harman kardon
Model **DVD 50**

5 Disc DVD/CD/CD-R/CD-RW/VCD MP3 Changer

Service Manual

- Contents -

harman/kardon, Inc.
250 Crossways Park Dr.
Woodbury, New York 11797

Rev1 9/2005

PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY, NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER.

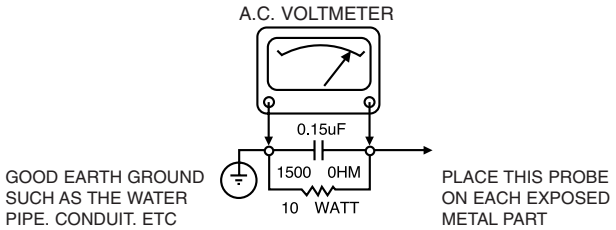
WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM A.C. LINE SHOCK.

SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRECTED. A CHECK SHOULD BE MADE OF THE FOLLOWING.

SUBJECT : FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS, FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING A.C. CORD), AND REPLACE IF NECESSARY. FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUDING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES, DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN A.C. LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS. HANDLE AND SCREWS) TO BE SURE THE SET IS SAFE TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN A.C. VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD. 150.V A.C TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME. MEASURE THE A.C. VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR. REVERSE THE A.C. PLUG AND REPEAT A.C. VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART. VOLTAGE MEASURED MUST NOT EXCEED 75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMP A.C ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



SUBJECT: GRAPHIC SYMBOLS

THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

SUBJECT : X-RADIATION

1. BE SURE PROCEDURES AND INSTRUCTIONS TO ALL SERVICE PERSONNEL COVER THE SUBJECT OF X-RADIATION. THE ONLY POTENTIAL SOURCE OF X-RAYS IN CURRENT T.V. RECEIVERS IS THE PICTURE TUBE. HOWEVER, THIS TUBE DOES NOT EMIT X-RAYS WHEN THE HIGH VOLTAGE IS AT THE FACTORY SPECIFIED LEVEL. THE PROPER VALUE IS GIVEN IN THE APPLICABLE SCHEMATIC. OPERATION AT HIGHER VOLTAGES MAY CAUSE A FAILURE OF THE PICTURE TUBE OR HIGH VOLTAGE SUPPLY AND, UNDER CERTAIN CIRCUMSTANCES, MAY PRODUCE RADIATION IN EXCESS OF DESIRABLE LEVELS.
2. ONLY FACTORY SPECIFIED C.R.T. ANODE CONNECTORS MUST BE USED. DEGAUSSING SHIELDS ALSO SERVE AS AN X-RAY SHIELD IN COLOR SETS, ALWAYS RE-INSTALL THEM.
3. IT IS ESSNTIAL THAT SERVICE PERSONNEL HAVE AVAILABLE AN ACCURATE AND RELIABLE HIGH VOLTAGE METER. THE CALIBRATION OF THE METER SHOULD BE CHECKED PERIODICALLY AGAINST A REFERENCE STANDARD, SUCH AS THE ONE AVAILABLE AT YOUR DISTRIBUTOR.
4. WHEN THE HIGH VOLTAGE CIRCUITRY IS OPERATING PROPERLY THERE IS NO POSSIBILITY OF AN X-RADIATION PROBLEM. EVERY TIME A COLOR CHASSIS IS SERVICED. THE BRIGHTNESS SHOULD BE RUN UP AND DOWN WHILE MONITORING THE HIGH VOLTAGE WITH A METER TO BE CERTAIN THAT THE HIGH VOLTAGE DOES NOT EXCEED THE SPECIFIED VALUE AND THAT IT IS REGULATING CORRECTLY. WE SUGGEST THAT YOU AND YOUR SERVICE ORGANIZATION REVIEW TEST PROCEDURES SO THAT VOLTAGE REGULATION IS ALWAYS CHECKED AS A STANDARD SERVICING PROCEDURE AND THAT THE HIGH VOLTAGE READING BE RECORDED ON EACH CUSTOMER'S INVOICE.
5. WHEN TROUBLESHOOTING AND MAKING TEST MEASUREMENTS IN A PRODUCT WITH A PROBLEM OF EXCESSIVE HIGH VOLTAGE, AVOID BEING UNNECESSARILY CLOSE TO THE PICTURE TUBE AND THE HIGH VOLTAGE SUPPLY. DO NOT OPERATE THE PRODUCT LONGER THAN IT IS NECESSARY TO LOCATE THE CAUSE OF EXCESSIVE VOLTAGE.
6. REFER TO HV. B+ AND SHUTDOWN ADJUSTMENT PROCEDURES DESCRIBED IN THE APPROPRIATE SCHEMATIC AND DIAGRAMS (WHERE USED).

SUBJECT: IMPLOSION

1. ALL DIRECT VIEWED PICTURE TUBES ARE EQUIPPED WITH AN INTEGRAL IMPLOSION PROTECTION SYSTEM, BUT CARE SHOULD BE TAKEN TO AVOID DAMAGE DURING INSTALLATION, AVOID SCRATCHING THE TUBE. IF SCRATCHED REPLACE IT.
2. USE ONLY RECOMMENDED FACTORY REPLACEMENT TUBES.

SUBJECT : TIPS ON PROPER INSTALLATION

1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS, CUBBYHOLE OR CLOSELY FITTING SHELF SPACE, OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PLACEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT, MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS. A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM. BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION, UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERICALLY APPROVED FOR USE WITH T.V.'S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS. EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.

SERVICING PRECAUTIONS

CAUTION : Before servicing the DVD covered by this service data and its supplements and ADDENDUMS, read and follow the *SAFETY PRECAUTIONS. NOTE* : if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publications, always follow the safety precautions.
Remember Safety First:

General Servicing Precautions

1. Always unplug the DVD AC power cord from the AC power source before:
   (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
   (2) Disconnection or reconnecting any internal electrical plug or other electrical connection.
   (3) Connecting a test substitute in parallel with an electrolytic capacitor.
   Caution : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemicals on or near this DVD or any of its assemblies.

3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.
   Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with whitch instruments covered by this service manual might be equipped.

5. Do not apply AC power to this DVD and/or any of its electrical assemblies unless all solid-state device heat sinks are cerrectly installed.

6. Always connect test instrument ground lead to the appropriate ground before connection the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.
Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.
The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a GROUNDED-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified a “anti-static” can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protec tive package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

SHIPPING PRECAUTION:

If power is removed from the unit before the “NO DISC” message, then the carousel has not reached the home position, and movement of the laser assembly during shipping can cause the mechanism to jam.

Before the unit is shipped, the mechanism should be set to its home position performing following steps:
Power on unit. Wait until unit displays “NO DISC”. Power unit off.

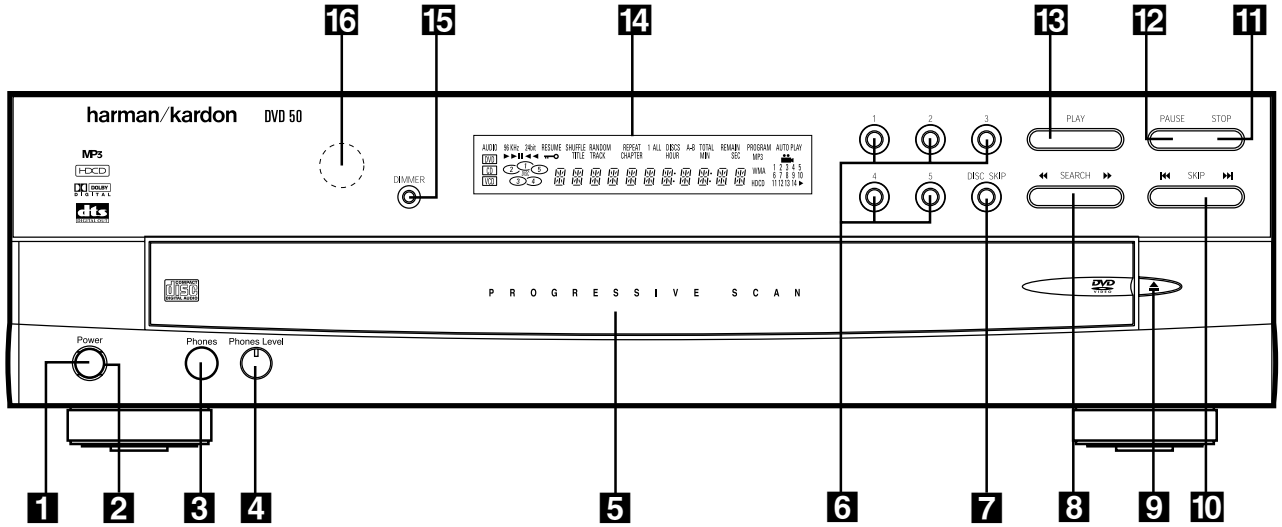
Technical Specifications

Applicable Discs:	5-inch (12cm) or 3-inch (8cm) DVD-Movie, CD, Video CD, MP3-CD, HDCD, CD-R or CD-RW discs Region 1 DVD-Movie discs DVD: Single/Single Layer, Single Side/Dual Layer, Dual Side/Dual Layer Linear PCM, Dolby Digital or DTS Audio
Video Signal System:	NTSC
Composite Video Output:	1Vp-p/75 Ohms, sync, negative polarity
S-Video:	Y/Liminace: 1Vp-p/75 Ohms, sync, negative polarity C/Chrominance: 0.286Vp-p
Component Video Output:	Y: 1Vp-p/75 Ohms, sync, negative polarity Pr: 0.7Vp-p/75 Ohms Pb: 0.7Vp-p/75 Ohms
Progressive Scan Output:	Y: 1Vp-p/75 Ohms, sync, negative polarity Pr: 0.7Vp-p/75 Ohms Pb: 0.7Vp-p/75 Ohms
Analog Audio Output:	HDCD: 2.0V RMS +/– 0.2V Others: 1.0Vp-p RMS +/– 0.2V
Coaxial Digital Audio Output:	0.5Vp-p/75 Ohms
Frequency Response:	4Hz – 22kHz +/– 0.5dB (48kHz sampling)
Dynamic Range:	DVD: 97dB (20-bit) CD: 97dB
Channel Separation:	106dB
THD:	DVD: 0.0035% CD: 0.0035%
Signal-to-Noise Ratio:	106dB
WOW & Flutter:	Below measurable limits
Headphone Output:	500mV RMS, 32 Ohms
AC Power:	100 – 240VAC 50/60Hz (Refer to back of the set.)
Power Consumption:	18 Watts
Dimensions (H x W x D):	5" x 17-1/2" x 16" (127mm x 440mm x 409mm)
Weight:	12.8 lbs/5.8kg

Depth measurement includes knobs and buttons.
Height measurement includes feet and chassis.
All specifications subject to change without notice.

H A Harman International Company
250 Crossways Park Drive, Woodbury, New York 11797
www.harmankardon.com

Front Panel Controls



1 Power Switch
2 Status Indicator
3 Headphone Jack
4 Headphone Level Control
5 Disc Tray
6 Direct Access Buttons
7 Disc Skip
8 Search Forward/Reverse
9 Open/Close Button
10 Skip Forward/Reverse
11 Stop
12 Pause
13 Play
14 Information Display
15 Display Dim
16 Remote Sensor

1 Power Switch: Press the button once to turn the DVD 50 on; press it again to put the unit in the Standby mode.

2 Status Indicator: When the DVD 50 is in the On mode, this indicator will glow green. When the unit has been placed in the Standby mode by pressing the **Power-Off Button** 29 on the remote, the indicator will glow amber, indicating that the unit is still connected to the AC main supply and is ready to be turned on from the remote control.

3 Headphone Jack: Connect standard headphones to this jack for private listening.

4 Headphone Level Control: Turn this control to adjust the volume level to the headphones. Note that the use of this control will not change the analog output levels at the rear panel audio outputs.

5 Disc Tray: This tray holds as many as five compatible discs that can be played one at a time in the DVD 50.

6 Direct Access Buttons: Press one of these buttons to play any of up to five discs loaded in the Disc Tray.

7 Disc Skip: Press this button to change the disc being played. Each press of the button will move the tray forward to the next occupied position in the tray. Note that the unit will skip over the empty disc positions.

8 Search Forward/Reverse: Press this button to move forward or backward through a CD or DVD at one of four speeds. Each press and release will increase the search speed, as indicated in the on-screen display. Once you have selected the desired speed, release the button and the disc will continue to search at fast speed. To resume normal playback speed, press the **Play Button 13**.

9 Open/Close Button: Press this button to open or close the **Disc Tray 5**.

10 Skip Forward/Reverse: Press this button to move forward or backward through the music tracks on a CD disc or the chapters on a DVD disc.

11 Stop: Press this button once to place the disc in the Resume mode, which means that playback will stop, but as long as the tray is not opened or the disc changed, DVD playback will continue from the same point on the disc when the Play button is pressed again. Resume will also work if the unit was turned off. To stop a disc and have play start from the beginning, press the button twice.

12 Pause: Press this button to momentarily pause playback. To resume playback, press the **Play Button 13**. If a DVD is playing, action will freeze and a still picture will be displayed when this button is pressed.

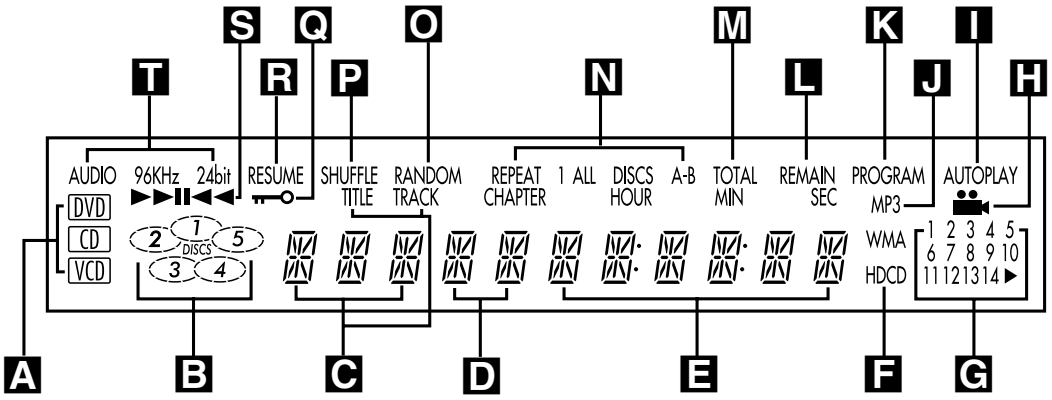
13 Play: Press the button to playback, or to resume playback after the **Pause Button 12** has been pressed.

14 Information Display: This display contains a variety of indicators that provide information about the status of the DVD 50 and the disc currently playing.

15 Display Dim: Press this button to adjust the brightness of the Information Display by 50% or to turn the display off completely in the following order: FULL BRIGHTNESS → HALF BRIGHTNESS → OFF → FULL BRIGHTNESS.

16 Remote Sensor: The sensor that receives the infrared commands from the remote control is behind this area. Do not cover or obscure this part of the front panel, in order to avoid a malfunction with the remote.

Front Panel Information Display



A Disc Type Indicators
B Disc Number Indicators
C Title/Track Indicators
D Chapter Number Indicators
E Program Time Indicators
F HDCD Indicator
G Track Number Calendar
H Angle Indicator
I Auto Play Indicator
J MP3 Indicator
K Program Indicator
L Remaining Time Indicator
M Total Time Indicator
N Repeat/Random Indicators
O Random Indicator
P Shuffle Indicator
Q Parental Lock Indicator
R Resume Indicator
S Playback Mode Indicators
T 96kHz/24-Bit Indicator

A Disc Type Indicators: A DVD, CD or VCD indicator will light to show the type of disc currently being played.

B Disc Number Indicators: When the DVD 50 has sensed that a disc is loaded in one or more of the tray positions, the number inside the corresponding disc icon will light. The disc position that is currently playing will flash. Note that if a disc is added to, or removed from, the tray while a disc is playing, the indicator will not show the change until all discs are cycled.

C Title/Track Indicators: The numbers shown in these positions display the current title number when a DVD is playing, or the current track number when a CD or MP3 disc is playing, as indicated by the appearance of either the TRACK or TITLE indicator being illuminated.

D Chapter Number Indicators: The numbers shown in these positions display the current Chapter number when a DVD is playing, as indicated by the CHAPTER indicator being illuminated.

E Program Time Indicators: These positions in the indicator will show the running time of a DVD in play. When a CD is playing, these indicators will show the current track time, time remaining in the current track, or the total remaining time on the disc.

F HDCD Indicator: This indicator lights when a CD with HDCD encoding is playing. The HDCD decoder will automatically be activated to provide high-resolution audio playback.

G Track Number Calendar: This area provides a graphical display of the track numbers remaining on a CD. When a disc has more than 14 tracks the ▶ indicator at the end of the calendar display will light.

H Angle Indicator: This indicator lights when the DVD being played has multiple-angle content. However, the actual multi-angle scenes are only present when the indicator flashes. When it flashes, press the **Angle Button** ㉚ on the remote to change the scene being viewed. See page 31 for more information.

I Auto Play Indicator: When this indicator is lit, the DVD 50 is in the Auto Play mode, which means that the unit will automatically play a DVD disc when it is inserted in the disc tray and the drawer is closed. Note that CD discs will always go into the Play mode when the disc drawer is closed, even when the indicator is not lit. See page 23 for more information.

J MP3 Indicator: This indicator lights when a disc with MP3 content is played.

K Program Indicator: This indicator lights when the programming functions are in use.

L Remaining Time Indicator: This indicator lights when a CD is playing and the time display has been switched to show the time remaining in the track being played. When both this indicator and the **Total Time Indicator** **M** are lit, the total remaining time in the disc is shown.

M Total Time Indicator: This indicator lights when a CD is playing and the time display has been switched to show the total elapsed time that the current disc has played. When both this indicator and the **Remaining Indicator** **L** are lit, the total remaining time in the disc is shown.

N Repeat/Random Indicators: These indicators light when any of the Repeat/Random functions are in use.

O Random Indicator: This indicator lights when the unit is in the Random Play mode.

P Shuffle Indicator: This indicator lights when the DVD 50 is in the Shuffle Random Play mode. See page 35 for more information.

Front Panel Information Display

Q Parental Lock Indicator: This indicator lights when the parental lock system is engaged in order to prevent anyone from changing the rating level without a code.

R Resume Indicator: This indicator lights when the Stop button has been pressed once to put the unit in the Resume mode.

S Playback Mode Indicators: These indicators light to show the current playback mode:

▶ Lights when a disc is playing in the Normal mode

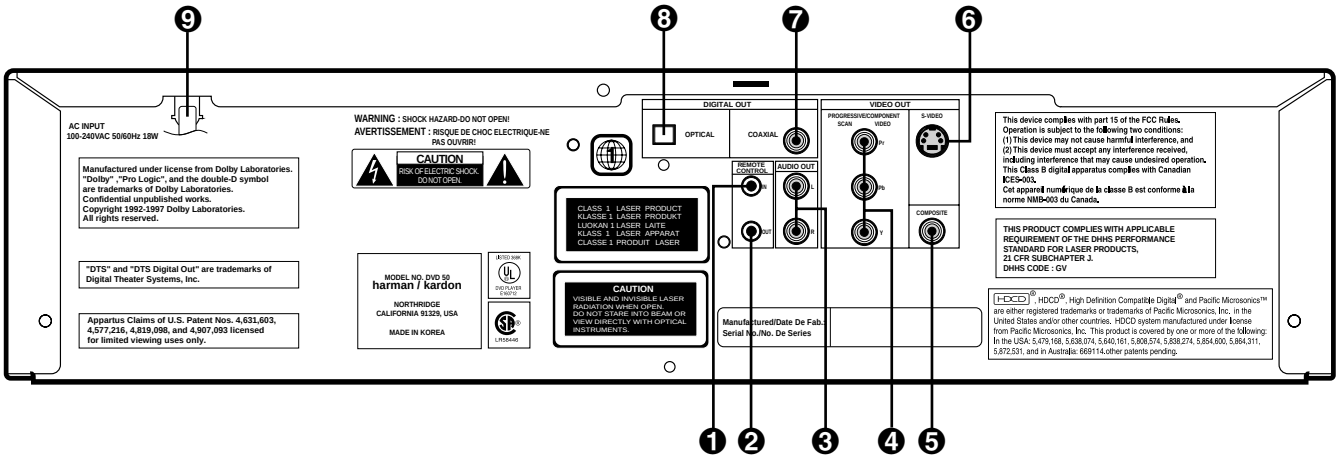
▶▶ Lights when the disc is in the Fast Search Forward mode. For DVDs, When both triangles glow steadily, the disc plays at 2x normal speed. When the right triangle is flashing, the disc plays at 4x normal speed. When the left triangle is flashing, the disc plays at 16x normal speed. When both triangles are flashing, the disc plays at 100x normal speed. For CDs, only the first three Fast Search modes are available.

▶❙❙ Lights when the disc is paused

◀◀ Lights when the disc is in the Fast Search Reverse mode. For DVDs, When both triangles glow steadily, the disc plays at 2x normal speed. When the left triangle is flashing, the disc plays at 4x normal speed. When the right triangle is playing, the disc plays at 16x normal speed. When both triangles are flashing, the disc plays at 100x normal speed. For CDs, only the first three Fast Search modes are available.

T 96kHz/24-Bit Indicator: This indicator lights when a disc recorded with 96kHz/24-bit content is playing. See page 24 for more information on settings for 96/24 audio.

Rear Panel Connections



❶ Remote Control Input
❷ Remote Control Output
❸ Analog Audio Outputs
❹ Component Video Outputs
❺ Composite Video Output
❻ S-Video Output
❼ Coaxial Digital Output
❽ Optical Digital Output
❾ AC Power Cord

❶ Remote Control Input: Connect the output of a remote infrared sensor, or the remote control output of another compatible Harman Kardon product, to this jack. This will enable the remote control to operate even when the front panel **Remote Sensor** 16 is blocked. This jack may also be used with compatible IR remote control-based automation systems.

❷ Remote Control Output: Connect this jack to the infrared (IR) input jack of another compatible Harman Kardon remote-controlled product to have the built-in **Remote Sensor** 16 on the DVD 50 provide IR signals to other compatible products.

❸ Analog Audio Outputs: Connect these jacks to an audio input on an A/V receiver or surround processor for analog audio playback.

❹ Component Video Outputs: These outputs carry the component video signals for connection to analog or digital display monitors with component video inputs. For standard analog TVs or projectors with inputs marked Y/Pr/Pb or Y/Cr/Cb, connect these outputs to the matching inputs. If you have a digital television that is compatible with high scan rate video, connect these jacks to the "HD Component" inputs. note that a change must be made to the setup menus in order to take advantage of the progressive scan circuitry. See page 22 for more information on progressive scan video. Note that these jacks should NOT be connected to standard composite video inputs.

❺ Composite Video Output: Connect this jack to the video input on a television or video projector, or to a video input on an A/V receiver or processor if you are using that type of device for video input switching.

❻ S-Video Output: Connect this jack to the S-Video input on a television or video projector, or to an S-Video input on an A/V receiver or processor if you are using that type of device for S-Video input switching.

❼ Coaxial Digital Output: Connect this jack to the coaxial digital input of an A/V receiver or surround processor for Dolby Digital, DTS or PCM audio playback.

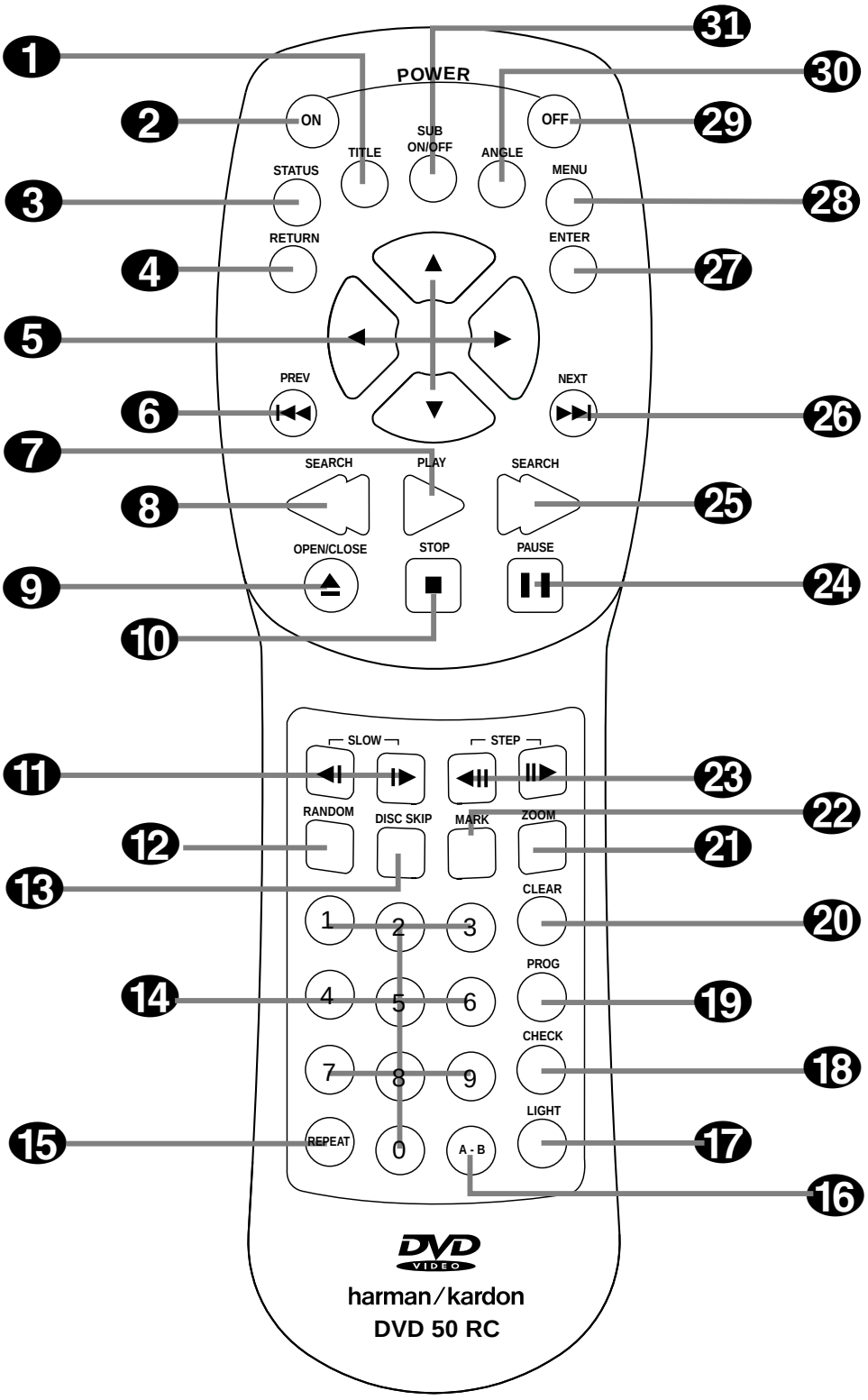
NOTE: The coaxial digital output should only be connected to a digital input. Even though it is the same RCA-type connector as standard analog audio connections, DO NOT connect it to a conventional analog input jack.

❽ Optical Digital Output: Connect this jack to the optical digital input of an A/V receiver or surround processor for Dolby Digital, DTS or PCM audio playback.

❾ AC Power Cord: Connect this plug to an AC outlet. If the outlet is controlled by a switch, make certain that it is in the ON position.

Remote Control Functions

1. Title Button
2. Power-On Button
3. Status Button
4. Return Button
5. Navigation Buttons
6. Previous Button
7. Play Button
8. Reverse Search Button
9. Open/Close Button
10. Stop Button
11. Slow Play Buttons
12. Random Button
13. Disc Skip Button
14. Numeric Buttons
15. Repeat Button
16. Repeat A-B Button
17. Light Button
18. Check Button
19. Program Button
20. Clear Button
21. Zoom Button
22. Mark Button
23. Step Buttons
24. Pause Button
25. Forward Search Button
26. Next Button
27. Enter Button
28. Menu Button
29. Power-Off Button
30. Angle Button
31. Subtitle On/Off Button



Remote Control Functions

1 Title Button: When a DVD is playing, press this button to display the disc's Title Select Menu. If the disc does not offer this function, a symbol (⃠) will appear on the screen to indicate that there is only one title on the disc or that the disc does not allow this feature. This button is also used to activate the CD-Text display when a CD with CD-Text data is playing. (See p. 32 for more information.)

2 Power-On Button: Press this button to turn the DVD 50 on.

3 Status Button: When a disc is playing, pressing the button will display the Status Banner which contains information about the disc and enables you to change the functions.

4 Return Button: When viewing the menu display from a DVD disc, press this button to return to the previous menu screen.

5 Navigation Buttons: Press these buttons to change or select an item from the DVD 50's Status Banner or in the on-screen menu displayed by a DVD disc.

6 Previous Button: Press this button to move backward through the music tracks on a CD disc or the chapters on a DVD disc.

7 Play Button: Press this button to begin playback. If the disc tray drawer is open, it will automatically close when the button is pushed. Pressing the Play button when the unit is in the Standby mode will turn the unit on and begin playback of the last disc in use.

8 Reverse Search Button: Press this button to move backward through a CD or DVD at one of four speeds. Each press and release will increase the search speed, in the following order: R. Search x 2 → R. Search x 4 → R. Search x 16 → R. Search x 100. Once you have selected the desired speed, release the button, and the disc will continue to search at fast speed. To resume normal playback, press the **Play Button** 7/13.

9 Open/Close Button: Press this button to open or close the disc tray drawer. If the drawer is opened while a disc is still playing, playback will continue and discs not in use may be changed. If the drawer is opened while the unit is stopped, the disc that was playing will be presented at the front-center position of the tray.

10 Stop Button: Press this button once to place the disc in the Resume mode, which means that playback will stop; as long as the tray is not opened or the disc changed, DVD playback will continue from the same point on the disc when the **Play Button** 7 is pressed again. Resume will also work if the unit is turned off. To totally stop a disc, press the button twice.

11 Slow Play Buttons: When a DVD disc is playing, press these buttons to move forward or backward through the disc in slow speed. Each press of these buttons changes the slow-play speed in the following order: 1/16 Normal Speed → 1/8 Normal Speed → 1/4 Normal Speed → 1/2 Normal Speed.

To resume normal play, press the **Play Button** 7/13. These buttons do not function when a CD is playing.

12 Random Button: Press this button to begin the playback of all tracks on a disc in random order.

13 Disc Skip Button: Press this button to move to the next available disc in the tray.

14 Numeric Buttons: Press these keys to enter data for sequential programming, to enter or change the access password for parental control, to enter a language code, or to respond to menu options presented by a disc.

15 Repeat Button: Press this button to select a Repeat-Play mode. Each press of the button shows the choice selected in either the on-screen Status Banner display or in the **Repeat Indicators** N.

16 Repeat A-B Button: Press this button once to begin the selection of a portion of a disc to be repeated. Press it again to choose the end point of the repeat-play selection.

17 Light Button: Press this button to activate the remote's backlighting so that the keys are visible in low-light conditions.

18 Check Button: This button is used to verify the contents of a programmed play list via the front panel Information Display. (See page 36 for more information about programming the DVD 50.)

19 Program Button: When the unit is stopped, press this button to display the program menu and enter a programmed play sequence. When a disc is playing, press this button to switch between normal play and programmed playback.

20 Clear Button: Press this button to remove the Status Banner or other displays from your video screen. This button is also used to clear items from Programmed Play lists. (See page 36.)

21 Zoom Button: When a DVD or VCD disc is playing, press this button to zoom the picture so that it is enlarged. There are six steps to the zoom function, each progressively larger. Press the button through each of the zoom stages to return to a normal picture.

22 Mark Button: Press this button to activate the Bookmark system. Once the button is pressed, you may save or recall a favorite spot in a program by pressing the **Navigation** 5 and **Enter** 27 buttons. See page 37 for complete information on the Bookmark feature.

23 Step Buttons Button: When a DVD disc is playing, press these buttons to move forward or backward one frame at a time. Press the **Play Button** 7/13 to resume normal play. These buttons do not function when a CD is playing.

24 Pause Button: Press this button to stop the disc in use. To resume playback, either press the Pause button again or press the **Play Button** 7/13.

