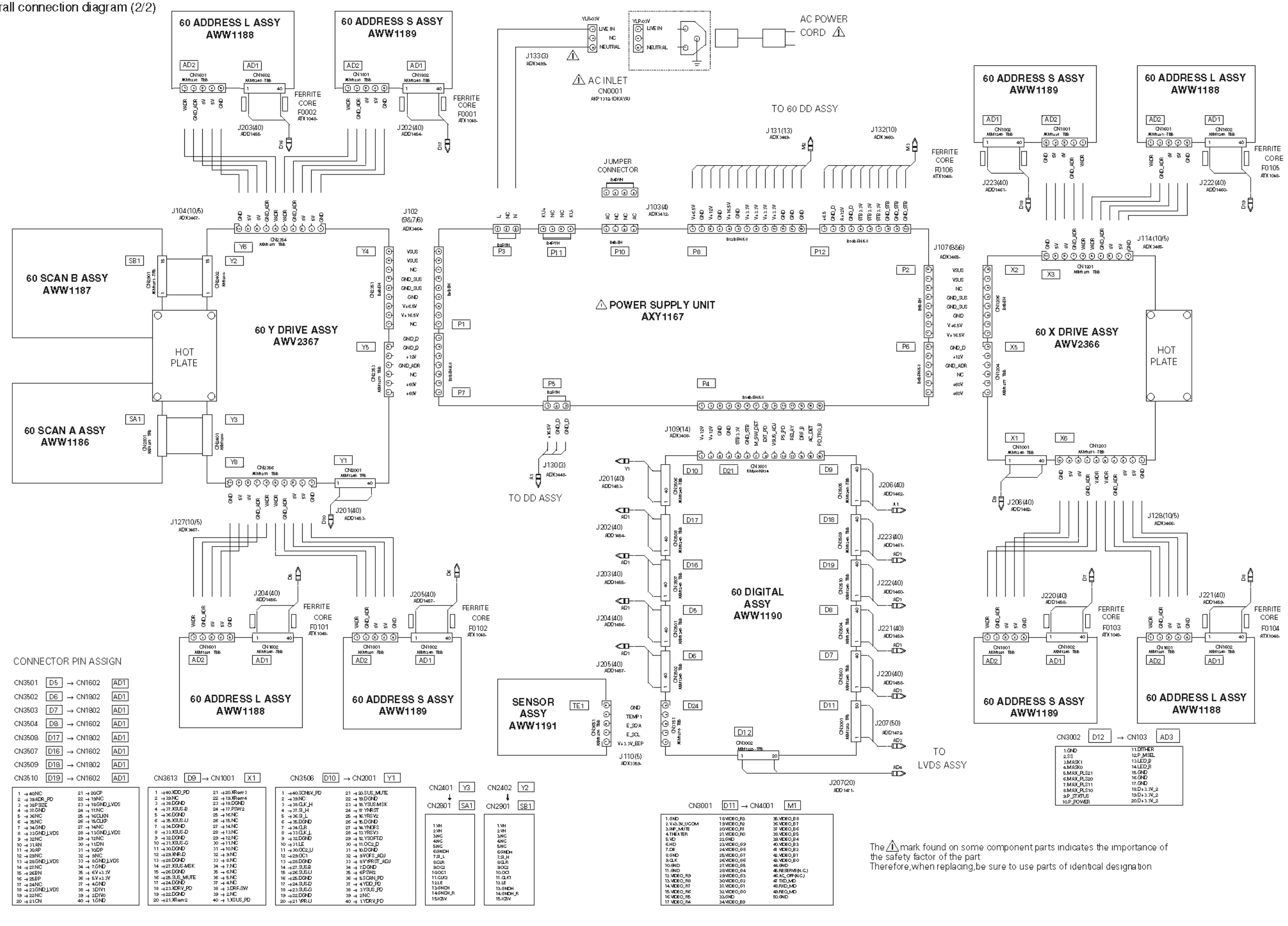
7.1 OVERALL CONNECTION DIAGRAM

Overall connection diagram (1/2)



The ⚠ mark found on some component parts indicate the impotance of the safety factor of the part
Therefore, when replacing, be sure to use parts of identical designation

Overall connection diagram (2/2)



CONNECTOR PIN ASSIGN

CN3501	D5	→ CN1602	AD1
CN3502	D6	→ CN1802	AD1
CN3503	D7	→ CN1802	AD1
CN3504	D8	→ CN1602	AD1
CN3508	D17	→ CN1802	AD1
CN3507	D16	→ CN1602	AD1
CN3509	D18	→ CN1802	AD1
CN3510	D19	→ CN1602	AD1

1	→ 40.NC	21	→ 20.OP
2	→ 39.ADR_PD	22	→ 19.NC
3	→ 38.P.SIZE	23	→ 18.GND_LVDS
4	→ 37.GND	24	→ 17.NC
5	→ 36.NC	25	→ 16.CLKIN
6	→ 35.NC	26	→ 15.CLKP
7	→ 34.GND	27	→ 14.NC
8	→ 33.GND_LVDS	28	→ 13.GND_LVDS
9	→ 32.NC	29	→ 12.NC
10	→ 31.ABN	30	→ 11.DIN
11	→ 30.ABP	31	→ 10.DP
12	→ 29.NC	32	→ 9.NC
13	→ 28.GND_LVDS	33	→ 8.GND_LVDS
14	→ 27.NC	34	→ 7.GND
15	→ 26.BIN	35	→ 6.V ± 3.3V
16	→ 25.BP	36	→ 5.V ± 3.3V
17	→ 24.NC	37	→ 4.GND
18	→ 23.GND_LVDS	38	→ 3.DIV1
19	→ 22.NC	39	→ 2.DIV0
20	→ 21.CIN	40	→ 1.GND

CN3613 D9 → CN1001 X1

1	→ 40.XDD_PD	21	→ 20.XRsev3
2	→ 39.NC	22	→ 19.XRsev4
3	→ 38.DGND	23	→ 18.DGND
4	→ 37.XSUS-B	24	→ 17.PSW2
5	→ 36.DGND	25	→ 16.NC
6	→ 35.XSUS-U	26	→ 15.NC
7	→ 34.DGND	27	→ 14.NC
8	→ 33.XSUS-D	28	→ 13.NC
9	→ 32.DGND	29	→ 12.NC
10	→ 31.XSUS-G	30	→ 11.NC
11	→ 30.DGND	31	→ 10.NC
12	→ 29.XNR-D	32	→ 9.NC
13	→ 28.DGND	33	→ 8.NC
14	→ 27.XSUS-MSK	34	→ 7.NC
15	→ 26.DGND	35	→ 6.NC
16	→ 25.SUS_MUTE	36	→ 5.NC
17	→ 24.DGND	37	→ 4.NC
18	→ 23.XDRV_PD	38	→ 3.DRF-SW
19	→ 22.DGND	39	→ 2.NC
20	→ 21.XRsev2	40	→ 1.XSUS_PD

CN3506 D10 → CN2001 Y1

1	→ 40.3CNSV_PD	21	→ 20.SUS_MUTE
2	→ 39.NC	22	→ 19.DGND
3	→ 38.CLK_H	23	→ 18.YSUS.MSK
4	→ 37.SI_H	24	→ 17.YNRST
5	→ 36.SI_L	25	→ 16.YRSV2
6	→ 35.DGND	26	→ 15.DGND
7	→ 34.CLR	27	→ 14.YMOFS
8	→ 33.CLK_L	28	→ 13.YRSV1
9	→ 32.DGND	29	→ 12.Y3OFTD
10	→ 31.LE	30	→ 11.OC2_D
11	→ 30.OC2_LI	31	→ 10.DGND
12	→ 29.OC1	32	→ 9.VOFS_ADJ
13	→ 28.DGND	33	→ 8.VYPRST_ADJ
14	→ 27.SUS-D	34	→ 7.DGND
15	→ 26.SUS-U	35	→ 6.PSW2
16	→ 25.DGND	36	→ 5.SCAN_PD
17	→ 24.SUS-D	37	→ 4.VDD_PD
18	→ 23.SUS-G	38	→ 3.YSUS_PD
19	→ 22.DGND	39	→ 2.NC
20	→ 21.YR-U	40	→ 1.YDRV_PD

CN2401 Y3 → CN2801 SA1

1.VH	
2.VH	
3.NC	
4.NC	
5.NC	
6.GNDH	
7.SI_L	
8.CLR	
9.OC2	
10.OC1	
11.CLK2	
12.LE	
13.GNDH	
14.GNDH_R	
15.ICSV	

CN2402 Y2 → CN2901 SB1

1.VH	
2.VH	
3.NC	
4.NC	
5.NC	
6.GNDH	
7.SI_H	
8.CLR	
9.OC2	
10.OC1	
11.CLK1	
12.LE	
13.GNDH	
14.GNDH_R	
15.ICSV	

CN3001 D11 → CN4001 M1

1.GND	13.VIDEO_R3-	25.VIDEO_B-0
2.V+3.3V_UCOM	14.VIDEO_R2	26.VIDEO_B-1
3.INF_MUTE	15.VIDEO_R1	27.VIDEO_B-2
4.THEATER	16.VIDEO_R0	28.VIDEO_B-3
5.VD	17.GND	29.VIDEO_B-4
6.HD	18.VIDEO_G3	30.VIDEO_B-3
7.DE	19.VIDEO_G2	31.VIDEO_B-2
8.GND	20.VIDEO_G1	32.VIDEO_B-1
9.CLK	21.VIDEO_G0	33.VIDEO_B-0
10.GND	22.VIDEO_G5	34.GND
11.GND	23.VIDEO_G4	35.RESERVE(N.C.)
12.VIDEO_R3	24.VIDEO_G3	36.NC_OPEN(N.C.)
13.VIDEO_R2	25.VIDEO_G2	37.TXD_MD
14.VIDEO_R1	26.VIDEO_G1	38.RXD_MD
15.VIDEO_R0	27.VIDEO_G0	39.REQ_MD
16.VIDEO_R5	28.GND	40.GND
17.VIDEO_R4	29.VIDEO_B5	

CN3002 D12 → CN103 AD3

1.GND	11.DITHER
2.SS	12.P_MSEL
3.MASK1	13.LED_R
4.MASK0	14.LED_R
5.MAX_PLS21	15.GND
6.MAX_PLS20	16.GND
7.MAX_PLS11	17.GND
8.MAX_PLS10	18.D+3.3V_2
9.P_STATUS	19.D+3.3V_2
10.P_POWER	20.D+3.3V_2

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part
Therefore,when replacing,be sure to use parts of identical designation

7.2 CONNECTION PIN EXPLANATION

■ SET

(Caution) The operating voltages specified below are used in common inspective of the presence of signals.
In this case, however, part of the oprating voltages (red characters) may change according to the signal conditions when the main power supply is turned on (POWER button ON).
Status of LED lighting: ★ for lighting in Green, ★★ for unlighting, and ★★★ for lighting in Red.

Name	Pin No.	Pin name	Function - connection termination		Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
					AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
						No signal	With signal					
PN1	1	D+3.3	3.3V power supply for digital circuits	MAIN	0	3.3	3.3	0	0	0	-	DD→MAIN
CN9007	2	D+3.3	3.3V power supply for digital circuits	MAIN	0	3.3	3.3	0	0	0	-	DD→MAIN
	3	D+3.3	3.3V power supply for digital circuits	MAIN	0	3.3	3.3	0	0	0	-	DD→MAIN
	4	D GND	GND	MAIN	0	0	0	0	0	0	-	-
	5	D GND	GND	MAIN	0	0	0	0	0	0	-	-
	6	D GND	GND	MAIN	0	0	0	0	0	0	-	-
PN2	1	D+2.5	2.5V power supply for digital circuits	MAIN	0	2.5 - 3.3	2.5 - 3.3	0	0	0	-	DD→MAIN
CN9012	2	D+2.5	2.5V power supply for digital circuits	MAIN	0	2.5 - 3.3	2.5 - 3.3	0	0	0	-	DD→MAIN
	3	D+2.5	2.5V power supply for digital circuits	MAIN	0	2.5 - 3.3	2.5 - 3.3	0	0	0	-	DD→MAIN
	4	NC	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	5	D GND	GND	MAIN	0	0	0	0	0	0	-	-
	6	D GND	GND	MAIN	0	0	0	0	0	0	-	-
	7	D GND	GND	MAIN	0	0	0	0	0	0	-	-
PN	1	D+5.1	5.1V power supply for digital circuits	DD	0	3.3	3.3	0	0	0	-	DD→MAIN
CN307	2	D+5.1	5.1V power supply for digital circuits	DD	0	3.3	3.3	0	0	0	-	DD→MAIN
	3	D+5.1	5.1V power supply for digital circuits	DD	0	3.3	3.3	0	0	0	-	DD→MAIN
	4	D GND	GND	DD	0	0	0	0	0	0	-	-
	5	D GND	GND	DD	0	0	0	0	0	0	-	-
	6	D GND	GND	DD	0	0	0	0	0	0	-	-
	7	D+2.5	2.5V power supply for digital circuits	DD	0	2.5 - 3.3	2.5 - 3.3	0	0	0	-	DD→MAIN
	8	D+2.5	2.5V power supply for digital circuits	DD	0	2.5 - 3.3	2.5 - 3.3	0	0	0	-	DD→MAIN
	9	D+2.5	2.5V power supply for digital circuits	DD	0	2.5 - 3.3	2.5 - 3.3	0	0	0	-	DD→MAIN
	10	D GND	GND	DD	0	0	0	0	0	0	-	-
	11	D GND	GND	DD	0	0	0	0	0	0	-	-
	12	D GND	GND	DD	0	0	0	0	0	0	-	-
P8	1	V+6.5	6.5V power supply for analog circuits	DD	0	6.5	6.5	0	0	0	-	PSU→DD
CN302	2	GND	GND	DD	0	0	0	0	0	0	-	-
	3	V+12V	12V power supply for analog circuits	DD	0	12	12	0	0	0	-	PSU→DD
	4	GND	GND	DD	0	0	0	0	0	0	-	-
	5	V+16.5V	GND	DD	0	0	0	0	0	0	-	-
	6	GND	GND	DD	0	0	0	0	0	0	-	-
	7	V+5.1V	5.1V power supply for digital circuits	DD	0	3.3	3.3	0	0	0	-	PSU→DD
	8	V+5.1V	5.1V power supply for digital circuits	DD	0	3.3	3.3	0	0	0	-	PSU→DD
	9	V+5.1V	5.1V power supply for digital circuits	DD	0	3.3	3.3	0	0	0	-	PSU→DD
	10	V+5.1V	5.1V power supply for digital circuits	DD	0	3.3	3.3	0	0	0	-	PSU→DD
	11	GND	GND	DD	0	0	0	0	0	0	-	-
	12	GND	GND	DD	0	0	0	0	0	0	-	-
	13	GND	GND	DD	0	0	0	0	0	0	-	-
P8	1	V+6.5	6.5V power supply for analog circuits	PSU	0	6.5	6.5	0	0	0	-	PSU→DD
	2	GND	GND	PSU	0	0	0	0	0	0	-	-
	3	V+12V	12V power supply for analog circuits	PSU	0	12	12	0	0	0	-	PSU→DD
	4	GND	GND	PSU	0	0	0	0	0	0	-	-
	5	V+16.5V	GND	PSU	0	0	0	0	0	0	-	-
	6	GND	GND	PSU	0	0	0	0	0	0	-	-
	7	V+5.1V	5.1V power supply for digital circuits	PSU	0	3.3	3.3	0	0	0	-	PSU→DD
	8	V+5.1V	5.1V power supply for digital circuits	PSU	0	3.3	3.3	0	0	0	-	PSU→DD
	9	V+5.1V	5.1V power supply for digital circuits	PSU	0	3.3	3.3	0	0	0	-	PSU→DD
	10	V+5.1V	5.1V power supply for digital circuits	PSU	0	3.3	3.3	0	0	0	-	PSU→DD
	11	GND	GND	PSU	0	0	0	0	0	0	-	-
	12	GND	GND	PSU	0	0	0	0	0	0	-	-
	13	GND	GND	PSU	0	0	0	0	0	0	-	-
P12	1	+6.5	6.5V power supply for analog circuits	DD	0	6.5	6.5	0	0	0	-	PSU→DD
CN304	2	GND_D	GND	DD	0	0	0	0	0	0	-	-
	3	A+12V	12V power supply for analog circuits	DD	0	12	12	0	0	0	-	PSU→DD
	4	GND_D	GND	DD	0	0	0	0	0	0	-	-
	5	STB3.3V	3.3V power supply for standby	DD	3.3	3.3	3.3	3.3	3.3	3.3	-	PSU→DD
	6	STB3.3V	3.3V power supply for standby	DD	3.3	3.3	3.3	3.3	3.3	3.3	-	PSU→DD
	7	STB3.3V	3.3V power supply for standby	DD	3.3	3.3	3.3	3.3	3.3	3.3	-	PSU→DD
	8	GND_STB	GND	DD	0	0	0	0	0	0	-	-
	9	GND_STB	GND	DD	0	0	0	0	0	0	-	-
	10	GND_STB	GND	DD	0	0	0	0	0	0	-	-
P12	1	+6.5	6.5V power supply for analog circuits	PSU	0	6.5	6.5	0	0	0	-	PSU→DD
	2	GND_D	GND	PSU	0	0	0	0	0	0	-	-
	3	A+12V	12V power supply for analog circuits	PSU	0	12	12	0	0	0	-	PSU→DD
	4	GND_D	GND	PSU	0	0	0	0	0	0	-	-
	5	STB3.3V	3.3V power supply for standby	PSU	3.3	3.3	3.3	3.3	3.3	3.3	-	PSU→DD
	6	STB3.3V	3.3V power supply for standby	PSU	3.3	3.3	3.3	3.3	3.3	3.3	-	PSU→DD
	7	STB3.3V	3.3V power supply for standby	PSU	3.3	3.3	3.3	3.3	3.3	3.3	-	PSU→DD
	8	GND_STB	GND	PSU	0	0	0	0	0	0	-	-
	9	GND_STB	GND	PSU	0	0	0	0	0	0	-	-
	10	GND_STB	GND	PSU	0	0	0	0	0	0	-	-
PM	1	M+7	7V power supply for microcomputer	DD	6.8	6.8	6.8	6.8	6.8	6.8	-	DD→MAIN
CN9006	2	D GND	GND	DD	0	0	0	0	0	0	-	-
	3	POWER	Power control	DD	0	4.9	4.9	0	0	0	-	MAIN→DD
	4	D GND	GND	DD	0	0	0	0	0	0	-	-
	5	POMUTE	Mute signal for AC power OFF	DD	4.8	4.8	4.8	4.8	4.8	4.8	4.8→-	DD→MAIN
	6	SW7	Power start control	DD	0	6.8	6.8	6.8	6.8	0	-	DD→MAIN
	7	N C	Non-connection termial	DD	-	-	-	-	-	-	-	-
PM	7	M+7	7V power supply for microcomputer	PSU	6.8	6.8	6.8	6.8	6.8	6.8	-	DD→MAIN
CN305	6	D GND	GND	PSU	0	0	0	0	0	0	-	-
	5	POWER	Power control	PSU	0	4.9	4.9	0	0	0	-	MAIN→DD
	4	D GND	GND	PSU	0	0	0	0	0	0	-	-
	3	POMUTE	Mute signal for AC power OFF	PSU	4.8	4.8	4.8	4.8	4.8	4.8	4.8→-	DD→MAIN
	2	SW7	Power start control	PSU	0	6.8	6.8	6.8	6.8	0	-	DD→MAIN
	1	N C	Non-connection termial	PSU	-	-	-	-	-	-	-	-
PV	1	A+12	12V power supply for analog circuits	DD	0	12	12	0	0	0	-	DD→MAIN
CN9008	2	A GND	GND	DD	0	0	0	0	0	0	-	-
	3	A+6	6V power supply for analog circuits	DD	0	6	6	0	0	0	-	DD→MAIN
	4	A+6	6V power supply for analog circuits	DD	0	6	6	0	0	0	-	DD→MAIN
	5	A GND	GND	DD	0	0	0	0	0	0	-	-
	6	A GND	GND	DD	0	0	0	0	0	0	-	-
	7	NC	Non-connection termial	DD	-	-	-	-	-	-	-	-
	8	NC	Non-connection termial	DD	-	-	-	-	-	-	-	-
PV	8	A+12	12V power supply for analog circuits	PSU	0	12	12	0	0	0	-	DD→MAIN
CN306	7	A GND	GND	PSU	0	0	0	0	0	0	-	-
	6	A+6	6V power supply for analog circuits	PSU	0	6	6	0	0	0	-	DD→MAIN
	5	A+6	6V power supply for analog circuits	PSU	0	6	6	0	0	0	-	DD→MAIN
	4	A GND	GND	PSU	0	0	0	0	0	0	-	-
	3	A GND	GND	PSU	0	0	0	0	0	0	-	-
	2	NC	Non-connection termial	PSU	-	-	-	-	-	-	-	-
	1	NC	Non-connection termial	PSU	-	-	-	-	-	-	-	-