25 Forward Search Button: Press this button to move forward through a CD or DVD at one of four speeds. Each press and release will increase the search speed, in the following order: F. Search x 2 → F. Search x 4 → F. Search x 16 → F. Search x 100. Once you have selected the desired speed, release the button and the disc will continue to search at fast speed. To resume normal playback speed, press the **Play Button** 7/13.

26 Next Button: Press this button to move forward through the music tracks on a CD disc or the chapters on a DVD disc.

27 Enter Button: Press this button to select the item that is highlighted in the DVD 50's Status Banner or in the on-screen menu displayed by a DVD disc.

Remote Control Functions

㉘ **Menu Button:** This button has two functions. When a DVD disc is playing, press this button to stop the disc playback and display the DVD's main menu screen for the current title. When the unit is stopped, press this button to display the Setup Menu.

㉙ **Power-Off Button:** Press this button to place the unit in the Standby mode.

㉚ **Angle Button:** When a DVD encoded with multiple-angle information is playing, press this button to change the angle in use. Note that this function is only available on discs that are specially prepared to take advantage of the multiple-angle function, and only for those parts of the disc that are recorded with multiple-angle content. The DVD 50 will display a camera icon on the screen to indicate when this feature is available.

㉛ **Subtitle On/Off Button:** When a DVD is playing, press this button to turn the subtitle display on or off. The first press of button displays the current subtitle status, with subtitles off indicated by a blank box to the right of the language name. Press the button again to turn the subtitle on.

Installation and Connections

Installation
Connections will vary, depending on the type of audio and video components used with your DVD 50. However, regardless of the complexity of your system, the installation guidelines on pages 14–17 should always be followed to ensure a safe installation and reliable operation of the product.

Important Note: To prevent possible damage to your speakers or other components in your home entertainment system, we strongly recommend that ALL system components, including the DVD 50, be turned off and unplugged from their AC power source when any connections are made or a new component is installed.

Placement of the DVD 50
Since the laser transport mechanism and carousel tray in the DVD 50 are precision components designed and manufactured to exact tolerances, they are subject to interference from vibration. To minimize the possibility of skipping during playback, it is recommended that the unit be placed on a level, solid, vibration-free surface.

When installing the DVD 50 in a cabinet or tight space, always make certain that there is enough room in front of the unit for the disc tray to open fully, and that there is enough space above the unit so that discs may easily be inserted into the spaces in the tray.

As the disc drawer extends out about six inches from the front of the unit when it is open, you should also make certain that there is sufficient clearance in front of the unit to accommodate the disc drawer without it bumping into other objects or getting in the way of anyone walking in front of the unit.

In addition to the safety considerations outlined on page 4, it is also recommended that the DVD 50 not be placed in a location that is subject to direct sunlight or extreme heat or cold, as these conditions may damage the discs used in the player, or the player itself. Note that audio amplifiers or high-power receivers, as well as certain other electronic products, can generate significant heat. For that reason, do not place the DVD 50 directly on top of an amplifier, receiver, or other heat source. Always allow at least one inch of free space on all sides of the DVD 50 as well as around other electronic products to allow for proper ventilation.

Installation Options
The diagrams on pages 14–17 describe the three basic ways to connect the DVD 50 to your system components.

- Option #1: Use this setup if all audio and video connections from the DVD 50 will go directly to a television set or video projector without the use of an A/V receiver or surround processor.
- Option #2: Use this setup if the video connections will go directly to a television set or video projector, but the audio connections will be made to an A/V receiver or surround processor.
- Option #3: Use this setup if all audio and video connections will be made through an A/V receiver or a surround processor.

Important Notes on Installing the DVD 50
The following important notes apply to all three installation options:

- If your television has both standard composite video and S-Video inputs, you only need to use one of the two connections. Where possible, we recommend an S-Video connection, due to the higher picture quality.
- Do not connect any of the video outputs of the DVD 50 through a VCR. The use of Macrovision encoding on most DVD discs means that most discs will have a distorted picture when connections are made through a VCR.
- Note that the volume level for DVD playback may differ from the level for other input sources to your receiver. This is normal and does not indicate a problem with the DVD 50 or your receiver. Simply use the volume control on the receiver to set the desired level.
- Depending on the product and brand, a number of different descriptions are used to label component video connections. You may see them as Y/Pr/Pb, Y/Cr/Cb or Y/R-Y/B-Y. For the purposes of connecting a DVD player, all of these labels are normally identical. The best guide is to connect the component video connections using the green/red/blue color coding of the inner rings of the connection jacks.
- If your television is high-definition or "digital ready" television, you may take advantage of the DVD 50's progressive scan output for the highest video resolution possible. Make the component video connections shown or you may connect the component video jacks directly to the component video or HD component inputs on your TV or video display. Once the connection is made, the progressive scan circuitry must be activated by changing the setup menus as shown on page 23. Note that progressive scan capability is not operational with standard analog component video connections.
- Note that all cables shown for use in the connection diagrams are optional. Consult your dealer or installer for information on the best cables for your specific system application.
- When the progressive scan output is activated, there is no output from either the **S-Video** ❻ or **Composite Video** ❺ jack.
- When the **Component Video Output** ❹ is used for a standard video signal (that is with the progressive scan output turned off), there is no output from the **S-Video** ❻ jack, but the **Composite Video Output** ❺ will function normally. See page 23 for more information on video output settings.

Installation and Connections

OPTION 1:

Direct Connections to a Television or Video Projector

This is the simplest installation, as it does not require anything other than a television set. However, note that in this type of system you will not be able to enjoy the benefits of Dolby Digital or DTS discrete playback, as that requires the digital audio processing found in A/V receivers or surround processors. Follow as many of these steps as needed, based on the capabilities of your television:

Step 1: Connect the **AC Power Cord** ❾ to an AC outlet as shown in **Connection** A, but do NOT turn the DVD 50 on at this point.

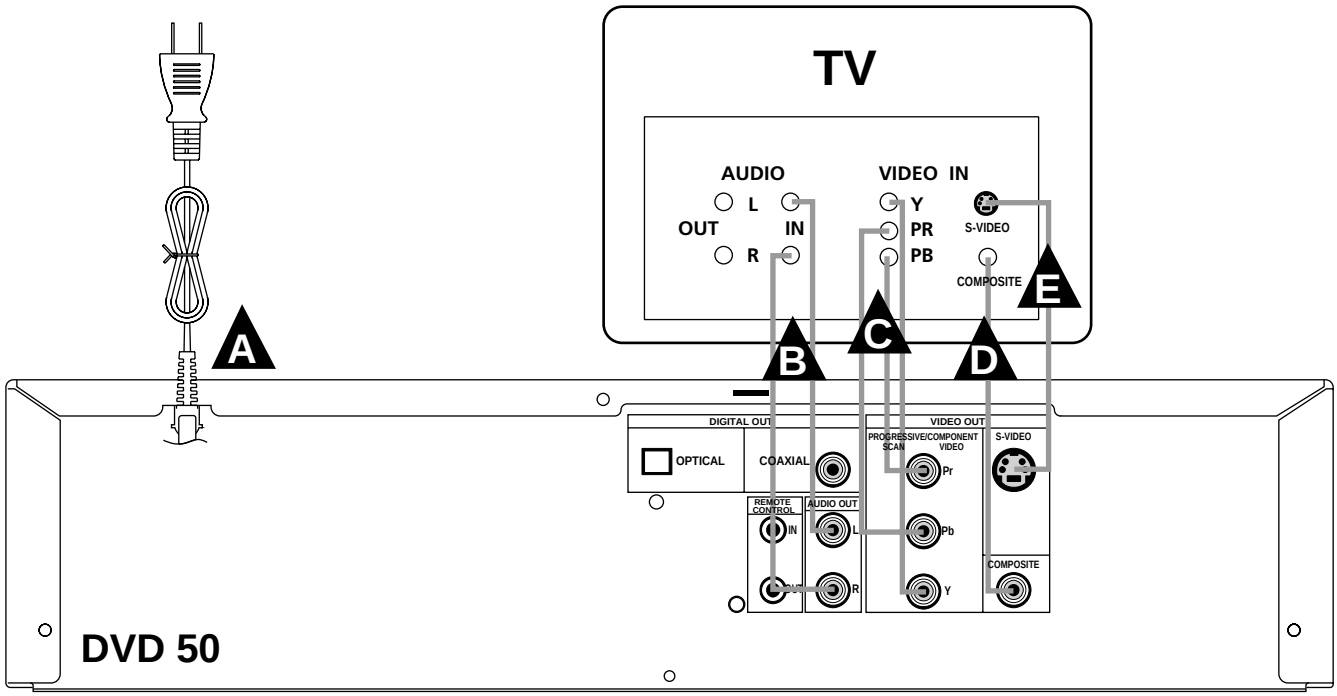
Step 2: Connect the left and right **Analog Audio Outputs** ❸ to the left and right audio inputs on your television as shown in **Connection** B.

Step 3: Depending on the video input capabilities of your video display, make one of the following connections. For the highest video quality, use component video connections, if available. An S-Video connection is the next best quality, followed by a standard composite video connection.

If the video display has component video inputs, connect the **Y/Pr/Pb Component Outputs** ❹ on the DVD 50 to the matching input jacks on the back of your television as shown in **Connection** C. This connection is the same regardless of if the component connection is to a digital television for progressive scan use or to a standard analog video display.

If the video display has an S-Video input and component video is not available, connect the **S-Video Output** ❻ on the DVD 50 to the S-Video input on your video display as shown in **Connection** E.

If the only video input available on your television is a standard video jack, connnect the **Composite Video Output** ❺ on the DVD 50 to a matching composite video input on your video display, as shown in **Connection** D. Note that in most cases the video input jack is recognizable by the yellow ring surrounding the input.



Installation and Connections

OPTION 2:

Direct Connections to a Television or Video Projector with Audio Connections to an A/V Receiver or Surround Processor

To hear the benefits of discrete, multichannel digital audio, you will need to use an external Dolby Digital/DTS-capable A/V receiver or surround processor. In this installation, you maintain a direct video connection to your television, but use the audio processing from another device.

Step 1: Connect the **AC Power Cord** ❾ to an AC outlet as shown in **Connection** Ⓐ, but do NOT turn the DVD 50 on at this point.

Step 2: Depending on the type of A/V receiver or surround processor you have make one of the following audio connections:

If your A/V receiver or surround processor has digital decoding capability for Dolby Digital and DTS, you may make the connection by connecting either an optical or coaxial cable. For optical connections, run the cable from the **Optical Digital Output** ❽ on the DVD 50 to an optical input on the A/V receiver, as shown in **Connection** Ⓑ. For coaxial connections, run the cable from the **Coaxial Digital Output** ❼ on the DVD 50 to a coaxial input on the A/V receiver, as shown in **Connection** Ⓒ. Either type of connection may be used and only one is required. Remember to change the settings in your receiver or processor so that the digital input you have selected is configured for use with the DVD video input.

If your A/V receiver or surround processor does not have digital decoding capability, you may still take advantage of the benefits of its analog surround processing such as Dolby Pro Logic*. Connect the left and right **Analog Audio Outputs** ❸ to the left and right audio inputs on your receiver or processor, as shown in **Connection** Ⓓ.

Step 3: Depending on the video input capabilities of your video display, make one of the following connections. For the highest video quality use component video connections, if available. An S-Video connection is the next best quality, followed by a standard composite video connection.

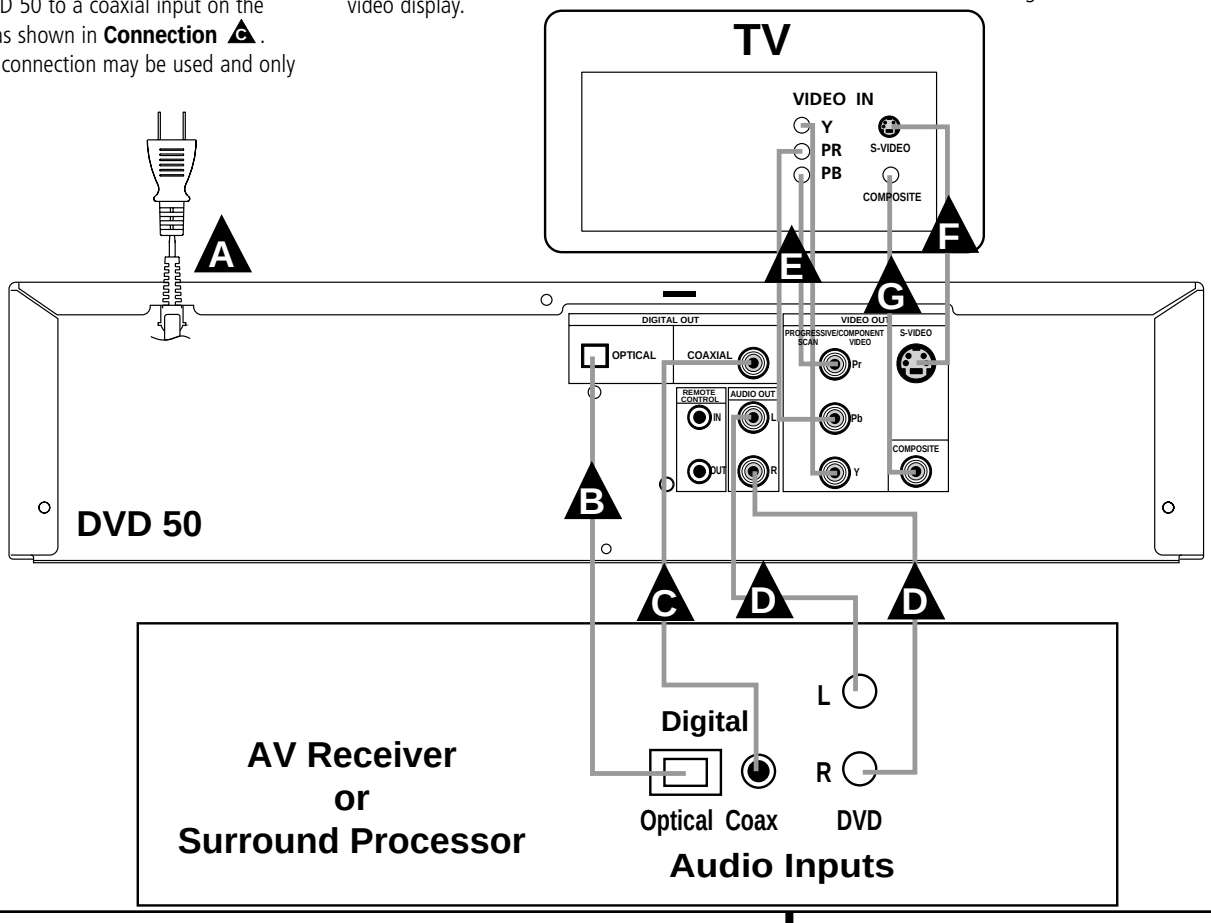
If the video display has component video inputs, connect the **Y/Pr/Pb Component Outputs** ❹ on the DVD 50 to the matching input jacks on the back of your television as shown in **Connection** Ⓔ. This connection is the same regardless of whether the component connection is to a digital television for progressive scan use or to a standard analog video display.

If the video display has an S-Video input and component video is not available, connect the **S-Video Output** ❻ on the DVD 50 to the S-Video input on your video display as shown in **Connection** Ⓕ.

If the only video input available on your television is a standard video jack, connnect the **Composite Video Output** ❺ on the DVD 50 to a matching composite video input on your video display as shown in **Connection** Ⓖ. Note that in most cases the video input jack is recognizable by the yellow ring surrounding the input.

Installation Note

- Only one type of audio connection is required, either digital or analog. If possible, a digital connection is preferred as that will enable you to listen to DVD soundtracks with the clarity, definition and channel separation made possible by Dolby Digital and DTS. However, if you do not yet have a receiver capable of digital audio processing, you will still benefit from an analog connection so that the receiver may create a multichannel soundfield using Dolby Pro Logic or other matrix decoding.



Installation and Connections

OPTION 3:

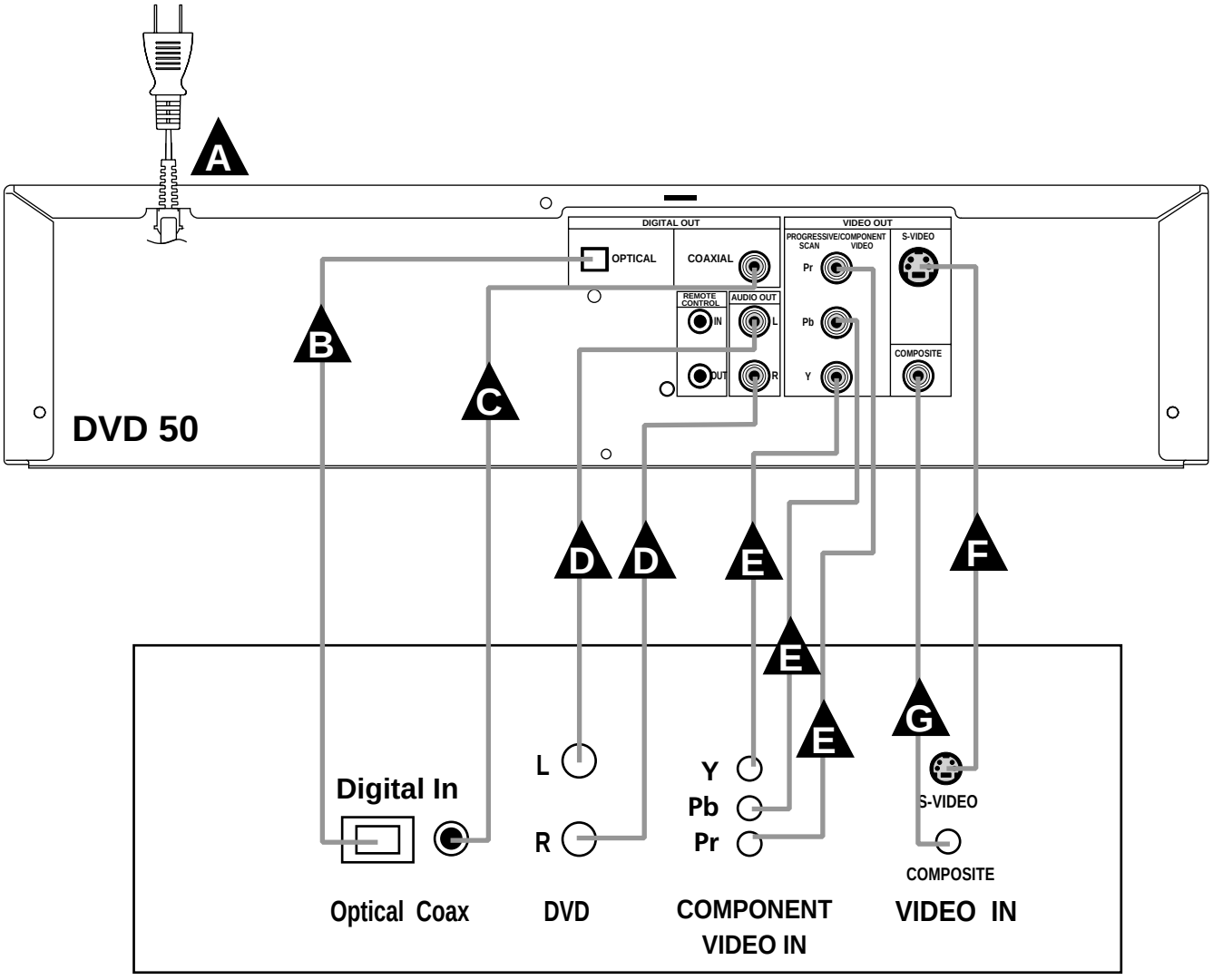
Audio and Video Connections through an A/V Receiver or Surround Processor only
If your home entertainment system has other audio/video input sources in addition to the DVD 50, such as a VCR, cable set-top box or satellite receiver, LD player, personal video recorder or HDTV tuner, the most efficient way to manage the various components is to make all audio/video connections through an A/V receiver or surround processor. This simplifies the selection of an input source, and allows many different components to be connected to the same video display and speakers.

Step 1: Connect the **AC Power Cord** ❾ to an AC outlet as shown in **Connection** Ⓐ, but do NOT turn the DVD 50 on at this point.

Step 2: Depending on the type of A/V receiver or surround processor you have, make one of the following audio connections:

If your A/V receiver or surround processor has digital decoding capability for Dolby Digital and DTS, you may make the connection by connecting either an optical or coaxial cable. For optical connections, run the cable from the **Optical Digital Output** ❽ on the DVD 50 to an optical input on the A/V receiver as shown in **Connection** Ⓑ. For coaxial connections, run the cable from the **Coaxial Digital Output** ❼ on the DVD 50 to a coaxial input on the A/V receiver as shown in **Connection** Ⓒ. Either type of connection may be used and only one is required. Remember to change the settings in your receiver or processor so that the digital input you have selected is configured for use with the DVD video input.

If your A/V receiver or surround processor does not have digital decoding capability you may still take advantage of the benefits of its analog surround processing such as Dolby Pro Logic. Connect the left and right **Analog Audio Outputs** ❸ to the left and right audio inputs on your television as shown in **Connection** Ⓓ.



AV Receiver or Surround Processor

Installation and Connections

Step 3: Depending on the video input capabilities of your video display and the connections available on your A/V receiver or surround processor, make one of the following connections. For the highest video quality use component video connections, if available. An S-Video connection is the next best quality, followed by a standard composite video connection.

If both your A/V receiver and video display have component video inputs, connect the **Y/Pr/Pb Component Outputs** ❹ on the DVD 50 to the matching input jacks on the back of your A/V receiver, as shown in **Connection** E. This connection is the same, regardless of whether the component connection is to a digital television for progressive scan use or to a standard analog video display. If your A/V receiver does not have component video switching, but if your television or video display does has component inputs, make the connections from the **Y/Pr/Pb Component Outputs** ❹ on the DVD 50 directly to the matching inputs on your video display.

If the video display has an S-Video input and component video is not available, connect the **S-Video Output** ❻ on the DVD 50 to the S-Video input on your video display, as shown in **Connection** F.

If the only video input available on your television is a standard video jack, connect the **Composite Video Output** ❺ on the DVD 50 to a matching composite video input on your video display, as shown in **Connection** G. Note that in most cases the video input jack is recognizable by the yellow ring surrounding the input.

Installation Notes

- For this installation, make the connections from the receiver or processor to your video display and speakers as described in the owner's manuals for those products.

- Only one type of audio connection is required, either digital or analog. If possible, a digital connection is preferred as that will enable you to listen to DVD soundtracks with the clarity, definition and channel separation made possible by Dolby Digital and DTS. However, if you do not yet have a receiver capable of digital audio processing, you will still benefit from an analog connection so that the receiver may create a multichannel soundfield using Dolby Pro Logic or other matrix decoding.

Troubleshooting Guide

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Unit does not turn on	• Main Power Switch turned Off • No AC power	• Press in Main Power Switch • Check AC power plug and make certain any switched outlet is turned on
Disc does not play	• Disc loaded improperly • Incorrect disc type • Invalid Region Code • Rating is above parental preset	• Load disc label-side up • Check to see that disc is CD, CD-RW or DVD-Movie; other types will not play • Use Region 1 disc only • Enter password to override or change rating settings
No picture	• Intermittent connections • Wrong input	• Check all video connections • Check input selection of TV or receiver
No sound	• Intermittent connections • Incorrect digital audio selection • DVD disc is in Fast or Slow mode	• Check all audio connections • Check digital audio settings • There is no audio playback on DVD discs during Fast or Slow mode
Picture is distorted or jumps during Fast Forward or Reverse Play	• MPEG-2 decoding	• It is a normal artifact of DVD playback for pictures to jump or show some distortion during Rapid Play
Some remote buttons do not operate during DVD play	• Function not available for this disc	• Some discs do not include all DVD features
The menu is in a foreign language	• Incorrect menu language	• Change menu language selection
" ⊘ " Symbol appears	• Requested function not available at this time	• Certain functions may be disabled during passages of a disc
Picture is displayed in the wrong Aspect Ratio	• Incorrect match of Aspect Ratio settings to disc	• Change Aspect Ratio settings
Remote control inoperative	• Weak batteries • Sensor is blocked	• Change both batteries • Clear path to sensor or use remote sensor
Disc will not copy to VCR	• Macrovision protection	• Most DVDs are encoded with Macrovision to prevent copying to VCR

To Reset all the user-setting parameters on the DVD 50 to the factory default setting:

1) Turn On the DVD 50 and press STOP Button, if it is playing a disc.
2) Press MENU Button.
3) When the Main Menu appears on the TV screen, press "DOWN" Arrow Button to get down to the "TV Aspect".
4) Press RIGHT Arrow Button once and DOWN Arrow Button until the little circle in front of "16:9 Widescreen" turns to orange color.
5) Press the Numeric Buttons, 1 - 3 - 9 - 7 - 1 - 3 - 9. (Be sure that the remote is firmly pointing at the DVD 50)
6) Press ENTER Button.
7) At this point, you should be able to see the System Information on the TV screen. If the upgrade with this 2.3 version software has been done properly, you should see the following display among other information: "MICOM. VER. : V2.3 MP"
8) Press MENU Button to exit from this display mode.
9) Turn Off and On again the DVD 50. All the user-accessible parameters, including the Parental Lock, have been reset at this point.

DISASSEMBLY

CAUTION BEFORE STARTING SERVICING

Electronic parts are susceptible to static electricity and may easily damaged, so do not forget to take a proper grounding treatment as required.

Many screws are used inside the unit. To prevent missing, dropping, etc. of the screws, always use a magnetized screw driver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded patrs and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

CABINET DISASSEMBLY

1. Top Case

1. Release 7 screws (A). (See Fig. 2-1)
2. Lift the top case with holding the back of it, and remove it in the direction of the arrow.

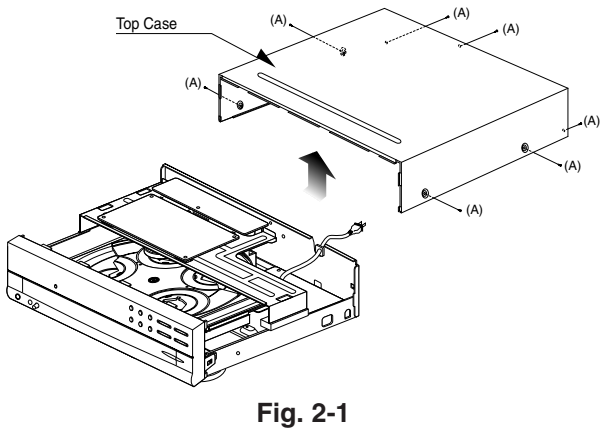


Fig. 2-1

2. Tray Door

1. Eject the disc tray.
2. Lift up the tray door in the direction of the arrow.

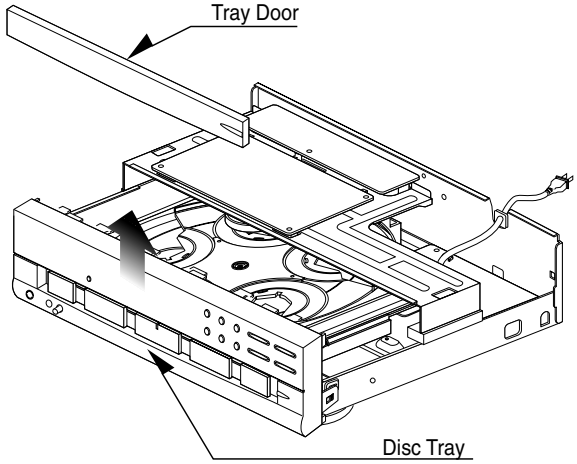


Fig. 2-2

3. Front Panel

1. Eject the disc tray. (See Fig. 2-2)
2. Remove the tray door. (See Fig. 2-2)
3. Pull the front panel toward you while pressing 5 stoppers to disengage, and remove the front panel. (See Fig. 2-3)

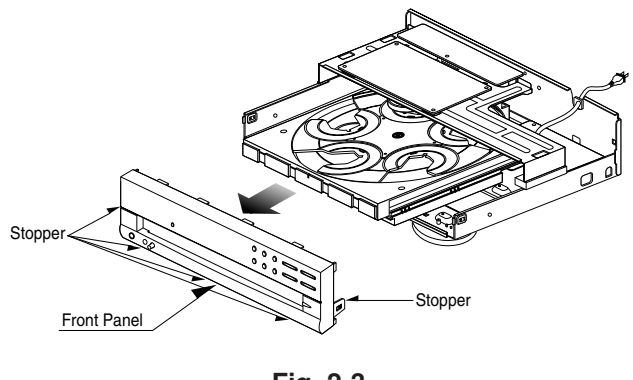


Fig. 2-3

CIRCUIT BOARD DISASSEMBLY

Note: Before removing the main circuit board, be sure to shortcircuit the laserdiode output land. After replacing the main circuit board, open the land after inserting the flexible connector. (Refer to Mechanism Disassembly)

1. Disassemble Main circuit board, Jack circuit board, Power circuit board and MD Ass'y DPM1.

1. Remove the top case.(See Fig. 2-1)
2. Remove 10 screws (B).
3. Disassemble Main circuit board and Jack circuit board from Bracket Main.
4. Unscrew 3 screws(C) at Bracket Main.
5. Disassemble Bracket Main from Main chassis.
6. Unscrew 4 screws(D) at MD Ass'y DPM1.
7. Turn the portion the direction of arrow to move the Base Assembly Tray in front of you.
8. Release the other 3 screws(E).
9. Disassemble MD Ass'y DPM1 from Main chassis.
10. Unscrew 4 screws(F) at Power circuit.
11. Disassemble power circuit board from Main chassis.