Name	Pin No.	Pin name	Function - connection termination		Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
					AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
						No signal	With signal					
P5 CN301	1	+16.5V	16.5V power supply for Audio circuit	DD	0	16.5	16.5	0	0	0	0	PSU→DD
	2	GND	GND	DD	0	0	0	0	0	0	0	PSU→DD
	3	GND	GND	DD	0	0	0	0	0	0	0	PSU→DD
P5	1	+16.5V	16.5V power supply for Audio circuit	PSU	0	16.5	16.5	0	0	0	0	PSU→DD
	2	GND	GND	PSU	0	0	0	0	0	0	0	PSU→DD
	3	GND	GND	PSU	0	0	0	0	0	0	0	PSU→DD
AU CN9001 CN3004	1	AU_L	Audio signal L CH		0	Selected input signals are output	Selected input signals are output	0	0	0	-	MAIN→AUDIO
	2	GND	GND		0	0	0	0	0	0	-	-
	3	AU_R	Audio signal R CH		0	Selected input signals are output	Selected input signals are output	0	0	0	-	MAIN→AUDIO
	4	GND	GND		0	0	0	0	0	0	-	-
	5	S.P._A.L.M	Audio output alarm signal		0	3.3	3.3	3.3	3.3	0	-	AUDIO→MAIN
	6	GND	GND		0	0	0	0	0	0	-	-
	7	MUTE	Mute signal of audio output		0	0→4.5→9.0 4.5V (4 sec.) at power on	0→4.5→9.0 4.5V (4 sec.) at power on	0	0	0	-	MAIN→AUDIO
	8	SCL7	Clock line of the I2C bus		0	Clock signal (5Vac) when data are received, 5Vdc when no data are received	Clock signal (5Vac) when data are received, 5Vdc when no data are received	0	0	0	-	MAIN→AUDIO
	9	SDA7	Data line of the I2C bus		0	Clock signal (5Vac when data are received, 5Vdc when no data are received	Clock signal (5Vac when data are received, 5Vdc when no data are received	1	1	0	-	MAIN→AUDIO
RS CN9010 CN2002	1	M+5V	5V supply for microcomputer		0	5	5	5	5	0	-	MAIN→RS232C
	2	TXD	RS232 driver output		0	clock signal used during data transmission (3.3Vac), 3.3Vdc when no data are received	clock signal used during data transmission (3.3Vac), 3.3Vdc when no data are received	clock signal used during data transmission (3.3Vac), 3.3Vdc when no data are received	clock signal used during data transmission (3.3Vac), 3.3Vdc when no data are received	0	-	MAIN→RS232C
	3	GND	GND		0	0	0	0	0	0	-	-
	4	RXD	RX232 receiver input		0	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	0	-	RS232C→MAIN
	5	M+3.3V	3.3V supply for microcomputer		0	3.3	3.3	3.3	3.3	0	-	MAIN→RS232C
	6	REMIN2/RXD1	Data signal of wired remote control		0	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	clock signal used during data recieved (3.3Vac), 3.3Vdc when no data are received	0	-	RS232C→MAIN
	7	RESET SW	Non-connection termial		-	-	-	-	-	-	-	-
	8	PLE_CTL	PLE control		0	3.3V during data transmision for Video Wall, 0V when no data are transmitted	3.3V during data transmision for Video Wall, 0V when no data are transmitted	3.3V during data transmision for Video Wall, 0V whe no data are transmitted	0	0	-	MAIN→RS232C
	9	TXD1	PLE data output		0	clock signal used during data transmission (5Vac), 5Vdc when no data are transmitted	clock signal used during data transmission (5Vac), 5Vdc when no data are transmitted	clock signal used during data transmission (5Vac), 5Vdc when no data are transmitted	0	0	-	MAIN→RS232C
	10	REMIN1	Infrared remote control data output		0	clock signal used during data transmission (5Vac), 5Vdc when no data are transmitted	clock signal used during data transmission (5Vac), 5Vdc when no data are transmitted	clock signal used during data transmission (5Vac), 5Vdc when no data are transmitted	clock signal used during data transmission (5Vac), 5Vdc when no data are transmitted	0	-	MAIN→RS232C
	11	REM_CTL	Insertion detection for wire remote control input		0	3.3V when a wired remote control is connected, 0V when not connected	3.3V when a wired remote control is connected, 0V when not connected	3.3V when a wired remote control is connected, 0V when not connected	3.3V when a wired remote control is connected, 0V when not connected	0	-	RS232C→MAIN
TM CN9501	1	SCL5	Clock line of the I2C bus		0	clock signal use during data transmission(3.3Vac),3.3Vdc when no data are transmitted	clock signal use during data transmission(3.3Vac),3.3Vdc when no data are transmitted	0	0	0	-	MAIN→SENB
	2	GND	GND		0	0	0	0	0	0	-	-
	3	VDD+3.3V	3.3V power supply for analog signals		0	3.3	3.3	0	0	0	-	MAIN→SENB
	4	SDA5	Data line of the I2C bus		0	During data exchange Clock signal (3.3Vac),data not exchanged 3.3Vdc	During data exchange Clock signal (3.3Vac),data not exchanged 3.3Vdc	0	0	0	-	MAIN←→SENB

Name	Pin No.	Pin name	Function - connection termination	Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
				AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
					No signal	With signal					
IV 1 CN1001	1	SCL5	Clock line of the I2C bus	0	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	0	0	0	-	MAIN→SENB
	2	GND	GND	0	0	0	0	0	0	-	-
	3	VDD+3 3V	3 3V power supply for analog signals	0	3.3	3.3	0	0	0	-	MAIN→SENB
	4	SDA5	Data line of the I2C bus	0	During data exchange Clock signal (3.3Vac),datano t exchanged 3 3Vdc	During data exchange Clock signal (3 3Vac),datano t exchanged 3 3Vdc	0	0	0	-	MAIN←→SENB
	5	SCL5	Clock line of the I2C bus	0	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	0	0	0	-	SENB→SEND
	6	GND	GND	0	0	0	0	0	0	-	-
	7	VDD+3 3V	3 3V power supply for analog signals	0	3 3	3.3	0	0	0	-	SENB→SEND
	8	SDA5	Data line of the I2C bus	0	During data exchange Clock signal (3.3Vac),datano t exchanged 3 3Vdc	During data exchange Clock signal (3 3Vac),datano t exchanged 3 3Vdc	0	0	0	-	SENB←→SEND
IV 2 CN1201	1	SCL5	Clock line of the I2C bus	0	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	0	0	0	-	SENB→SEND
	2	GND	GND	0	0	0	0	0	0	-	-
	3	VDD+3 3V	3 3V power supply for analog signals	0	3 3	3.3	0	0	0	-	SENB→SEND
	4	SDA5	Data line of the I2C bus	0	During data exchange Clock signal (3.3Vac),datano t exchanged 3 3Vdc	During data exchange Clock signal (3 3Vac),datano t exchanged 3 3Vdc	0	0	0	-	SENB←→SEND
	5	SCL5	Clock line of the I2C bus	0	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	0	0	0	-	SEND→SENC
	6	GND	GND	0	0	0	0	0	0	-	-
	7	VDD+3 3V	3 3V power supply for analog signals	0	3.3	3.3	0	0	0	-	SEND→SENC
	8	SDA5	Data line of the I2C bus	0	During data exchange Clock signal (3.3Vac),datano t exchanged 3 3Vdc	During data exchange Clock signal (3 3Vac),datano t exchanged 3.3Vdc	0	0	0	-	SEND←→SENC
IV 3 CN1101	1	SCL5	Clock line of the I2C bus	0	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	Clock signal used during data transmission(3 3Vac), 3.3Vdc when no data are transmitted	0	0	0	-	SEND→SENC
	2	GND	GND	0	0	0	0	0	0	-	-
	3	VDD+3 3V	3 3V power supply for analog signals	0	3.3	3.3	0	0	0	-	SEND→SENC
	4	SDA5	Data line of the I2C bus	0	During data exchange Clock signal (3.3Vac),datano t exchanged 3 3Vdc	During data exchange Clock signal (3 3Vac),datano t exchanged 3.3Vdc	0	0	0	-	SEND←→SENC
FB CN9004	1	FAN-CTL	Voltage- controllable power supply	0	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	0	0	0	-	MAIN→DD
	2	GND	GND	0	0	0	0	0	0	-	-
	3	ALARM	Fan lock detect signal output	0	0V during normal Fan operation, 3 3Vdc while the fan is stopped	0V during normal Fan operation, 3 3Vdc while the fan is stopped	0	0	0	-	DD →MAIN

Name	Pin No.	Pin name	Function - connection termination	Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
				AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
					No signal	With signal					
FC CN311	1	+10V	Voltage- controllable power supply	0	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	0	0	0	-	MAIN⇒DD
	2	GND D	GND	0	0	0	0	0	0	-	-
	3	NC	Non-connection termial	-	-	-	-	-	-	-	-
	4	ALM OUT	Fan lock detect signal output	0	0V during normal Fan operation, 3.3Vdc while the fan is stopped	0V during normal Fan operation, 3.3Vdc while the fan is stopped	0	0	0	-	DD⇒MAIN
FD CN312	1	+10V	Voltage- controllable power supply	0	11 3Vdc during high-speed revolition (Fan mode H) ,8 5Vdc during medium speed revolition (Fan mode M) ,7 5Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	11 3Vdc during high-speed revolition (Fan mode H) ,8 5Vdc during medium speed revolition (Fan mode M) ,7 5Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	0	0	0	-	DD⇒FAN
	2	NC	Non-connection termial	-	-	-	-	-	-	-	-
	3	GND D	GND	0	0	0	0	0	0	-	-
	4	NC	Non-connection termial	-	-	-	-	-	-	-	-
	5	ALM D	Fan lock detect signal output	0	0V during normal Fan operation, 3.3Vdc while the fan is stopped	0V during normal Fan operation, 3.3Vdc while the fan is stopped	0	0	0	-	FAN⇒DD
FE CN313	1	+10V	Voltage- controllable power supply	0	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	0	0	0	-	DD⇒FAN
	2	GND	GND	0	0	0	0	0	0	-	-
	3	ALM E	Fan lock detect signal output	0	0V during normal Fan operation, 6 to 11 6 Vdc while the fan is abnormally stopped	0V during normal Fan operation, 6 to 11 6 Vdc while the fan is abnormally stopped	0	0	0	-	FAN⇒DD
FF CN315	1	+10V	Voltage- controllable power supply	0	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	11 6Vdc during high-speed revolition (Fan mode H) ,8 8Vdc during medium speed revolition (Fan mode M) ,6 0Vdc during low-speed revolition (Fan mode L) ,0Vdc while the fan is stopped	0	0	0	-	DD⇒FAN
	2	GND	GND	0	0	0	0	0	0	-	-
	3	ALM F	Fan lock detect signal output	0	0V during normal Fan operation, 6 to 11 6 Vdc while the fan is abnormally stopped	0V during normal Fan operation, 6 to 11 6 Vdc while the fan is abnormally stopped	0	0	0	-	FAN⇒DD

Name	Pin No.	Pin name	Function - connection termination		Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
					AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
						No signal	With signal					
AD · CN8501	1	GND	GND	MAIN	0	0	0	0	0	0	-	-
	2	GND	GND	MAIN	0	0	0	0	0	0	-	-
	3	ALARM	Module alarm signal	MAIN	0	5Vdc during normal PDP operation, 0V when the PDP is out of order	5Vdc during normal PDP operation, 0V when the PDP is out of order	0	0	0	0	No use
	4	GND	GND	MAIN	0	0	0	0	0	0	-	-
	5	PS+	No use	MAIN	0	0	0	0	0	0	0	-
	6	PS-	POWER MD	MAIN	0	3.3	3.3	3.3	3.3	0	0	MAIN→PDP
	7	MSEL	model select terminal	MAIN	0	0	0	0	0	0	-	-
	8	GND	GND	MAIN	0	0	0	0	0	0	-	-
	9	RH+	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	10	RH-	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	11	RG+	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	12	RG-	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	13	RF+	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	14	RF-	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	15	GND	GND	MAIN	0	0	0	0	0	0	-	-
	16	RE+	Video system output E+	MAIN	0	Video mode LVDS serial differential E+ output 0Vac, Bias 1.1Vdc	Video mode LVDS serial differential E+ output 0.3Vac, Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	17	RE-	Video system output E-	MAIN	0	Video mode LVDS serial differential E- output 0Vac, Bias 1.4Vdc	Video mode LVDS serial differential E- output 0.3Vac, Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	18	RD+	Video system output D+	MAIN	0	Video mode LVDS serial differential D+ output 0Vac, Bias 1.1Vdc	Video mode LVDS serial differential D+ output 0.3Vac, Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	19	RD-	Video system output D-	MAIN	0	Video mode LVDS serial differential D- output 0Vac, Bias 1.4Vdc	Video mode LVDS serial differential D- output 0.3Vac, Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	20	RCLK+	Video system output clock+	MAIN	0	Video data clock LVDS serial differential clock+output 0.3Vac, Bias 1.25Vdc	Video data clock LVDS serial differential clock+output 0.3Vac, Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	21	RCLK-	Video system output clock-	MAIN	0	Video data clock LVDS serial differential clock-output 0.3Vac, Bias 1.25Vdc	Video data clock LVDS serial differential clock-output 0.3Vac, Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	22	GND	GND	MAIN	0	0	0	0	0	0	-	-
	23	RC+	Video system output C+	MAIN	0	Video data LVDS serial differential C+ output 0.3Vac Bias 1.25Vdc	Video data LVDS serial differential C+ output 0.3Vac Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	24	RC-	Video system output C-	MAIN	0	Video data LVDS serial differential C- output 0.3Vac Bias 1.25Vdc	Video data LVDS serial differential C- output 0.3Vac Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	25	RB+	Video system output B+	MAIN	0	Video data LVDS serial differential B+ output 0Vac Bias 1.1Vdc	Video data LVDS serial differential B+ output 0.3Vac Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	26	RB-	Video system output B-	MAIN	0	Video data LVDS serial differential B- output 0Vac Bias 1.4Vdc	Video data LVDS serial differential B- output 0.3Vac Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	27	RA+	Video system output A+	MAIN	0	Video data LVDS serial differential A+ output 0Vac Bias 1.1Vdc	Video data LVDS serial differential A+ output 0.3Vac Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	28	RA-	Video system output A-	MAIN	0	Video data LVDS serial differential A- output 0Vac Bias 1.4Vdc	Video data LVDS serial differential A- output 0.3Vac Bias 1.25Vdc	0	0	0	-	MAIN→LVDS
	29	GND	GND	MAIN	0	0	0	0	0	0	-	-
	30	GND	GND	MAIN	0	0	0	0	0	0	-	-
	31	GND	GND	MAIN	0	0	0	0	0	0	-	-

Name	Pin No.	Pin name	Function - connection termination		Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
					AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
						No signal	With signal					
AD1 CN101	1	GND	GND	LVDS	0	0	0	0	0	0	-	-
	2	GND	GND	LVDS	0	0	0	0	0	0	-	-
	3	STATUS	No use	LVDS	0	0	0	0	0	0	-	-
	4	RFU	No use	LVDS	0	0	0	0	0	0	-	-
	5	STB_MT	No use	LVDS	0	0	0	0	0	0	-	-
	6	POWER	No use	LVDS	0	0	0	0	0	0	-	-
	7	MSEL	model select terminal	LVDS	0	0	0	0	0	0	-	-
	8	GND	GND	LVDS	0	0	0	0	0	0	-	-
	9	RH+	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	10	RH-	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	11	RG+	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	12	RG-	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	13	RF+	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	14	RF-	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	15	GND	GND	LVDS	0	0	0	0	0	0	-	-
	16	RE+	Video system output E+	LVDS	0	Video mode LVDS serial differential E+ output 0Vac, Bias 1 1Vdc	Video mode LVDS serial differential E+ output 0 3Vac, Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	17	RE-	Video system output E-	LVDS	0	Video mode LVDS serial differential E- output 0Vac, Bias 1 4Vdc	Video mode LVDS serial differential E- output 0 3Vac, Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	18	RD+	Video system output D+	LVDS	0	Video mode LVDS serial differential D+ output 0Vac, Bias 1 1Vdc	Video mode LVDS serial differential D+ output 0 3Vac, Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	19	RD-	Video system output D-	LVDS	0	Video mode LVDS serial differential D- output 0Vac, Bias 1 4Vdc	Video mode LVDS serial differential D- output 0 3Vac, Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	20	RCLK+	Video system output clock+	LVDS	0	Video data clock LVDS serial differential clock+output 0 3Vac, Bias 1 25Vdc	Video data clock LVDS serial differential clock+output 0 3Vac, Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	21	RCLK-	Video system output clock-	LVDS	0	Video data clock LVDS serial differential clock-output 0 3Vac, Bias 1 25Vdc	Video data clock LVDS serial differential clock-output 0 3Vac, Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	22	GND	GND	LVDS	0	0	0	0	0	0	-	-
	23	RC+	Video system output C+	LVDS	0	Video data LVDS serial differential C+ output 0 3Vac Bias 1 25Vdc	Video data LVDS serial differential C+ output 0 3Vac Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	24	RC-	Video system output C-	LVDS	0	Video data LVDS serial differential C- output 0 3Vac Bias 1 25Vdc	Video data LVDS serial differential C- output 0 3Vac Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	25	RB+	Video system output B+	LVDS	0	Video data LVDS serial differential B+ output 0Vac Bias 1 1Vdc	Video data LVDS serial differential B+ output 0 3Vac Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	26	RB-	Video system output B-	LVDS	0	Video data LVDS serial differential B- output 0Vac Bias 1 4Vdc	Video data LVDS serial differential B- output 0 3Vac Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	27	RA+	Video system output A+	LVDS	0	Video data LVDS serial differential A+ output 0Vac Bias 1 1Vdc	Video data LVDS serial differential A+ output 0 3Vac Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	28	RA-	Video system output A-	LVDS	0	Video data LVDS serial differential A- output 0Vac Bias 1 4Vdc	Video data LVDS serial differential A- output 0 3Vac Bias 1 25Vdc	0	0	0	-	MAIN→LVDS
	29	GND	GND	LVDS	0	0	0	0	0	0	-	-
	30	GND	GND	LVDS	0	0	0	0	0	0	-	-
	31	GND	GND	LVDS	0	0	0	0	0	0	-	-

Name	Pin No.	Pin name	Function - connection termination		Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
					AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
						No signal	With signal					
AD2 CN8502	1	GND	GND	MAIN	0	0	0	0	0	0	-	-
	2	GND	GND	MAIN	0	0	0	0	0	0	-	-
	3	P_ST_B	Connecting detection (PDP→MAIN)	MAIN	0	0	0	0	0	0	-	LVDS→MAIN
	4	MR_ST_B	Connecting detection (MAIN→PDP)	MAIN	0	0	0	0	0	0	-	MAIN→LVDS
	5	NC	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	6	MR_RXD	UART data (←MAIN)	MAIN	3.3	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	3.3	3.3	3.3	-	LVDS→MAIN
	7	V+3V_D	3.3V power supply for the test jig	MAIN	0	3.3	3.3	0	0	0	-	-
	8	AC_DET_B	AC power detection from power supply	MAIN	3.3	3.3	3.3	3.3	3.3	3.3	-	LVDS→MAIN
	9	NC	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	10	REQ	UART send request from PDP module	MAIN	0	3.3Vdc when riquest signal is received, 0Vdc when no riquest signal is received	3.3Vdc when riquest signal is received, 0Vdc when no riquest signal is received	0	0	0	-	LVDS→MAIN
	11	NC	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	12	MR_TXD	UART data (MAIN→PDP)	MAIN	3.3	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	3.3	3.3	3.3	-	MAIN→LVDS
	13	NC	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	14	STB_MUTE	Stand by power control signal	MAIN	0	0	0	4.7	4.7	0	-	MAIN→LVDS
	15	NC	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	16	VIS	reserve	MAIN	0	0	0	0	0	0	-	MAIN→LVDS
	17	NC	Non-connection termial	MAIN	-	-	-	-	-	-	-	-
	18	FIELD	Advanced cinema control signal	MAIN	0	0	0	0	0	0	-	MAIN→LVDS
	19	GND	GND	MAIN	0	0	0	0	0	0	-	-
	20	GND	GND	MAIN	0	0	0	0	0	0	-	-
AD7 CN102	1	GND	GND	LVDS	0	0	0	0	0	0	-	-
	2	P_ST_B	No use	LVDS	0	0	0	0	0	0	-	-
	3	NC	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	4	V+3V_D	3.3V power supply for the test jig	LVDS	0	3.3	3.3	0	0	0	-	-
	5	NC	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	6	NC	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	7	NC	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	8	NC	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	9	NC	Non-connection termial	LVDS	-	-	-	-	-	-	-	-
	10	GND	GND	LVDS	0	0	0	0	0	0	-	-
	11	GND	GND	LVDS	0	0	0	0	0	0	-	-
	12	THEATER	Advanced cinema control signal	LVDS	0	0	0	0	0	0	-	MAIN→LVDS
	13	VIS	No use	LVDS	0	0	0	0	0	0	-	-
	14	STB_MUTE	No use	LVDS	0	0	0	4.7	4.7	0	-	-
	15	TXD	UART data (MAIN→PDP)	LVDS	3.3	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	3.3	3.3	3.3	-	MAIN→LVDS
	16	REQ_MD	UART send request from PDP module	LVDS	0	3.3Vdc when riquest signal is received, 0Vdc when no riquest signal is received	3.3Vdc when riquest signal is received, 0Vdc when no riquest signal is received	0	0	0	-	LVDS→MAIN
	17	AC_OFF	AC power detection from power supply	LVDS	3.3	3.3	3.3	3.3	3.3	3.3	-	LVDS→MAIN
	18	RXD	UART data (PDP→MAIN)	LVDS	3.3	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	3.3	3.3	3.3	-	LVDS→MAIN
	19	MR_ST_B	No use	LVDS	0	0	0	0	0	0	-	-
	20	GND	GND	LVDS	0	0	0	0	0	0	-	-
LD CN2602 CN2101	1	REMIN1	Infrared remote control data		0	Clock signal (5Vac) when data are received, 5Vdc when no data are received	Clock signal (5Vac) when data are received, 5Vdc when no data are received	Clock signal (5Vac) when data are received, 5Vdc when no data are received	Clock signal (5Vac) when data are received, 5Vdc when no data are received	0	-	LED→PWR
	2	LEDCTL1	Standby red LED control		0	0	0	3.3	3.3	0	-	PWR→LED
	3	LEDCTL2	POWER ON green LED control		0	3.3	3.3	0	0	0	-	PWR→LED
	4	GND	GND		0	0	0	0	0	0	-	-
	5	M+5V	5V supply for microcomputer		0	5	5	5	5	0	-	PWR→LED
PW CN9009 CN2601	1	SW7	Power start control		0	6.8	6.8	6.8	6.8	0	-	PW→MAIN
	2	POIN	Power start detection		0	3.3	3.3	3.3	3.3	0	-	PW→MAIN
	3	GND	GND		0	0	0	0	0	0	-	-
	4	M+5V	5V supply for microcomputer		0	5	5	5	5	0	-	MAIN→PW
	5	M+7V	7V power supply for microcomputer		0	6.8	6.8	6.8	6.8	6.8	-	MAIN→PW
	6	REMIN1	Infrared remote control data		0	Clock signal (5Vac) when data are received, 5Vdc when no data are received	Clock signal (5Vac) when data are received, 5Vdc when no data are received	Clock signal (5Vac) when data are received, 5Vdc when no data are received	Clock signal (5Vac) when data are received, 5Vdc when no data are received	0	-	PW→MAIN
	7	LEDCTL1	Standby red LED control		0	0	0	3.3	3.3	0	-	MAIN→PW
	8	LEDCTL2	POWER ON green LED control		0	3.3	3.3	0	0	0	-	MAIN→PW
SW CN9011 CN2201	1	CTL1	Key input detection		0	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0	-	SW→MAIN
	2	CTL2	Key input detection		0	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0.7~2.8Vdc When key inputs are enterd, 3.3Vdc when no key inputs are enterd	0	-	SW→MAIN
	3	GND	GND		0	0	0	0	0	0	-	-

Name	Pin No.	Pin name	Function - connection termination		Basic operation (Numerical unit: Vdc; except for case when units are individually indicated)							Signal direction (DR: Data Relay)
					AC power ON (power cord connected to the wall outlet) ★★	MAIN POWER "ON" ★		Power management ★★★	Standby ★★★	Main power OFF ★★	AC power OFF (Power cord pulled out of the wall outlet) ★★	
						No signal	With signal					
PA CN3003	1	S+12	12V power supply audio circuits	MAIN	0	12 5	12 5	0	0	0	-	POWER→AUDIO
	2	S+12	12V power supply audio circuits	MAIN	0	12	12	0	0	0	-	POWER→AUDIO
	3	S+12	12V power supply audio circuits	MAIN	0	12	12	0	0	0	-	POWER→AUDIO
	4	GND	GND	MAIN	0	0	0	0	0	0	-	-
	5	GND	GND	MAIN	0	0	0	0	0	0	-	-
	6	GND	GND	MAIN	0	0	0	0	0	0	-	-
PA	6	S+12	12V power supply audio circuits	PSU	0	12 5	12 5	0	0	0	-	POWER→AUDIO
	5	S+12	12V power supply audio circuits	PSU	0	12	12	0	0	0	-	POWER→AUDIO
	4	S+12	12V power supply audio circuits	PSU	0	12	12	0	0	0	-	POWER→AUDIO
	3	GND	GND	PSU	0	0	0	0	0	0	-	-
	2	GND	GND	PSU	0	0	0	0	0	0	-	-
	1	GND	GND	PSU	0	0	0	0	0	0	-	-
AD3 CN103	1	GND	GND		0	0	0	0	0	0	-	-
	2	P_REQ_MD	UART send request from PDP module		0	3.3Vdc when riquest signal is received, 0Vdc when no riquest signal is received	3 3Vdc when riquest signal is received, 0Vdc when no riquest signal is received	0	0	0	-	PDP→LVDS
	3	P_RXD_MD	UART data (PDP→MAIN)		3.3	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	Clock signal (3 3Vac) when data are received, 3 3Vdc when no data are received	3.3	3 3	3.3	-	PDP→LVDS
	4	P_TXD_MD	UART data (MAIN→PDP)		3.3	Clock signal (3.3Vac) when data are received, 3.3Vdc when no data are received	Clock signal (3 3Vac) when data are received, 3 3Vdc when no data are received	3.3	3 3	3.3	-	LVDS→PDP
	5	P_AC_OFF	AC power detection from power supply		3 3	3 3	3.3	3.3	3 3	3.3	-	PDP→LVDS
	6	NC	Non-connection termial		-	-	-	-	-	-	-	-
	7	GND	GND		0	0	0	0	0	0	-	-
	8	PARA_B0	Digital video output signal B[0]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	9	PARA_B1	Digital video output signal B[1]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	10	PARA_B2	Digital video output signal B[2]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	11	PARA_B3	Digital video output signal B[3]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	12	PARA_B4	Digital video output signal B[4]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	13	PARA_B5	Digital video output signal B[5]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	14	PARA_B6	Digital video output signal B[6]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	15	PARA_B7	Digital video output signal B[7]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	16	PARA_B8	Digital video output signal B[8]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	17	PARA_B9	Digital video output signal B[9]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	18	GND	GND		0	0	0	0	0	0	-	-
	19	PARA_G0	Digital video output signal G[0]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	20	PARA_G1	Digital video output signal G[1]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	21	PARA_G2	Digital video output signal G[2]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	22	PARA_G3	Digital video output signal G[3]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	23	PARA_G4	Digital video output signal G[4]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	24	PARA_G5	Digital video output signal G[5]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	25	PARA_G6	Digital video output signal G[6]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	26	PARA_G7	Digital video output signal G[7]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	27	PARA_G8	Digital video output signal G[8]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	28	PARA_G9	Digital video output signal G[9]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	29	GND	GND		0	0	0	0	0	0	-	-
	30	PARA_R0	Digital video output signal R[0]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	31	PARA_R1	Digital video output signal R[1]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	32	PARA_R2	Digital video output signal R[2]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	33	PARA_R3	Digital video output signal R[3]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	34	PARA_R4	Digital video output signal R[4]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	35	PARA_R5	Digital video output signal R[5]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	36	PARA_R6	Digital video output signal R[6]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	37	PARA_R7	Digital video output signal R[7]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	38	PARA_R8	Digital video output signal R[8]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	39	PARA_R9	Digital video output signal R[9]		0	0	3.3Vac	0	0	0	-	LVDS→PDP
	40	GND	GND		0	0	0	0	0	0	-	-
	41	GND	GND		0	0	0	0	0	0	-	-
	42	P_CLK	Clock signal output		0	3.3Vac	3.3Vac	0	0	0	-	LVDS→PDP
	43	GND	GND		0	0	0	0	0	0	-	-
	44	PARA_DE	DE signal output		0	3.3Vac	3.3Vac	0	0	0	-	LVDS→PDP
	45	PARA_HD	HD signal output		0	3.3Vac	3.3Vac	0	0	0	-	LVDS→PDP
	46	PARA_VD	VD signal output		0	3.3Vac	3.3Vac	0	0	0	-	LVDS→PDP
	47	P_THEATER	Advanced cinema control signal		0	0	0	0	0	0	-	LVDS→PDP
	48	P_INP_MUTE	Mute control signal for LVDS Receiver outputs		0	0	0	0	0	0	-	PDP→LVDS
	49	V+3V_UCOM2	3 3V power supply for module microcomputer		3.3	3 3	3.3	3.3	3 3	3.3	-	PDP→LVDS
	50	GND	GND		0	0	0	0	0	0	-	-
AD4 CN104	1	GND	GND		0	0	0	0	0	0	-	-
	2	DIGI_3V_IN	3 3V power supply for module microcomputer		3.3	3 3	3.3	3.3	3 3	3.3	-	PDP→LVDS
	3	MASK1	No use		0	0	0	0	0	0	-	-
	4	MASK0	No use		0	0	0	0	0	0	-	-
	5	MAX_PLUS21	No use		0	0	0	0	0	0	-	-
	6	MAX_PLUS20	No use		0	0	0	0	0	0	-	-
	7	MAX_PLUS11	No use		0	0	0	0	0	0	-	-
	8	MAX_PLUS10	No use		0	0	0	0	0	0	-	-
	9	P_STATUS	No use		-	-	-	-	-	-	-	-
	10	P_POWER	No use		0	0	0	0	0	0	-	-
	11	DITHER	No use		0	0	0	0	0	0	-	-
	12	P_MSEL	model select terminal		0	0	0	0	0	0	-	-
	13	LED_B	No use		0	0	0	0	0	0	-	-
	14	LED_R	No use		0	0	0	0	0	0	-	-
	15	GND	GND		0	0	0	0	0	0	-	-
	16	GND	GND		0	0	0	0	0	0	-	-
	17	GND	GND		0	0	0	0	0	0	-	-
	18	D+3_3V_2	3.3V power supply for LVDS Receiver		0	3 3	3.3	0	0	0	-	PDP→LVDS
	19	D+3_3V_2	3 3V power supply for LVDS Receiver		0	3 3	3.3	0	0	0	-	PDP→LVDS
	20	D+3_3V_2	3 3V power supply for LVDS Receiver		0	3 3	3.3	0	0	0	-	PDP→LVDS
CN106	1	GND	Signal GND for LVDS cable		0	0	0	0	0	0	-	-
	2	GND	Signal GND for LVDS cable		0	0	0	0	0	0	-	-
	3	GND	Signal GND for LVDS cable		0	0	0	0	0	0	-	-

■ PDP MODULE

CN3151 (D24) ↔ PANEL SENSOR ASSY CN3651 (TE1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	V+3.3V_EEP	O	Power supply output for memory	3.3	TP3159
2	E_SCL	O	IIC communication clock signal	0 to 3.3	TP3168
3	E_SDA	O	IIC communication data signal	0 to 3.3	TP3169
4	TEMP1	I	Panel temperature sensor signal	0.8	TP3161
5	GND	–	GND	–	–

CN3601 (D21) ↔ POWER SUPPLY UNIT (P4)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	V+12V	I	+12 V power supply input	12	TP3505
2	V+12V	I	+12 V power supply input	12	TP3506
3	GND	–	GND	–	TP3608
4	GND	–	GND	–	–
5	V+3.3V_STB	I	STB3.3 V power supply input	3.3	TP3638
6	GND	–	GND	–	–
7	M_SW_DET	I	Mechanism switch detection signal input	3.3	TP3639
8	EXT_PD	O	Power down signal	0	TP3632
9	VSUS_ADJ	O	VSUS power supply adjustment signal	1.7	TP3633
10	PS_PD	I	Power supply PD signal	0	TP3634
11	RELAY	O	Relay control	3.3	TP3626
12	DRF_B	O	Large power supply ON/OFF control signal	3.3	TP3616
13	AC_DET	I	AC power supply state input	3.3	TP3635
14	PD_TRG_B	I	Power down trigger signal	3.3	TP3636

CN3501 (D5) ↔ 60 ADDRESS L ASSY CN1602 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3501
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	3.3	–
39	DIV_0	O	Data output timing control	0	–
40	GND	–	GND	–	–

CN3502 (D6) ↔ 60 ADDRESS S ASSY CN1802 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3502
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	0	–
39	DIV_0	O	Data output timing control	3.3	–
40	GND	–	GND	–	–

CN3503 (D7) ↔ 60 ADDRESS S ASSY CN1802 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3503
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	0	–
39	DIV_0	O	Data output timing control	0	–
40	GND	–	GND	–	–

CN3504 (D8) ↔ 60 ADDRESS L ASSY CN1602 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3504
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	3.3	–
39	DIV_0	O	Data output timing control	0	–
40	GND	–	GND	–	–

CN3507 (D16) ↔ 60 ADDRESS L ASSY CN1602 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3520
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	3.3	–
39	DIV_0	O	Data output timing control	0	–
40	GND	–	GND	–	–

CN3508 (D17) ↔ 60 ADDRESS S ASSY CN1802 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3521
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	0	–
39	DIV_0	O	Data output timing control	3.3	–
40	GND	–	GND	–	–

CN3509 (D18) ↔ 60 ADDRESS S ASSY CN1802 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3522
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	0	–
39	DIV_0	O	Data output timing control	0	–
40	GND	–	GND	–	–

CN3510 (D19) ↔ 60 ADDRESS L ASSY CN1602 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	TP3522
3	NC	–	Non connection	–	–
4	GND	–	GND	–	–
5	NC	–	Non connection	–	–
6	NC	–	Non connection	–	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TA–	O	LVDS data	1 to 1.4	–
11	TA+	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TB–	O	LVDS data	1 to 1.4	–
16	TB+	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TC–	O	LVDS data	1 to 1.4	–
21	TC+	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLK–	O	LVDS data	1 to 1.4	–
26	TCLK+	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TD–	O	LVDS data	1 to 1.4	–
31	TD+	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3V_D	O	+3.3 V power supply output	3.3	–
36	V+3V_D	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV_1	O	Data output timing control	3.3	–
39	DIV_0	O	Data output timing control	0	–
40	GND	–	GND	–	–

60 DIGITAL ASSY		60 X DRIVE ASSY	
D9 : CN505 (AKM1348)	⟺	X1: CN1001 (AKM1348)	

Pin No.	Name	Voltage [V]	Name	Pin No.	Function	TP
1	XDD_PD	0	XDD_PD	40	X DRIVE PD signal input	TP3513
2	NC	-	NC	39	Non-connection termial	
3	DGND	0	DGND	38	GND	
4	XSUS-B	0 to 3.3	XSUS-B	37	X DRIVE control signal output	
5	DGND	0	DGND	36	GND	
6	XSUS-U	0 to 3.3	XSUS-U	35	X DRIVE control signal output	
7	DGND	0	DGND	34	GND	
8	XSUS-D	0 to 3.3	XSUS-D	33	X DRIVE control signal output	
9	DGND	0	DGND	32	GND	
10	XSUS-G	0 to 3.3	XSUS-G	31	X DRIVE control signal output	
11	DGND	0	DGND	30	GND	
12	XNR-D	0 to 3.3	XNR-D	29	X DRIVE control signal output	
13	DGND	0	DGND	28	GND	
14	XSUS-MSK	0 to 3.3	XSUS-MSK	27	X DRIVE control signal output	
15	DGND	0	DGND	26	GND	
16	SUS_MUTE	0	SUS_MUTE	25	X DRIVE mute signal input	
17	DGND	0	DGND	24	GND	
18	XDRV_PD	0	XDRV_PD	23	X DRIVE PD signal input	TP3514
19	DGND	0	DGND	22	GND	
20	XResv2	-	XResv2	21	X DRIVE control signal output (Reserve)	
21	XResv3	-	XResv3	20	X DRIVE control signal output (Reserve)	
22	XResv4	-	XResv4	19	X DRIVE control signal output (Reserve)	
23	DGND	0	DGND	18	GND	
24	PSW2	0	PSW2	17	Function standby control signal	TP3516
25	NC	-	NC	16	Non-connection termial	
26	NC	-	NC	15	Non-connection termial	
27	NC	-	NC	14	Non-connection termial	
28	NC	-	NC	13	Non-connection termial	
29	NC	-	NC	12	Non-connection termial	
30	NC	-	NC	11	Non-connection termial	
31	NC	-	NC	10	Non-connection termial	
32	NC	-	NC	9	Non-connection termial	
33	NC	-	NC	8	Non-connection termial	
34	NC	-	NC	7	Non-connection termial	
35	NC	-	NC	6	Non-connection termial	
36	NC	-	NC	5	Non-connection termial	
37	NC	-	NC	4	Non-connection termial	
38	DRF_SW	3.3	DRF_SW	3	DRIVE OFF signal input	TP3623
39	NC	-	NC	2	Non-connection termial	
40	XSUS_PD	0	XSUS_PD	1	X DRIVE PD signal input	TP3515