2. Digitron and Key Circuit Board

1. Remove the front panel.(See Fig. 2-3)
2. Release 5 screws (G), and remove the digitron circuit board.

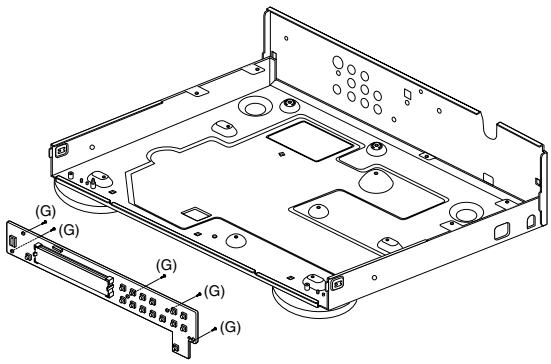


Fig. 2-5

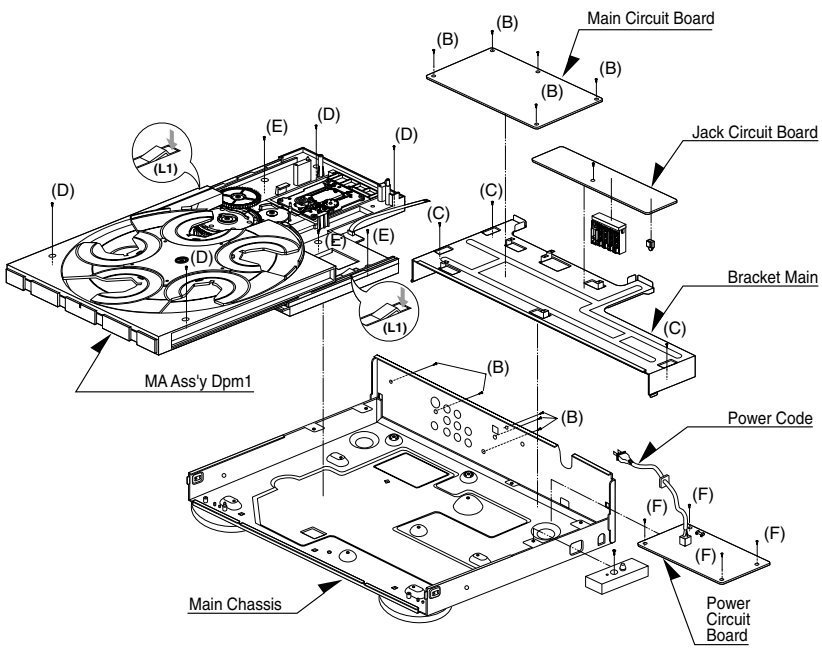
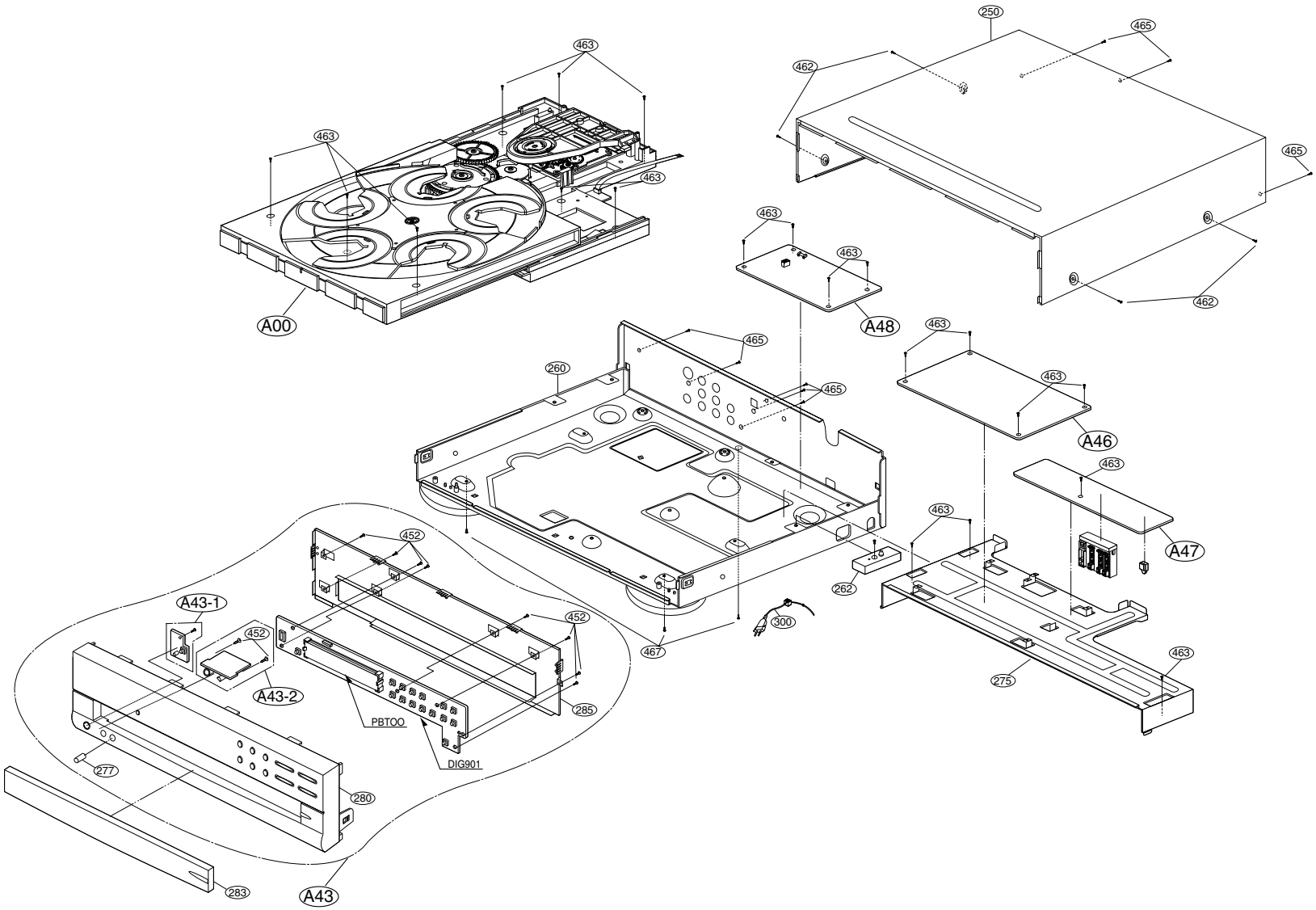


Fig. 2-4

EXPLODED VIEW



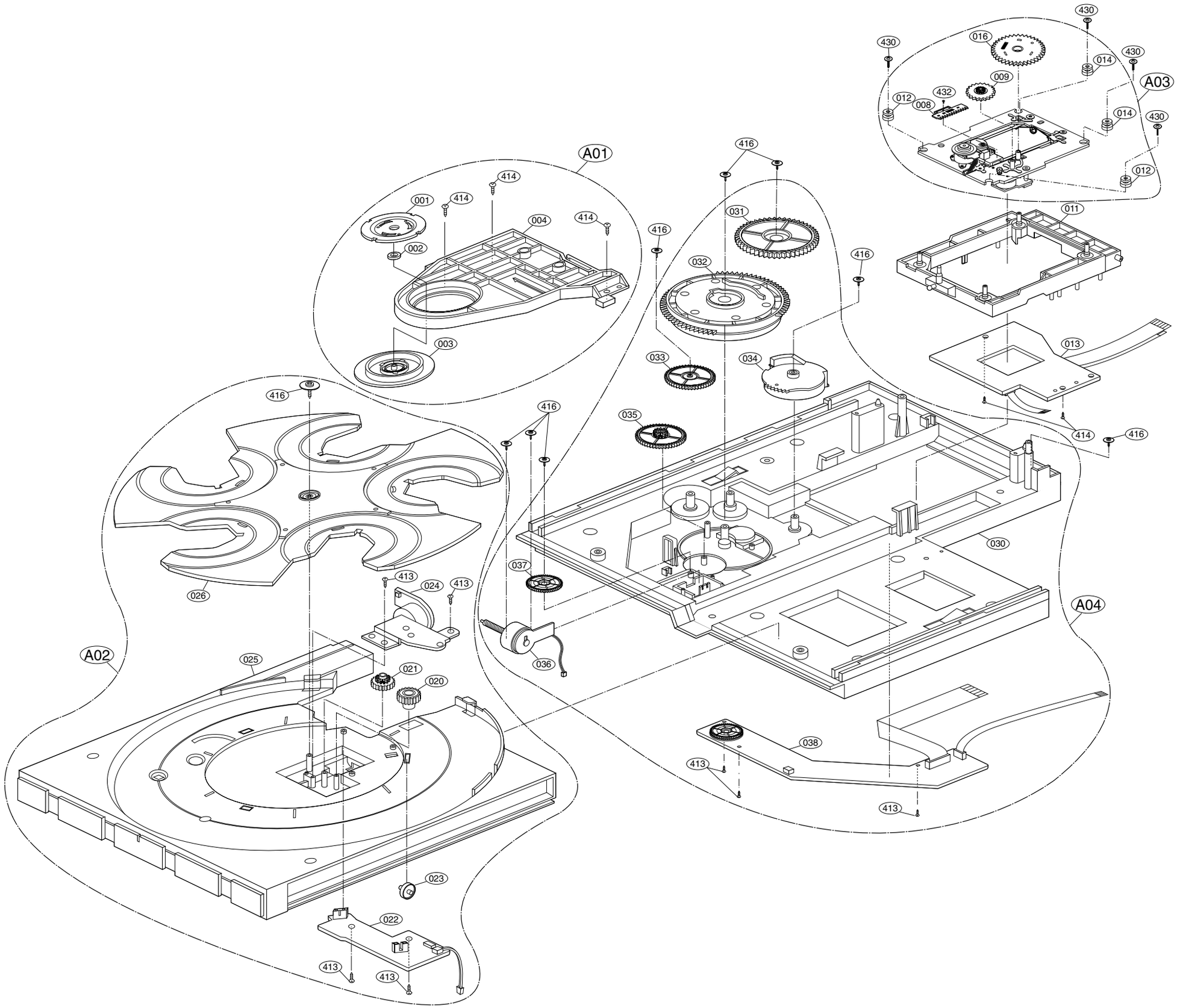
• Cabinet and Main Frame Section

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
			ASSEMBLY SECTION			
		A43	3501R-3076B	BOARD ASSY	ADVM3941NFM 1UH1 FRONT	
		A43-1	6871R-3079A	PWB(PCB) ASSY,TOTAL	ADVM3941NFM HK KEY	
		A43-2	6871R-3083A	PWB(PCB) ASSY,TOTAL	ADVM3941NFM HK H/P	
		A46	6871R-3077A	PWB(PCB) ASSY,TOTAL	DVM3941NFM MAIN	
		A47	6871R-3078A	PWB(PCB) ASSY,TOTAL	ADVM3941NFM HK JACK NTSC MIDDL	
		A48	3501R-3073A	BOARD ASSY	ADVM3951NFM	
			PARTS SECTION			
		250	3110R-0222A	CASE	TOP(DVD-5,H/K)	
		275	4811R-0027D	BRACKET ASSY	MAIN(DVM3800 . W/O GND . PVC C	
		277	4940R-V014A	KNOB	VOLUME HARMANKARDON	
		280	3721R-F176A	PANEL ASSY,FRONT[NORMAL PARTS]	DVD 50 EVNT	
		283	3580R-T013A	DOOR	TRAY HARMANKARDON	
		285	3301R-M008A	PLATE ASSY	SHIELD(DVD 50)	
		300	6410RAHS02A	POWER CORD	AP-10W NI SP2 CORE 80 STP SANG	
			SCREW			
		452	353-051A	SCREW	SPECIAL	
		452	353-051E	SCREW	SPECIAL (3X12)	
		462	353-085E	SCREW,DRAWING	+ 3 D4.0 L10.0 MSWR3/FZMCW-2	
		463	353-051B	SCREW	SPECIAL	
		465	353-046K	SCREW	SPECIAL (3X10 B.K)	
		467	353-046N	SCREW,	SPECIAL(3X8 BK.)	

6721R-0314B	**ENTIRE DVD50 LASER MECHANISM, COMPLETE**

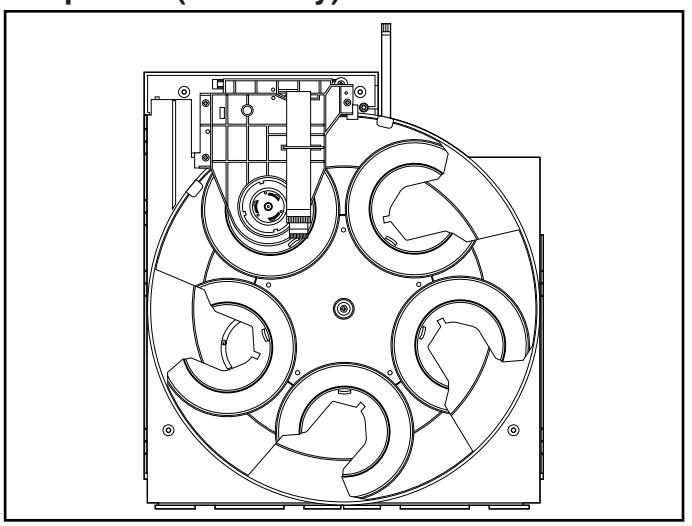
EXPLODED VIEWS

1. Deck Mechanism Exploded View

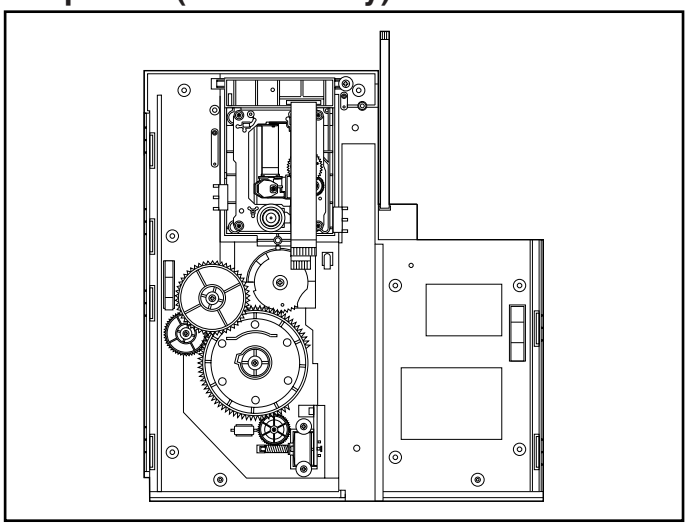


DECK MECHANISM PARTS LOCATION

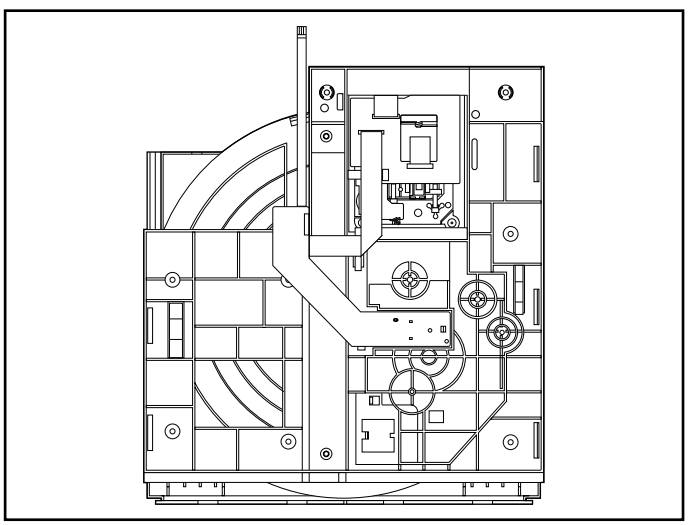
• Top View (With Tray)



• Top View (Without Tray)



• Bottom View



Procedure Starting No.		Parts	Fixing Type	Disassembly	Figure
	1	Holder Assembly Clamp	3 Screws 2 Connectors 1 Hook	Top	4-1
1	2	Plate Calmp		Top	4-1
1,2	3	Magnet Clamp		Top	4-1
1,2,3	4	Upper Clamp		Top	4-1
1,2,3,4	5	Holder Clamp		Top	4-1
	6	Base Assembly Tray	2 Locking Tabs	Top	4-2
	7	Tray Disc	1 Screw	Top	4-2
6	8	Roller Base Tray	2 Locking Tabs	Bottom	4-2
6	9	PCB Assembly Tray	2 Screws 1 Connector	Bottom	4-2
6,7	10	Motor Assembly Tray	2 Screws	Top	4-2
6,7,10	11	Gear Tray		Top	4-2
6,7,10,11	12	Gear Wheel Tray		Top	4-2
6,7,8,9,10,11,12	13	Base Tray		Top	4-2
1	14	Frame Assemly Up/Down	1 Screw	Top	4-3
	15	PCB Assembly Junction	2 Screws 5 Connectors	Bottom	4-3
1	16	Base Assembly Sled Damper	4 Screws 1 Connector	Top	4-3
1	17	Gear Assembly Feed	1 Locking Tab	Top	4-3
1,17	18	Gear Middle		Top	4-3
1,17	19	Gear Assembly Rack	1 Screw	Top	4-3
1	20	Rubber Damper		Top	4-3
1,15,16,17,18,19,20	21	Frame Up/Down		Top	4-3
1,14	22	Base Assembly Main		Top	4-4
	23	PCB Assembly Main Mode	2 Connectors 3 Screws	Bottom	4-4
6	24	Gear Slider	1 Screw	Top	4-4
6,24	25	Gear Exchange	1 Screw	Top	4-4
6,24	26	Gear Main	1 Screw	Top	4-4
6,24,26	27	Gear Up/Down	1 Screw	Top	4-4
6,24,26	28	Gear Wheel Main	1 Screw	Top	4-4
6,24,26,28	29	Gear Loading		Top	4-4
6,28	30	Motor Assembly Main	2 Screws 1 Locking Tab	Top	4-4
1,6,14,23,24,25,26,27,28,29,30	31	Base Main		Top	4-4

Note

When reassembling, perform the procedure in reverse order.

The “Bottom” on Disassembly column of above Table indicates the part should be disassembled at the Bottom side.

DECK MECHANISM DISASSEMBLY

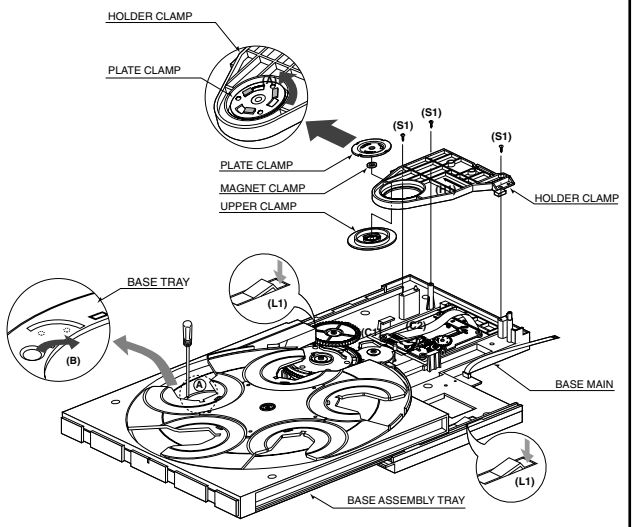


Fig. 4-1

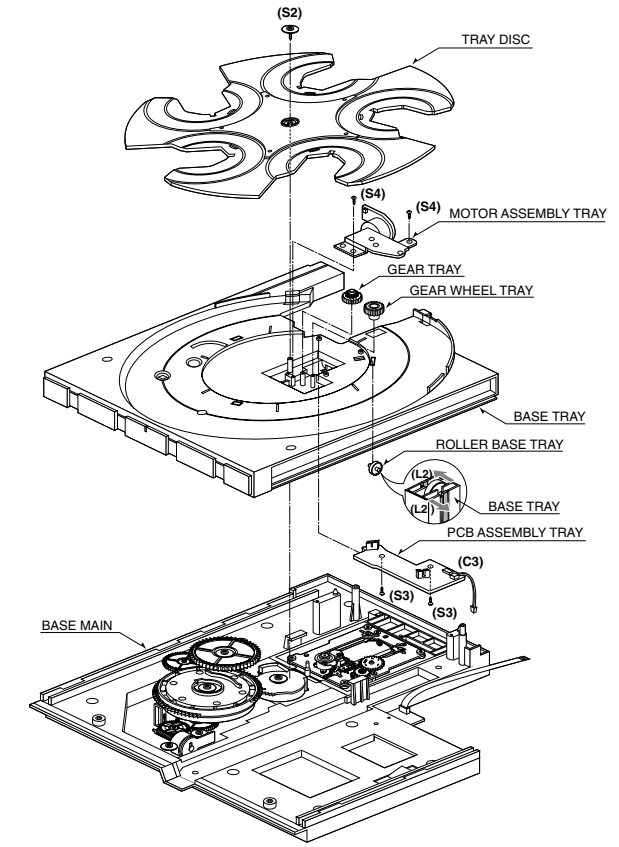


Fig. 4-2

1. Holder Assembly Clamp(Fig. 4-1)

1) Release 3 Screws(S1).
2) Unlock The Connectors (C1), (C2) from the Hook(H1).

1-1. Plate Clamp

1) Hold and fix the Upper Clamp under the Holder Assembly Clamp, and then turn the Plate Clamp to the counterclockwise direction(arrow(A)).

1-2. Magnet Clamp

1-3. Upper Clamp

1-4. Holder Clamp

Note

- When reassembling, hold and fix the Upper Clamp as above No. 1-1(1), and then turn the Plate Clamp to the clockwise direction.

2. Base Assembly Tray(Fig. 4-1)

1) Turn the Ⓐ portion to the direction of arrow(B) to move the Base Assembly Tray in front of you.
2) Push down two Locking Tabs(L1) located to both sides of the Base Main, and then pull the Base Assembly Tray in fornt of you.

2-1. Tray Disc(Fig.4-2)

1) Release Screw(S2).

Note

- Put the Base Assembly Tray face down(Bottom side).

2-2. Roller Base Tray

1) Unlock the two Locking Tabs(L2).

2-3. PCB Assembly Tray

1) Release two Screws(S3).
2) Unconnect the Connector(C3).

Note

- Put the Base Assembly Tray on original position(Top Side).

2-4. Motor Assembly Tray

1) Release 2 Screws(S4).

2-5. Gear Tray

2-6. Gear Wheel Tray

2-7. Base Tray

DECK MECHANISM DISASSEMBLY

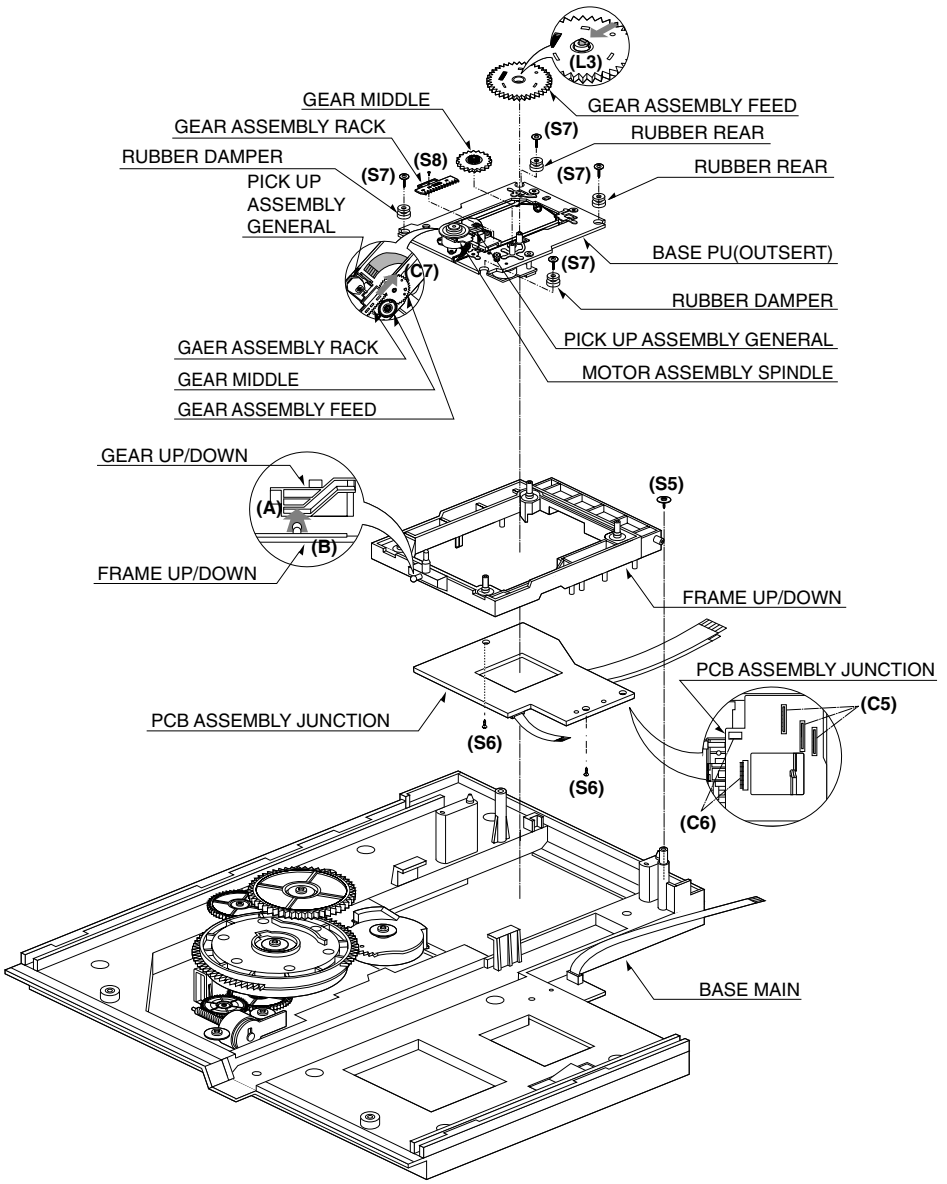


Fig. 4-3

3. Frame Assembly Up/Down(Fig. 4-3)

1) Release Screw(S5).

3-1. PCB Assembly Junction

1)Unconnect the 5 Connectors(C5), (C6).
2)Release 2 Screws(S6).

3-2. Base Assembly Sled Damper

Note

• Put the Base Assembly Main on original position(Top side)

1) Release 4 Screws(S7).
2) Disconnect the Connector(C7).

3-2-1. Gear Assembly Feed

1) Look the Locking Tab(L3) in direction of arrow.

3-2-2. Gear Assembly Middle

3-2-3. Gear Assembly Rack

1) Release the Screw(S8).

3-3. Rubber Damper

3-4. Frame Up/Down

DECK MECHANISM DISASSEMBLY

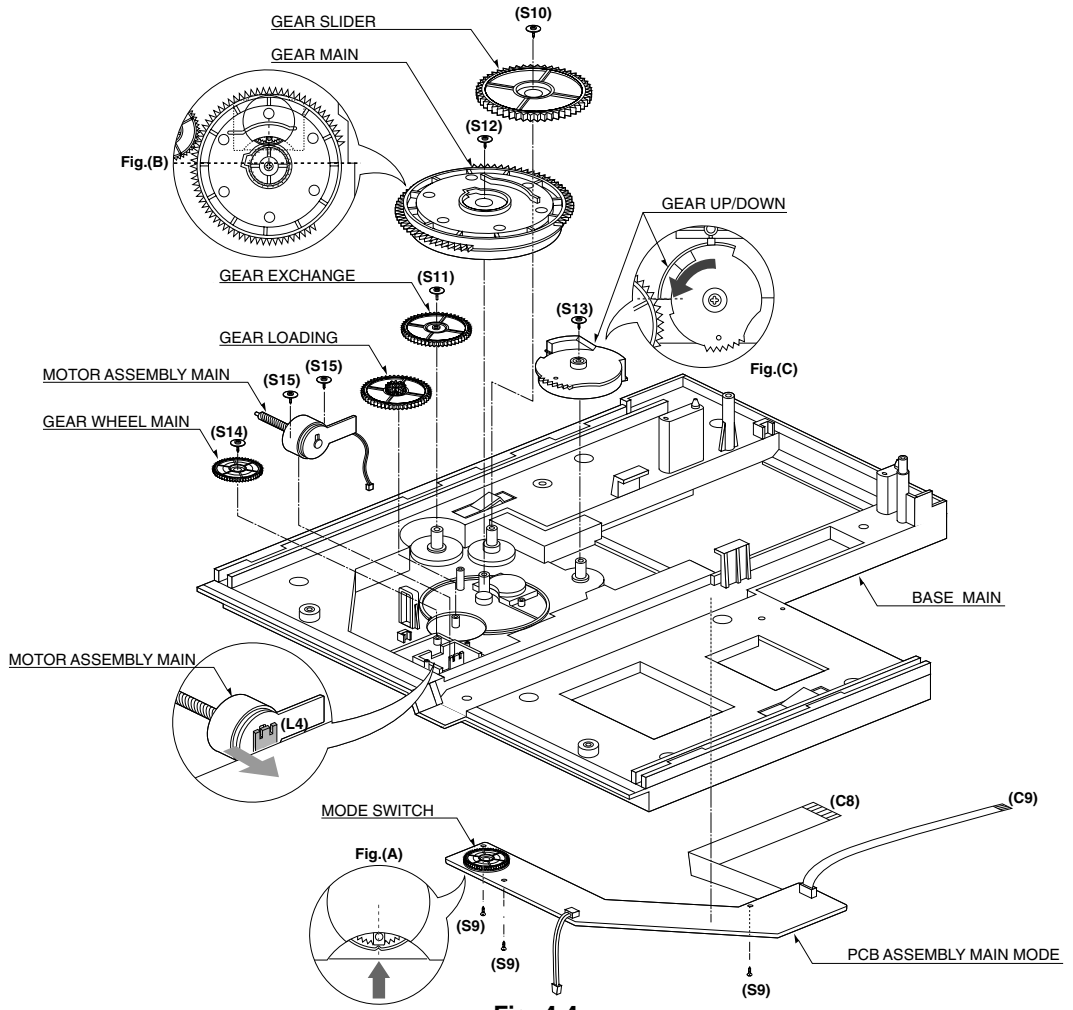


Fig. 4-4

4. Base Assembly Main(Fig. 4-4)

Note

- Put the Base Assembly Main face down(Bottom Side).

4-1. PCB Assembly Main Mode

1)Unconnect the Connectors (C8), (C9).
2)Release three Screws(S9).

Note

- When reassembling, align the Mode Switch position as Fig.(A).
- Put the Base Assembly Main on original position(Top Side)

4-2. Gear Slider

1) Release Screw(S10).

4-3. Gear Exchange

1) Release Screw(S11).

4-4. Gear Main

1) Release Screw(S12).

Note

- When reassembling, align the (A) position of the Gear Main to the (B) position of Mode Switch as Fig.(B)

4-5. Gear Up/Down

1) Release Screw(S13).

Note

- Reassembling, turn the Gear Up/Down in direction of arrow as Fig.(C).

4-6. Gear Wheel Main

1) Release Screw(S14).

4-7. Gear Loading

4-8. Motor Assembly Main

1) Release 2 Screws(S15).
2) Unlock the Locking Tab(L4).

4-9. Base Main

DECK MECHANISM ADJUSTMENT

1. Tools and Fixtures for SVC

• For SVC Program Down-Load

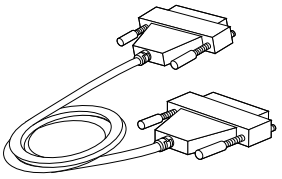


Fig.1. Printer Cable

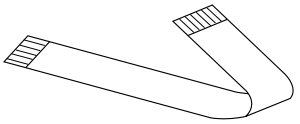


Fig.2. FFC Cable (15 pin)

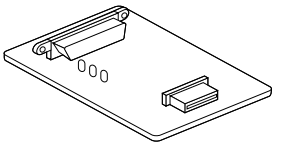


Fig.3. Jig Board

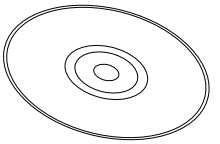


Fig.4. Deviation Disc (0.8mm)

• For T-Skew and R-Skew Adjustment

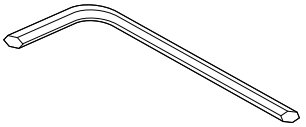


Fig.5. L-Wrench(3mm)

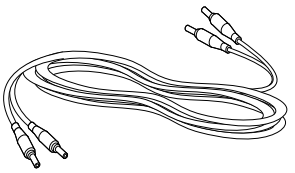


Fig.6. RCA Jack

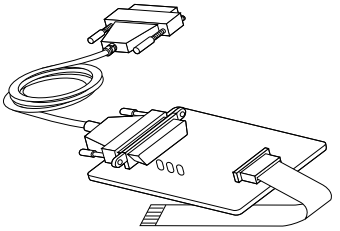


Fig.7. Connecting Method

2. Install Process

1. Connect Fig. 1, 2, 3 as Fig. 7.
2. Plug out the Power cord of DVD set.
3. Connect FFC Cable(Fig.2) to the Connector on DVD Set(Fig.8)
4. Connect Printer Cable(Fig.1) to the P.C.Printer Port (LPT1).
5. Plug in the DVD Power cord.
6. Press the Menu key on Remocon.
7. Confirm No.1 LED(RED Color) of Jig board is ON. (Fig.9)
8. Perform The S/W for Down-load at P.C.
9. Open the Program File for Adjusting(Fig.10)
10. Click the Down-load Icon and perform Program Down-load.
11. Displayed remaining time.
12. Confirm LED No.1(RED) and No.2(GREEN) is ON.
13. Plug out the DVD Set Power cord.
14. Disconnect the FFC Cable.

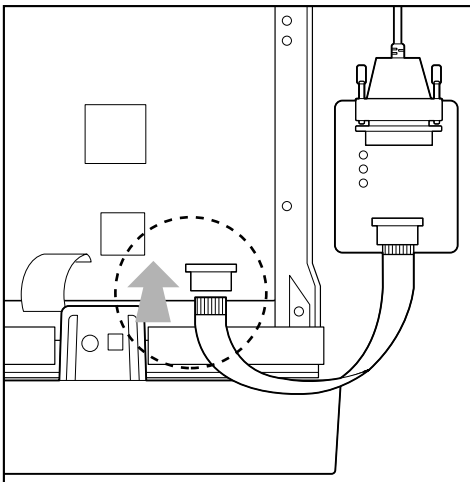


Fig.8. FFC Cable Connecting

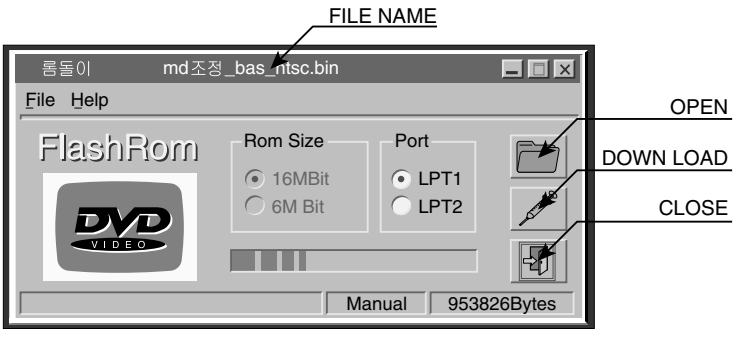


Fig.10. Adjusting Program File Open

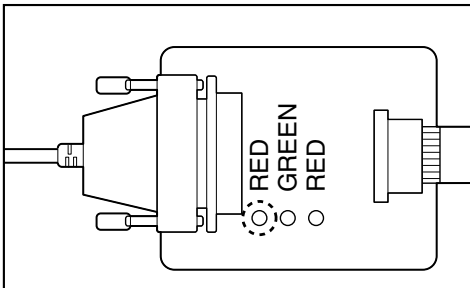


Fig.9. Jig Board LED Condition

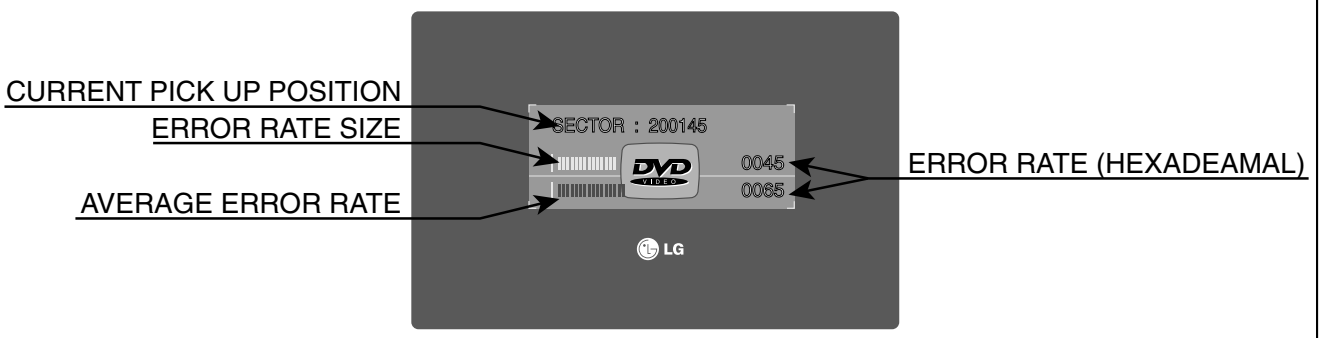


Fig.11. Adjusting Screen Display

3. Adjustment Procedure

1. Insert Disc(Only Open/Close Key Pressing)
2. Wait Until the Sector Display is about 200,000 (Fig.11)
3. Adjust R-Skew adjusting Point until the Error rate has Minimum rate with L-wrench (3mm).
4. Adjust T-Skew Adjusting Point until the Error rate has Minimum rate.
5. Repeat No. 3, 4 adjusting procedure until the Error rate have Minimum rate.
6. Error rate; SVC-3561 Disc=below 30 and TDV-533 Disc=below 100. If not, Please confirm Play ability on screen.

You can watch the screen when pressing the Stop key after the Adjusting is finished, Then perform Play and Scan/Skip operation at Chapter1 and Chapter16 and confirm screen condition, normal or abnormal.

• Please obtain these software for Adjusting through our Global Cyber Service Center(GCSC).

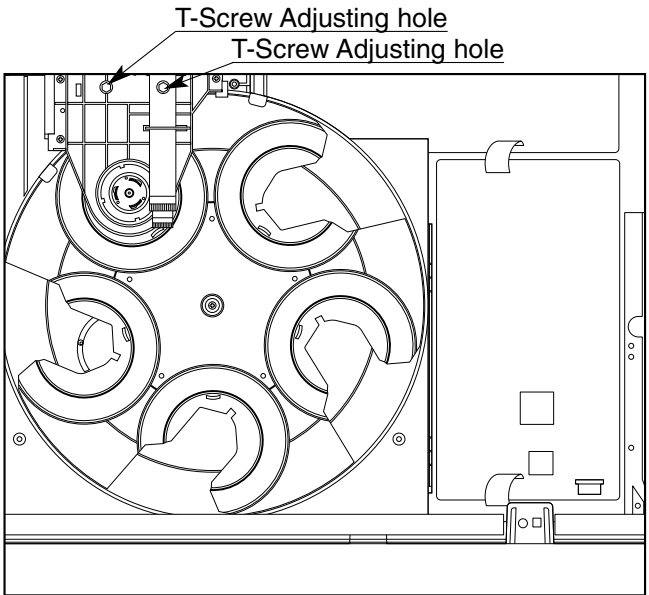


Fig.12. Adjusting Method

PARTS LIST

MODEL : DVD 50

RUN : 2001.03.20

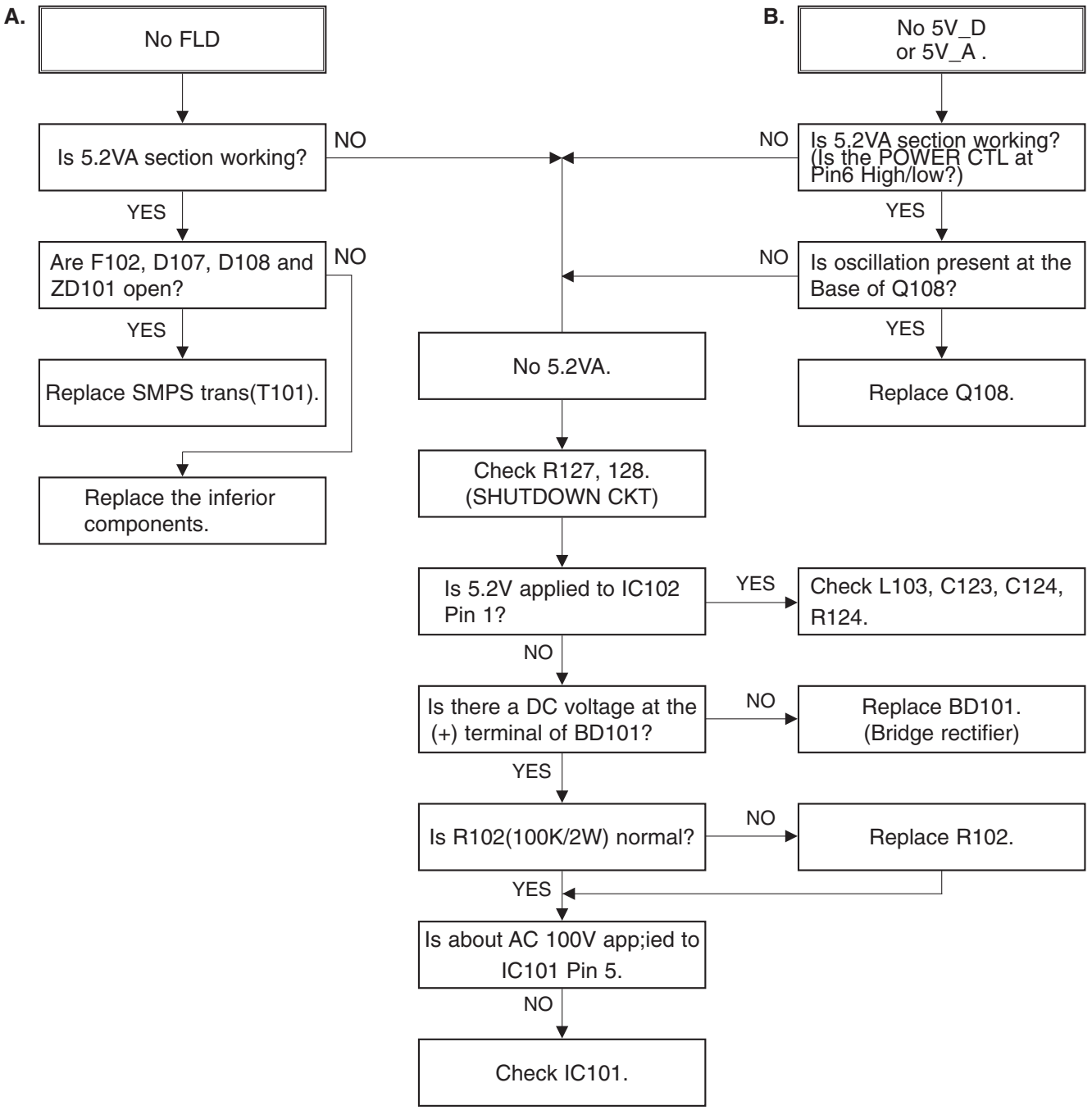
. Mechanical Section

NSP : Not Service Parts

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
			ASSEMBLY SECTION			
		A00	6721R-0314B	DECK ASSY,VIDEO	DPM1(DVD-CD R/RWB MITSUMI)	NSP
		A01	4931R-0037A	HOLDER ASSY	CLAMP	
		A02	3041R-0014B	BASE ASSY	TRAY (DPM1)	
		A03	3041R-0022A	BASE ASSY	SLED-DAMPER(DVD-CD R/RW MITSUM	
		A04	3041R-0016A	BASE ASSY	MAIN	
			PARTS SECTION			
		001	3300R-0547A	PLATE	CLAMP	NSP
		002	1SZZR-0011A	SCREW,	MACHINE	NSP
		002	5016H-1016B	MAGNET	CLAMP(LDM-R608,10*5,1*1.5T)	NSP
		003	4860R-0009A	CLAMP	UPPER	NSP
		004	4930R-0197A	HOLDER	CLAMP	
		008	4470R-0047A	GEAR	ASSY RACK	
		009	4470R-0053A	GEAR	MIDDLE	
		011	3210R-0041A	FRAME	UP/DOWN	
		012	5040R-0047D	RUBBER	DAMPER(HARDNESS=30),DARKGREEN	
		013	6871R-0001J	PWB(PCB) ASSY,TOTAL	DPM1 JUNCTION DVD-CD R/RW	
		014	5040R-0047A	RUBBER	REAR(E2,5040H-1054A),YAMAUCHI	
		016	4470R-0050A	GEAR	ASSY FEED	
		020	4470R-0073A	GEAR	WHEEL TRAY	
		021	4470R-0074A	GEAR	TRAY	
		022	6871R-3024C	PWB(PCB) ASSY,TOTAL	DPM1 TRAY	
		023	4580R-0006A	ROLLER	BASE TRAY	
		024	4681R-0010C	MOTOR ASSY	TRAY	
		025	3040R-0032A	BASE	TRAY (DPM1)	
		026	3390R-0008A	TRAY	DISC (DPM1)	
		030	3040R-0031A	BASE	MAIN (DPM1)	NSP
		031	4470R-0069A	GEAR	SLIDER	
		032	4470R-0067A	GEAR	MAIN	
		033	4470R-0070A	GEAR	EXCHANGE	
		034	4470R-0068A	GEAR	UP/DOWN	
		035	4470R-0071A	GEAR	LOADING	
		036	4681R-0012A	MOTOR ASSY	MAIN	
		037	4470R-0072A	GEAR	WHEEL MAIN	
		038	6871R-3026B	PWB(PCB) ASSY,TOTAL	DPM1 MAIN-MODE	
			SCREW			
		413	4000R-0006A	SCREW	TAPTITE 3*8(353-025B)	
		430	1SZZH-1003A	SCREW,	+ D2.0 6MM SWRCH16A/NIY 4.5MM	
		432	1SZZR-0011A	SCREW,	MACHINE	
			. Cabinet&Main Frame Section			
			ASSEMBLY SECTION			
		A43	3501R-3076B	BOARD ASSY	ADVM3941NFM 1UH1 FRONT	
		A43-1	6871R-3079A	PWB(PCB) ASSY,TOTAL	ADVM3941NFM HK KEY	
		A43-2	6871R-3083A	PWB(PCB) ASSY,TOTAL	ADVM3941NFM HK H/P	
		A46	6871R-3077A	PWB(PCB) ASSY,TOTAL	DVM3941NFM MAIN	
		A47	6871R-3078A	PWB(PCB) ASSY,TOTAL	ADVM3941NFM HK JACK NTSC MIDDL	
		A48	3501R-3073A	BOARD ASSY	ADVM3951NFM	
			PARTS SECTION			
		250	3110R-0222A	CASE	TOP(DVD-5,H/K)	
		275	4811R-0027D	BRACKET ASSY	MAIN(DVM3800 . W/O GND . PVC C	
		277	4940R-V014A	KNOB	VOLUME HARMANKARDON	
		280	3721R-F176A	PANEL ASSY,FRONT[NORMAL PARTS]	DVD 50 EVNT	
		283	3580R-T013A	DOOR	TRAY HARMANKARDON	
		285	3301R-M008A	PLATE ASSY	SHIELD(DVD 50)	
		300	6410RAHS02A	POWER CORD	AP-10W NI SP2 CORE 80 STP SANG	
			SCREW			
		452	353-051A	SCREW	SPECIAL	
		452	353-051E	SCREW	SPECIAL (3X12)	
		462	353-085E	SCREW,DRAWING	+ 3 D4.0 L10.0 MSWR3/FZMCW-2	
		463	353-051B	SCREW	SPECIAL	
		465	353-046K	SCREW	SPECIAL (3X10 B.K)	
		467	353-046N	SCREW,	SPECIAL(3X8 BK.)	