60 DIGITAL ASSY D10 : CN3506 (AKM1348) ⟺ **60 Y DRIVE ASSY** Y1: CN2001 (AKM1348)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function	
1	SCN5V_PD	0	SCN5V_PD	40	Y DRIVE PD signal input	TP3507
2	NC	-	NC	39	Non-connection termial	
3	CLK_H	0 to 3.3	CLK1	38	SCAN control signal output	
4	SI_H	0 to 3.3	SI_H	37	SCAN control signal output	
5	SI_L	0 to 3.3	SI_L	36	SCAN control signal output	
6	DGND	0	DGND	35	GND	
7	CLR	0 to 3.3	CLR	34	SCAN control signal output	
8	CLK_L	0 to 3.3	CLK2	33	SCAN control signal output	
9	DGND	0	DGND	32	GND	
10	LE	0 to 3.3	LE	31	SCAN control signal output	
11	OC2_U	0 to 3.3	OC2_U	30	SCAN control signal output	
12	OC1(-1)	0 to 3.3	OC1	29	SCAN control signal output	
13	DGND	0	DGND	28	GND	
14	YSUS-B	0 to 3.3	YSUS-B	27	Y DRIVE control signal output	
15	YSUS-U	0 to 3.3	YSUS-U	26	Y DRIVE control signal output	
16	DGND	0	DGND	25	GND	
17	YSUS-D	0 to 3.3	YSUS-D	24	Y DRIVE control signal output	
18	YSUS-G	0 to 3.3	YSUS-G	23	Y DRIVE control signal output	
19	DGND	0	DGND	22	GND	
20	YPR-U	0 to 3.3	YPR-U	21	Y DRIVE control signal output	TP3508
21	SUS_MUTE	0	SUS_MUTE	20	Y DRIVE mute signal output	
22	DGND	0	DGND	19	GND	
23	YSUS-MSK	0 to 3.3	YSUS-MSK	18	Y DRIVE control signal output	
24	YNRST	0 to 3.3	YNRST	17	Y DRIVE control signal output	
25	YRSV2	-	YRSV2	16	Y DRIVE control signal output (Reserve)	
26	DGND	0	DGND	15	GND	
27	YENOFS	0 to 3.3	YNOFS	14	Y DRIVE control signal output	
28	YRSV3	-	YRSV3	13	Y DRIVE control signal output (Reserve)	
29	YSOFT-D	0 to 3.3	YSOFT-D	12	Y DRIVE control signal output	
30	OC2_D	0 to 3.3	OC2_D	11	SCAN control signal output	
31	DGND	0	DGND	10	GND	
32	VOFS_ADJ	1.85	VOFS_ADJ	9	Vofs offset adjustment signal output	TP3181
33	VYPRST_ADJ	1.21	VYPRST_ADJ	8	Reset voltage adjustment signal output	TP3182
34	DGND	0	DGND	7	GND	
35	PSW2	0	PSW2	6	Function standby control signal	TP3516
36	SCAN_PD	0	SCAN_PD	5	Y DRIVE PD signal input	TP3509
37	YDD_PD	0	YDD_PD	4	Y DRIVE PD signlal input	TP3510
38	YSUS_PD	0	YSUS_PD	3	Y DRIVE PD signlal input	TP3511
39	NC	-	NC	2	Non-connection termial	
40	YDRV_PD	0	YDRV_PD	1	Y DRIVE PD signal input	TP3512

60 Y DRIVE ASSY

Y6: CN2354 (AKM1281)

Y8: CN2356 (AKM1281)

60 ADDRESS L/S ASSY

AD2: CN1801 (AKM1291)

AD2: CN1601 (AKM1291)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	5	GND
2	5V	5	5V	4	5V power supply
3	8V	8	8V	3	8V power supply
4	GND_ADR	0	GND_ADR	2	GND
5	VADR	60	VADR	1	60V power supply
6	VADR	60	VADR	1	60V power supply
7	GND_ADR	0	GND_ADR	2	GND
8	8V	8	8V	3	8V power supply
9	5V	5	5V	4	5V power supply
10	GND_D	0	GND_D	5	GND

60 Y DRIVE ASSY

Y2: CN2402 (AKM1200)

607 SCAN B ASSY

SB1: CN2901 (AKP1261)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	VH	130	VH	1	Power supply for VH
2	VH	130	VH	2	Power supply for VH
3	NC	-	NC	3	Non-connection termial
4	NC	-	NC	4	Non-connection termial
5	NC	-	NC	5	Non-connection termial
6	GNDH	-60 ~ 300	GNDH	6	GND(PSUS)
7	SI_H	-60 ~ 300	SI_H	7	SI_H signal
8	CLR	-60 ~ 300	CLR	8	CLR signal
9	OC2	-60 ~ 300	OC2	9	OC2 signal
10	OC1	-60 ~ 300	OC1	10	OC1 signal
11	CLK1	-60 ~ 300	CLK1	11	CLK1 signal
12	LE	-60 ~ 300	LE	12	LE signal
13	GNDH	-60 ~ 300	GNDH	13	GND(PSUS)
14	GNDH_R	-60 ~ 300	GNDH_R	14	GND(PSUS). Connector detection
15	IC5V	-60 ~ 300	IC5V	15	IC5V power supply

60 Y DRIVE ASSY ⟷ **607 SCAN A ASSY**

Y3: CN2401 (AKM1200) ⟷ SA1: CN2801 (AKP1261)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	VH	130	VH	1	Power supply for VH
2	VH	130	VH	2	Power supply for VH
3	NC	-	NC	3	Non-connection termial
4	NC	-	NC	4	Non-connection termial
5	NC	-	NC	5	Non-connection termial
6	GNDH	-60～300	GNDH	6	GND(PSUS)
7	SI_L	-60～300	SI_L	7	SI_L signal
8	CLR	-60～300	CLR	8	CLR signal
9	OC2	-60～300	OC2	9	OC2 signal
10	OC1	-60～300	OC1	10	OC1 signal
11	CLK2	-60～300	CLK2	11	CLK2 signal
12	LE	-60～300	LE	12	LE signal
13	GNDH	-60～300	GNDH	13	GND(PSUS)
14	GNDH_R	-60～300	GNDH_R	14	GND(PSUS).Connector detection
15	IC5V	-60～300	IC5V	15	IC5V power supply

60 Y DRIVE ASSY ⟷ **POWER SUPPLY UNIT**

Y4: CN2351 (B9B-EH) ⟷ P1: (B9B-EH)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	NC	-	NC	1	Non-connection termial
2	+16_5V	16.5	+16_5V	2	16.5V power supply
3	+6_5V	6.5	+6_5V	3	6.5V power supply
4	GND_D	0	GND_D	4	GND
5	GND_SUS	0	GND_SUS	5	GND
6	GND_SUS	0	GND_SUS	6	GND
7	NC	-	NC	7	Non-connection termial
8	VSUS	207	VSUS	8	VSUS power supply
9	VSUS	207	VSUS	9	VSUS power supply

60 Y DRIVE ASSY ⟷ **POWER SUPPLY UNIT**

Y5 : CN2353 (AKM1277) ⟷ P7: (B7B-PH-K-S)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	1	60V power supply
2	+60V	60	+60V	2	60V power supply
3	NC	-	NC	3	Non-connection termial
4	GND_ADR	0	GND_ADR	4	GND
5	+12V	12	+12V	5	12V power supply
6	GND_D	0	GND_D	6	GND
			NC	7	Non-connection termial

60 X DRIVE ASSY ⟷ **POWER SUPPLY UNIT**

X2: (CN1206 B8B-EH) ⟷ P2: (B8B-EH)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+16_5V	16.5	+16_5V	1	16.5V power supply
2	+6_5V	6.5	+6_5V	2	6.5V power supply
3	GND_D	0	GND_D	3	GND
4	GND_SUS	0	GND_SUS	4	GND
5	GND_SUS	0	GND_SUS	5	GND
6	NC	-	NC	6	Non-connection termial
7	VSUS	207	VSUS	7	VSUS power supply
8	VSUS	207	VSUS	8	VSUS power supply

60 X DRIVE ASSY ⟷ **POWER SUPPLY UNIT**

X5: CN1204 (AKM1277) ⟷ P6: (B6B-PH-K-S)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	1	60V power supply
2	+60V	60	+60V	2	60V power supply
3	NC	-	NC	3	Non-connection termial
4	GND_ADR	0	GND_ADR	4	GND
5	+12V	12	+12V	5	12V power supply
6	GND_D	0	GND_D	6	GND

60 X DRIVE ASSY ⟷ **60 ADDRESS L/S ASSY**

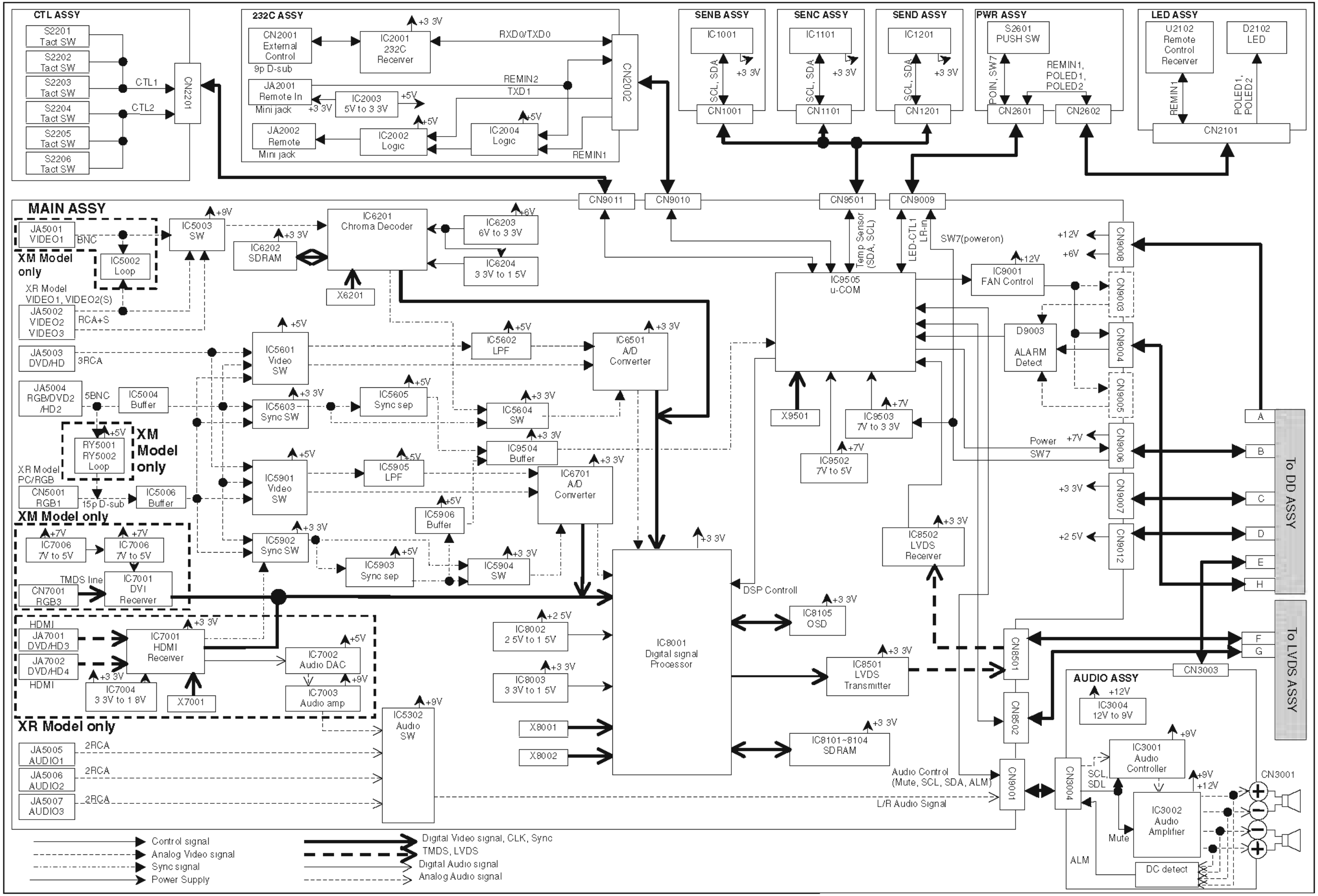
X3: CN1201 (AKM1281) ⟷ AD2: CN1601 (AKM1291)

X6: CN1203 (AKM1281) — AD2: CN1801 (AKM1291)

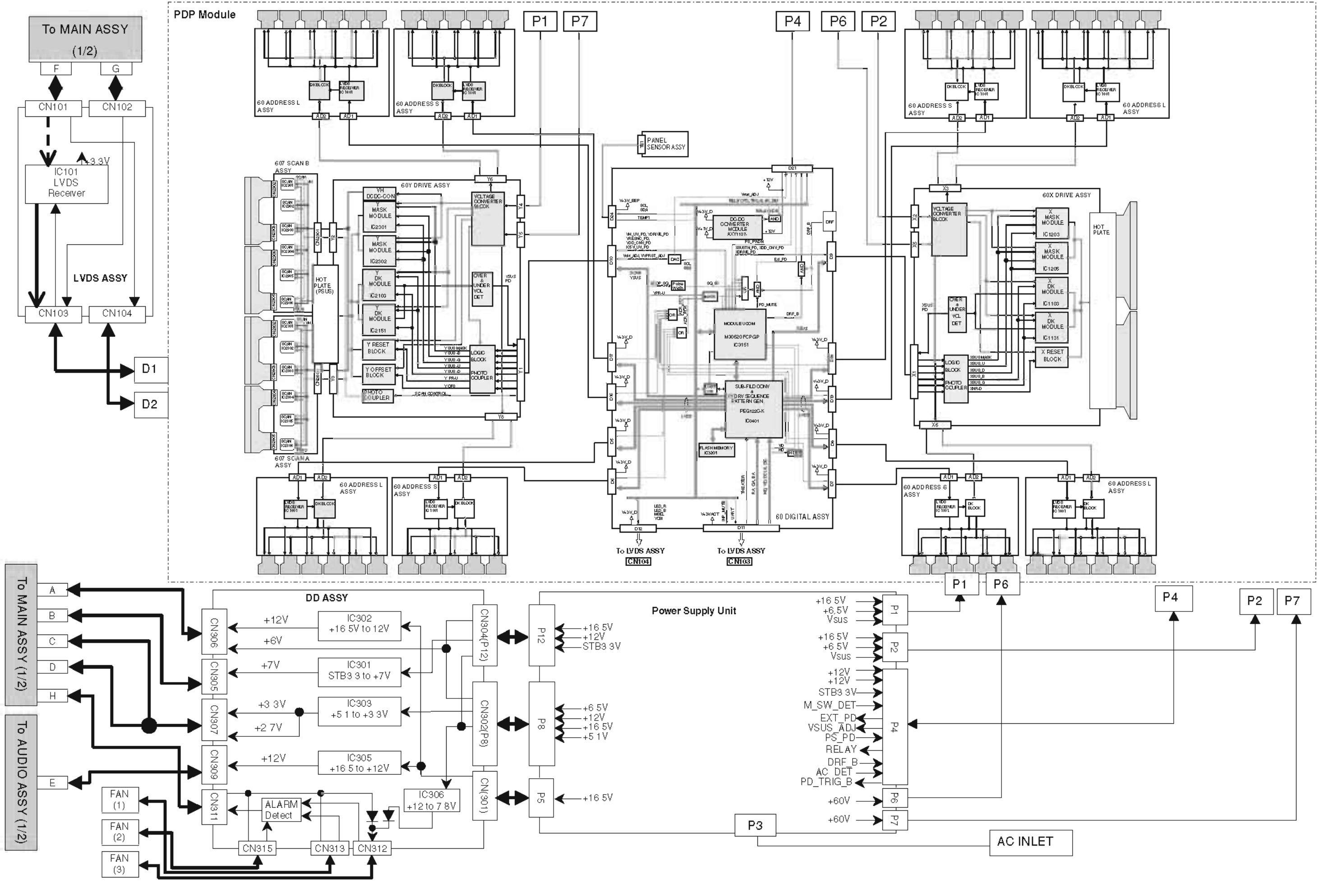
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	5	GND
2	5V	5	5V	4	5V power supply
3	8V	8	8V	3	8V power supply
4	GND_ADR	0	GND_ADR	2	GND
5	VADR	60	VADR	1	60V power supply
6	VADR	60	VADR	1	60V power supply
7	GND_ADR	0	GND_ADR	2	GND
8	8V	8	8V	3	8V power supply
9	5V	5	5V	4	5V power supply
10	GND_D	0	GND_D	5	GND

7.3 GENERAL BLOCK DIAGRAM

General Block Diagram (1/2)

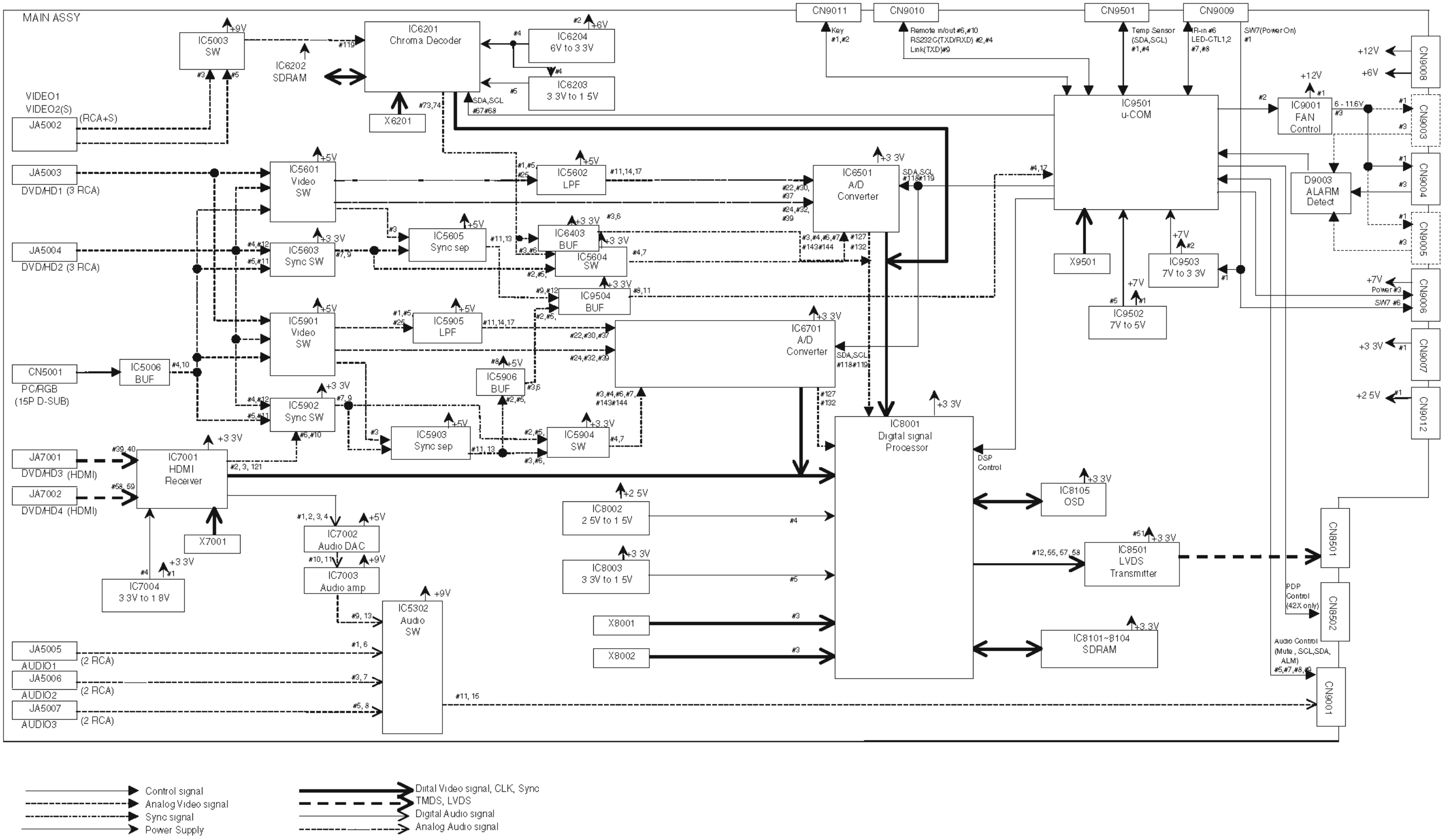


General Block Diagram (2/2)