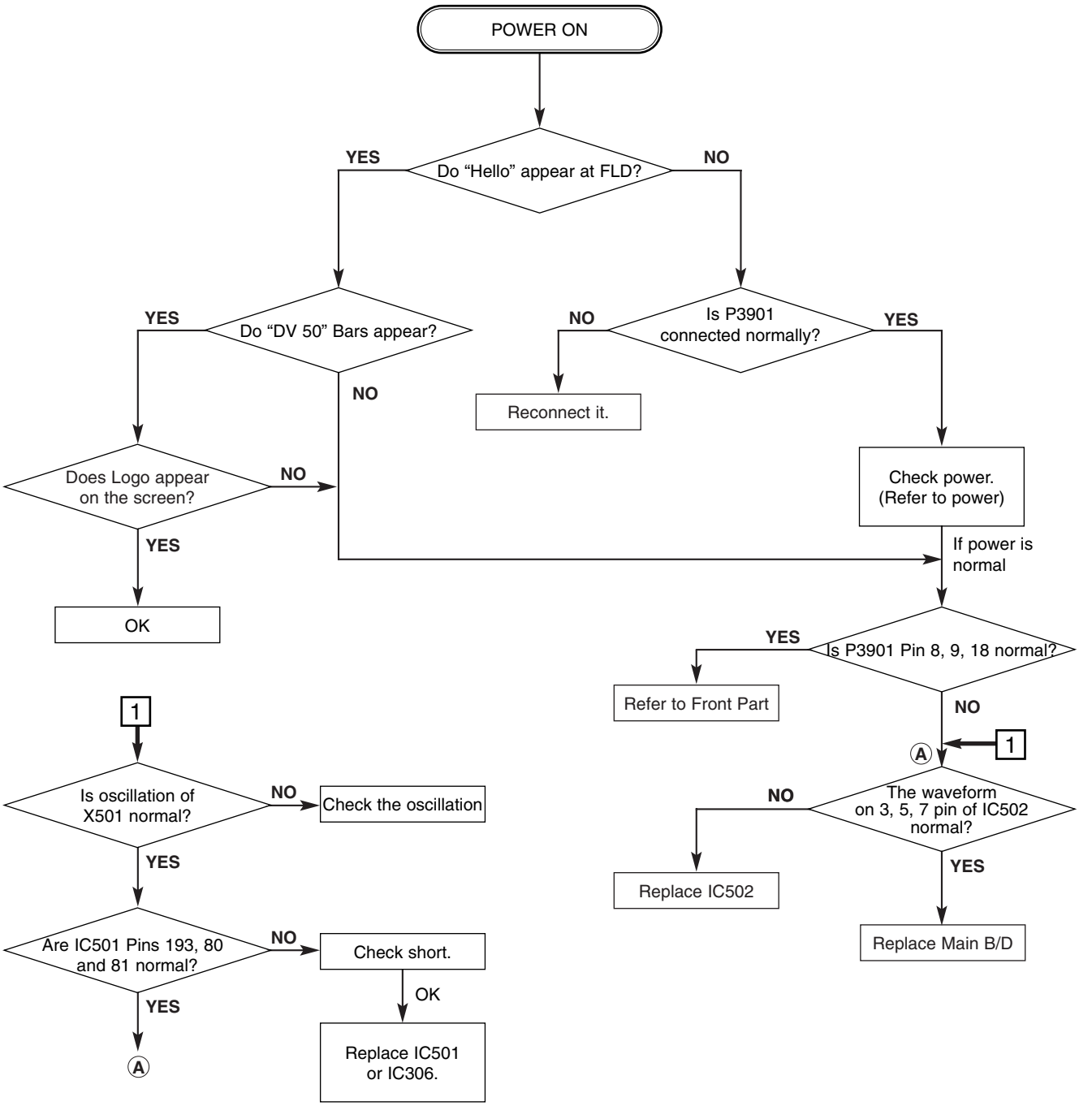
ELECTRICAL TROUBLESHOOTING GUIDE

1. Power(SMPS) Circuit

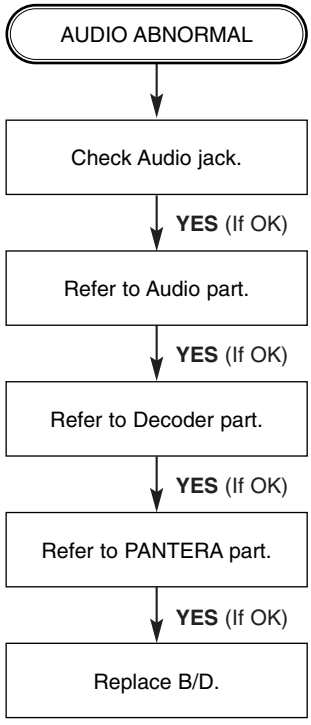


2. µ-COM Circuit

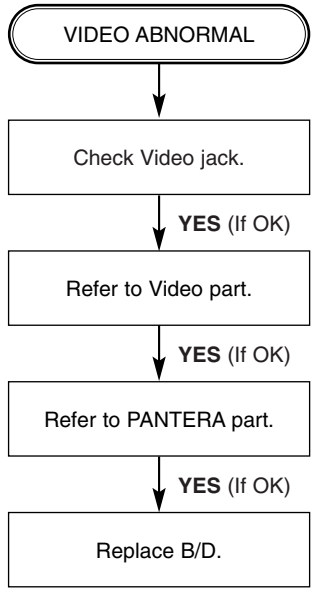
A. No Power



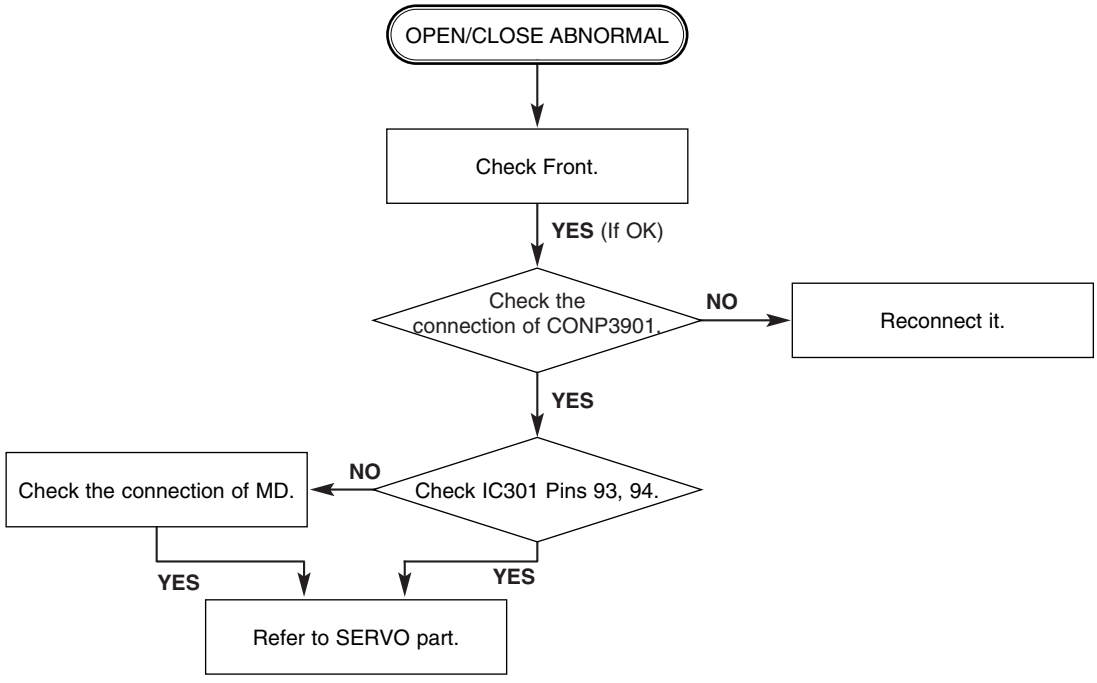
B. Audio abnormal



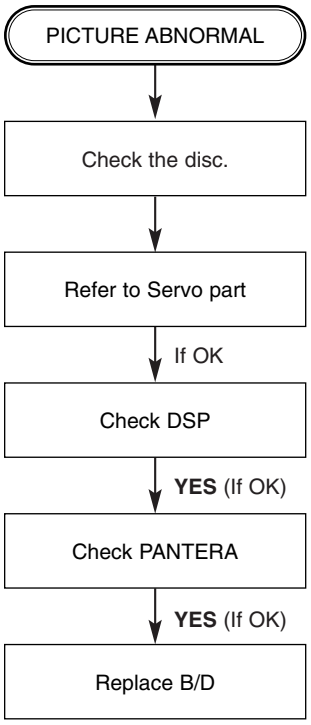
C. Video abnormal



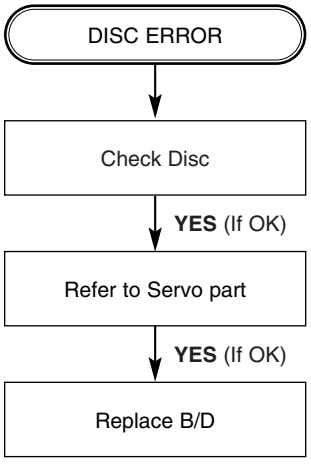
D. Open/Close abnormal



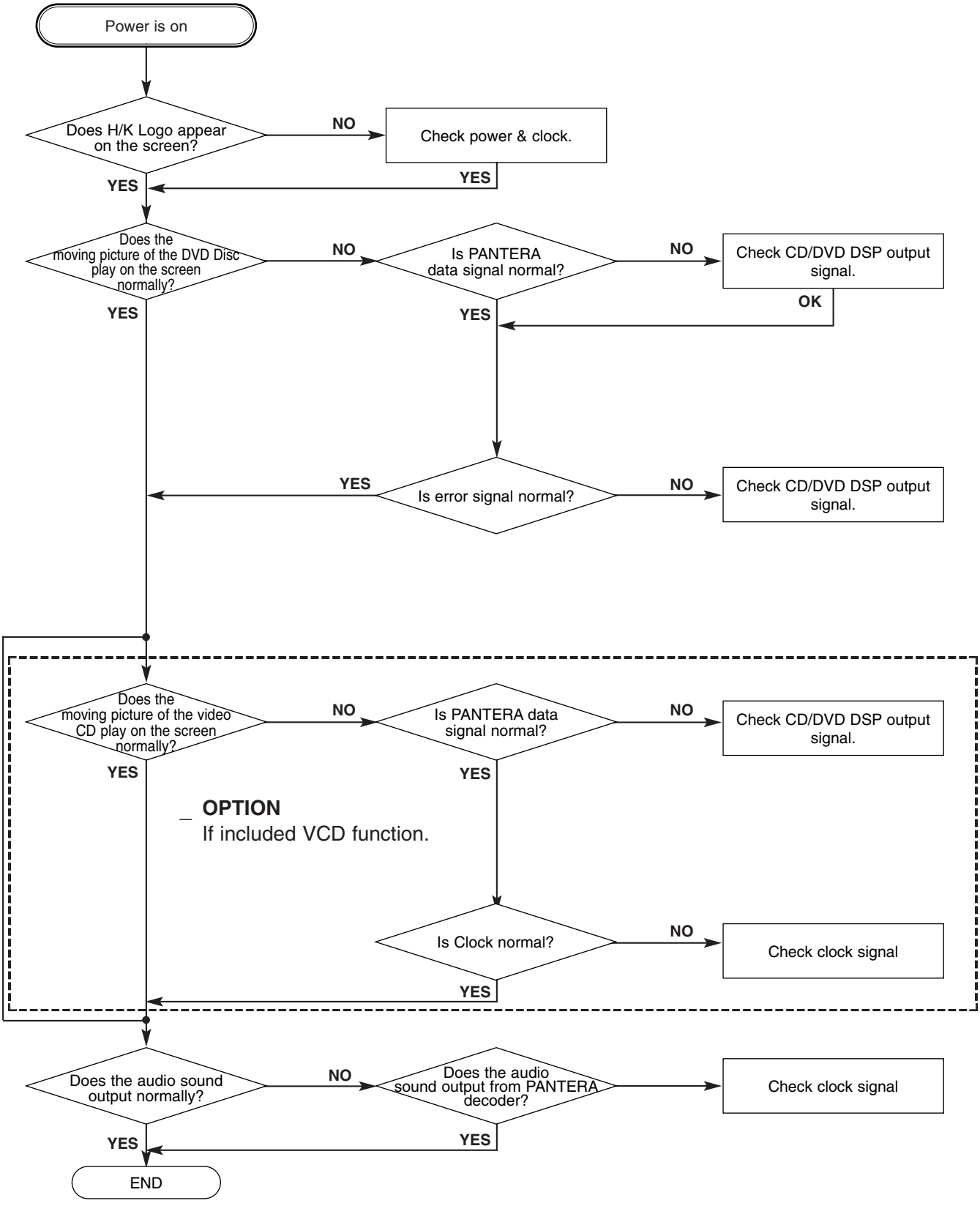
E. Picture abnormal



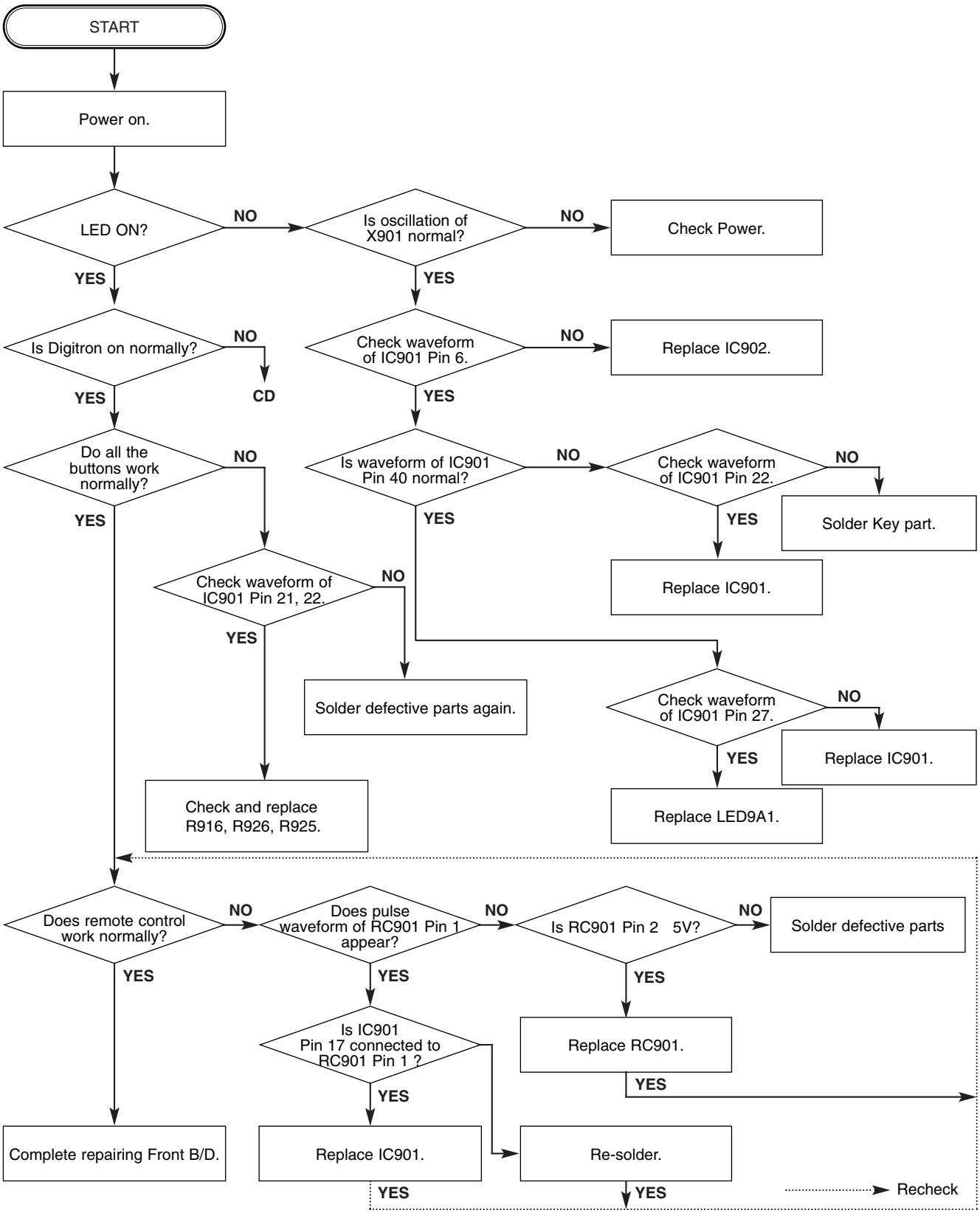
F. Disc Error



3. PANTERA Circuit

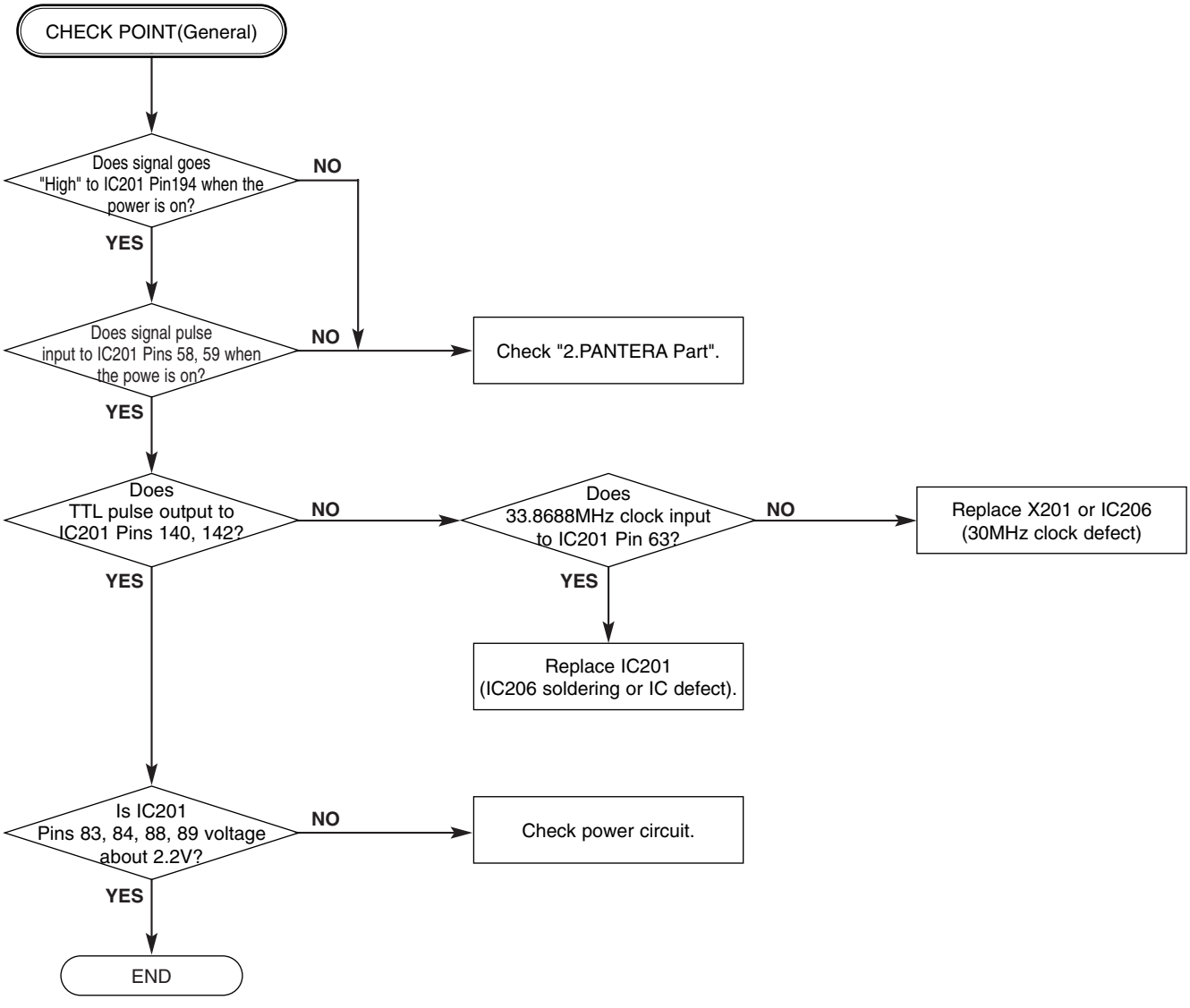


4. Front Circuit (Digitron & key)

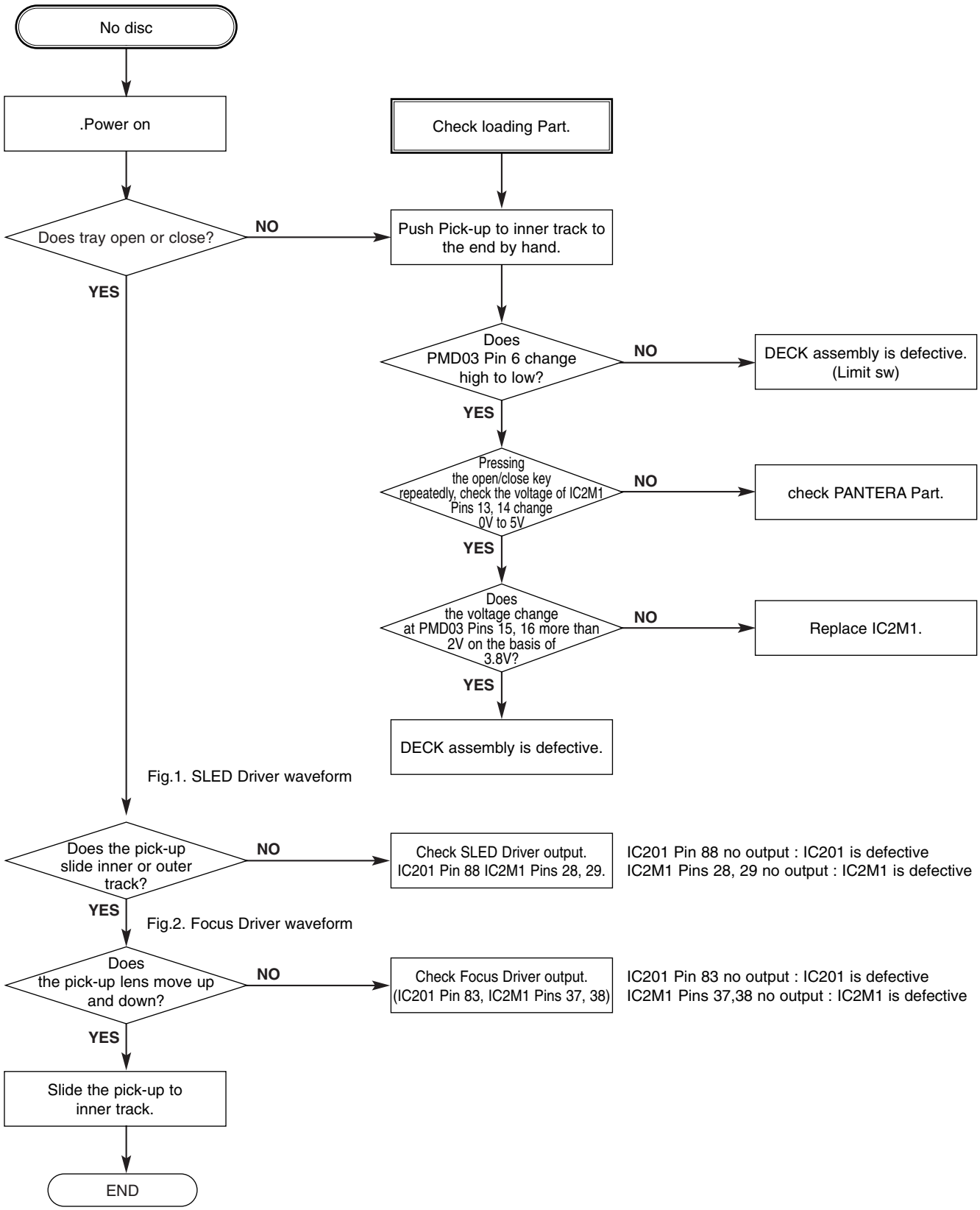


5. RF/Servo Circuit

A.



B.



C.

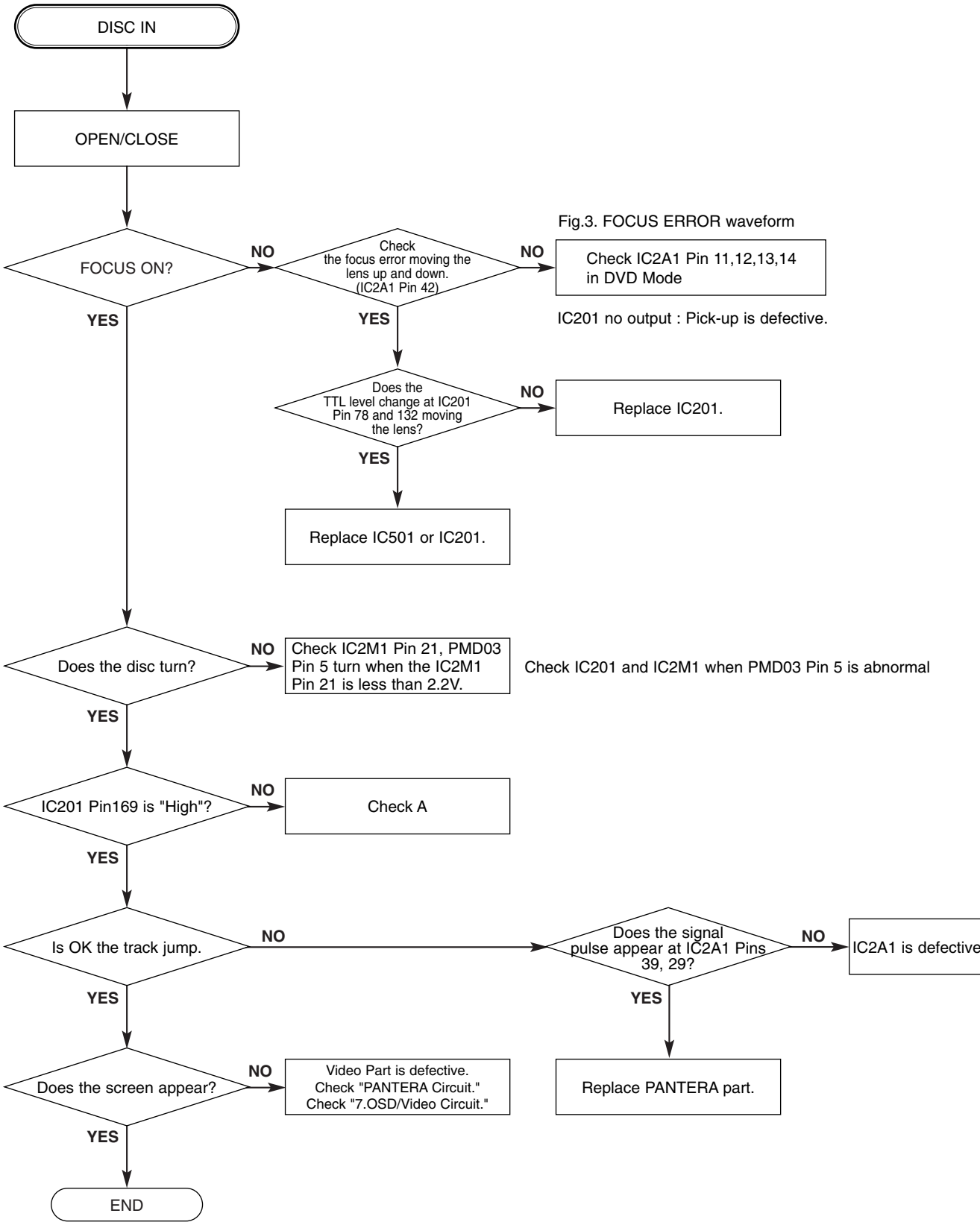
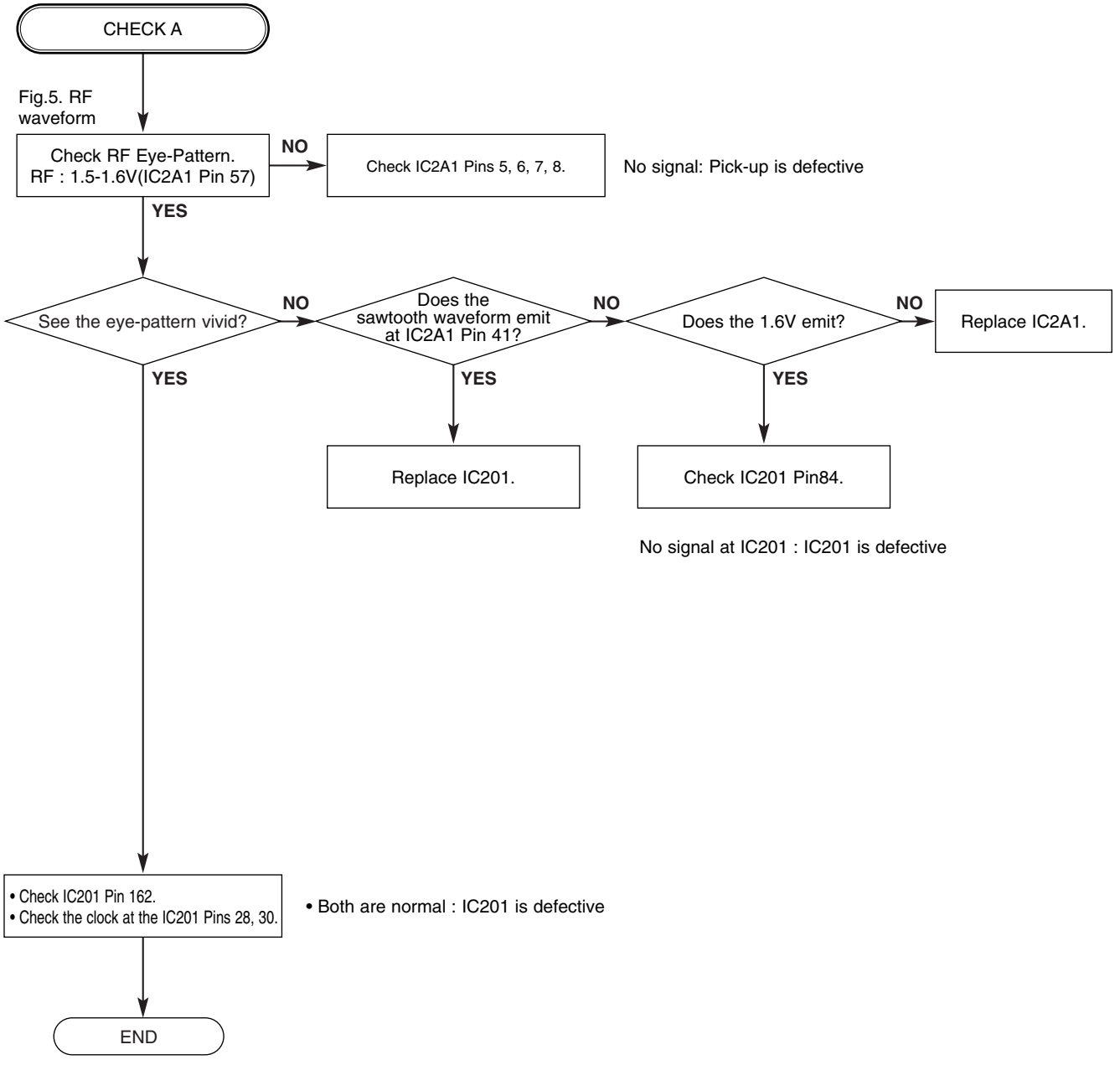


Fig.3. FOCUS ERROR waveform

IC201 no output : Pick-up is defective.

Check IC201 and IC2M1 when PMD03 Pin 5 is abnormal

D.



harman/kardon Service Bulletin

Service bulletin # H/K2001-05 Rev2 September 2005 Warranty labor rate: MINOR repair

To: All harman/kardon Service Centers

Model: DVD50

Subject: Software Upgrade version 2.0

A software upgrade is available on disc for early versions of the DVD50.
This upgrade corrects these issues and provides the following benefits:

- Audio dropouts with certain receivers and processors have been eliminated.
- Video pause/freeze issues have been corrected.
- Transport pause/fast motion control issues have been corrected.
- Improved functionality for the Track Skip Forward/Skip Reverse function when playing CD's so that operation is more in line with traditional CD players.
- Audio noise when a disc is paused with certain model Yamaha receivers has been eliminated.
- Playback has been improved with certain problem DVD's so that audio dropouts or video artifacts do not occur.
- Progressive Scan Image Modes – You may now manually select from five different video reconstruction modes to best suit the way an individual disc was recorded. The user is now able to select from five separate processing modes when using a progressive scan display. The choice of modes allows the unit to remain in an "automatic" mode, or the user may optimize the progressive scan frame reconstruction for the type of program material being played. These modes also allow the user to compensate for errors in the disc authoring.
- Harman Kardon AVR receiver's "multi" remote command will no longer interfere with the DVD 50.
- Control system has been improved to prevent the unit from locking up when certain combinations of buttons are pressed just prior to turning the DVD50 off.
- Revised decoding and processing for improved overall audio and video performance.
- Video mode will automatically be reset to default (auto) mode every time the DVD 50 is turned on.

To confirm if the latest version of the software has already been downloaded in a DVD 50, follow these steps:

1) Connect the DVD 50 composite video output jack to the video input jack of a Television or monitor.
2) Turn ON the DVD 50 and press STOP Button, if it is playing a disc.
3) Press MENU Button.
4) When the Main Menu appears on-screen, press "DOWN" Arrow Button to "TV Aspect".
5) Press RIGHT arrow button once.
6) Press DOWN arrow button until the little circle in front of "16:9 Widescreen" turns to orange color.
7) Press the Numeric buttons in this sequence: 1 - 3 - 9 - 7 - 1 - 3 - 9.
8) Press ENTER button.

At this point, you should be able to see System Information on the display.
If the upgrade with this version software has been done, you should see the following characters (among other information): "**MICOM. VER. : V2.3 MP**"
9) Press MENU Button to exit from the display mode.

MODEL	SERIAL NUMBER 120V	STATUS	ACTION
DVD50	LG0007-01000 to LG0007-09543	May exhibit symptoms above	Install new software with upgrade disc
DVD50	LG0007-09544 and above	Modified by factory	NONE REQUIRED

DVD 50 Software Upgrade Installation Instructions

IMPORTANT NOTE: This software upgrade is specifically designed for use with the Harman Kardon DVD 50. DO NOT USE THIS DISC WITH ANY PRODUCT OTHER THAN A DVD 50.

Read these instructions carefully before proceeding:

- Turn on the DVD 50 and wait for the unit to "read" any discs that may be in the disc tray.
- Press the **STOP Button** twice, so that the unit is completely stopped.
- Press the **Open/Close Button** to open the disc tray.
- Remove the disc that is facing you when the drawer opens.
- Press the **Disc Skip Button** to move the tray to each disc position, removing any discs as they move to the center. BE CERTAIN THAT *ALL* DISCS ARE REMOVED BEFORE PROCEEDING TO THE NEXT STEP.
- Place the DVD 50 Software Upgrade Disc in the tray. It does not matter which numbered position the disc is in, as long as it is the only disc in the tray. Make sure to place the disc in the tray with the label side up.
- Press the **Open/Close Button** to close the disc tray.
- The Front-Panel Information Display will display the message **READING** while it examines the disc, and once it recognizes the Upgrade Disc the display will read **PRESS UP**. The on-screen display will indicate that the DVD 50 is in the Firmware Modification Mode and will prompt you to press the ▲ **Button** to proceed.
- Press the ▲ **Button** on the remote control to begin the upgrade process.

IMPORTANT NOTE: ONCE THE FRONT-PANEL DISPLAY READS "PRESS UP" IT IS IMPORTANT THAT ONLY THE ▲ BUTTON BE PRESSED. PRESSING ANY OTHER BUTTON WILL STOP THE UPGRADE. IF ANOTHER BUTTON IS PRESSED IN ERROR, THE "OPEN/CLOSE" BUTTON MAY BE PRESSED TO RESTART THE UPGRADE.

- At this point, the upgrade will be transferred from the disc to the DVD 50's internal memory. During the upgrade process, the front panel will display **READING** and then **UPGRADING**. DO NOT press any buttons or turn the machine off during this process. Note that the upgrade may take a few minutes, so be patient during this process.
- When the upgrade is complete, the Front-Panel Information Display will read **FINISHED**, and the disc tray will open automatically.
- Remove the Upgrade Disc.
- Press the **Open/Close Button** and the DVD 50 will automatically go into the Standby mode. If the disc drawer closes before you are able to remove the Upgrade Disc, simply press the **Open/Close Button** and the drawer will open. Remove the disc, and then press the **Power Button** to close the drawer and return the DVD 50 to the Standby mode.
- Unplug the AC power cord and wait approximately 30 seconds before plugging it in again to allow the DVD 50 to re-initialize its programming.
- The upgrade process is complete. If no error messages were noted, below, you may discard the Upgrade Disc at this time, as this is a one-time-only process and the disc may not be reused.

Error #	FL Display says:	Cause	Solution
#1	"SYS 0" BUS_WIDTH_ERROR0	An error has occurred during the upgrade process	Remove the software upgrade CD from the tray, then turn off the DVD 50 by pressing the Power Button. Unplug and re-plug the AC cord to the AC outlet and turn on the unit again. If the DVD 50 still functions normally, try to upgrade it again. If it does not function normally, or if this error code appears again, see solutions to errors #5 and 6.
#2	"SYS 1" BUS_WIDTH_ERROR1	An error has occurred during the upgrade process	See solution #1
#3	"SYS 2" UNKNOWN_FLASH_ERROR	An error has occurred during the upgrade process	See solution #1
#4	"SYS 3" CODE_SIZE_ERROR	An error has occurred dring the upgrade process	Please contact: Harman Service Technical Support Phone: 516-682-6435 E-mail: techsupport@harman.com
#5	"SYS 7" ERASE_ERROR	The Flash-ROM IC has been damaged in the upgrade process	The Flash-ROM IC 306 should be replaced; order h/k part# 0IAL491614A
#6	"SYS 8" WRITE_ERROR	The Flash-ROM IC has been damaged in the upgrade process	The Flash-ROM IC 306 should be replaced; order h/k part# 0IAL491614A

Revised Operating Instructions

Most of the benefits provided by this DVD 50 upgrade are changes to the internal software that update the unit for improved operation and, as such, they do not require any user intervention. Two of the new or improved features do bring new commands or functions to the unit.

Track Skip Forward/Skip Reverse During CD Playback

Once the Software Upgrade is installed, the Track Skip Forward/Skip Reverse function works in the same manner as most conventional CD players.

- When the **Chapter/Track Skip Reverse Button** is pressed, the CD will return to the beginning of the current track being played.
- To move to the start of the previous track, press the **Chapter/Track Skip Button** *TWICE*.

Progressive Scan Image Modes

The powerful video decoding and processing engine that is at the heart of the DVD 50 is able to provide a variety of modes to help compensate for the differences inherent in the way DVDs are recorded. In order to enable easy compatibility with the widest range of discs, the factory preset is an automatic mode that best determines the proper processing algorithms. However, the specific way in which each disc is digitally encoded, and the differences in film-originated material as opposed to programs originally shot on video, may occasionally create unanticipated video artifacts that the Auto mode does not compensate for.
With the DVD 50 Software Upgrade you are now able to manually select from five different video reconstruction modes to best suit the specific way in which an individual disc was recorded. If you notice shimmering or streaking in the video image while the progressive scan playback system is activated, switching the Video mode may provide a more satisfying image. To change the Video mode, follow these steps:

- Observe the picture by putting the disc into play.
- Press and hold the **Check Button** on the remote for two to three seconds until a message appears in the upper left corner of the screen, reading **MODE 2.**
- To change to a different mode, wait until the **MODE** message disappears, and then immediately press and hold the **Check Button** for three seconds. The next mode will take effect when you see another **MODE** indication message. We suggest that you let the new mode play for a few seconds so that you may look at it with continuous program material. If you wish to change the mode again, repeat this procedure.
- Depending on the nature of the video transfer and encoding on an individual disc, you may have to cycle through all five of the modes to find the one that best suits that disc. Once you find the best mode, no further action is required.

Notes About Image Modes:

- Image Mode selection compensates for the way in which specific variations in individual discs are handled when the DVD 50 is in the Progressive Playback mode. This function is not available for standard composite, S-Video or component video playback and has no impact with those connections.
- Due to the variation in video-encoding technologies, program source material and other conditions relating to the creation of DVD programs, it is possible that some discs may contain digital information that prevents a totally satisfactory picture from being displayed. This is not caused by either the disc or the DVD 50, but is due to the wide latitude available in the DVD standards which may occasionally result in incompatibilities beyond the capability of a playback deck.
- When the Image mode is changed, the newly selected mode will remain in effect until the unit is turned off. Should you wish to change the mode for a different disc before the unit is turned off, follow the instructions shown above. To ensure compatibility with the greatest number of discs without the need for an adjustment, the DVD 50 will always return to the Automatic Detection mode (MODE 1) when the unit is turned on.

harman/kardon Service Bulletin

Service bulletin # H/K2002-02 July 2002 Warranty labor rate: MAJOR repair

To: All harman/kardon Service Centers

Model: DVD50

Subject: Faulty 23 Pin Flat Cable

In the event you receive a DVD50 with the complaint "After loading a disc, a message appears in the display, or on the television: '*Disc Error*' or '*Disk incompatible, please insert compatible disk*' or '*This Disc in incompatible with the unit*',":

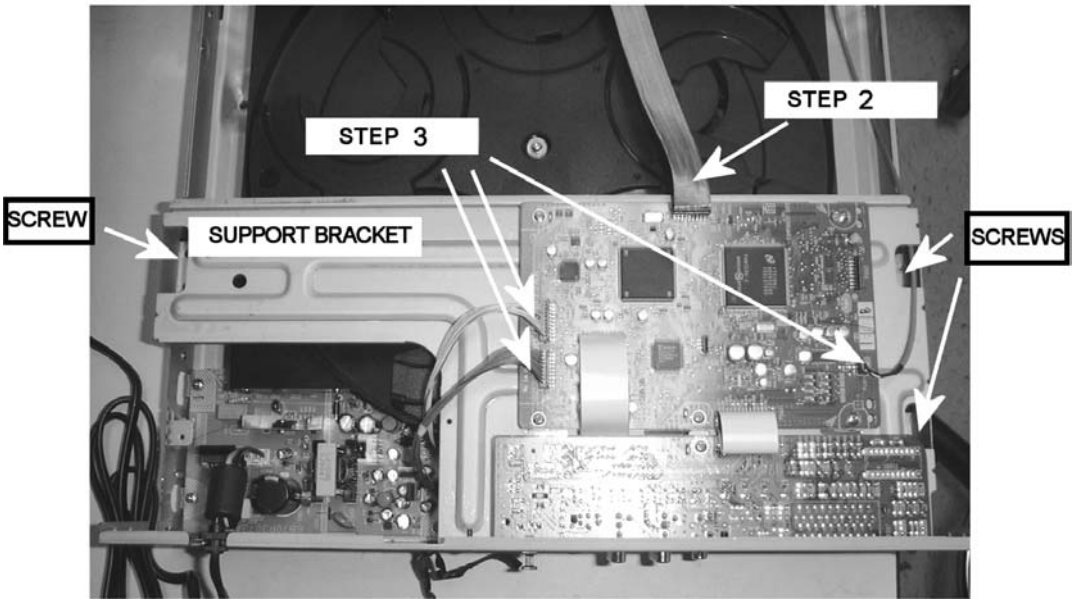
First attempt a playback of a different CD or DVD disc, to assure the problem is not with a particular disc. If the same error messages are still observed, inspect and and replace the 23 Pin Flat ribbon cable that attaches the Laser Assembly Connector to the Laser Module.

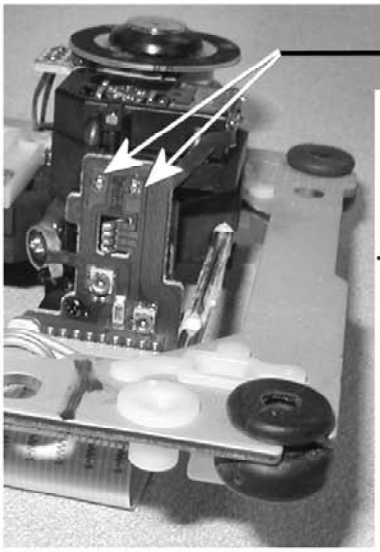
CAUTION: Electronic parts are susceptible to static electricity and may easily damaged; take a proper grounding treatment as required.
Take care to separate and identify the various screws; many different types of screws are used in the unit, and parts can be damaged by insertion of the wrong screws. Use of a magnetized screw driver is recommended.

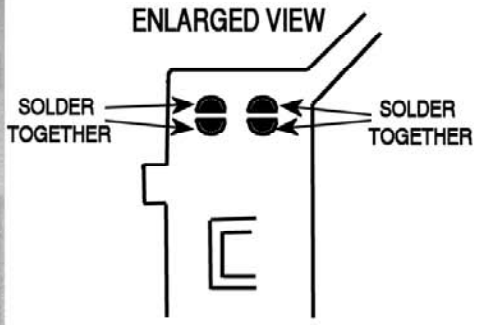
1) Remove the (7) top cover screws, remove the cover.
2) Unplug the shielded 18 conductor flat ribbon cable stretching across the top of the unit connecting the main PCB with the front panel, at the Main PCB.
3) Unplug all three Orange-colored Molex connectors (two larger P3102/P3101 and one smaller P4901) from the Main PCB.
4) Outside the unit, remove all Phillips screws visible on the rear panel.
5) Remove (3) Phillips screws on the main support bracket.
6) Unplug the flat ribbon cables at connectors PMD02 & PMD03 on the Main PCB.
7) Lift and remove entire support bracket with Main and Output PCB's attached, and set it outside the unit.
8) Remove three Phillips screws holding the plastic clamp; lift and remove clamp.
9) Remove the single Phillips screw in the middle of the 5-tray disc. Lift and remove the disc; it must be manipulated to clear two plastic tabs at the rear of the tray base.
10) Detach the rear panel from the unit; there are two tabs/catches on both sides that need to be released. Each tab may have to be bent slightly with a flat-blade screwdriver to release it. Pull the power cord's grommet out of the slot in the rear panel to detach it completely from the unit.
11) The laser PCB, in the area directly below the laser lens has two pairs of small, D-shaped solder pads. (See illustration) Temporarily solder-bridge each pair together to assure ESD damage to the laser diode does not occur.
12) Remove the (4) small plated screws from the top of the Laser assembly.
13) Carefully lift the Laser assembly partially up and out of the unit; it will be attached by the 23 pin flat ribbon cable and a smaller 8 conductor flat ribbon cable on one side.
14) Inspect the 23 pin cable; if the length is 2 3/8" (60mm), or it's "creased", replace it with h/k part# 6850R-JW14Z – this is a 5 ½" (140mm) cable.
15) Reassemble the unit in reverse order, taking care to replace all cable connections and use correct original screws in their proper locations. Be sure to thoroughly desolder the shorting pads on the laser PCB.
16) Test the unit.

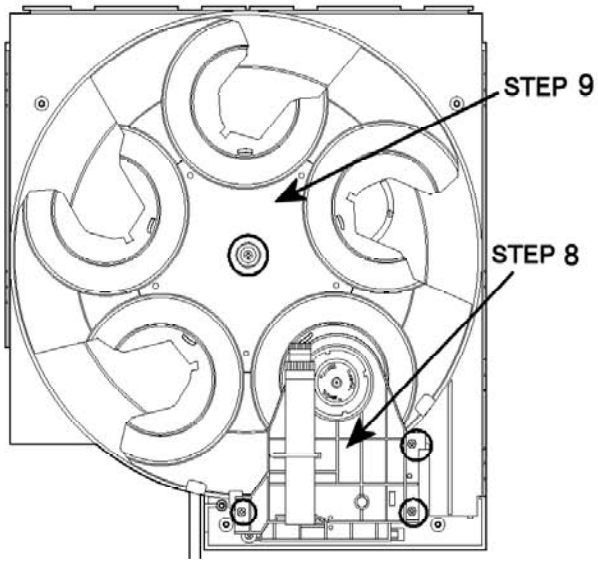
Model	Serial Number (120v)	Status	Action
DVD50	LG0007-01000 to LG0007-07600	23 Pin Flat Ribbon Cable May Be Faulty	Replace 2 3/8" (60mm) with 5 ½" (140mm) part
DVD50	LG0007-07601 and above	Modified by Factory	None Required

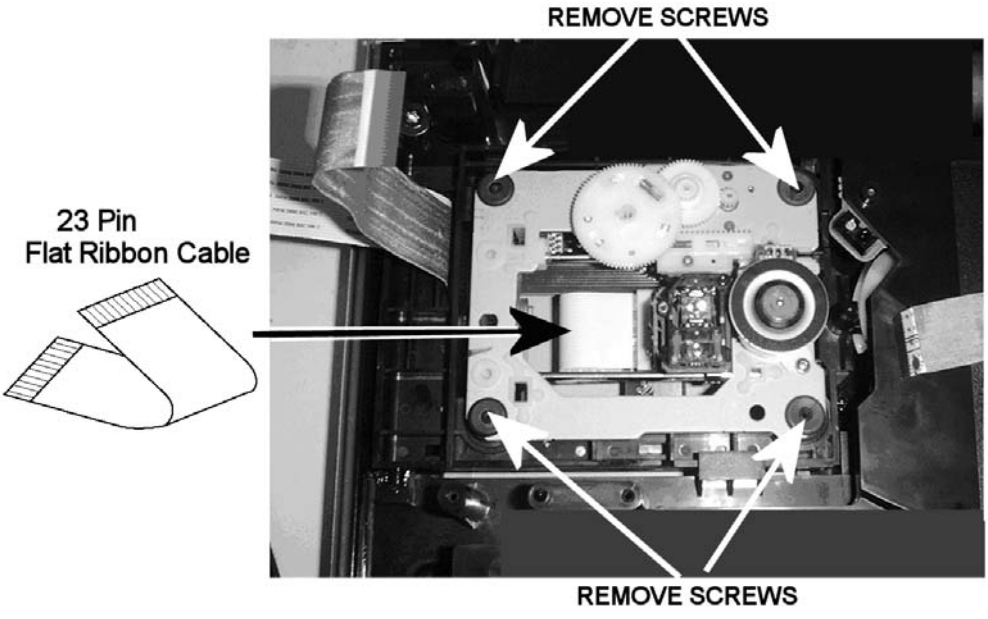
Service bulletin # H/K2002-02 March 2002 Subject: Faulty 23 Pin Flat Cable





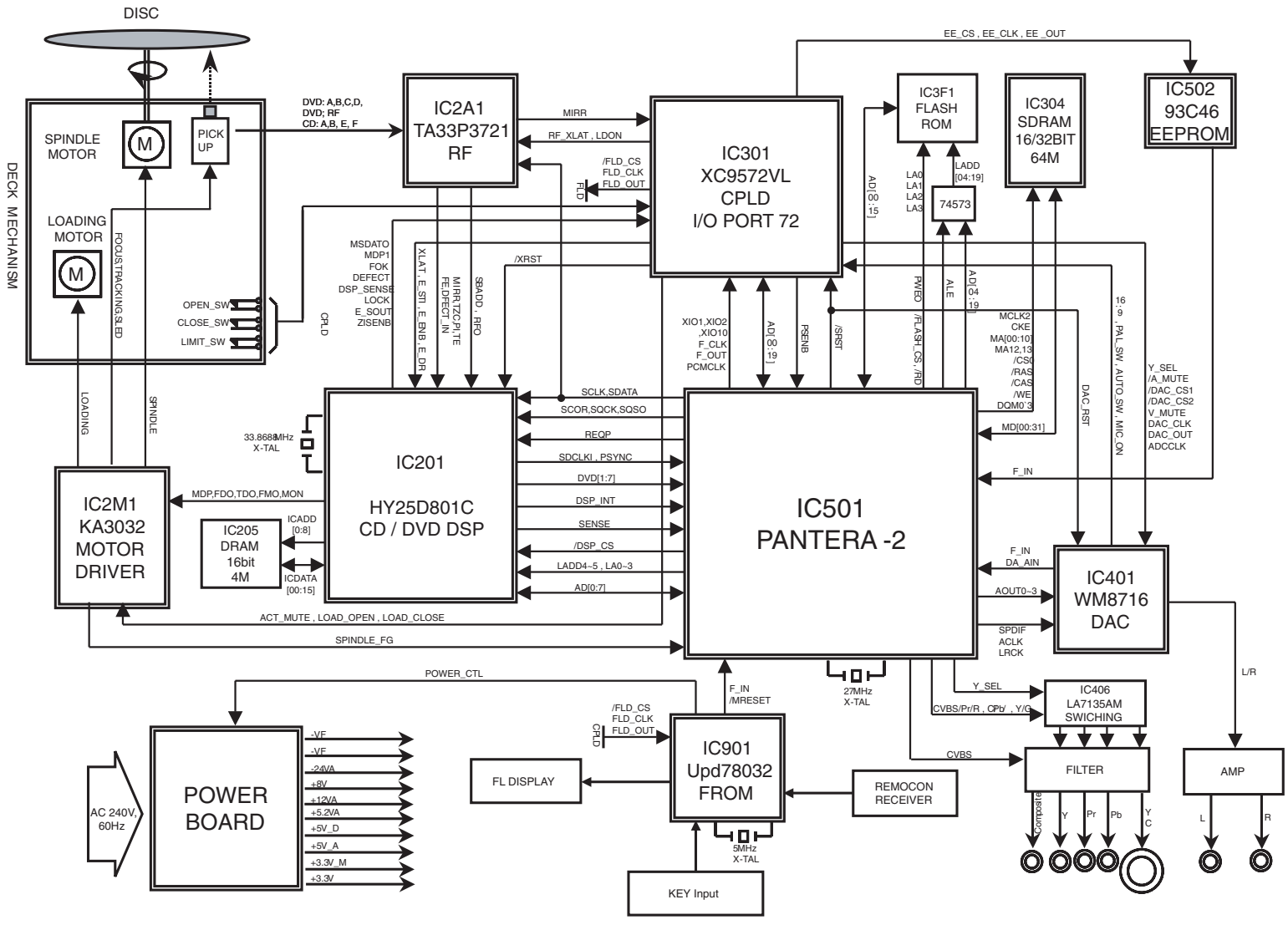




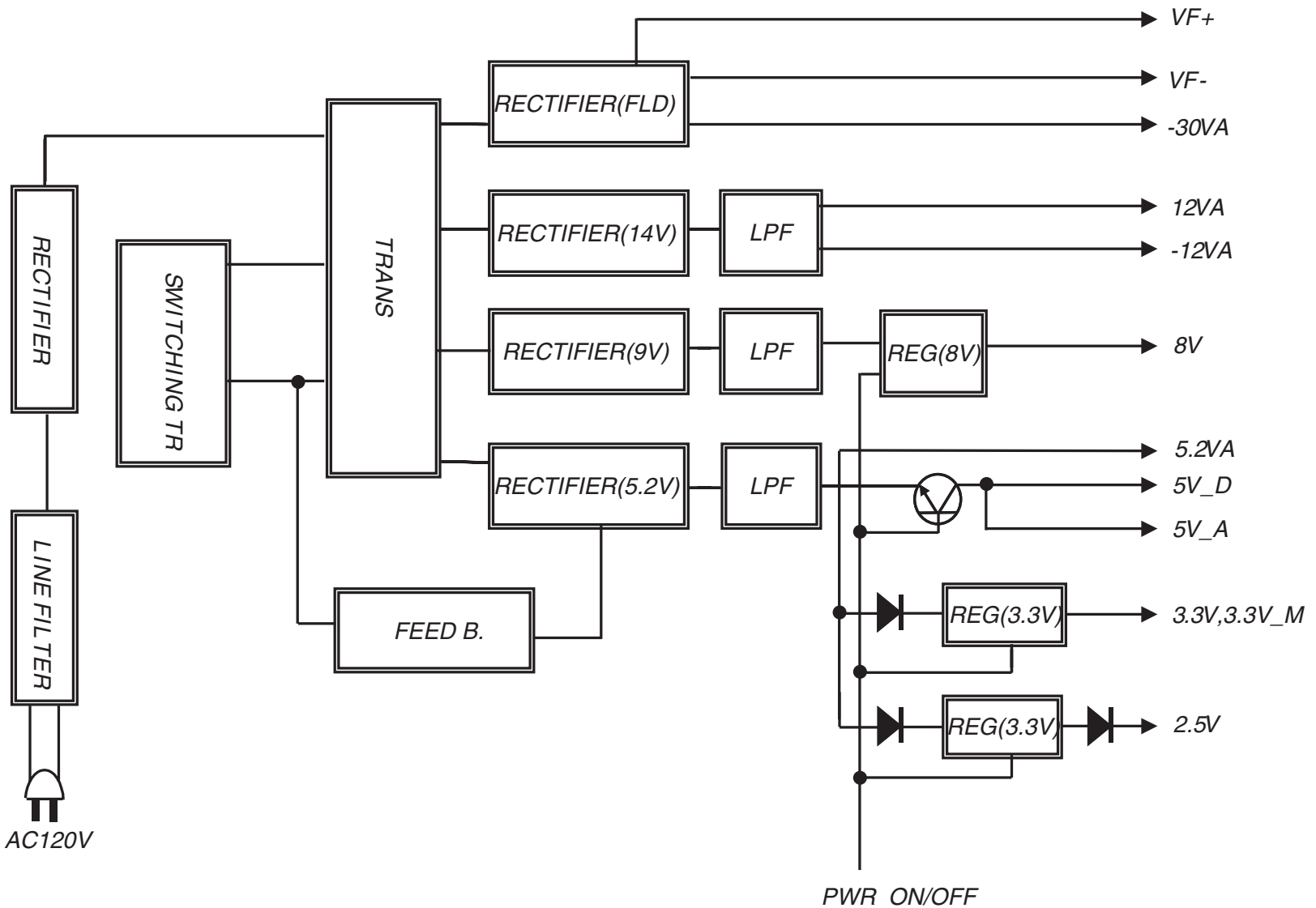


BLOCK DIAGRAMS

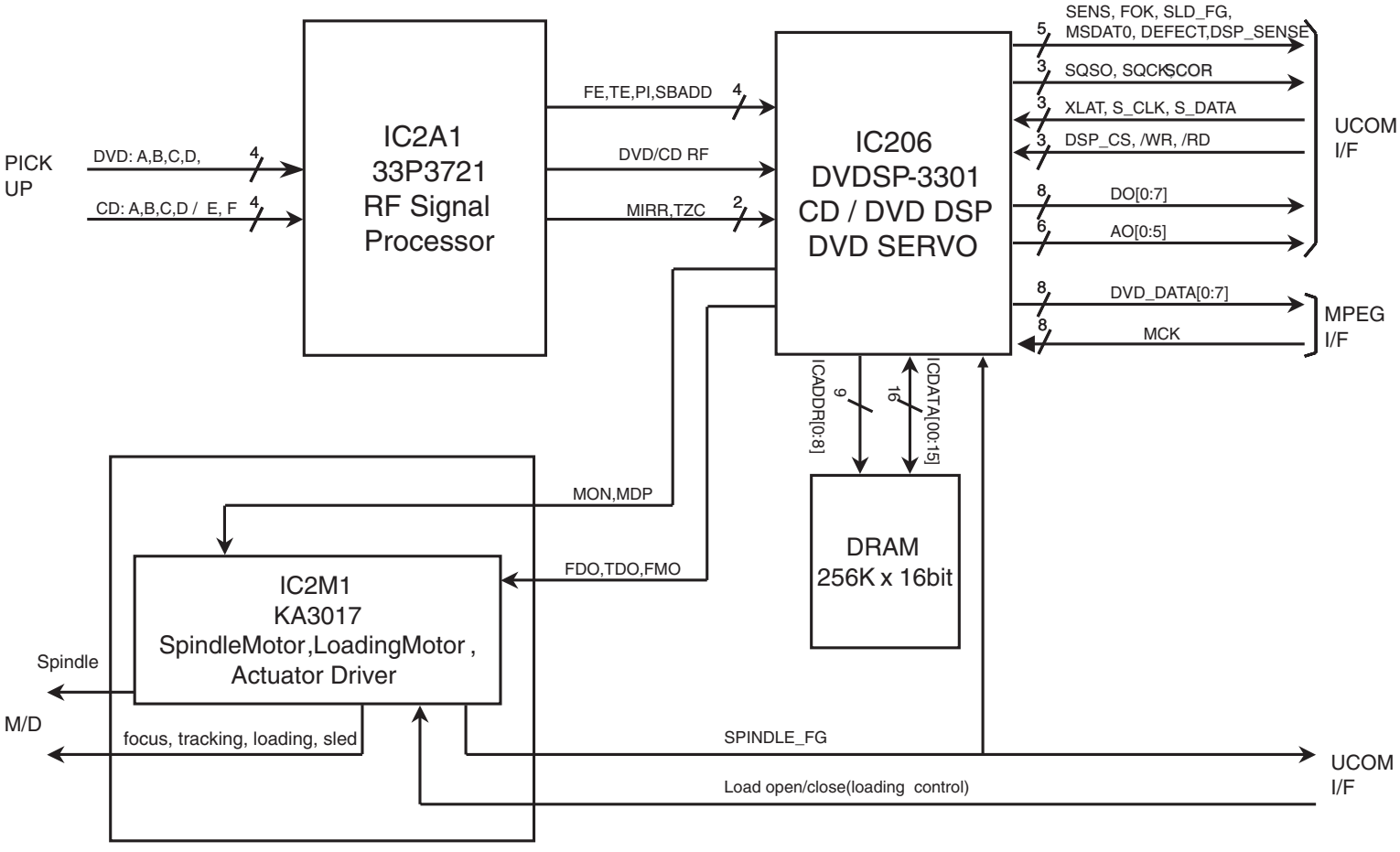
1. Overall Block Diagram



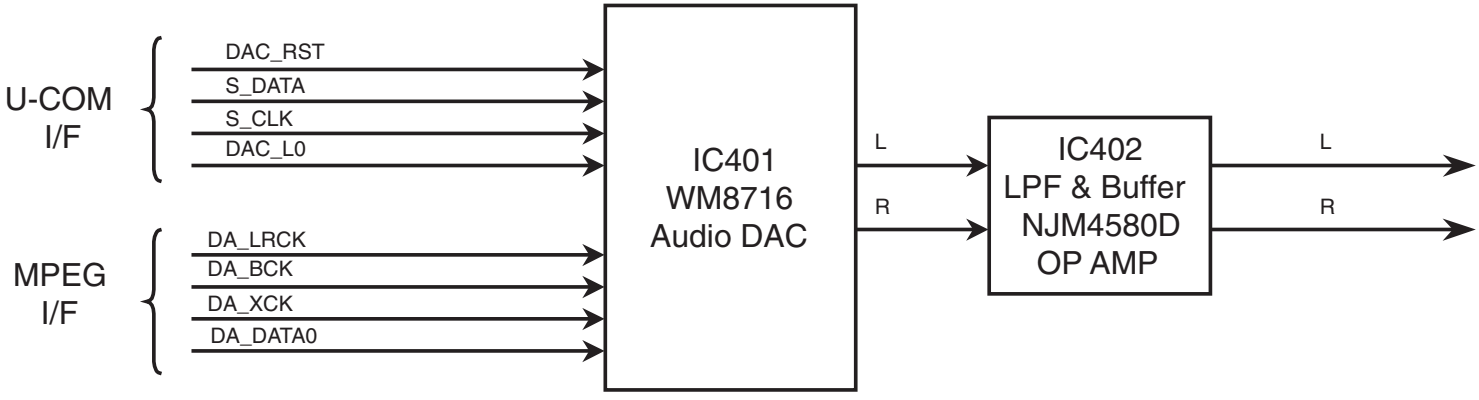
2. Power(SMPS) Block Diagram



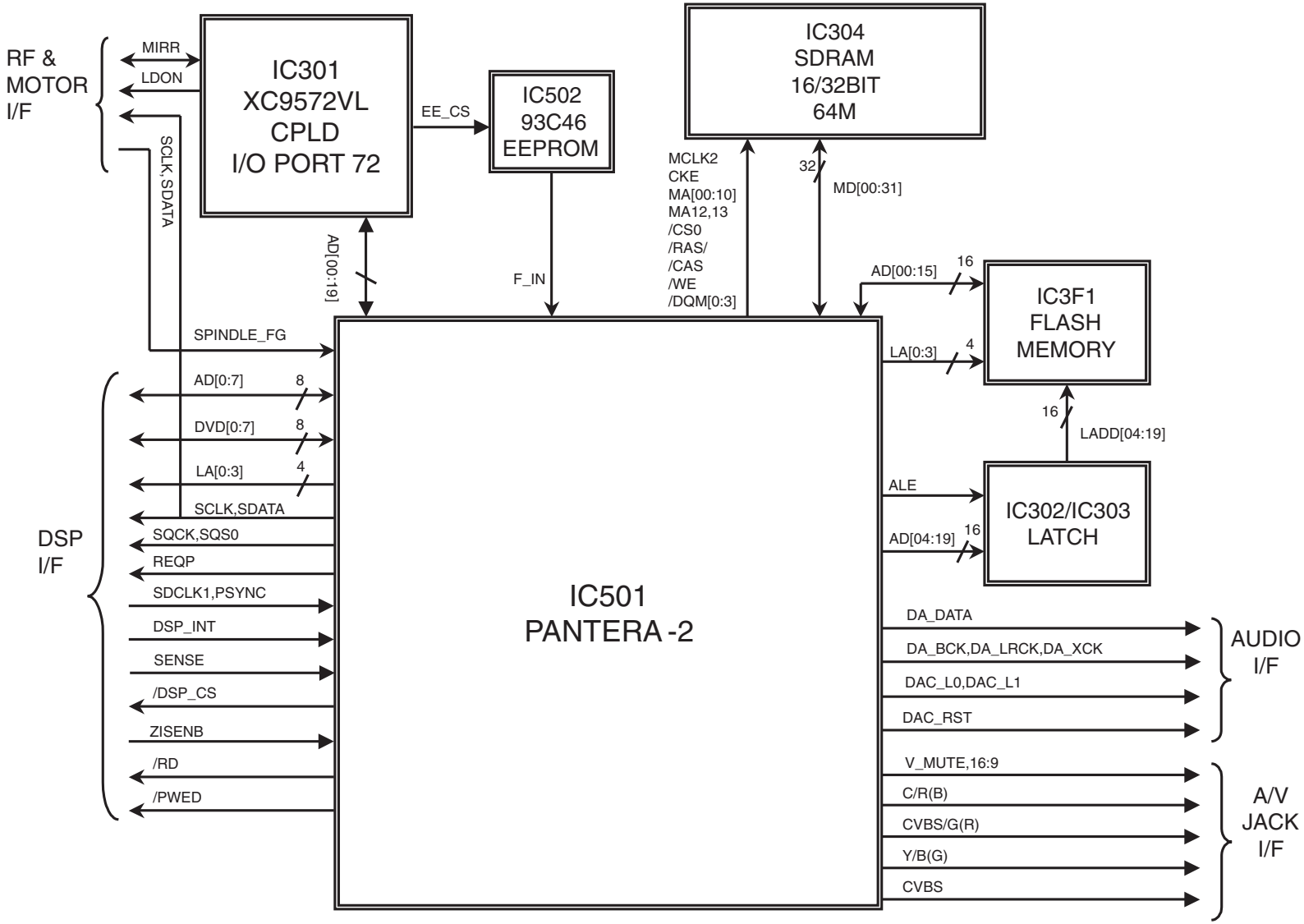
3. RF/CD DSP/DVD DSP/DVD SERVO Block Diagram



4. AUDIO Block Diagram

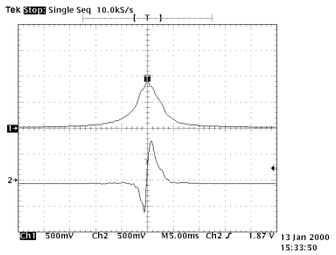


5. MPEG & MEMORY Block Diagram



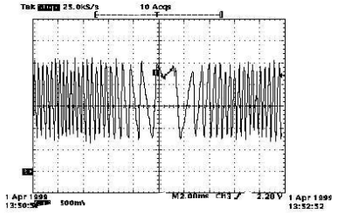
• WAVEFORMS

①



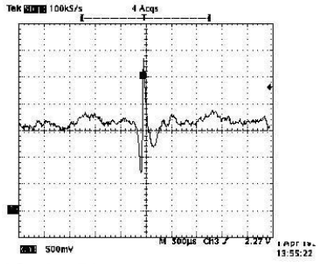
IC2A1 Pin 42, Focus Error
IC2A1 Pin 36, Pi

②



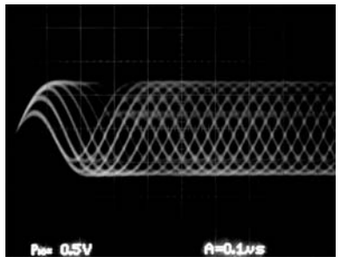
IC2A1 Pin 41
Tracking Error

③



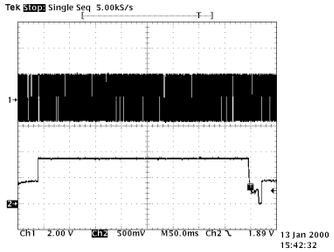
IC2A1 Pin 41
VBR TRACKING Error

④



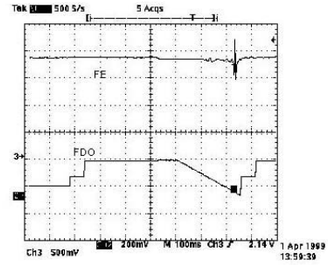
IC2A1 Pin 57,
RF

⑤



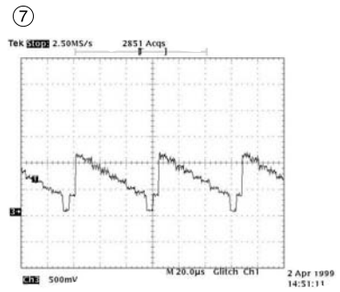
IC201 Pin 88, SLED Drive(FMO)
IC201 Pin 18, SLED FG

⑥



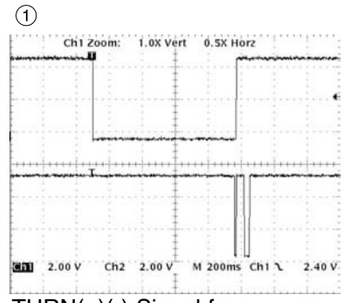
IC2A1 Pin42, Focus Error(in Focus Search)
IC201 Pin 83, Focus Drive(FDO)

⑦



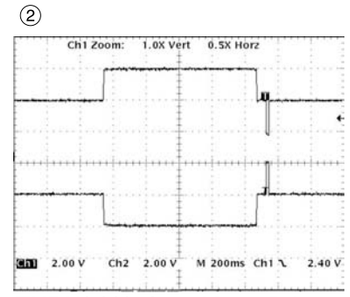
IC501 Pin 114
Component Y

①



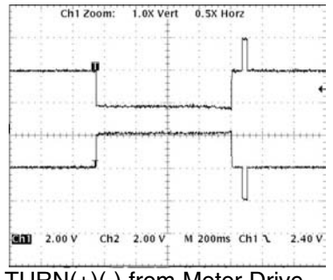
TURN(+)(-) Signal from µ-com

②



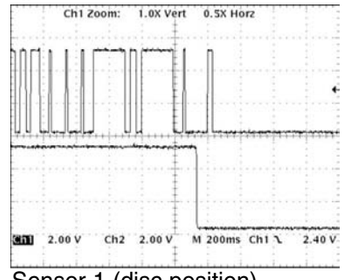
TURN(+)(-) from M/D
Forward turn

③



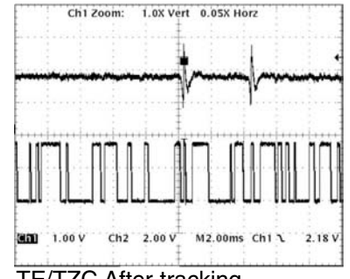
TURN(+)(-) from Motor Drive
Reverse turn

④



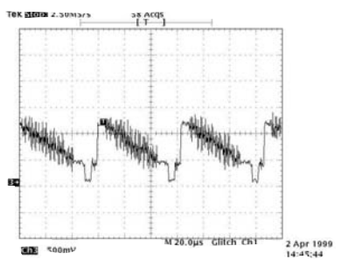
Sensor 1 (disc position)
Sensor 2 (disc ready)

⑤



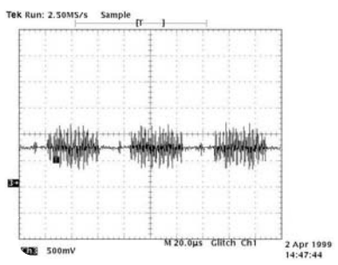
TE/TZC After tracking
servo ON (Play mode)

①



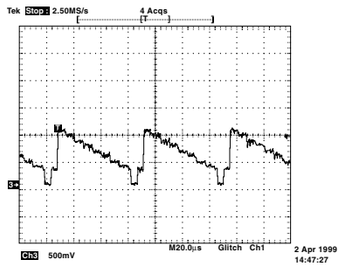
IC501 Pin 118, Composite

②



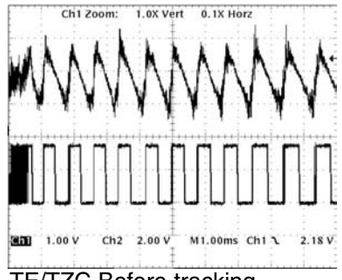
IC501 Pin 112, Chrominance
(Super video out Mode)

③



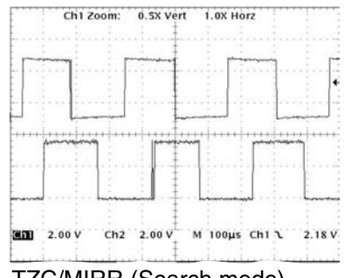
IC501 Pin 114, Luminance
(Super video out Mode)

⑥



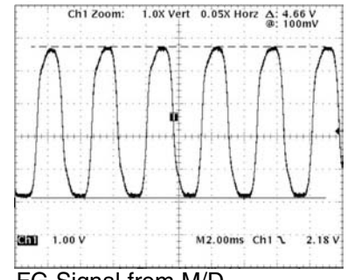
TE/TZC Before tracking
servo ON

⑦



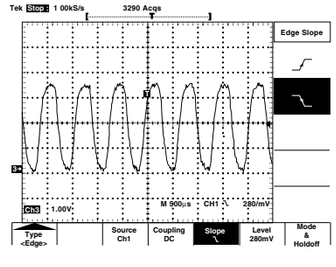
TZC/MIRR (Search mode)

⑧



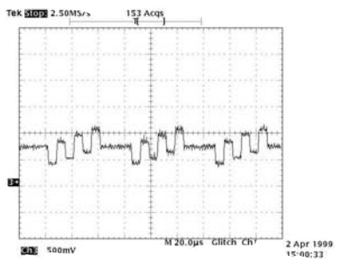
FG Signal from M/D
(Play mode)

④



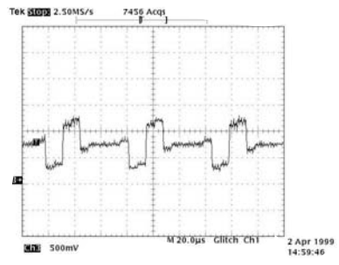
IC501 Pin 99,
PANTER MAIN

⑤



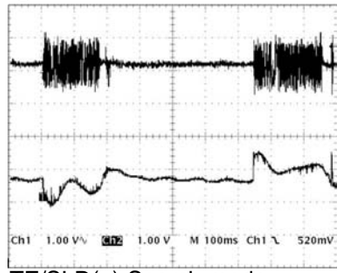
IC501 Pin 112
Component Pb

⑥



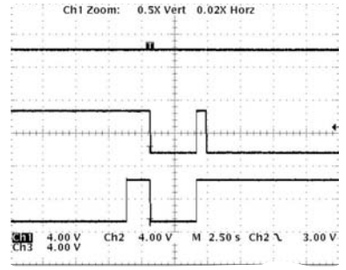
IC501 Pin 110
Component Pr

⑨



TE/SLD(+) Search mode
(outter & inner)

⑩



Tray open Tray closed

• CIRCUIT VOLTAGE CHART

MODE / PIN NO.	LEVEL(V)
PANTERA	
IC501	
1	3.18
2	1.3
3	1.4
4	2.2
5	1.5
6	0
7	1.5
8	1.4
9	1.6
10	3.1
11	0.7
12	0.15
13	0.15
14	0
15	0
16	1.7
17	1.4
18	0
19	1.5
20	1.6
21	0
22	1.6
23	0
24	3.1
25	1.7
26	1.4
27	3.1
28	1.5
29	0.15
30	
31	0
32	0.7
33	1.5
34	2.2
35	2
36	3.1
37	2.9
38	2.2
39	2.9
40	0
41	0
42	0
43	1.6
44	3.1
45	1.6
46	1.5
47	0
48	1.4
49	0
50	1.5
51	1.7
52	1.2
53	3.1

MODE / PIN NO.	LEVEL(V)
54	1.6
55	1.4
56	1.5
57	0
58	1.6
59	1.4
60	1.5
61	1.4
62	3.1
63	1
64	1.5
65	0.005
66	0.5
67	0.003
68	1.58
69	0
70	3.1
71	1.2
72	1.2
73	1.2
74	1.2
75	3.1
76	1.65
77	2.2
78	1.5
79	1.5
80	3.1
81	3.1
82	0.001
83	3.1
84	3.7
85	0
86	
87	3.1
88	3.1
89	2.1
90	0.004
91	3.1
92	0
93	
94	
95	
96	
97	0
98	
99	
100	0
101	2.1
102	3.1
103	0
104	0
105	0
106	0
107	2.1
108	2.1

MODE / PIN NO.	LEVEL(V)
109	0
110	0.8
111	0.9
112	1.3
113	3.1
114	0.78
115	0
116	1.26
117	2.38
118	0.08
119	1.2
120	2
121	0
122	3.1
123	3.1
124	3.1
125	3.1
126	
127	
128	
129	
130	
131	
132	0
133	
134	
135	2.2
136	
137	3.1
138	3.1
139	3.1
140	3.1
141	3.1
142	3.1
143	3.1
144	3.1
145	3.1
146	3.1
147	0
148	3.1
149	3.1
150	3.1
151	3.1
152	3.1
153	3.1
154	3.1
155	3.1
156	3.1
157	3.1
158	3.1
159	2.2
160	1.5
161	3.1
162	
163	0

MODE / PIN NO.	LEVEL(V)
164	3.1
165	3.1
166	3.1
167	3.1
168	3.1
169	3.1
170	3.1
171	0
172	3.1
173	3.1
174	3.1
175	1.5
176	3.1
177	0
178	3.1
179	3.1
180	3.1
181	3.1
182	3.18
183	0.086
184	3
185	2.4
186	2.3
187	0
188	0
189	3.1
190	0
191	0.017
192	2.2
193	3.1
194	3.1
195	0
196	3.18
197	1.3
198	3.1
199	3.1
200	3.1
201	0
202	2.3
203	3.1
204	0.001
205	3.1
206	3.1
207	3.1
208	1.6
209	3.1
210	3.18
211	0.018
212	2.2
213	3.19
214	2.69
215	1.5
216	2.9
217	2.59
218	0

MODE / PIN NO.	LEVEL(V)
219	2.29
220	2.08
221	2.29
222	2.29
223	2.49
224	3.1
225	2.39
226	2.45
227	1.5
228	0
229	1.52
230	0
231	1.61
232	1.6
233	3.1
234	1.6
235	1.6
236	1.5
237	0
238	1.6
239	1.4
240	1.5

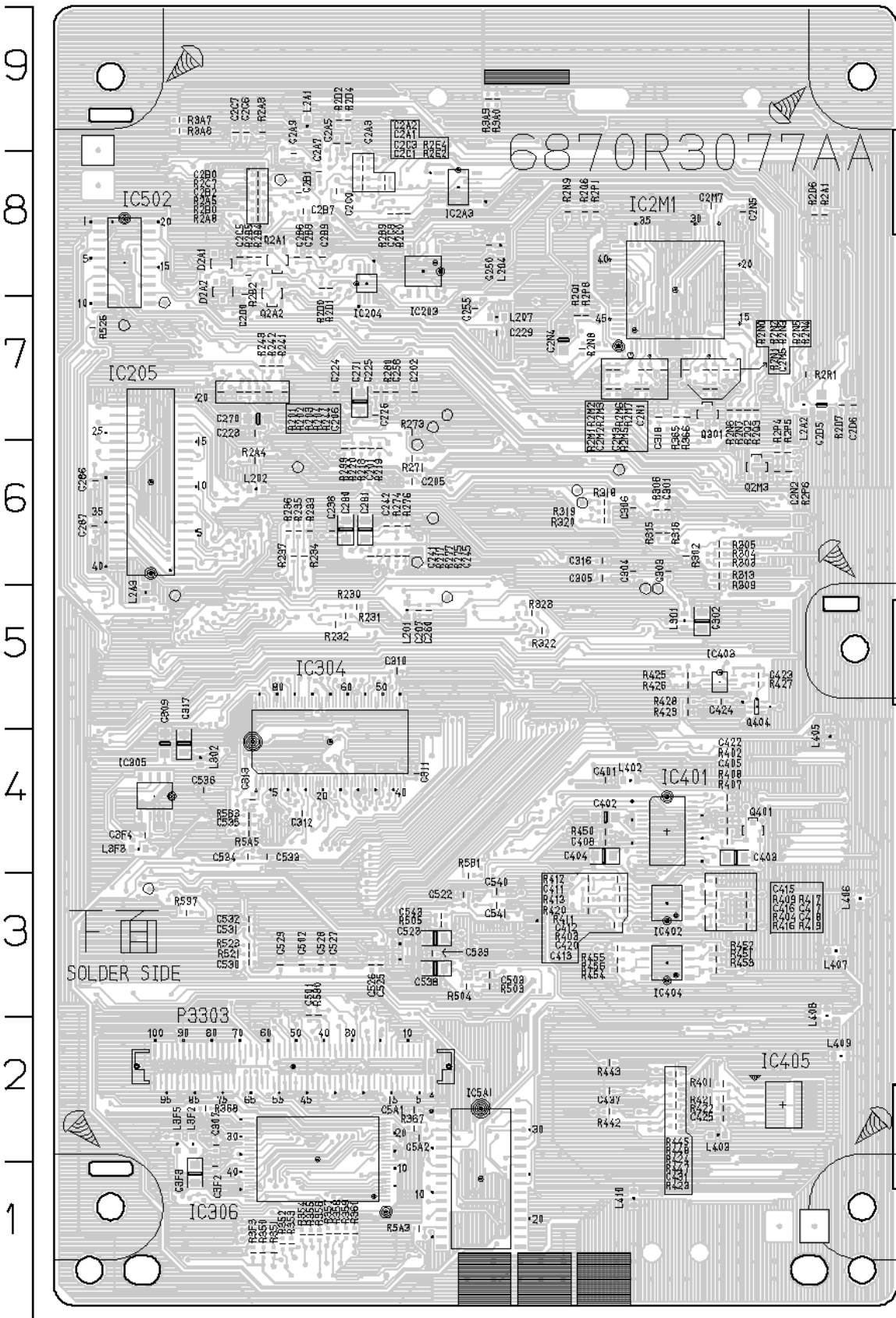
MODE / PIN NO.	LEVEL(V)
MEMORY	
IC301	
1	4.3
2	
3	3.1
4	0
5	3.2
6	2
7	
8	3.1
9	0.01
10	3.1
11	3.2
12	3.2
13	3.2
14	3.2
15	0
16	3.1
17	3.1
18	3.1
19	
20	0
21	0
22	0
23	3
24	
25	0.625
26	3.2
27	0.705
28	3.2
29	3.1
30	
31	0
32	
33	
34	
35	3.1
36	3.1
37	2.39
38	3.2
39	1.49
40	1.5
41	3.09
42	1.69
43	0
44	3.1
45	
46	3.1
47	
48	2.5
49	3.1
50	3.1
51	3.2
52	3.1
53	3.1