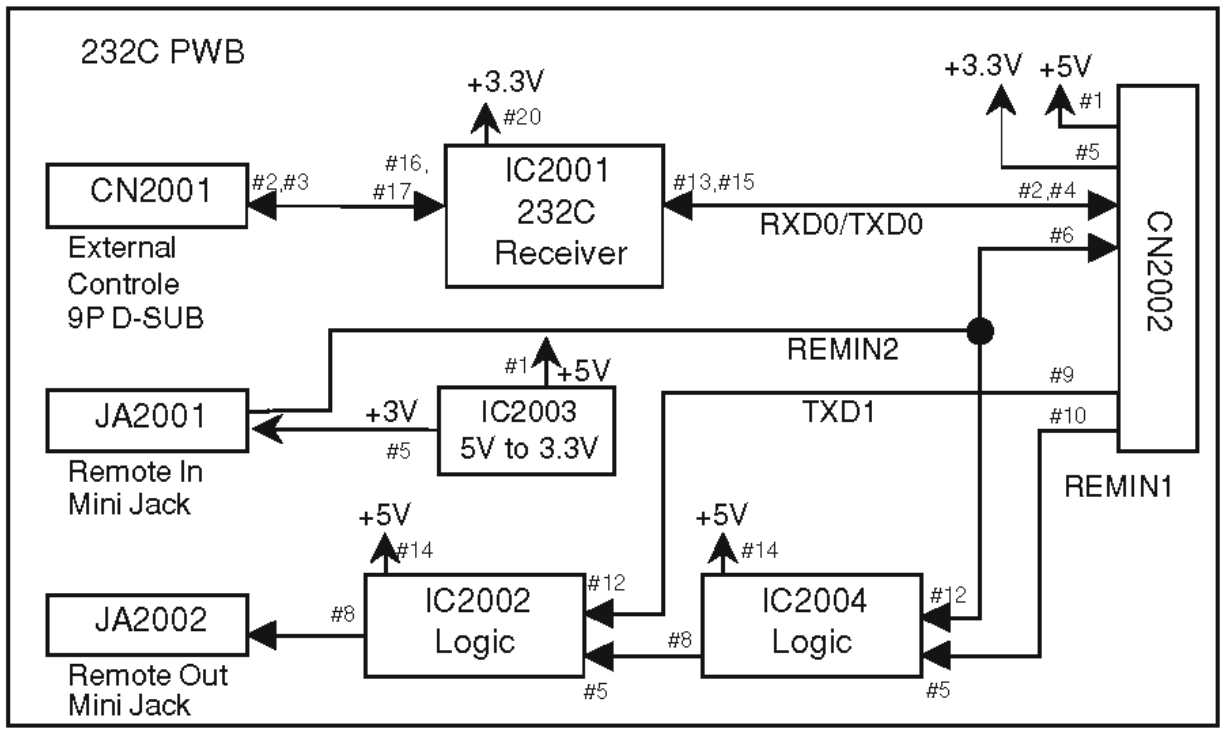
7.4 MAIN BLOCK DIAGRAM

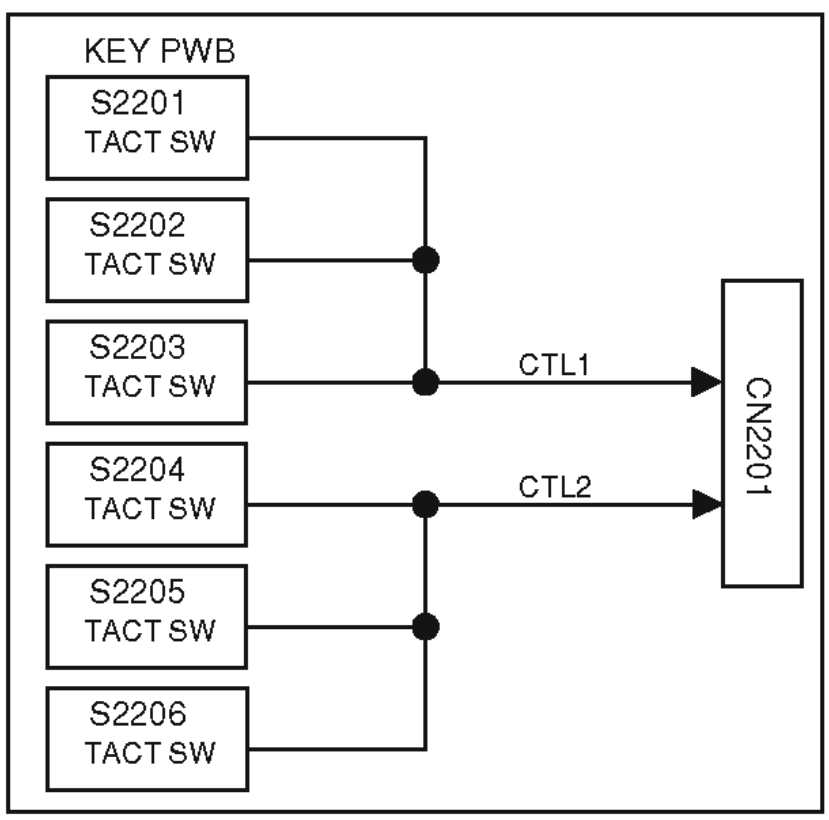
MAIN ASSY Block Diagram

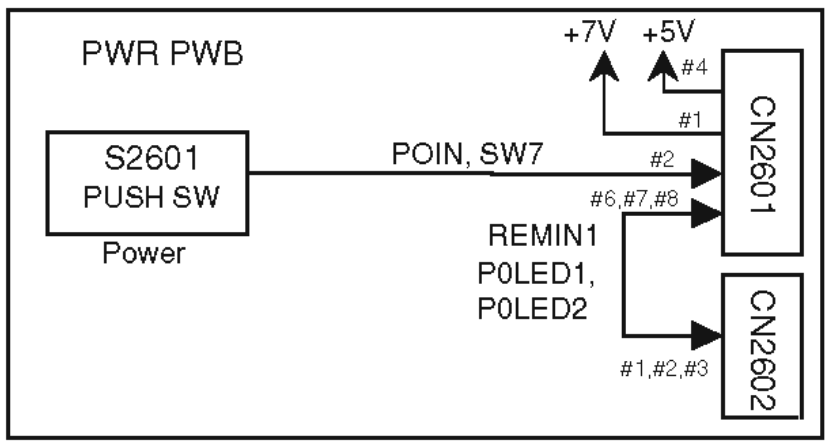


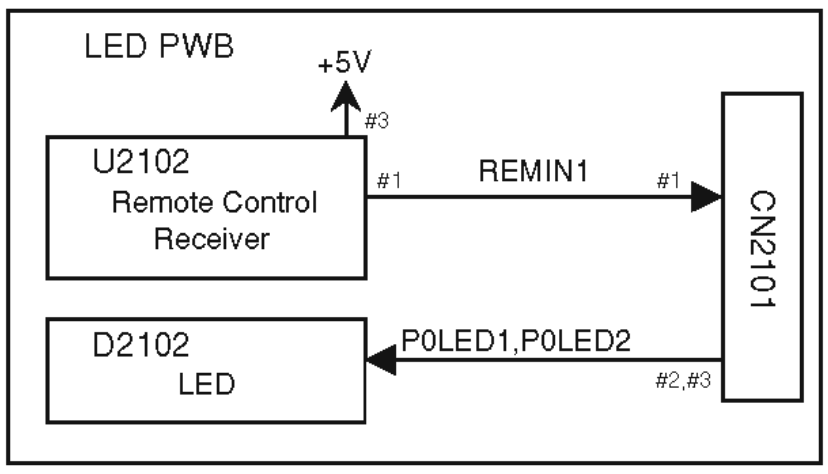
7.5 SUB BLOCK DIAGRAM

Block Diagram: SUB ASSY (1/2)

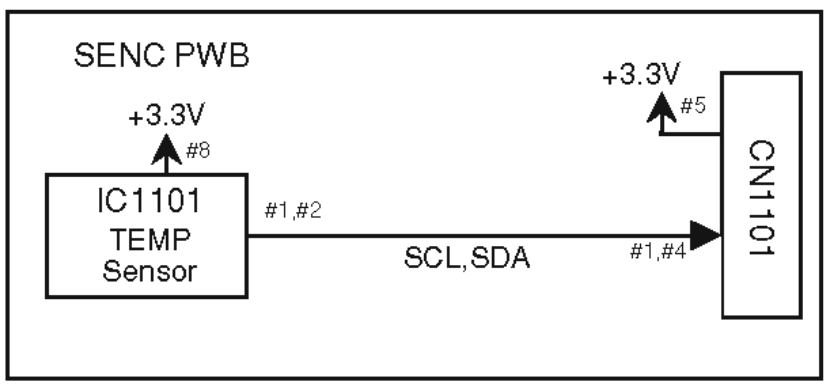


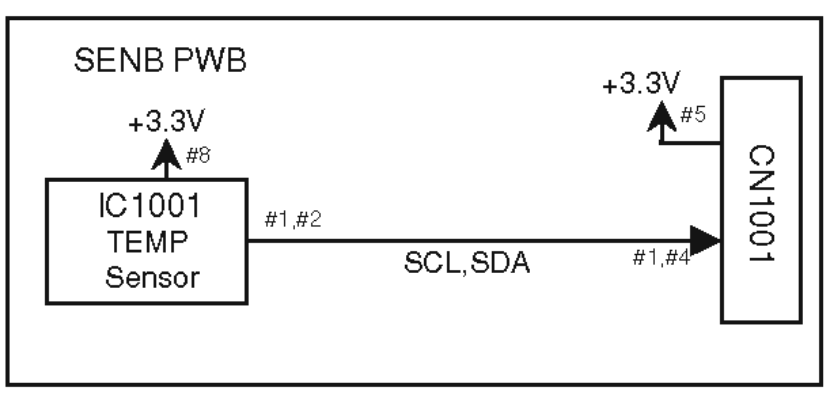


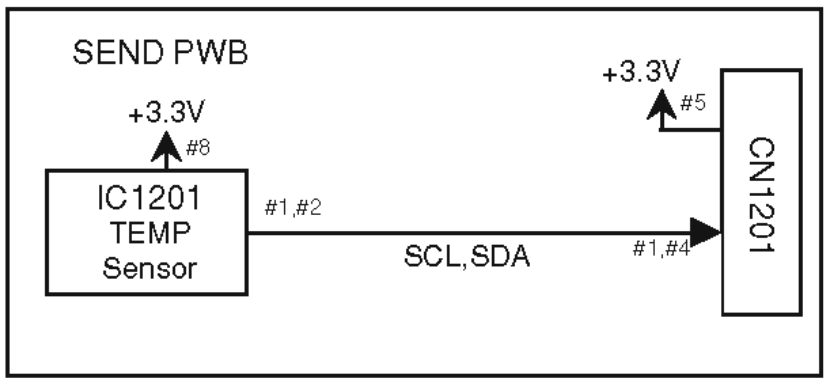


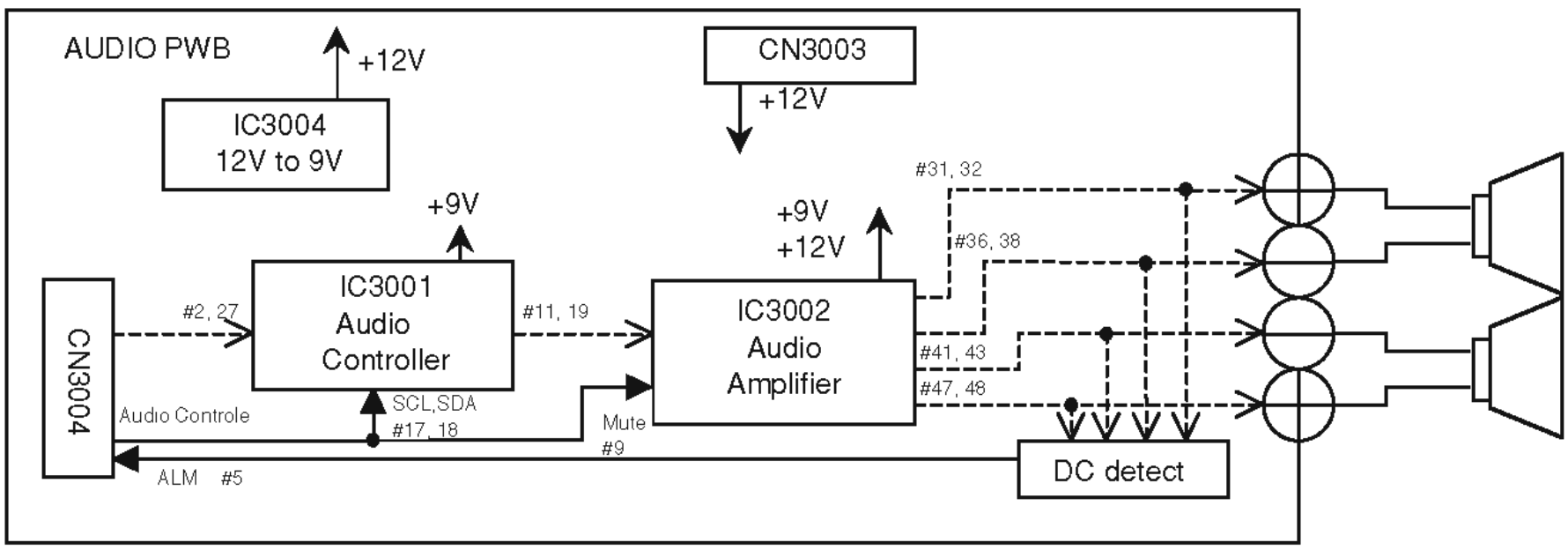


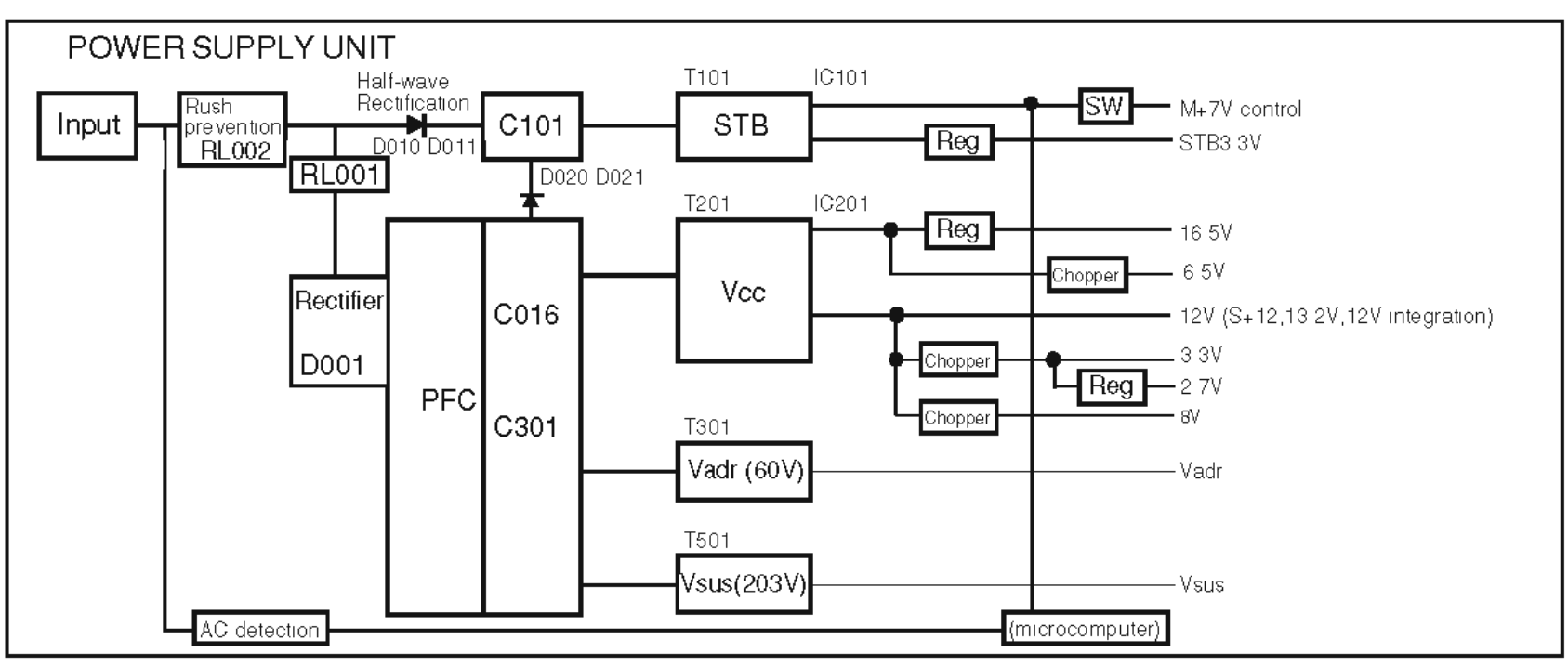
Block Diagram: SUB ASSY (2/2)





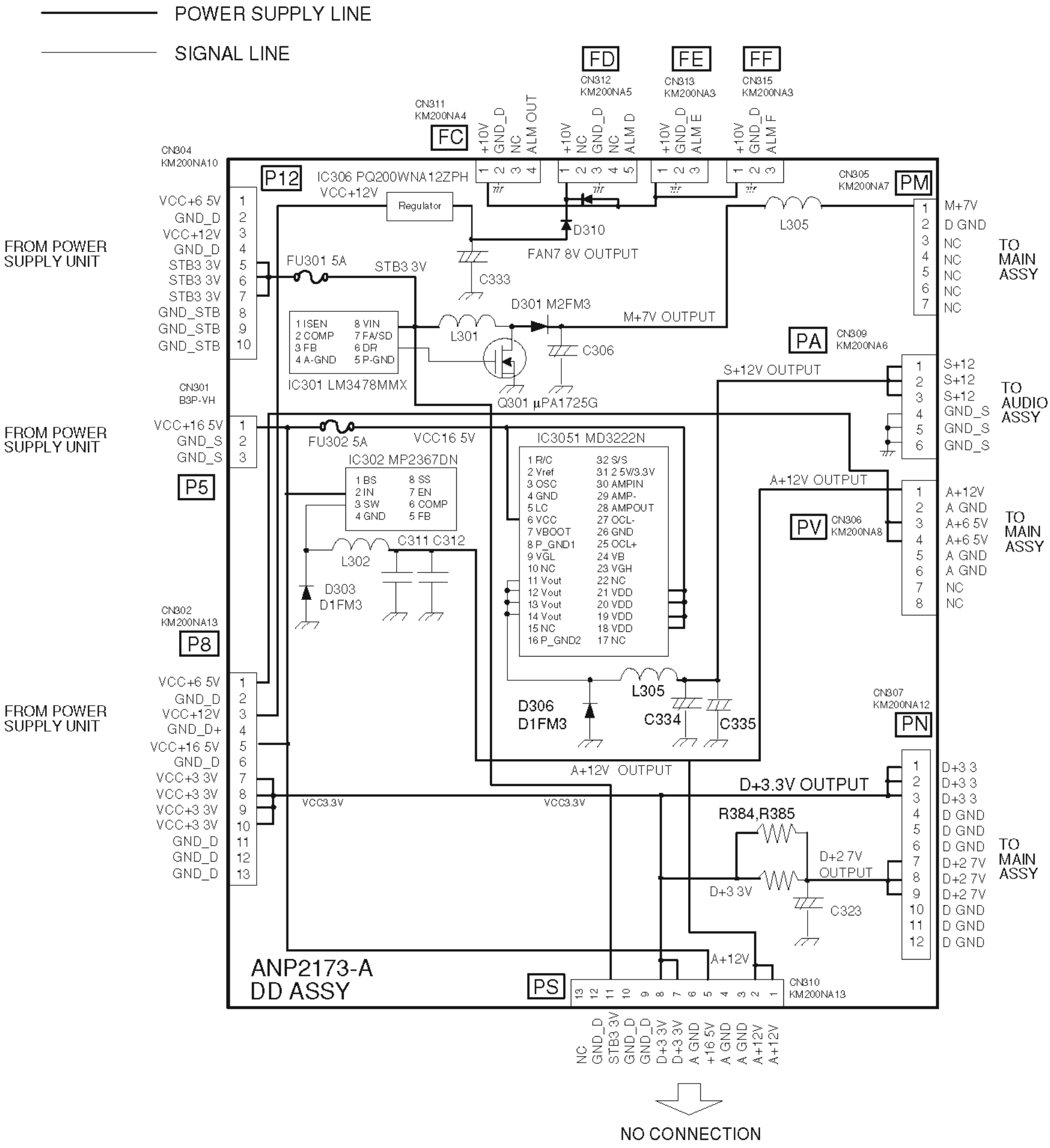






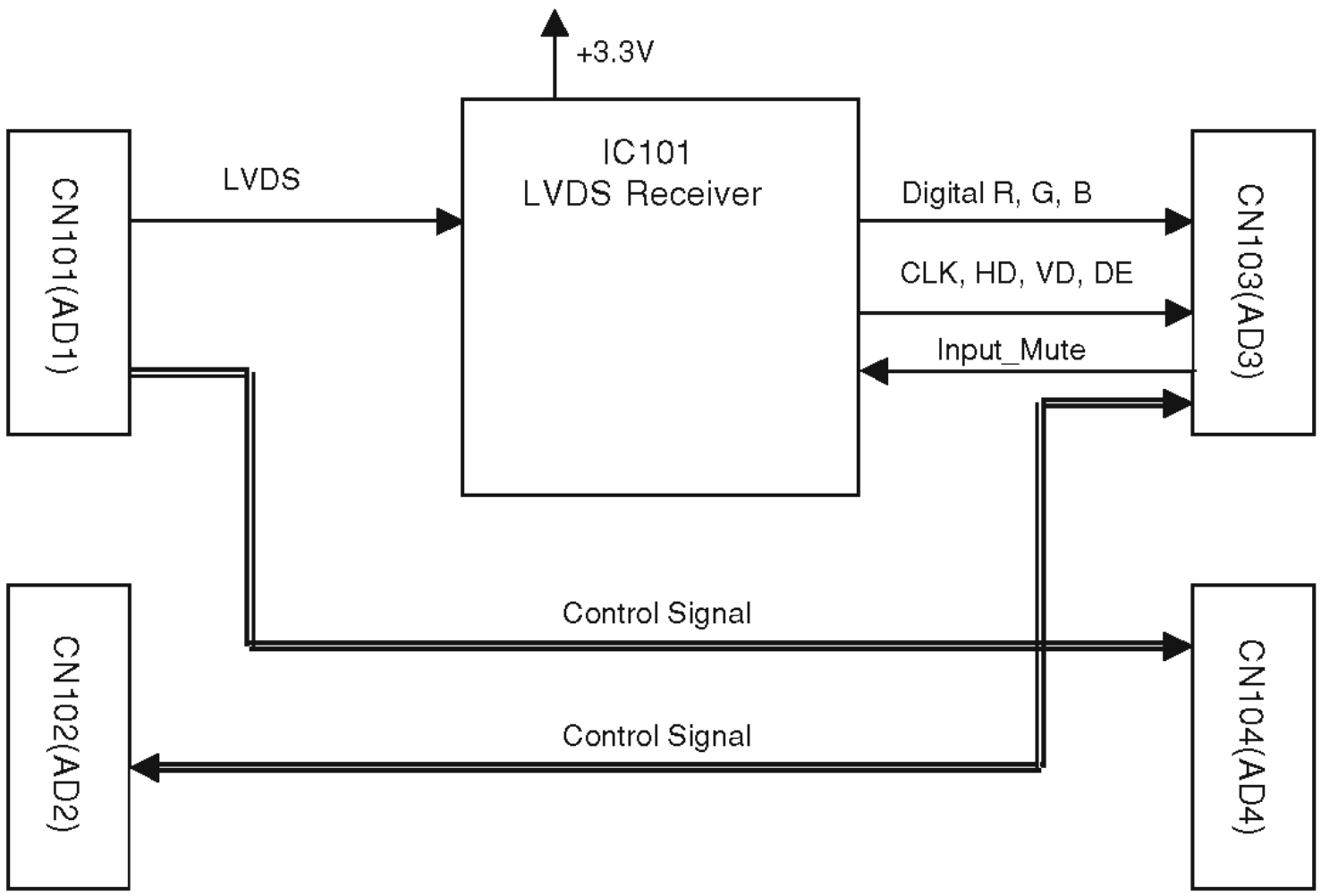
7.6 DD ASSY

DD ASSY BLOCK DIAGRAM



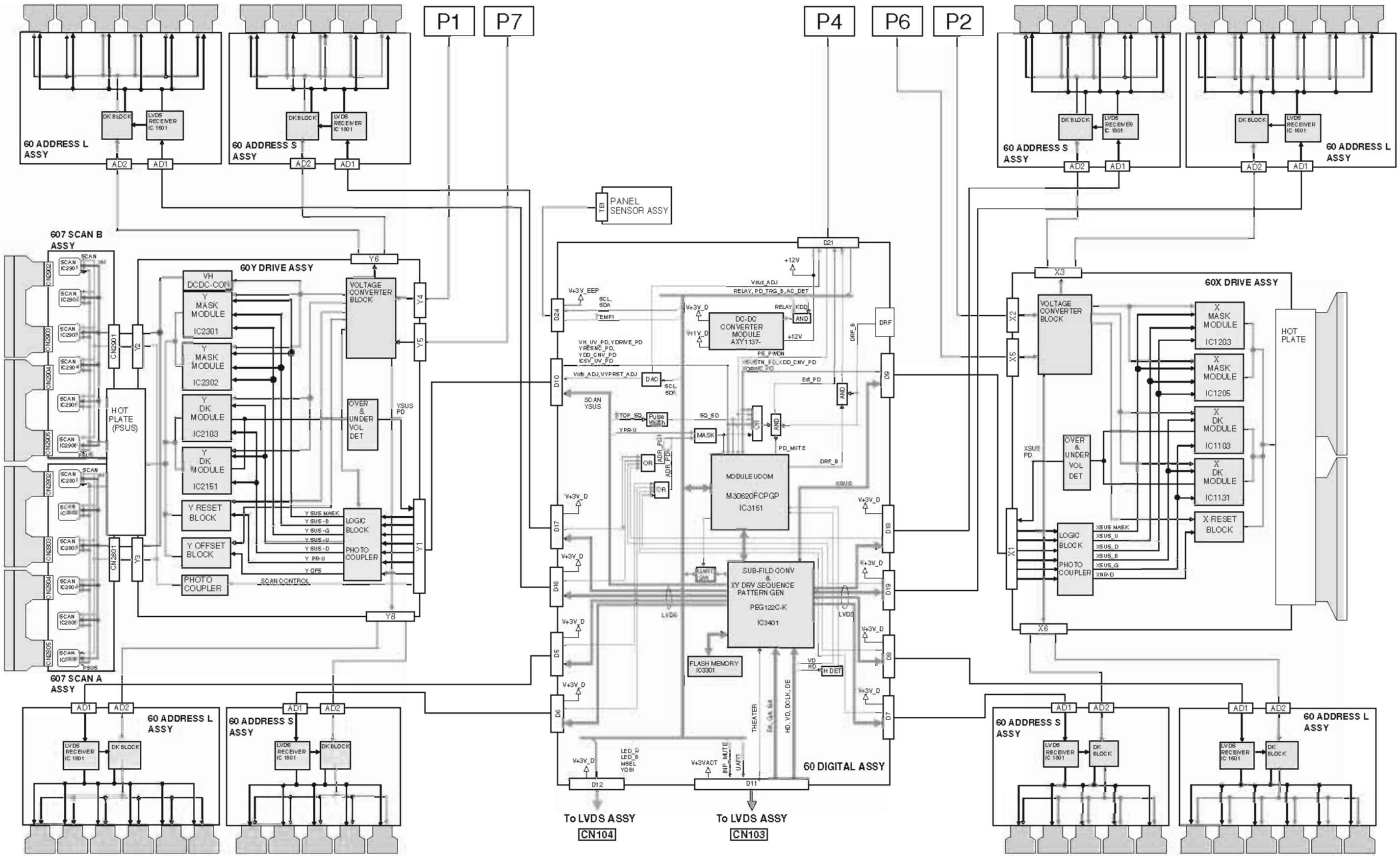
7.7 LVDS ASSY

LVDS ASSY Block Diagram



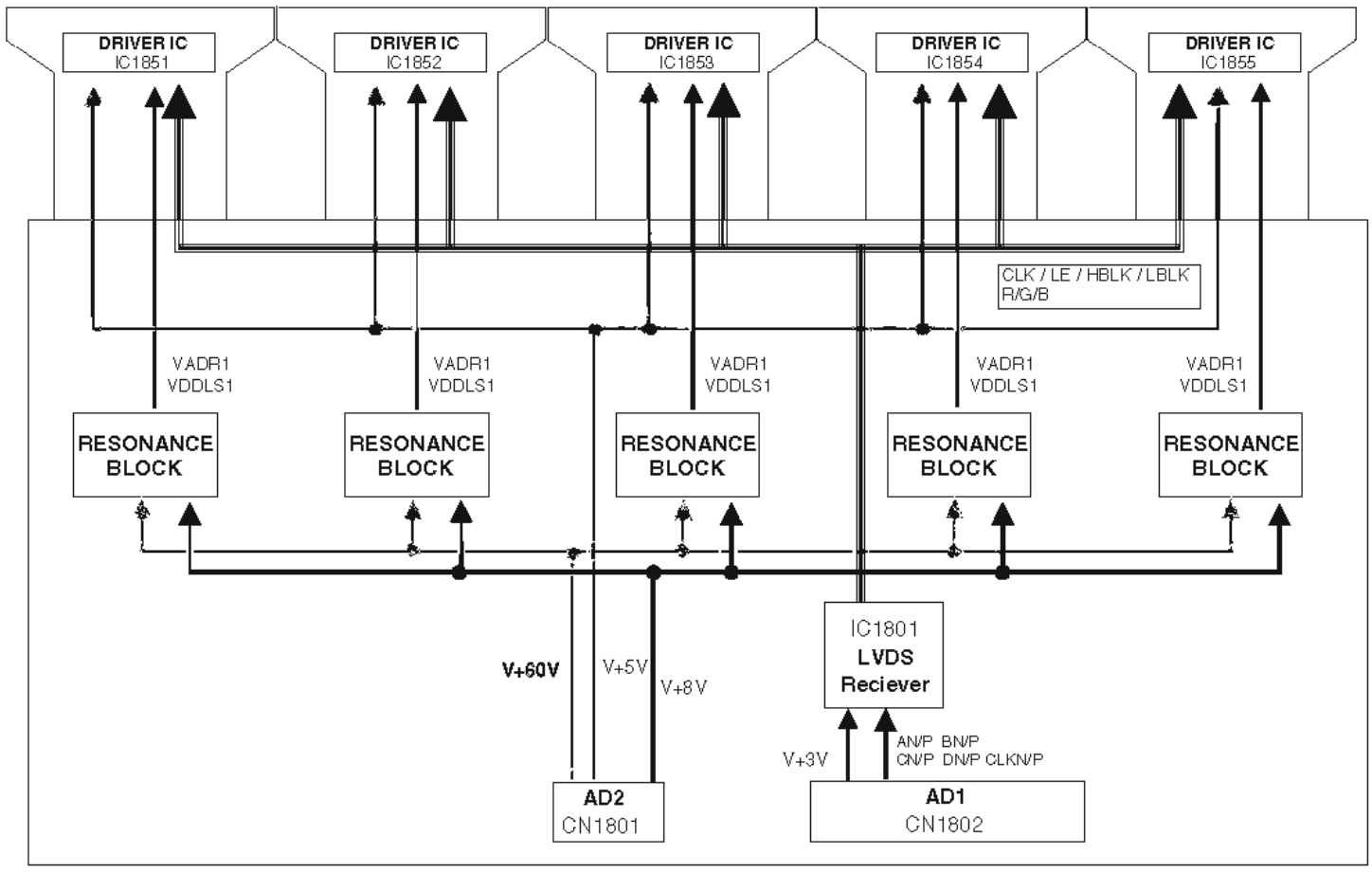
7.8 PDP MODULE BLOCK DIAGRAM

PDP Module

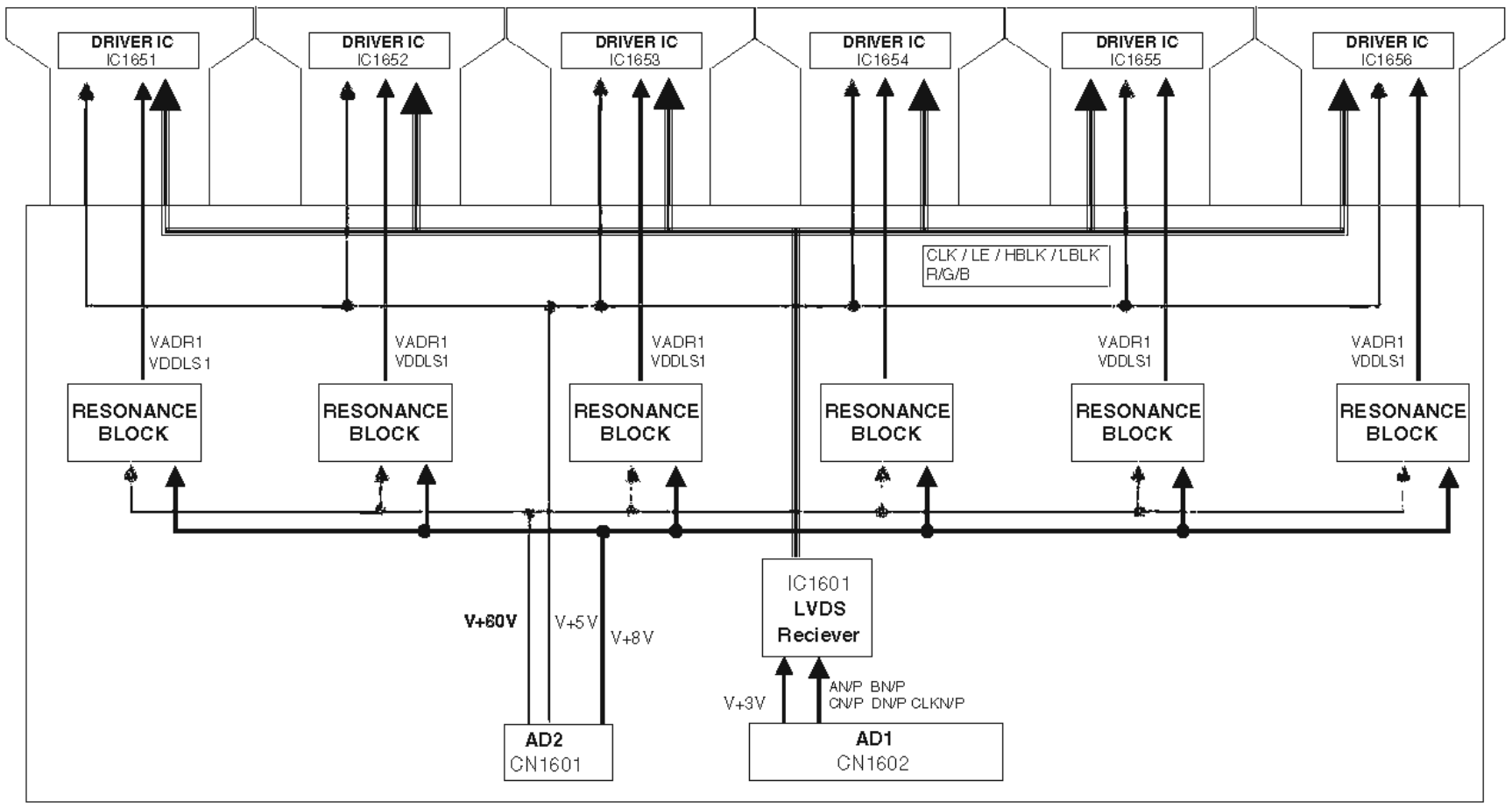


7.9 60 ADDRESS L and S ASSYS

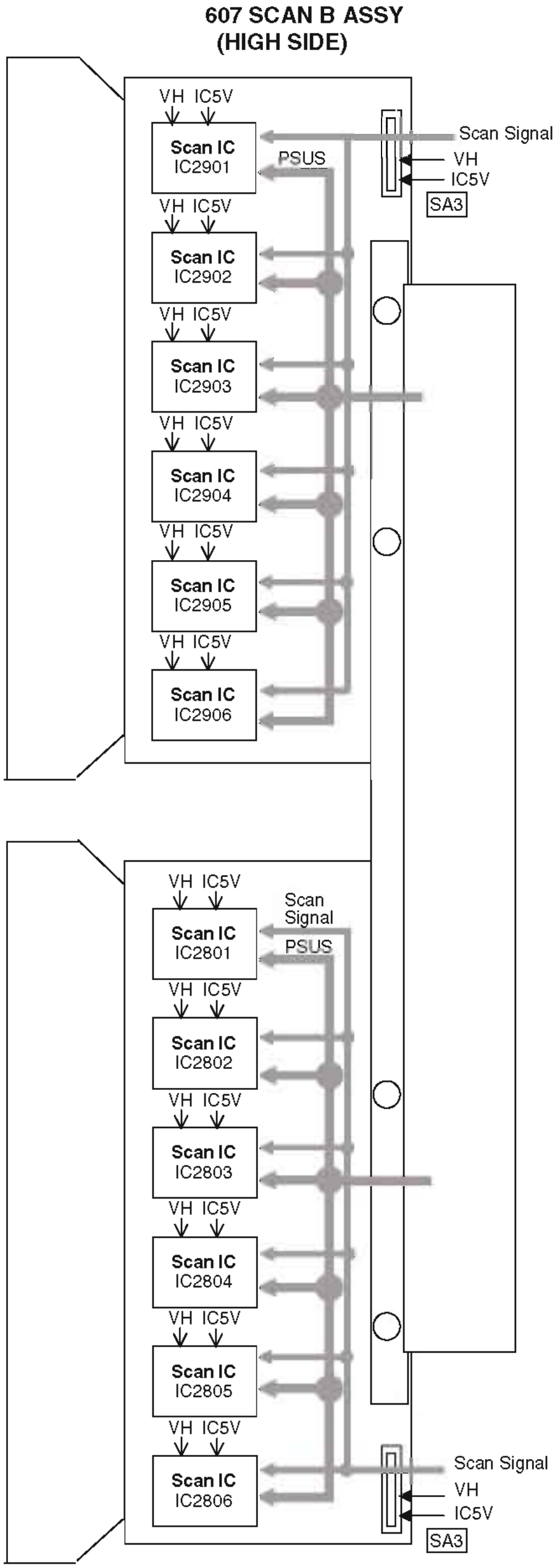
60 ADDRESS S ASSY



60 ADDRESS L ASSY

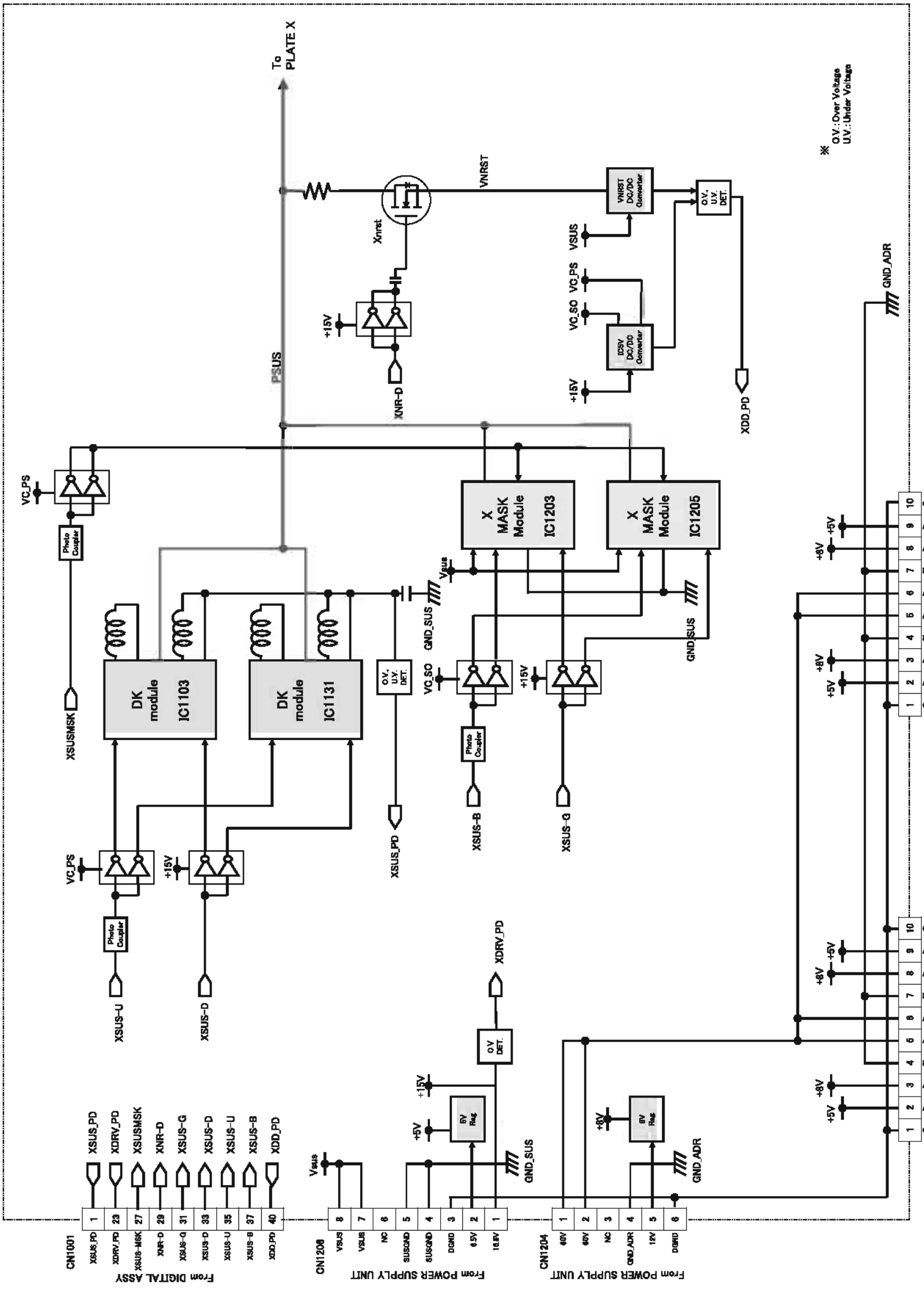


7.10 607 SCAN A and B ASSYS

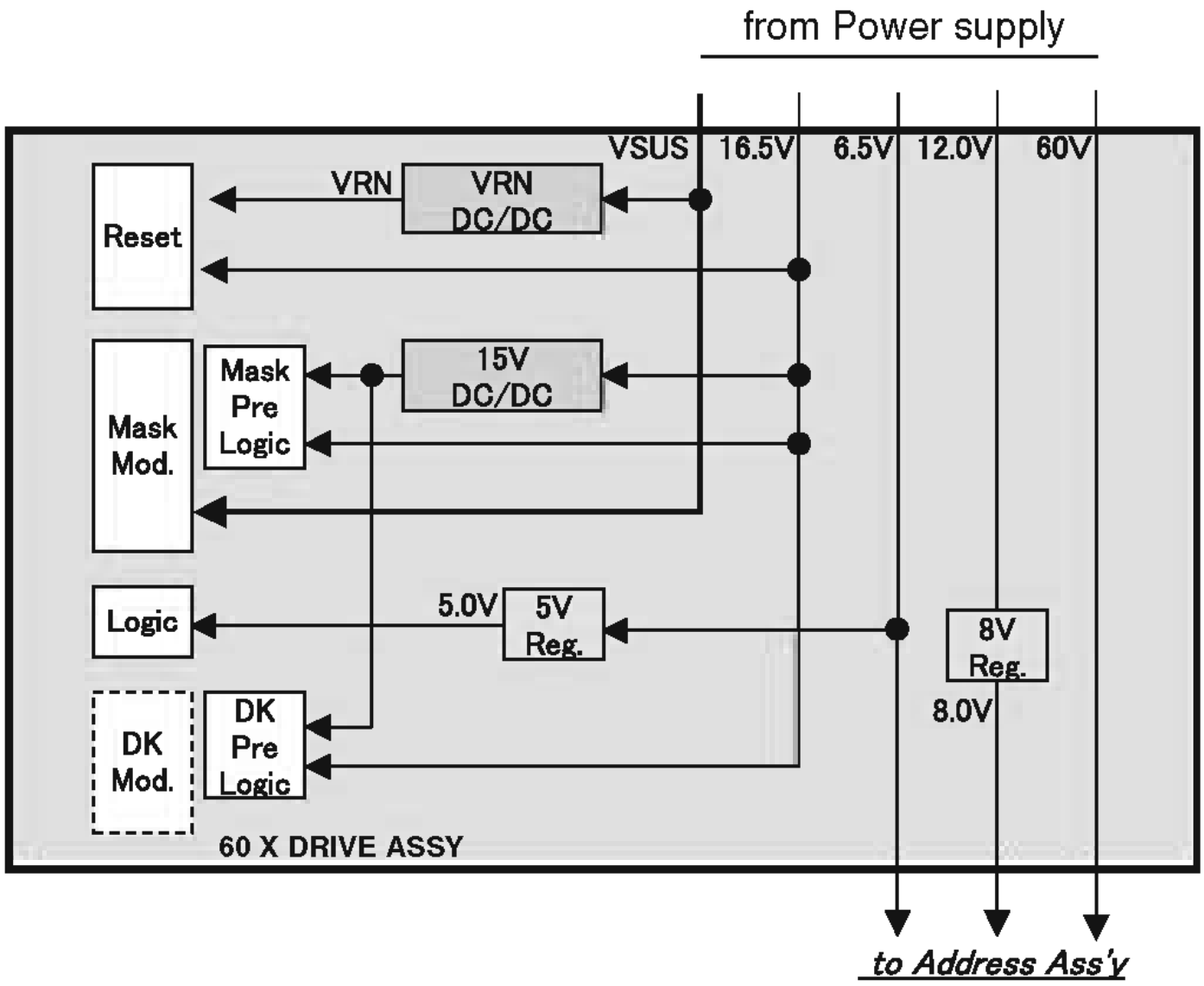


7.11 60 X DRIVE ASSY

60 X DRIVE ASSY

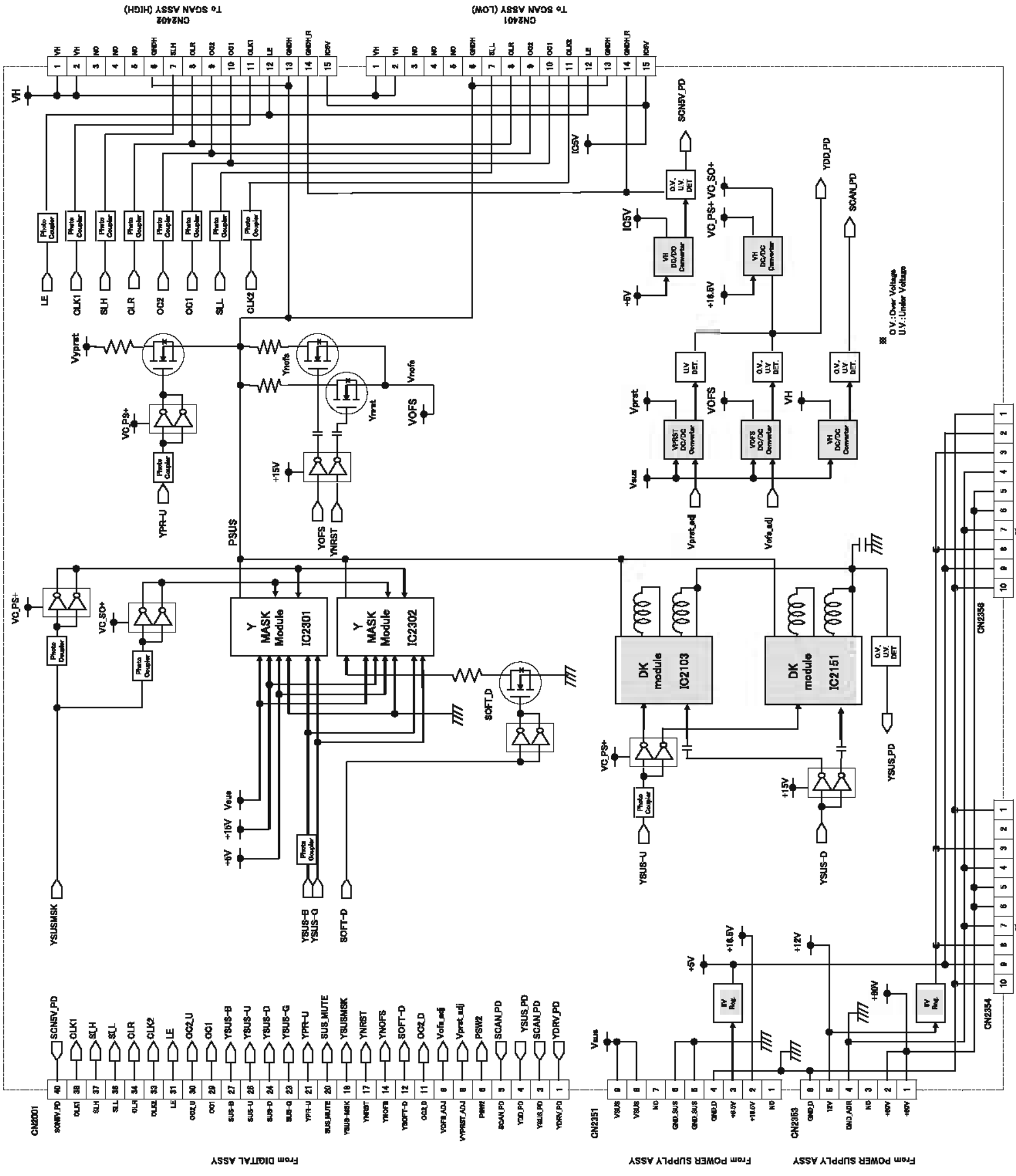


■ X Drive power supply map

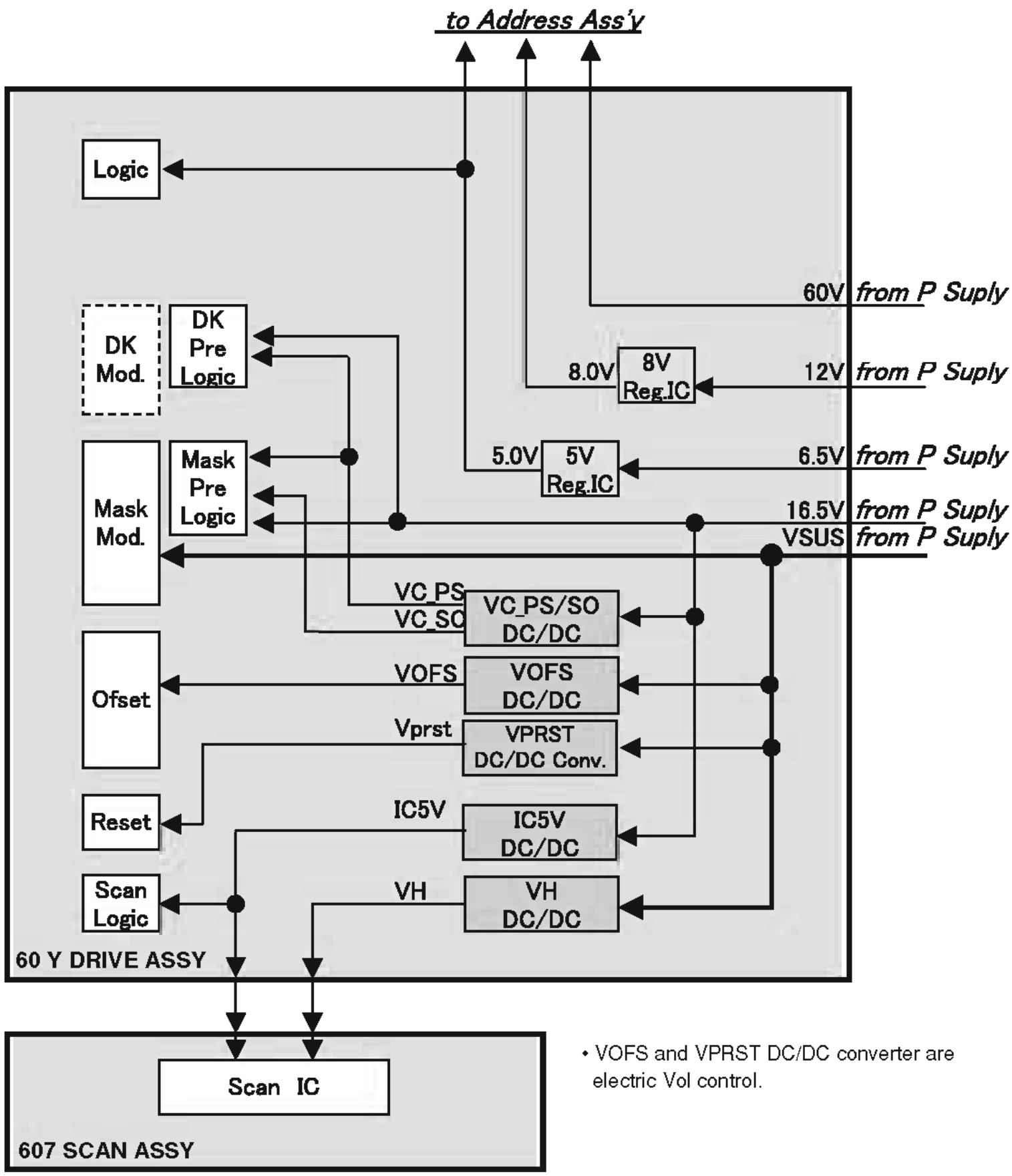


7.12 60 Y DRIVE ASSY

60 Y DRIVE ASSY

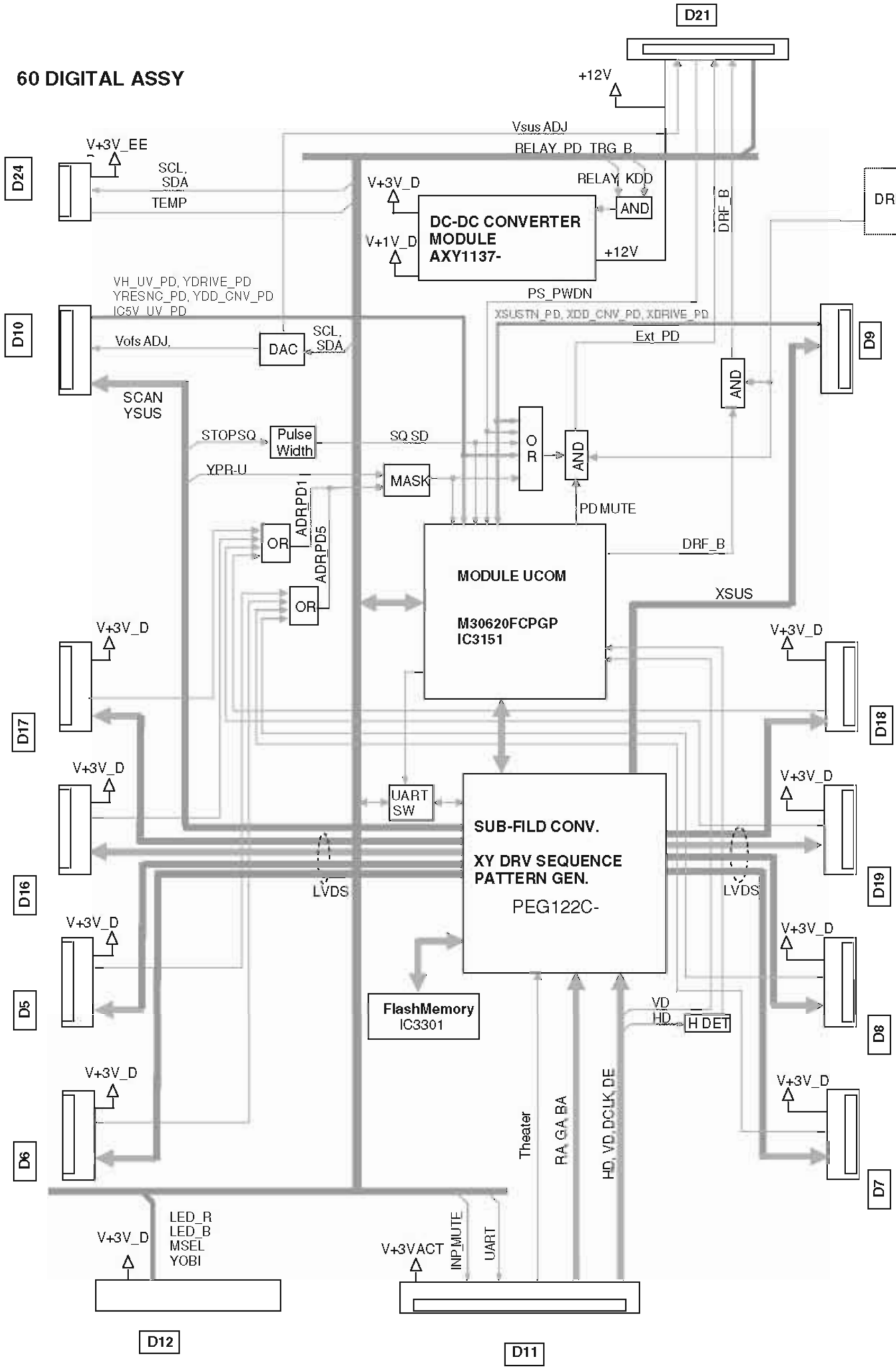


■ Y Drive power supply map

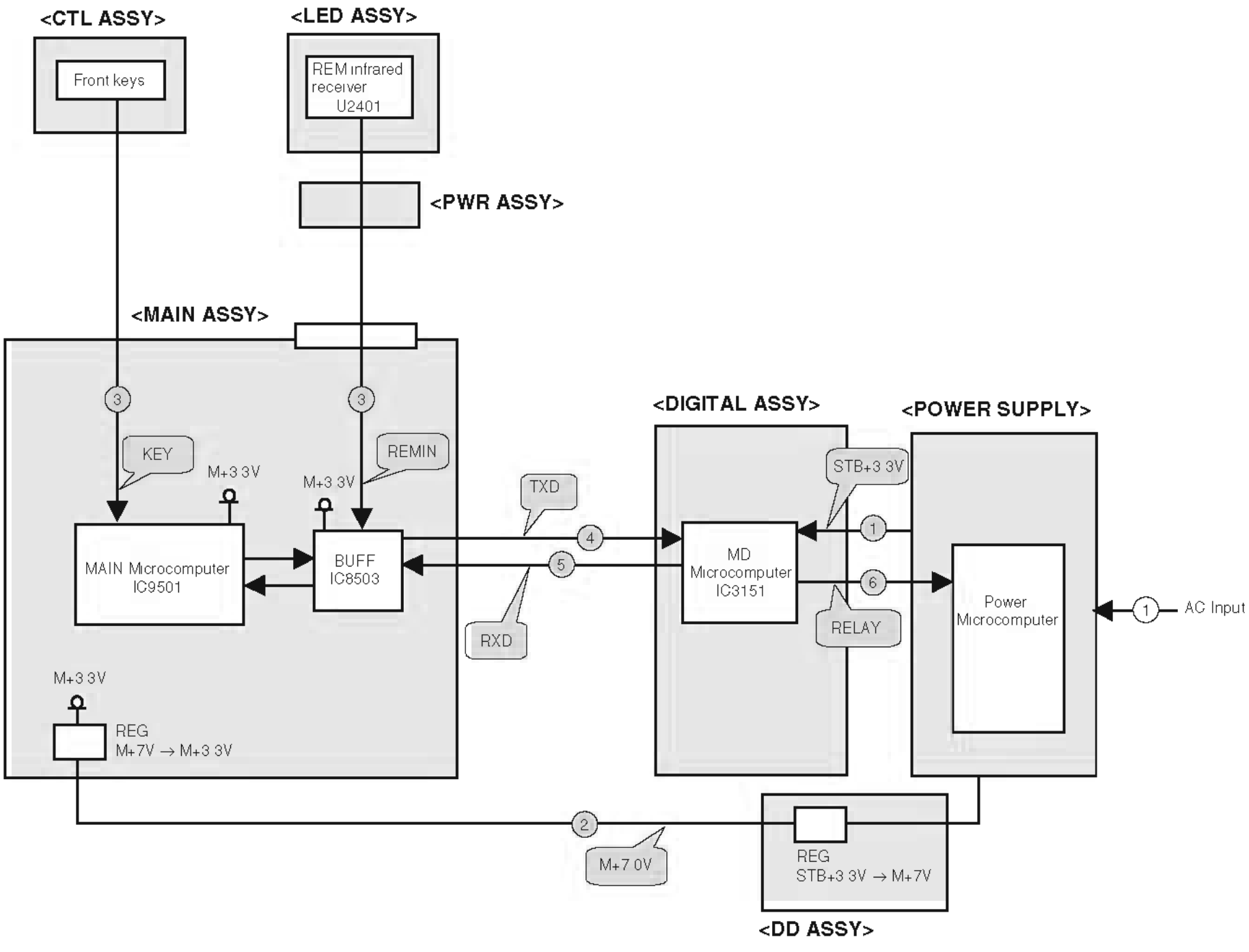


• VOFS and VPRST DC/DC converter are electric Vol control.

7.13 60 DIGITAL ASSY



7.14 POWER ON SEQUENCE



Outline of operations

① Once AC power is input, 3.3 V power is supplied to the MD Microcomputer by the Power Unit. Then the MD Microcomputer starts up.
② Once the Main Power switch on the main unit is set to ON, M+7 V power is supplied to the Main Microcomputer by the Power Unit. Then the Main Microcomputer starts up.
③ A power-on request can be issued from a key on the main unit or on the remote control unit.
④ After confirming a QS2 (checking of SD or PD), the Main Microcomputer issues a PON command.