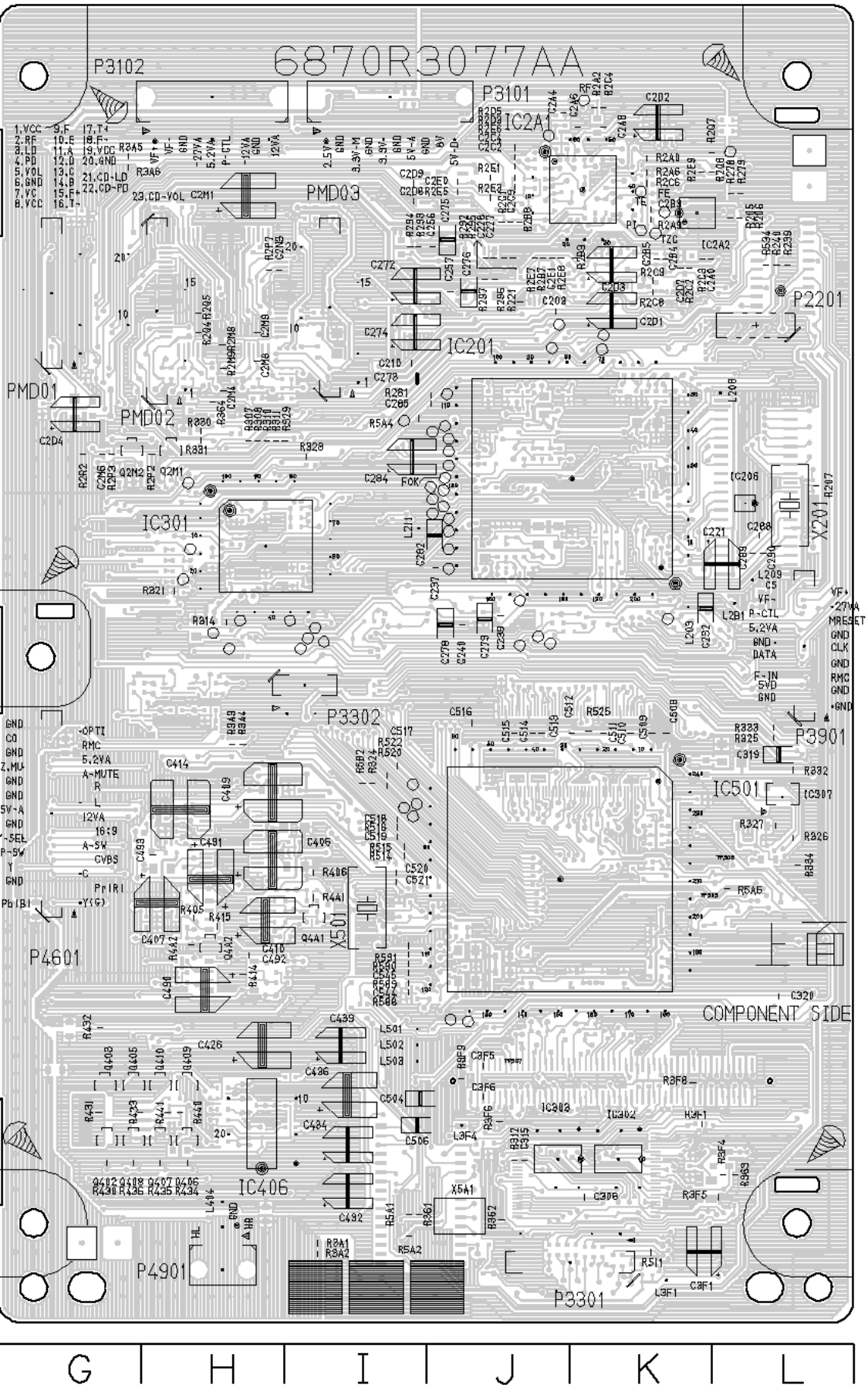
MODE / PIN NO.	LEVEL(V)
54	3.1
55	3.1
56	3.1
57	3.1
58	3.1
59	3.1
60	3.1
61	0.5
62	0
63	3.1
64	3.1
65	3.1
66	3.1
67	3.1
68	1.6
69	0
70	0
71	3.1
72	0
73	
74	3.1
75	0
76	3.2
77	0
78	3.1
79	0.3
80	
81	0
82	0
83	2.5
84	0
85	3.19
86	3.19
87	4.4
88	3.19
89	4.4
90	0
91	4.4
92	0
93	0
94	0
95	0
96	0
97	3.17
98	3.17
99	3.1
100	0

PRINTED CIRCUIT DIAGRAMS

1. MAIN P.C.BOARD

BOTTOM SECTION - PART 1





LOCATION GUIDE

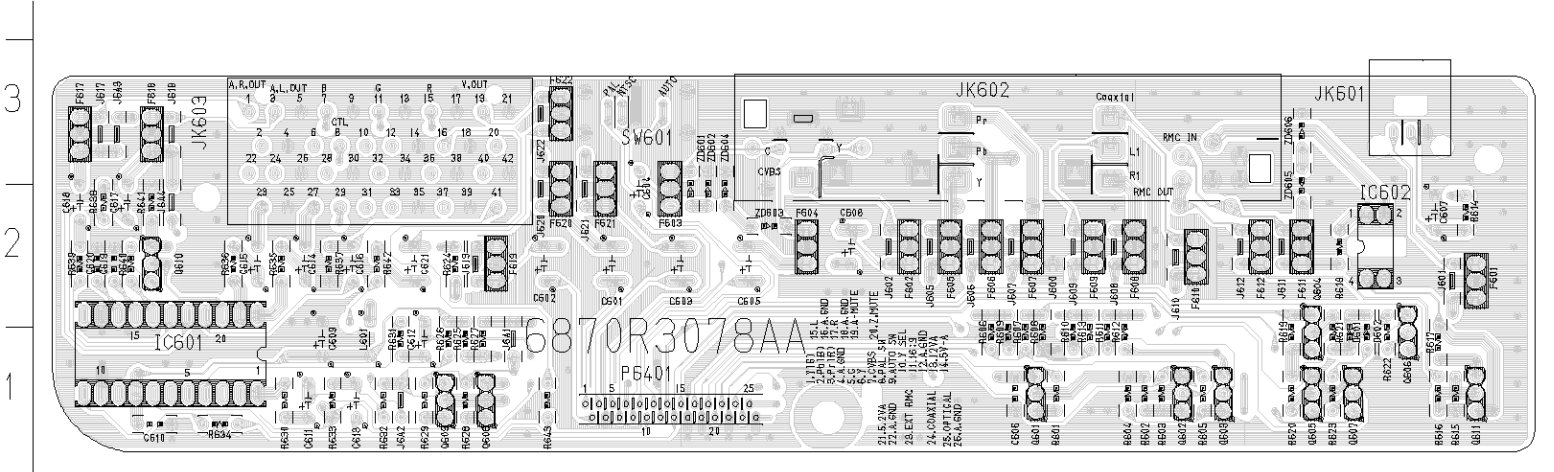
(TOP SIDE)

C203	J7	C414	H2	Q2M1	H6	R307	H7	R591	J3	TP321	J1
C210	J7	C426	H2	Q2M2	G8	R308	H7	R5A1	J1	TP322	J1
C221	L6	C432	I1	Q402	G2	R310	H7	R5A2	J1	TP323	J1
C227	J8	C434	I2	Q403	G2	R311	H7	R5A4	J7	TP324	J1
C228	J8	C436	I2	Q405	G2	R312	J2	R5A6	L3	TP325	J1
C232	K5	C439	I2	Q406	H2	R314	H5	R5B2	I4	TP326	J1
C237	J6	C490	H3	Q407	H2	R321	H5	TP201	K5	TP327	K1
C239	J5	C491	H4	Q408	G2	R324	J4	TP202	J5	TP328	K1
C240	J5	C492	H3	Q409	H2	R325	L4	TP203	J5	TP329	K1
C256	J8	C493	H4	Q410	H2	R326	L4	TP204	J5	TP330	K1
C257	J8	C504	I2	Q4A1	I3	R327	L4	TP205	J5	TP331	K1
C272	J8	C506	I2	Q4A2	H3	R328	J6	TP209	J6	TP332	J1
C273	J7	C508	K5	R205	L8	R329	J7	TP210	J6	TP333	J1
C274	J7	C509	K5	R206	L8	R330	H7	TP211	J6	TP334	J1
C275	J8	C510	K5	R207	L6	R331	H7	TP213	J6	TP335	J2
C276	J8	C511	K5	R221	J7	R332	L4	TP214	J6	TP336	J2
C278	J5	C512	K5	R239	L8	R333	L5	TP215	J6	TP337	K1
C279	J5	C513	J5	R240	L8	R334	L4	TP216	J6	TP338	K1
C282	J6	C514	J5	R278	L8	R361	J1	TP219	H6	TP339	K2
C284	J6	C515	J5	R279	L8	R362	J1	TP220	J6	TP340	K2
C285	J7	C516	J5	R281	J7	R363	L2	TP222	K7	TP341	K2
C288	L6	C517	I4	R292	J8	R364	H7	TP223	K8	TP342	K2
C289	L6	C518	I4	R293	I8	R3A1	I1	TP224	K8	TP343	K2
C290	L6	C519	I4	R294	I8	R3A2	I1	TP225	J6	TP344	I1
C2A0	L8	C520	I4	R295	J8	R3A3	H4	TP226	J6	TP345	L2
C2A4	J9	C521	I4	R296	J8	R3A4	H4	TP228	J6	TP349	I5
C2A5	K9	C544	I3	R297	J8	R3A5	G8	TP229	J7	TP350	I5
C2A8	K9	C545	I3	R2A0	K8	R3A6	G8	TP230	J7	TP351	I5
C2B3	K8	IC201	K6	R2A2	K9	R3F1	K2	TP232	J7	TP352	I5
C2B4	K8	IC206	L6	R2A6	K8	R3F4	L2	TP233	J7	TP353	H6
C2B5	K8	IC2A1	K8	R2A9	K8	R3F5	L1	TP234	J7	TP354	I5
C2C2	J8	IC2A2	K8	R2B3	K8	R3F6	J2	TP239	K7	TP355	H6
C2C4	J8	IC301	H6	R2B7	J8	R3F8	K2	TP241	J6	TP356	H5
C2C9	J8	IC302	K2	R2B8	J8	R3F9	J2	TP243	J7	TP357	H5
C2D1	K7	IC303	J2	R2C1	J8	R405	H3	TP245	J7	TP358	H5
C2D2	K9	IC307	L4	R2C2	K8	R406	I4	TP2A2	L8	TP363	K1
C2D3	K8	IC406	H2	R2C3	K8	R412	H3	TP2A3	K8	TP3A1	K2
C2D4	G7	IC501	J4	R2C4	K9	R415	H3	TP2A4	J9	TP3A2	L2
C2D7	K8	L203	K5	R2C6	K8	R430	G2	TP2A6	K8	TP3A3	L2
C2D8	J8	L208	L7	R2C8	K8	R431	G2	TP2A8	K9	TP3A4	L2
C2D9	J8	L209	L6	R2C9	K8	R432	G3	TP301	L1	TP3A5	L2
C2E0	J8	L211	I6	R2D3	J8	R433	H2	TP302	K2	TP3A6	L2
C2E1	J8	L2B1	L5	R2D5	J9	R434	H2	TP303	J2	TP3A7	L2
C2M1	H8	L3F1	K1	R2E1	J8	R435	H2	TP304	K1	TP501	I4
C2M4	H7	L3F4	J2	R2E3	J8	R436	G2	TP305	K2	TP502	I4
C2M6	G6	L404	H1	R2E5	J8	R440	H2	TP306	K1	TP503	I4
C2M8	H7	L501	I3	R2E6	J8	R441	H2	TP307	K2	TP504	I4
C2M9	H7	L502	I2	R2E7	J8	R4A1	I3	TP308	K1	TP505	L3
C2N3	H8	L503	I2	R2E8	J8	R4A2	H3	TP309	K2	TP506	L4
C308	K1	P2201	L7	R2E9	K8	R511	K1	TP310	K1	TP507	J2
C315	J2	P3101	I9	R2M8	H7	R514	I4	TP311	K2	TP513	J3
C319	L4	P3102	H9	R2M9	H7	R515	I4	TP312	K2	TP514	J3
C320	L3	P3301	K1	R2P2	H6	R516	I4	TP313	K2	X201	L6
C3F1	K1	P3302	I5	R2P3	G6	R520	I4	TP314	K2	X501	I3
C3F5	J2	P3901	L5	R2P7	H8	R522	I4	TP315	K2	X5A1	J1
C3F6	J2	P4601	G4	R204	H7	R525	K5	TP316	K2		
C406	H4	P4901	H1	R205	H7	R534	L8	TP317	K2		
C407	H3	PMD01	G8	R207	L8	R588	I3	TP318	K2		
C409	H4	PMD02	H7	R208	L8	R589	I3	TP319	K2		
C410	H3	PMD03	I7	R2R2	G6	R590	I3	TP320	K2		

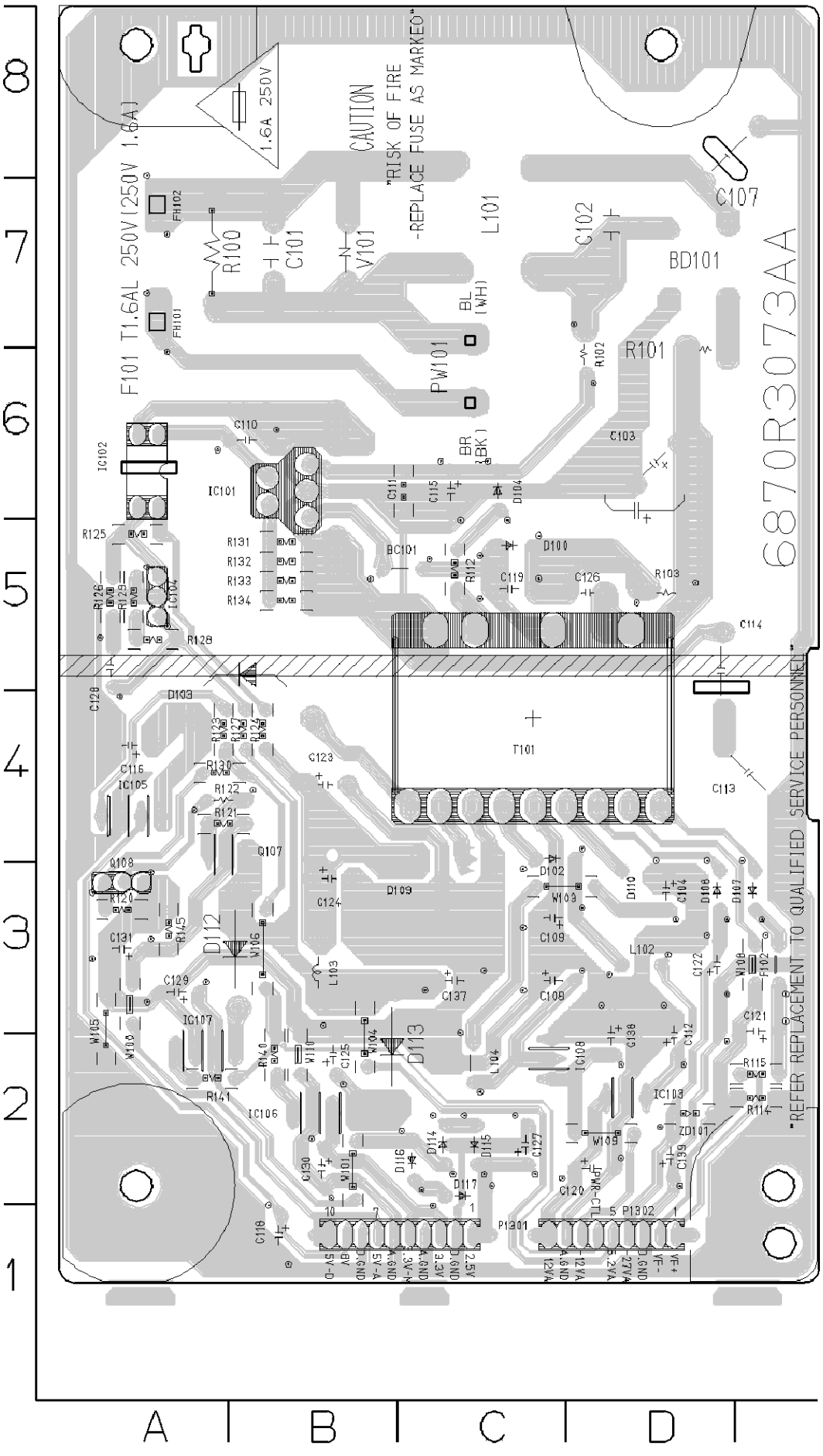
(BOTTOM SIDE)

C201	G6	C302	E5	C540	D3	R220	G6	R2N9	D8	R417	E3
C202	C7	C303	E6	C541	D3	R230	C5	R2P1	D8	R419	E3
C205	G6	C304	E8	C543	C3	R231	C5	R2P4	F6	R420	D3
C206	B7	C305	D6	C5A1	C2	R232	C5	R2P5	F6	R421	E2
C207	C5	C306	E6	C5A2	C2	R233	B6	R2P6	F6	R422	E2
C223	B7	C307	B2	D2A1	B8	R234	B6	R2P8	D7	R423	E2
C224	C7	C309	A4	D2A2	B8	R235	B6	R201	D7	R424	E2
C225	C7	C310	C5	IC200	C8	R236	B6	R202	E7	R425	E5
C226	C7	C311	C4	IC204	C8	R237	B6	R203	F7	R426	E5
C229	D7	C312	B4	IC205	A6	R241	B7	R206	D8	R427	F5
C238	B8	C313	B4	IC2A3	C8	R242	B7	R2R1	F7	R428	E5
C241	C6	C316	D6	IC2M1	E8	R243	B7	R302	E6	R429	E5
C242	C6	C317	A4	IC504	B4	R244	B7	R303	E6	R442	D2
C245	C6	C318	E7	IC505	A4	R271	C6	R304	E6	R443	D2
C250	D8	C3F2	B1	IC506	B2	R273	C7	R305	E6	R445	E2
C255	D7	C3F3	B1	IC401	E4	R274	C6	R306	E6	R447	E2
C258	C7	C3F4	A4	IC402	E3	R275	C6	R309	E5	R448	E2
C260	C5	C401	D4	IC403	E5	R276	C6	R313	E6	R450	D4
C270	B7	C402	D4	IC404	E3	R277	C6	R315	E6	R451	E3
C271	C7	C403	E4	IC405	F2	R280	C7	R316	E6	R452	E3
C280	C6	C404	D4	IC502	A8	R299	C6	R318	D6	R453	E3
C281	C6	C405	E4	IC5A1	D1	R2A1	F8	R319	D6	R454	E3
C286	A6	C408	D4	L201	C5	R2A3	B9	R320	D6	R455	E3
C287	A6	C411	D3	L202	B6	R2A4	B8	R322	D5	R456	E3
C2A1	C8	C412	E3	L204	D8	R2A5	B8	R323	D5	R503	D3
C2A2	C8	C413	D3	L207	D7	R2A8	B8	R350	B1	R504	C3
C2A3	C9	C415	E3	L2A1	B9	R2B0	B8	R351	B1	R505	C3
C2A5	C9	C416	E3	L2A2	F7	R2B2	B8	R352	B1	R521	B3
C2A7	B8	C417	E3	L2A3	A5	R2B4	B8	R353	B1	R523	B3
C2A9	B8	C418	E3	L301	E5	R2B5	B8	R354	B1	R526	A7
C2B0	B8	C420	E3	L302	B4	R2B9	C8	R355	B1	R580	B3
C2B1	B8	C422	E4	L3F2	A2	R2C0	C8	R356	B1	R597	A3
C2B2	B8	C423	F5	L3F3	A4	R2C7	B8	R357	B1	R5A3	C1
C2B6	B8	C424	E5	L3F5	A2	R2D0	B8	R358	C1	R5A5	B4
C2B7	B8	C425	E2	L402	E4	R2D1	B8	R359	C1	R5B1	C3
C2B8	B8	C431	E2	L403	E2	R2D2	C9	R360	C1	R5B3	B4
C2B9	B8	C437	D2	L405	F4	R2D4	C9	R365	E7	TP206	A3
C2C0	C8	C501	B3	L406	F3	R2D6	F8	R366	E7	TP207	C6
C2C1	C9	C502	B3	L407	F3	R2D7	F7	R367	C2	TP208	C5
C2C3	C8	C503	D3	L408	F3	R2E2	C8	R368	B2	TP212	C6
C2C5	B8	C522	C3	L409	F2	R2E4	C8	R3A0	D9	TP218	B6
C2C6	B9	C523	C3	L410	E1	R2M1	D7	R3A7	A9	TP221	E6
C2C7	B9	C525	C3	P3303	B2	R2M2	D7	R3A8	A9	TP231	C6
C2C8	C8	C526	C3	Q2A1	B8	R2M3	E7	R3A9	D9	TP235	A5
C2D0	B8	C527	B3	Q2A2	B8	R2M5	E7	R3F3	B1	TP242	C7
C2D5	F7	C528	B3	Q2M3	F6	R2M6	E7	R401	E2	TP244	C7
C2D6	F7	C529	B3	Q301	E7	R2M7	E7	R402	E4	TP2A1	B8
C2M2	E7	C530	B3	Q401	E4	R2N0	E7	R403	E3	TP359	E5
C2M3	E7	C531	B3	Q404	F5	R2N1	E7	R404	E3	TP360	D6
C2M5	E7	C532	B3	R201	B7	R2N2	E7	R407	E4	TP361	D6
C2M7	E8	C533	B4	R202	B7	R2N3	E7	R408	E4	TP362	E5
C2N1	E7	C534	B4	R203	B7	R2N4	E7	R409	E3	TP515	A7
C2N2	F6	C535	B4	R204	B7	R2N5	E7	R411	E3	TP516	A7
C2N4	D7	C536	B4	R217	C6	R2N6	E7	R412	D3		
C2N5	E8	C538	C3	R218	C6	R2N7	E7	R413	D3		
C301	E6	C539	C3	R219	C6	R2N8	D7	R416	E3		

2. AV JACK P.C.BOARD



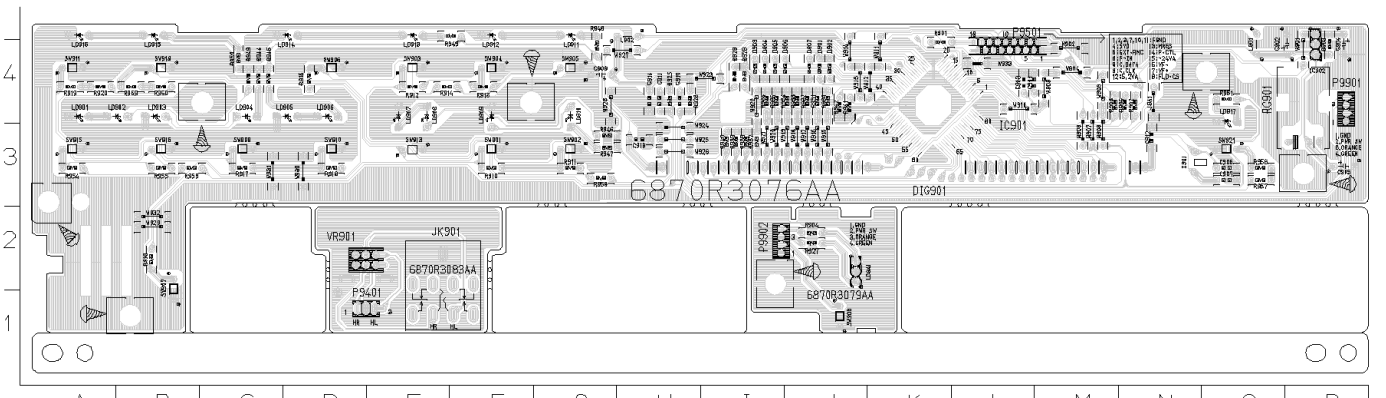
3. SMPS P.C.BOARD



LOCATION GUIDE

BC101	C5	FH101	A7
BD101	D7	FH102	A7
C101	B7	IC101	B6
C102	D7	IC102	A6
C103	D6	IC103	D2
C104	D3	IC104	A5
C107	D8	IC105	A4
C108	C3	IC106	B2
C109	C3	IC107	B2
C110	B6	IC108	C2
C111	C6	L101	C7
C112	D2	L102	D3
C113	E4	L103	B3
C114	D5	L104	C2
C115	C6	P1301	C1
C116	A4	P1302	D1
C118	B1	PW101	C6
C119	C5	Q107	A4
C120	D2	Q108	A3
C121	E3	R100	A7
C122	D3	R101	D6
C123	B4	R102	D6
C124	B3	R103	D5
C125	B2	R112	C5
C126	D5	R114	E2
C127	C2	R115	E2
C128	A5	R120	A3
C129	A3	R121	A4
C130	B2	R122	A4
C131	A3	R123	A4
C137	C3	R124	B4
C138	D2	R125	A5
C139	D2	R126	A5
D100	C5	R127	B4
D102	C4	R128	A5
D103	B4	R129	A5
D104	C6	R130	A4
D107	E3	R131	B5
D108	D3	R132	B5
D109	C4	R133	B5
D110	D3	R134	B5
D112	B3	R140	B2
D113	B2	R141	A2
D114	C2	R145	A3
D115	C2	T101	C4
D116	C2	V101	B7
D117	C2	ZD101	D2
F102	E3		

4. FRONT P.C.BOARD



LOCATION GUIDE

C901	M4	R915	D4
C902	P4	R916	B2
C903	L4	R917	C3
C904	P4	R918	D3
C905	P3	R919	A4
C906	O3	R920	A4
C907	O3	R925	H4
C909	O4	R926	H4
C910	H4	R927	J2
C911	H4	R928	I4
C912	N3	R929	I4
C913	H3	R930	J4
C914	H4	R931	J4
D901	J4	R932	J4
D902	J4	R933	J4
D903	I4	R934	J4
D904	I4	R935	I4
D905	I4	R936	I4
D906	J4	R937	I3
D907	J4	R938	I3
D1901	K4	R939	I3
IC901	K4	R940	I3
IC902	P4	R941	J4
JA01	N4	R942	J4
JK901	E2	R943	C4
L901	O4	R944	C4
L902	H5	R945	C4
LD901	A4	R946	B3
LD902	B4	R947	B3
LD903	B4	R948	B4
LD904	C4	R949	B5
LD905	C4	R950	B4
LD906	D4	R951	D4
LD907	E4	R953	B3
LD908	F4	R954	A3
LD909	F4	R955	B3
LD910	G4	R956	D3
LD911	G5	R957	C3
LD912	G5	R958	D3
LD913	E5	R959	B4
LD914	D5	R960	B4
LD915	B5	RC901	P4
LD916	A5	SW901	F3
LD917	O4	SW902	G3
LD941	J2	SW903	E4
P9401	E1	SW904	F4
P9501	M2	SW905	E4
P9901	P2	SW906	D2
P9902	I2	SW907	B2
R901	K4	SW908	J1
R902	N4	SW909	C3
R903	P4	SW910	D3
R904	J2	SW911	A4
R905	N4	SW913	E3
R906	M4	SW915	A3
R910	F3	SW916	B3
R911	G3	SW918	B4
R912	E4	SW921	O3
R913	F4	VR901	E2
R914	E4	X901	N3