⑤ The MD Microcomputer returns a PON echo to the Main Microcomputer.
⑥ The MD Microcomputer sends a RELAY signal to start up the Power Microcomputer.

7.15 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

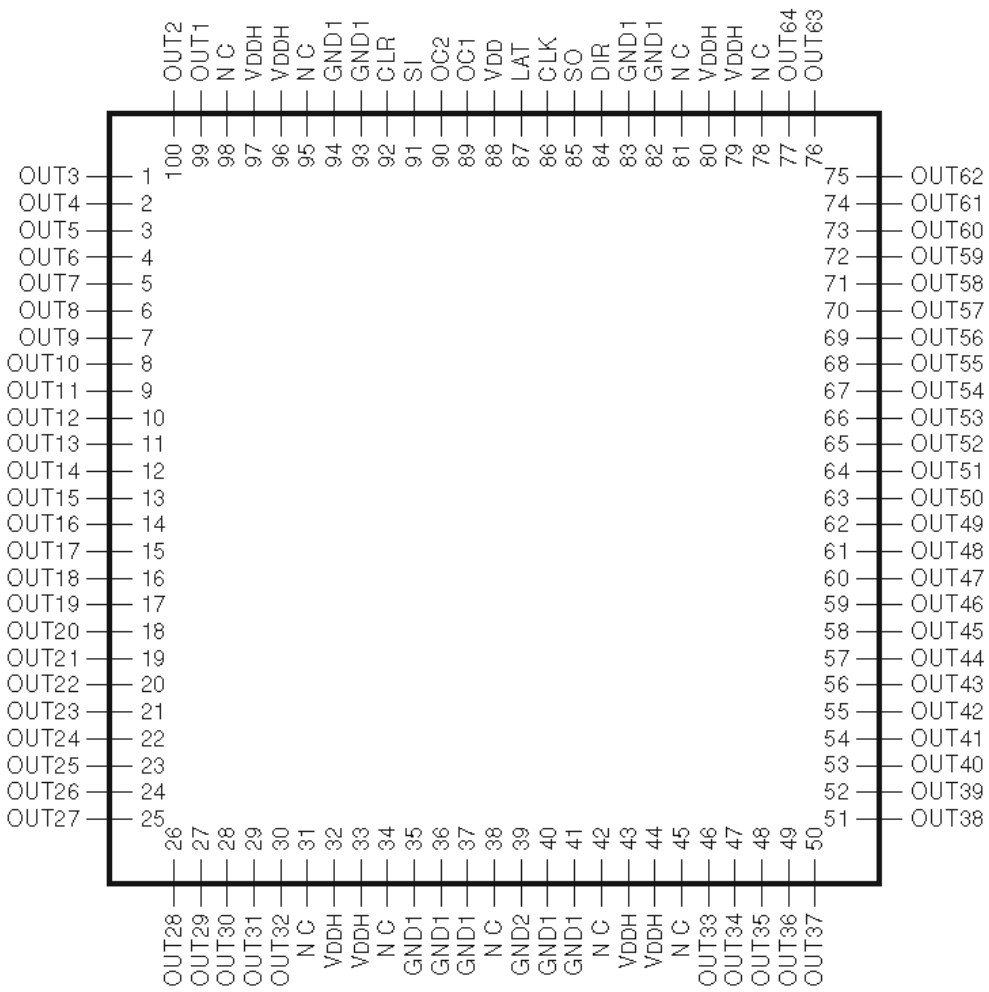
● **List of IC**

SN755870KPZT-P, M62334FP, TC74VHC123AFTS1, TC74VHC00FTS1

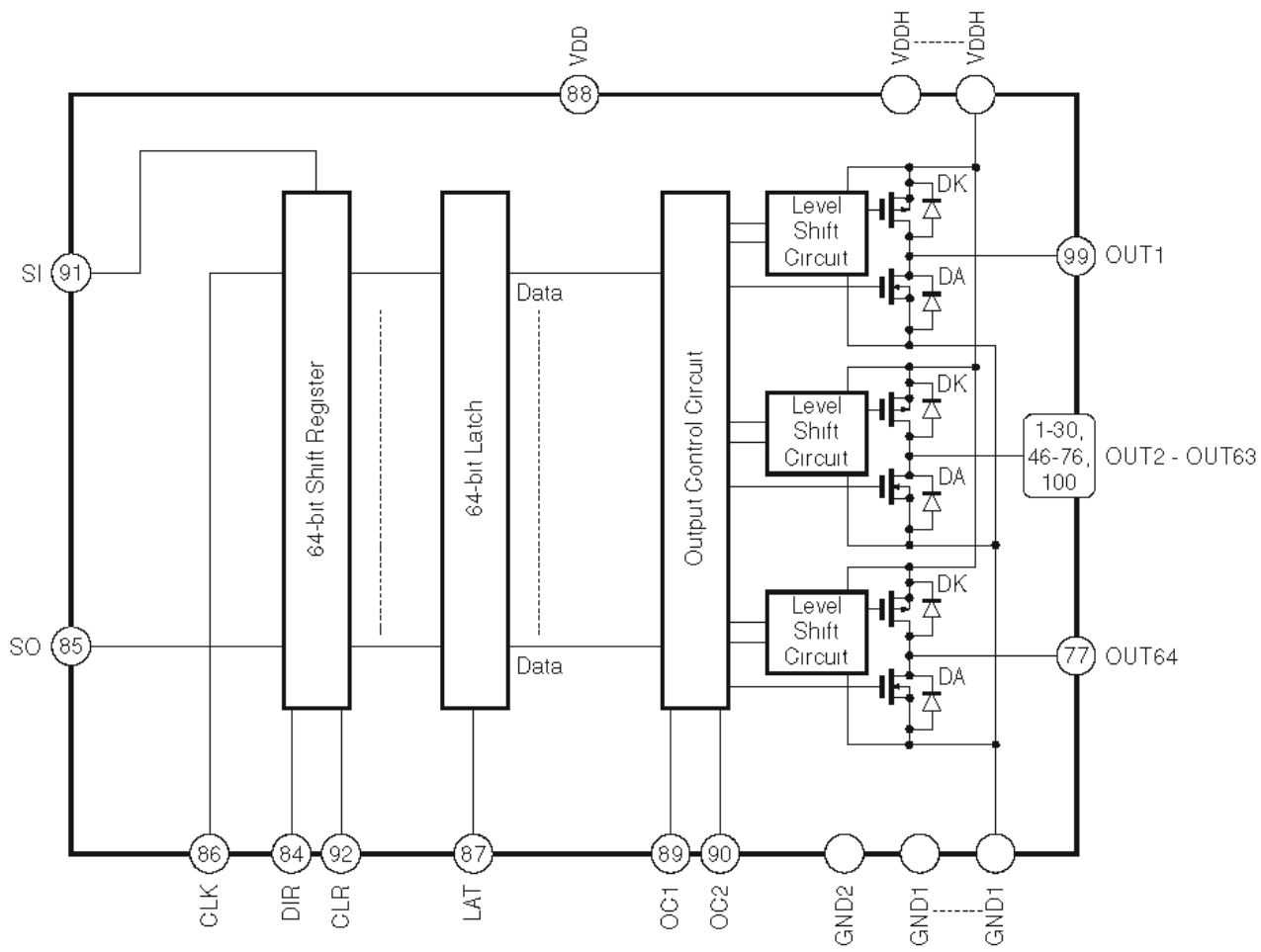
■ SN755870KPZT-P (607 SCAN A ASSY : IC2801 - IC2806) (607 SCAN B ASSY : IC2901 - IC2906)

• PLASMA DISPLAY PANEL IC

● **Pin Arrangement (Top view)**



● **Block Diagram**



● Pin Function

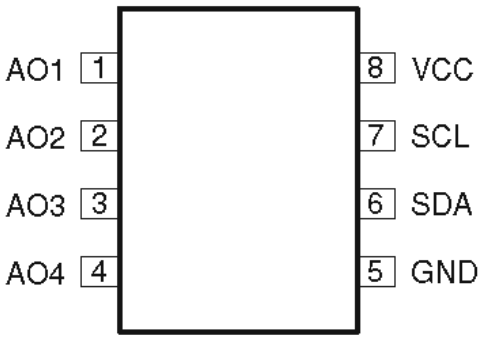
No.	Pin Name	I/O	Pin Function
1 - 30	OUT3 - OUT32	O	High-voltage push-pull output
31	N.C.	–	Not used
32 - 33	V_{DDH}	–	Power for High-voltage circuit
34	N.C.	–	Not used
35 - 37	GND1	–	GND
38	N.C.	–	Not used
39	GND2	–	GND
40 - 41	GND1	–	GND
42	N.C.	–	Not used
43 - 44	V_{DDH}	–	Power for High-voltage circuit
45	N.C.	–	Not used
46 - 77	OUT33 - OUT64	O	High-voltage push-pull output
78	N.C.	–	Not used
79 - 80	V_{DDH}	–	Power for High-voltage circuit
81	N.C.	–	Not used
82 - 83	GND1	–	GND
84	DIR	I	Setting the shift direction of shift-register L : reverse side shift (SO→SI), H : forward side shift (SI→SO)
85	SO	I/O	Serial data In/Out
86	CLK	I	Serial clock Input Down-side edge trigger
87	LAT	I	LAT data Input L : The data of shiftregister is transferred to ouput latch. H : The ouput data of latch is holded.
88	V_{DD}	–	Power for Logic circuit
89	OC1	I	Output control Output is controlled by truth table right side.
90	OC2	I	
91	SI	I/O	Serial data In/Out
92	CLR	I	All output reset CLR terminal : L → normal operation, CLR terminal : H→ All output "H"
93 - 94	GND1	–	GND
95	N.C.	–	Not used
96 - 97	V_{DDH}	–	Power for High-voltage circuit
98	N.C.	–	Not used
99 - 100	OUT1 - OUT2	O	High-voltage push-pull output

OC1	OC2	OUT
L	L	ALL Hi-Z
L	H	DATA
H	L	ALL L
H	H	ALL H

■ M62334FP (60 DIGITAL ASSY : IC3157)

• 8-bit 4ch I2C Bus D-A Converter with Buffer Amplifier

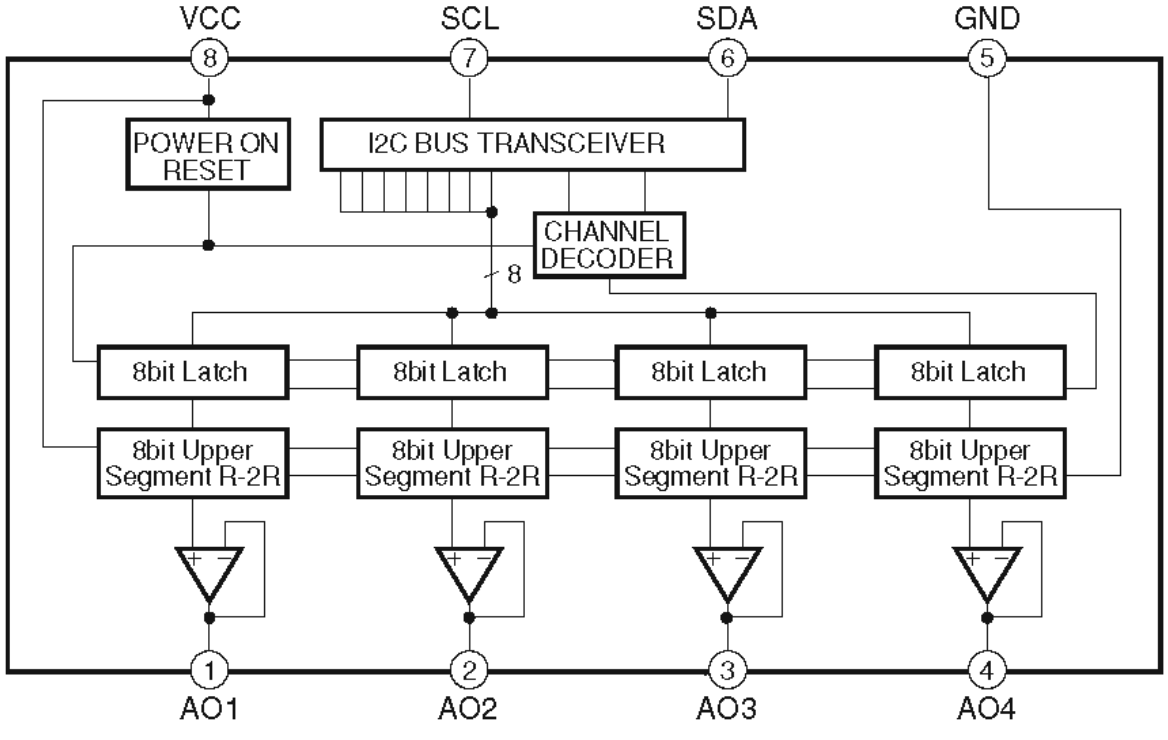
● Pin Arrangement (Top view)



● Pin Function

No.	Pin Name	Pin Function
1	AO1	8-bit resolution D-A converter output
2	AO2	
3	AO3	
4	AO4	
5	GND	Ground
6	SDA	Serial data input
7	SCL	Serial clock input
8	VCC	Power supply

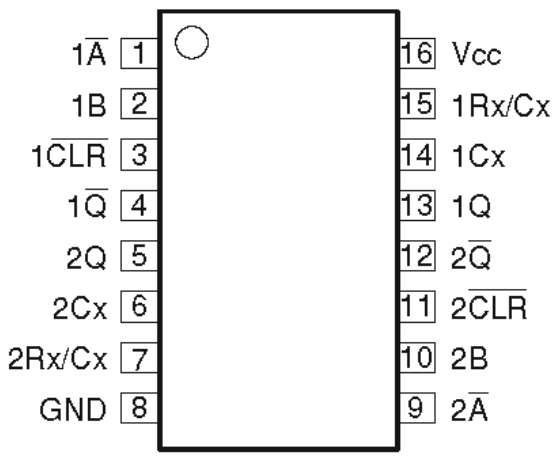
● Block Diagram



■ TC74VHC123AFTS1 (60 DIGITAL ASSY : IC3160, IC3161)

• Dual Monostable Multivibrator/AFN/AFT Retriggerble

● Pin Arrangement (Top view)



● Truth Table

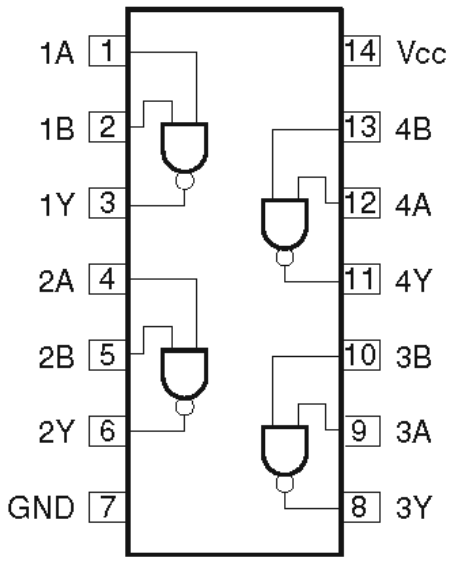
Inputs			Outputs		Note
$\overline{A}$	B	$\overline{CLR}$	Q	$\overline{Q}$	
↓	H	H	⊓	⊔	Output enable
X	L	H	L	H	Inhibit
H	X	H	L	H	Inhibit
L	↑	H	⊓	⊔	Output enable
L	H	↑	⊓	⊔	Output enable
X	X	L	L	H	Reset

X: Don't care

■ TC74VHC00FTS1 (60 X DRIVE ASSY : IC1003)

• Quad 2-Input NAND Gate

● Block Diagram



● Truth Table

A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L