. Electrical Section

NSP : Not Service Parts

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
			CAPACITOR			
		C101	624-088F	CAPACITOR,DRAWING	PCX2 275V 0.1UF,M (PILKO)	
		C102	624-088F	CAPACITOR,DRAWING	PCX2 275V 0.1UF,M (PILKO)	
		C103	624-082C	CAPACITOR,AL.ELECTROLYTIC	100MF/400V SHL SMPS S/Y	
		C104	0CE4766K638	CAPACITOR,ELECTROLYTIC	47M SMS 50V M FM5 TP	
		C108	0CE4766K638	CAPACITOR,ELECTROLYTIC	47M SMS 50V M FM5 TP	
		C109	0CE4766K638	CAPACITOR,ELECTROLYTIC	47M SMS 50V M FM5 TP	
		C110	0CQ4732K409	CAPACITOR,POLYESTER(MYLAR)	0.047UF S 50V J PE TP	
		C111	0CN4730K948	CAPACITOR,FIXED TUBULAR(High d	0.047UF D 50V 80%,-20% F(Y5V)	
		C112	0CE4766K638	CAPACITOR,ELECTROLYTIC	47M SMS 50V M FM5 TP	
		C113	0CG3320U630	CAPACITOR,SEMI CERAMIC	3300 PF 400V M E R(NK,AD,SD)	
		C115	0CE4766K638	CAPACITOR,ELECTROLYTIC	47M SMS 50V M FM5 TP	
		C116	0CE477BH630	CAPACITOR,AL.ELECTROLYTIC	470UF KME TYPE 25V M FM5 BULK	
		C118	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C119	624-087B	CAPACITOR	HIGH-VOL 100P/1KV SMPS SAMHWA	
		C120	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C121	0CE2276F638	CAPACITOR,ELECTROLYTIC	220U SMS 16V M FM5 TP(5)	
		C122	0CE4766K638	CAPACITOR,ELECTROLYTIC	47M SMS 50V M FM5 TP	
		C123	0CE108BF630	CAPACITOR,AL.ELECTROLYTIC	1000UF KME 16V M FM5 BULK	
		C124	0CE108BF630	CAPACITOR,AL.ELECTROLYTIC	1000UF KME 16V M FM5 BULK	
		C125	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C126	0CQ1031Y519	CAPACITOR,POLYESTER	0.01UF D 630V K PE NI TP	
		C127	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C128	0CQ4732K409	CAPACITOR,POLYESTER(MYLAR)	0.047UF S 50V J PE TP	
		C129	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C130	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C131	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C137	0CE477CD638	CAPACITOR,AL.ELECTROLYTIC	470UF SHL,SD 10V M FM5 TP 5	
		C138	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C139	0CE4766K638	CAPACITOR,ELECTROLYTIC	47M SMS 50V M FM5 TP	
		C201	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C202	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C203	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C205	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C206	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C207	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C210	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C221	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C223	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C224	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C226	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C227	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C228	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C229	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C232	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C237	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C238	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C239	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C240	0CH1222K562	CAPACITOR,CHIP[CERAMIC M/L HD	2200PF 50V K X7R(X) 1608 R/TP	
		C241	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C242	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C245	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C250	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C255	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C256	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C257	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C258	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C260	0CH4100K112	CHIP CAPA CERAMIC M/L T.C F/S	10P 50V D COG 1.6X0.8 R/TP	
		C270	0CH1225F944	CAPACITOR,FIXED CERAMIC(Temp.c	2.2UF 16V 80%,-20% Y5V(F) 3216	
		C271	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C272	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C273	0CH1225F944	CAPACITOR,FIXED CERAMIC(Temp.c	2.2UF 16V 80%,-20% Y5V(F) 3216	
		C274	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C275	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C276	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C278	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C279	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C280	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C281	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C282	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C284	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		C285	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C286	0CH4220K412	CAPA,CHIP CERAMIC M/L T.C F/S	22P 50V J COG 1.6X0.8 R/TP	
		C287	0CH4220K412	CAPA,CHIP CERAMIC M/L T.C F/S	22P 50V J COG 1.6X0.8 R/TP	
		C288	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A0	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A1	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A2	0CH1222K562	CAPACITOR,CHIP[CERAMIC M/L HD	2200PF 50V K X7R(X) 1608 R/TP	
		C2A3	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A4	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A5	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A6	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A7	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A8	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2A9	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2B0	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2B1	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2B2	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2B3	0CH1473H942	CAPA,CHIP CERAMIC M/L H.D F/S	0.0470UF 25V Z Y5V(F) 1608 R/T	
		C2B4	0CH4561K512	CAPACITOR,CHIP[CERAMIC M/L TC	560PF 50V K NP0 1608 R/TP	
		C2B5	0CH4561K512	CAPACITOR,CHIP[CERAMIC M/L TC	560PF 50V K NP0 1608 R/TP	
		C2B6	0CH1333K562	CAPACITOR,CHIP[CERAMIC M/L HD	0.033UF 50V K X7R(X) 1508 R/TP	
		C2B7	0CH1333K562	CAPACITOR,CHIP[CERAMIC M/L HD	0.033UF 50V K X7R(X) 1508 R/TP	
		C2B8	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2B9	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2C0	0CH4221K412	CAPACITOR,CHIP[CERAMIC M/L TC	220P 50V J COG 1.6X0.8 R/TP	
		C2C1	0CH1222K562	CAPACITOR,CHIP[CERAMIC M/L HD	2200PF 50V K X7R(X) 1608 R/TP	
		C2C2	0CH1222K562	CAPACITOR,CHIP[CERAMIC M/L HD	2200PF 50V K X7R(X) 1608 R/TP	
		C2C3	0CH1222K562	CAPACITOR,CHIP[CERAMIC M/L HD	2200PF 50V K X7R(X) 1608 R/TP	
		C2C4	0CH1222K562	CAPACITOR,CHIP[CERAMIC M/L HD	2200PF 50V K X7R(X) 1608 R/TP	
		C2C5	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2C8	0CH4330K412	CAPACITOR,CHIP[CERAMIC M/L TC	33P 50V J COG 1.6X0.8 R/TP	
		C2C9	0CH4330K412	CAPACITOR,CHIP[CERAMIC M/L TC	33P 50V J COG 1.6X0.8 R/TP	
		C2D0	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2D1	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C2D2	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C2D3	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C2D4	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C2D5	0CH1225F944	CAPACITOR,FIXED CERAMIC(Temp.c	2.2UF 16V 80%,-20% Y5V(F) 3216	
		C2D6	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2D7	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2E1	0CH1182K562	CAPACITOR,CHIP[CERAMIC M/L HD	1800P 50V K X7R 1.6X0.8 R/TP	
		C2M1	0CH8107F611	CAPACITOR,CHIP[AL. ELECTROLYTI	100UF 16V M 85STD(CYL) R/TP	
		C2M2	0CH1682K562	CAPACITOR,CHIP[CERAMIC M/L HD	6800P 50V K X7R 1.6X0.8 R/TP	
		C2M3	0CH1472K562	CAPACITOR,CHIP[CERAMIC M/L HD	4700PF 50V K X7R(X) 1608 R/TP	
		C2M4	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2M5	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2M6	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2M7	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2M8	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2M9	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2N1	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C2N2	0CH1103K562	CAPACITOR,FIXED CERAMIC(Temp.c	0.01UF 50V 10% X7R(X) 1608 R/T	
		C2N3	0CH1223K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.022UF 50V Z Y5V(F) 1508 R/TP	
		C2N4	0CH1225F944	CAPACITOR,FIXED CERAMIC(Temp.c	2.2UF 16V 80%,-20% Y5V(F) 3216	
		C2N5	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C301	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C302	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C303	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C304	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C305	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C306	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C307	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C308	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C309	0CH1225F944	CAPACITOR,FIXED CERAMIC(Temp.c	2.2UF 16V 80%,-20% Y5V(F) 3216	
		C310	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C311	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C312	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C313	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C315	0CH4560K412	CAPA,CHIP CERAMIC M/L T.C F/S	56P 50V J COG 1.6X0.8 R/TP	
		C316	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C317	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C318	0CH1103K562	CAPACITOR,FIXED CERAMIC(Temp.c	0.01UF 50V 10% X7R(X) 1608 R/T	
		C319	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C320	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C3F1	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		C3F2	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C3F3	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C3F4	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C3F5	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C3F6	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C401	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C402	0CH1225F944	CAPACITOR,FIXED CERAMIC(Temp.c	2.2UF 16V 80%,-20% Y5V(F) 3216	
		C403	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C404	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C406	0CH8477C611	CAPACITOR,CHIP[AL. ELECTROLYTI	470UF 6.3V M 85STD(CYL) R/TP	
		C407	0CH8106F611	CAPACITOR,CHIP[AL. ELECTROLYTI	10UF 16V M 85STD(CYL) R/TP	
		C408	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C409	0CH8477C611	CAPACITOR,CHIP[AL. ELECTROLYTI	470UF 6.3V M 85STD(CYL) R/TP	
		C410	0CH8106F611	CAPACITOR,CHIP[AL. ELECTROLYTI	10UF 16V M 85STD(CYL) R/TP	
		C411	0CH1102K512	CAPACITOR,FIXED CERAMIC(Temp.c	1000PF 50V 10% B(5YP) 1608 R/T	
		C412	0CH4561K412	CAPACITOR,FIXED CERAMIC(High d	560PF 50V 5% NP0 1608 R/TP	
		C413	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C414	0CH8477C611	CAPACITOR,CHIP[AL. ELECTROLYTI	470UF 6.3V M 85STD(CYL) R/TP	
		C415	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C416	0CH1102K512	CAPACITOR,FIXED CERAMIC(Temp.c	1000PF 50V 10% B(5YP) 1608 R/T	
		C417	0CH4561K412	CAPACITOR,FIXED CERAMIC(High d	560PF 50V 5% NP0 1608 R/TP	
		C418	0CH1392K562	CAPACITOR,CHIP[CERAMIC M/L HD	3900PF 50V K Z5U(E) 1608 R/TP	
		C420	0CH1392K562	CAPACITOR,CHIP[CERAMIC M/L HD	3900PF 50V K Z5U(E) 1608 R/TP	
		C422	0CH4560K412	CAPA,CHIP CERAMIC M/L T.C F/S	56P 50V J COG 1.6X0.8 R/TP	
		C423	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C424	0CH1103K562	CAPACITOR,FIXED CERAMIC(Temp.c	0.01UF 50V 10% X7R(X) 1608 R/T	
		C425	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C426	0CH8107F611	CAPACITOR,CHIP[AL. ELECTROLYTI	100UF 16V M 85STD(CYL) R/TP	
		C431	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C432	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C434	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C436	0CH8107F611	CAPACITOR,CHIP[AL. ELECTROLYTI	100UF 16V M 85STD(CYL) R/TP	
		C437	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C439	0CH8476C611	CAPACITOR,CHIP[AL. ELECTROLYTI	47UF 6.3V M 85STD(CYL) R/TP	
		C490	0CH8107F611	CAPACITOR,CHIP[AL. ELECTROLYTI	100UF 16V M 85STD(CYL) R/TP	
		C491	0CH8107F611	CAPACITOR,CHIP[AL. ELECTROLYTI	100UF 16V M 85STD(CYL) R/TP	
		C492	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C493	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C503	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C504	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C506	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C508	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C509	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C510	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C511	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C512	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C513	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C514	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C515	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C516	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C517	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C518	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C519	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C520	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C521	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C522	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C523	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C525	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C526	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C527	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C528	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C529	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C530	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C531	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C532	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C533	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C534	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C535	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C536	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C538	0CH7106C611	CAPACITOR,FIXED TANTALUM	10UF 6.3V 20% 3216 TP(-)	
		C540	0CH4220K412	CAPA,CHIP CERAMIC M/L T.C F/S	22P 50V J COG 1.6X0.8 R/TP	
		C541	0CH4220K412	CAPA,CHIP CERAMIC M/L T.C F/S	22P 50V J COG 1.6X0.8 R/TP	
		C543	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C544	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	
		C545	0CH1104K942	CAPACITOR,CHIP[CERAMIC M/L HD	0.1UF 50V Z Y5V(F) 1508 R/TP	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		C601	0CE4776C638	CAPACITOR,AL.ELECTROLYTIC	470U SMS 6.3V M FM5 TP(5)	
		C602	0CE4776C638	CAPACITOR,AL.ELECTROLYTIC	470U SMS 6.3V M FM5 TP(5)	
		C603	0CE4776C638	CAPACITOR,AL.ELECTROLYTIC	470U SMS 6.3V M FM5 TP(5)	
		C604	0CE1064F638	CAPACITOR,ELECTROLYTIC	10M SRA 16V M FM5 TP(5)	
		C605	0CE4776C638	CAPACITOR,AL.ELECTROLYTIC	470U SMS 6.3V M FM5 TP(5)	
		C606	0CN1030F678	CAPACITOR TUBULA(HIGH DIELE)	0.01M 16V M Y TA26	
		C607	0CE1076F638	CAPACITOR,AL.ELECTROLYTIC	100M SMS 16V M FM5 TP(5)	
		C608	0CE4776C638	CAPACITOR,AL.ELECTROLYTIC	470U SMS 6.3V M FM5 TP(5)	
		C901	0CN1030F678	CAPACITOR TUBULA(HIGH DIELE)	0.01M 16V M Y TA26	
		C902	0CE4763F638	CAPACITOR,ELECTROLYTIC	47M SRE 16V M FM5 TP(5)	
		C903	0CN1030F678	CAPACITOR TUBULA(HIGH DIELE)	0.01M 16V M Y TA26	
		C904	0CE1063F638	CAPACITOR,AL.ELECTROLYTIC	10M SRE/SE 16V M FM5 TP(5)	
		C905	0CE4763F638	CAPACITOR,ELECTROLYTIC	47M SRE 16V M FM5 TP(5)	
		C906	0CX3300K408	CAPACITOR TUBULA(T.C)	33P 50V J SL TA26	
		C907	0CX3300K408	CAPACITOR TUBULA(T.C)	33P 50V J SL TA26	
		C909	0CE4763F638	CAPACITOR,ELECTROLYTIC	47M SRE 16V M FM5 TP(5)	
		C910	0CN1030F678	CAPACITOR TUBULA(HIGH DIELE)	0.01M 16V M Y TA26	
		C911	0CN1030F678	CAPACITOR TUBULA(HIGH DIELE)	0.01M 16V M Y TA26	
		C912	0CN1040K948	CAPACITOR,FIXED TUBULAR(High d	0.1UF D 50V 80%,-20% F(Y5V) TA	
		C913	0CN1040K948	CAPACITOR,FIXED TUBULAR(High d	0.1UF D 50V 80%,-20% F(Y5V) TA	
		C914	0CN1030F678	CAPACITOR TUBULA(HIGH DIELE)	0.01M 16V M Y TA26	
			DIODE			
		BD101	0DD160000DA	DIODE	S1WBA60(1A 600V) SHIDENKEN	
		D100	0DD221009AA	DIODE	ERA22-10 KFLB,TP ,R T/P,FUJI	
		D102	0DD010009AC	DIODE	EU01W(R-FORM) TP SANKEN	
		D103	0DR310000AA	DIODE,RECTIFIER	RU3YXLF-C1 BK SANKEN D4 100V 2	
		D104	0DD010009AC	DIODE	EU01W(R-FORM) TP SANKEN	
		D107	0DD010009AC	DIODE	EU01W(R-FORM) TP SANKEN	
		D108	0DD010009AC	DIODE	EU01W(R-FORM) TP SANKEN	
		D109	0DR104510AB	DIODE,RECTIFIERS	B10A45V1 NO CUT KEC ST TO220 4	
		D110	0DR180209AA	DIODE,RECTIFIER	ERA18-02KFRB TP FUJI DO204AL 2	
		D112	0DR154020BA	DIODE,RECTIFIER	1N5402 BK GULF SEMICONDUCTOR L	
		D113	0DR154020BA	DIODE,RECTIFIER	1N5402 BK GULF SEMICONDUCTOR L	
		D114	0DR104009AB	DIODE,RECTIFIER	RL104 R. TP GULF SEMICONDUCTOR	
		D116	0DR104009AB	DIODE,RECTIFIER	RL104 R. TP GULF SEMICONDUCTOR	
		D2A1	0DS202009CA	DIODE,SWITCHING	DAN202K TP ROHM KOREA SOT23 80	
		D2A2	0DS202009CA	DIODE,SWITCHING	DAN202K TP ROHM KOREA SOT23 80	
			DIGITRON			
		DIG901	6302R-V111A	DIGITRON	14-BT-64GNK FUTABA UNIVERSAL	
			FUSE			
		FH101	586-008B	HOLDER	FUSE CLIP TP SINSUNG	
		FH102	586-008B	HOLDER	FUSE CLIP TP SINSUNG	
		F102	0IRH100000B	IC,ROHM	ICP-N10 T104 TP IC DETACT	
		F101	585-027B	FUSE,SLOW BLOW	1600MA 250 V 5.2X20 CY/GL KS /	
			FILTER			
		F601	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F602	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F603	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F604	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F605	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F606	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F607	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F608	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F609	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F610	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F611	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
		F612	6200HJC901A	FILTER(CIRC),EMI	CFI06B1H101MF SAMWHA TP 2.5K/T	
			IC			
		IC101	0ISK615300A	IC,SANKEN	STR-G6153T 5PIN FM CUT BK PWM	
		IC102	657-063A	SENSOR	LTV-817B,PHOTO COUPLER(LITEON)	
		IC103	0IKE781200B	IC,KEC	KIA7812PI 12V 1A,KEC	
		IC104	0ISS431000A	IC,SAMSUNG ELECTRONICS	KA431AZ (LM431AZ)	
		IC105	0ISS780800H	IC,SAMSUNG ELECTRONICS	KA78R08 4P,TO-220F BK LOW DROP	
		IC106	0ISS783300A	IC,SAMSUNG ELECTRONICS	KA78R33TU TO220-4L BK 3.3V L/D	
		IC107	0ISS783300A	IC,SAMSUNG ELECTRONICS	KA78R33TU TO220-4L BK 3.3V L/D	
		IC108	0ISS791200A	IC,SAMSUNG SEMICONDUCTOR	KA7912 ST REGULATOR IC	
		IC201	0IHY258010C	IC,HYUNDAI	GDC25D801D 208 QFP BK DSP+SERV	
		IC203	0IJR341400C	IC,JRC	NJM3414AM-TE1,3K/REEL. JRC	
		IC204	DITO453000C	IC,TOSHIBA	TC4W53FU SSOP 8PIN	
		IC205	0IGL440164C	IC,G-LINK	GLT440L16-40J4 40P SOJ TP 4M(2	
		IC206	GITO704000F	IC,TOSHIBA	TC7W04FU	
		IC2A1	0ITI333721A	IC,TEXAS INSTRUMENT	SSI33P3721(VER.2) 64 TQFP BK R	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		IC2A2	0IJR341400C	IC,JRC	NJM3414AM-TE1,3K/REEL. JRC	
		IC2M1	0IFA303100A	IC,FAIRCHILD	KA3031 48P QFP BK 6CH MOTOR DR	
		IC301	0IXL957210B	IC,XILINX	XC9572XL-10TQ100C 100 QFP TRAY	
		IC302	0ISTLFA004C	IC,STANDARD LOGIC	74LCX573MTCX FAIRCHILD 20P TSS	
		IC303	0ISTLFA004C	IC,STANDARD LOGIC	74LCX573MTCX FAIRCHILD 20P TSS	
		IC304	0IHY576532A	IC,HYUNDAI	HY57V653220CTC-7 86P TSOP BK S	
		IC305	0IMMRFA001A	IC,MEMORIES	FM93C46M8X FAIRCHILD 8P SOP R/	
		IC306	0IAL491614A	IC,ATMEL	AT49F1614-90TC 48TSOP BK 16M F	
		IC307	0ITR613002E	IC,TOREX SEMICONDUCTOR	XC61CN3002PR 3P SOT-89 TP VOL	
		IC401	0IWM871600A	IC,WOLFSON	WM8716EDS SSOP28P DAC(2CH) 24	
		IC402	0IJR458000B	IC,JRC	NJM4580M 8,DMP8 TP OP AMP 2K/R	
		IC403	GITO704000F	IC,TOSHIBA	TC7W04FU	
		IC404	0IJR458000B	IC,JRC	NJM4580M 8,DMP8 TP OP AMP 2K/R	
		IC405	0ISH205000A	IC,SHARP	PQ20WZ5U 20WZ51 TP REGULATOR V	
		IC406	0ISA713500A	IC,SANYO	LA7135A SOP24 TP S/W	
		IC501	0INS850100A	IC,NATIONAL SEMICONDUCTOR	NDV8501VWB 240 VQFP BK MICOM+M	
		IC502	0IFA742440F	IC,FAIRCHILD	MM74HCT244SJ 20P SOIC TP 3-STA	
		IC5A1	0IMCRSS001B	IC,MICRO CONTROLLER	S3FB018 SAMSUNG ELECTRONICS 32	
		IC602	657-063A	SENSOR	LTV-817B,PHOTO COUPLER(LITEON)	
		IC901	0IMCRNE002A	IC,MICRO CONTROLLER	UPD780232GC-026 NEC 80 QFP TRA	
		IC902	0IKE704200B	IC,KEC	KIA7042P 3P 4.2V RESET(TAPING)	
			JACK,SOCKET			
		JK601	6620S-L001A	SOCKET (CIRC),FIBER OPTIC	GP1F32T SHARP OPTICAL "H"	
		JK602	6612R-C010A	JACK,RCA	RCA/DIN/PJ-01 YUQIU (DVD HARMA	
		JK901	572-359J	JACK 6.4	SOQ4694-01-4101 K-HOSIDEN H=6.	
			COIL,FILTER			
		L101	616-145H	FILTER(CIRC)	SHT LFS2020V4-04350	
		BC101	636-004C	COIL	BEAD CORE BFS3550R2FD8,R T/P	
		L102	633-088G	COIL,CHOKE	CHOCK(22MH) TP 5MM	
		L103	633-088D	COIL,CHOKE	CHOCK ,20UH,LEAD CUT	
		L104	633-088G	COIL,CHOKE	CHOCK(22MH) TP 5MM	
		L201	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L202	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L203	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L204	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L207	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L208	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L211	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L2A1	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L2A2	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L2A3	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L301	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L302	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L3F1	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L3F2	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L3F3	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L3F4	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L402	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L403	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L405	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L406	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L407	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L408	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L409	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L410	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L501	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L502	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L503	6200HJC102A	FILTER(CIRC),EMI	HB-1M2012-102JT CERATECH TP 3K	
		L901	0LR1000K035	INDUCTOR RADIAL LEAD	100M K 6X6 L5 TP	
		L902	0LR1000K035	INDUCTOR RADIAL LEAD	100M K 6X6 L5 TP	
			LED			
		LD901	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD902	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD903	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD904	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD905	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD906	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD907	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD908	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD909	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD910	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD911	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD912	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		LD913	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD914	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD915	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD916	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD917	0DL341829AA	LED	SM3418F2T TP AUK GREEN .	
		LD9A1	0DLAU0029AA	LED	AUK SYM3272 (YELLOW-GREEN,GREE	
			CONNECTOR			
		P1301	563-602W	CONNECTOR ASSY	GIL-S/9072ST 10 PIN 160M/M UL1	
		P1302	6631R-E009C	CONNECTOR ASSY	GIL-S/9073ST 9PIN 160M/M UL106	
		P3101	6630R3S006C	CONNECTOR (CIRC)	GT200 LG CABLE 10PIN 2.0MM STR	
		P3102	6630R3S006E	CONNECTOR (CIRC)	GT200 LG CABLE 9PIN 2MM STRAIG	
		P3301	6630HXC115A	CONNECTOR (CIRC),FFC/FPC	04-6232-115-008-800 ELCO KOREA	
		P3302	6630R-FB02F	CONNECTOR (CIRC),FFC/FPC	04-6232-106-008-800 ELCO 6PIN	
		P3901	6630R-FB02R	CONNECTOR (CIRC),FFC/FPC	04-6232-118-008-800 ELCO 18PIN	
		P4601	6630HXC126A	CONNECTOR (CIRC),FFC/FPC	04-6232-126-008-800 ELCO 26PIN	
		P4901	6630R3S006G	CONNECTOR (CIRC)	GT200 LG CABLE 3 PIN 2.0MM STR	
		P6401	6630HXD126A	CONNECTOR (CIRC),FFC/FPC	GF102-26S-TS LG CABLE 26PIN 1.	
		P9401	561-711C	CONNECTOR	*WAFER,G/S GIL-S-03P-S2T2-EF	
		P9501	6630R-FB10R	CONNECTOR (CIRC),FFC/FPC	00-6232-018-006-800 ELCO 18PIN	
		P9901	561-711D	CONNECTOR (CIRC),HOUSING	GIL-S-04P-S2T2-EF LG CABLE 4PI	
		P9902	563-602U	CONNECTOR ASSY	GIL-S/9073AN 4 150M/M UL1571 A	
		PBT00	4930R-0213A	HOLDER	DIGITRON HARMANKARDON	
		PMD02	6630R-FB02W	CONNECTOR (CIRC),FFC/FPC	04-6232-123-008-800 ELCO 23PIN	
		PMD03	6630HXC122A	CONNECTOR (CIRC),FFC/FPC	04-6232-122-008-800 ELCO 22PIN	
		PW101	561-292B	CONNECTOR	GP390 LGC 3P 3.96 STRAIGHT SN	
			TRANSISTOR			
		Q107	0TR115100AA	TRANSISTOR	KSB1151-Y BK SAMSUNG TO-126	
		Q108	0TR319809AC	TRANSISTOR	KTC3198-TP-BL (KTC1815)KEC	
		Q2A1	0TR103709BB	TRANSISTOR	2SA1037K-Q CHIP ROHM-J	
		Q2A2	0TR103709BB	TRANSISTOR	2SA1037K-Q CHIP ROHM-J	
		Q2M1	0TR103009AA	TRANSISTOR	CHIP KRC103S-T1(NC)22-22 KEC	
		Q2M2	0TR103009AA	TRANSISTOR	CHIP KRC103S-T1(NC)22-22 KEC	
		Q2M3	0TR103009AA	TRANSISTOR	CHIP KRC103S-T1(NC)22-22 KEC	
		Q301	0TR103009AA	TRANSISTOR	CHIP KRC103S-T1(NC)22-22 KEC	
		Q401	0TR150409BF	TRANSISTOR	KTA1504S-Y TP (RTK:3K/REEL).KE	
		Q402	0TR150409BF	TRANSISTOR	KTA1504S-Y TP (RTK:3K/REEL).KE	
		Q403	0TR387509AC	TRANSISTOR	CHIP KTC3875S-GR-T1(ALG) KEC	
		Q404	0TR100009BM	TRANSISTOR	UMZ1N TL UM6 3K TP ROHM	
		Q406	0TR387509AC	TRANSISTOR	CHIP KTC3875S-GR-T1(ALG) KEC	
		Q407	0TR387509AC	TRANSISTOR	CHIP KTC3875S-GR-T1(ALG) KEC	
		Q408	0TR387509AC	TRANSISTOR	CHIP KTC3875S-GR-T1(ALG) KEC	
		Q409	0TR387509AC	TRANSISTOR	CHIP KTC3875S-GR-T1(ALG) KEC	
		Q410	0TR387509AC	TRANSISTOR	CHIP KTC3875S-GR-T1(ALG) KEC	
		Q601	0TR126709AC	TRANSISTOR	KTA1267-GR MINI TP KEC	
		Q602	0TR319809AC	TRANSISTOR	KTC3198-TP-BL (KTC1815)KEC	
		Q603	0TR319809AC	TRANSISTOR	KTC3198-TP-BL (KTC1815)KEC	
		Q611	0TR103009AF	TRANSISTOR	KRA103M-TP (KRA2203) KEC	
			RESISTOR			
		R100	0RD1504H632	RESISTOR,FIXED CARBON FILM	1.5M OHM 1/2 W 5.00% MF10	
		R101	614-007A	RESISTOR	2.7/2W CEMENT SMPS V	
		R102	0RS1003K619	RESISTOR,FIXED METAL OXIDE FIL	100K OHM 2 W 5.00% TR	
		R103	0RS5602K619	RESISTOR,FIXED METAL OXIDE FIL	56K OHM 2 W 5.00% TR	
		R112	0RD0391F608	RESISTOR,FIXED CARBON FILM	3.9 OHM 1/6 W 5.00% TA26	
		R114	0RD1003F608	RESISTOR,FIXED CARBON FILM	100K OHM 1/6 W 5.00% TA26	
		R120	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R121	0RD1201F608	RESISTOR,FIXED CARBON FILM	1.2K OHM 1/6 W 5.00% TA26	
		R122	0RS1200J619	RESISTOR,FIXED METAL OXIDE FIL	120 OHM 1 W 5.00% TR	
		R123	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R124	0RD1800F608	RESISTOR,FIXED CARBON FILM	180 OHM 1/6 W 5.00% TA26	
		R125	0RD3901F608	RESISTOR,FIXED CARBON FILM	3.9K OHM 1/6 W 5.00% TA26	
		R126	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	
		R127	0RN3601E408	RESISTOR,FIXED METAL FILM	3.6K OHM 1/8 W 1.00% TA26	
		R128	0RN3301E408	RESISTOR,FIXED METAL FILM	3.3K OHM 1/8 W 1.00% TA26	
		R129	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	
		R130	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R131	0RD0151F608	RESISTOR,FIXED CARBON FILM	1.5 OHM 1/6 W 5.00% TA26	
		R132	0RD0151F608	RESISTOR,FIXED CARBON FILM	1.5 OHM 1/6 W 5.00% TA26	
		R133	0RD0151F608	RESISTOR,FIXED CARBON FILM	1.5 OHM 1/6 W 5.00% TA26	
		R134	0RD0151F608	RESISTOR,FIXED CARBON FILM	1.5 OHM 1/6 W 5.00% TA26	
		R140	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R141	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R145	0RD4700F608	RESISTOR,FIXED CARBON FILM	470 OHM 1/6 W 5.00% TA26	
		R201	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		R202	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R203	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R204	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R207	0RH1004C622	RESISTOR,METAL GLAZED(CHIP)	1M OHM 1 / 16 W 1608 5.00% D	
		R217	0RH0102C622	RESISTOR,METAL GLAZED(CHIP)	10 OHM 1 / 16 W 1608 5.00% D	
		R218	0RH4700C622	RESISTOR,METAL GLAZED(CHIP)	470 OHM 1 / 16 W 1608 5.00% D	
		R219	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R220	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R221	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R230	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R231	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R232	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R233	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R234	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R235	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R236	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R237	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R239	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R240	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R241	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R242	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R243	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R271	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R273	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R274	0RH6200C622	RESISTOR,METAL GLAZED(CHIP)	620 OHM 1 / 16 W 1608 5.00% D	
		R275	0RH9100C622	RESISTOR,METAL GLAZED(CHIP)	910 OHM 1 / 16 W 1608 5.00% D	
		R276	0RH9100C622	RESISTOR,METAL GLAZED(CHIP)	910 OHM 1 / 16 W 1608 5.00% D	
		R277	0RH1500C622	RESISTOR,METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 5.00% D	
		R278	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R279	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R280	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R281	0RH2201C622	RESISTOR,METAL GLAZED(CHIP)	2.2K OHM 1 / 16 W 1608 5.00% D	
		R292	0RH1201C622	RESISTOR,METAL GLAZED(CHIP)	1.2K OHM 1 / 16 W 1608 5.00% D	
		R293	0RH2001C622	RESISTOR,METAL GLAZED(CHIP)	2K OHM 1 / 16 W 1608 5.00% D	
		R294	0RH1500C622	RESISTOR,METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 5.00% D	
		R295	0RH2001C622	RESISTOR,METAL GLAZED(CHIP)	2K OHM 1 / 16 W 1608 5.00% D	
		R296	0RH1500C622	RESISTOR,METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 5.00% D	
		R297	0RH1201C622	RESISTOR,METAL GLAZED(CHIP)	1.2K OHM 1 / 16 W 1608 5.00% D	
		R2A0	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2A1	0RH0912C622	RESISTOR,METAL GLAZED(CHIP)	91 OHM 1 / 16 W 1608 5.00% D	
		R2A2	0RH1202C622	RESISTOR,METAL GLAZED(CHIP)	12K OHM 1 / 16 W 1608 5.00% D	
		R2A4	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2A5	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2A6	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2A9	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2B2	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2B3	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2B4	0RH0182C622	RESISTOR,METAL GLAZED(CHIP)	18 OHM 1 / 16 W 1608 5.00% D	
		R2B5	0RH0182C622	RESISTOR,METAL GLAZED(CHIP)	18 OHM 1 / 16 W 1608 5.00% D	
		R2B7	0RH6801C622	RESISTOR,METAL GLAZED(CHIP)	6.8K OHM 1 / 16 W 1608 5.00% D	
		R2B8	0RH1503C622	RESISTOR,METAL GLAZED(CHIP)	150K OHM 1 / 16 W 1608 5.00% D	
		R2B9	0RH1503C622	RESISTOR,METAL GLAZED(CHIP)	150K OHM 1 / 16 W 1608 5.00% D	
		R2C0	0RH3902C622	RESISTOR,METAL GLAZED(CHIP)	39K OHM 1 / 16 W 1608 5.00% D	
		R2C1	0RH3902C622	RESISTOR,METAL GLAZED(CHIP)	39K OHM 1 / 16 W 1608 5.00% D	
		R2C2	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2C3	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2C4	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R2C6	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2C7	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2C8	0RH0182C622	RESISTOR,METAL GLAZED(CHIP)	18 OHM 1 / 16 W 1608 5.00% D	
		R2C9	0RH0182C622	RESISTOR,METAL GLAZED(CHIP)	18 OHM 1 / 16 W 1608 5.00% D	
		R2D0	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2D1	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2D4	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2D5	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2D6	0RH0912C622	RESISTOR,METAL GLAZED(CHIP)	91 OHM 1 / 16 W 1608 5.00% D	
		R2D7	0RH0471C622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 16 W 1608 5.00% D	
		R2E6	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R2E7	0RH6801C622	RESISTOR,METAL GLAZED(CHIP)	6.8K OHM 1 / 16 W 1608 5.00% D	
		R2E8	0RH1802C622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 16 W 1608 5.00% D	
		R2E9	0RH5601C622	RESISTOR,METAL GLAZED(CHIP)	5.6K OHM 1 / 16 W 1608 5.00% D	
		R2M1	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2M2	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2M3	0RH7501C622	RESISTOR,METAL GLAZED(CHIP)	7.5K OHM 1 / 16 W 1608 5.00% D	
		R2M5	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		R2M6	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2M7	0RH5601C622	RESISTOR,METAL GLAZED(CHIP)	5.6K OHM 1 / 16 W 1608 5.00% D	
		R2M8	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2M9	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2N0	0RH1202C622	RESISTOR,METAL GLAZED(CHIP)	12K OHM 1 / 16 W 1608 5.00% D	
		R2N1	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2N2	0RH5601C622	RESISTOR,METAL GLAZED(CHIP)	5.6K OHM 1 / 16 W 1608 5.00% D	
		R2N3	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2N4	0RH1502C622	RESISTOR,METAL GLAZED(CHIP)	15K OHM 1 / 16 W 1608 5.00% D	
		R2N5	0RH1202C622	RESISTOR,METAL GLAZED(CHIP)	12K OHM 1 / 16 W 1608 5.00% D	
		R2N6	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2N7	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2N8	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2N9	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2P1	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2P2	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2P3	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2P4	0RH1802C622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 16 W 1608 5.00% D	
		R2P5	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2P6	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2P7	0RH2202C622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 16 W 1608 5.00% D	
		R2P8	0RH1201C622	RESISTOR,METAL GLAZED(CHIP)	1.2K OHM 1 / 16 W 1608 5.00% D	
		R2Q1	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2Q2	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2Q3	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2Q4	0RH1502C622	RESISTOR,METAL GLAZED(CHIP)	15K OHM 1 / 16 W 1608 5.00% D	
		R2Q5	0RH1202C622	RESISTOR,METAL GLAZED(CHIP)	12K OHM 1 / 16 W 1608 5.00% D	
		R2Q6	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R2Q7	0RH6801C622	RESISTOR,METAL GLAZED(CHIP)	6.8K OHM 1 / 16 W 1608 5.00% D	
		R2Q8	0RH3301C622	RESISTOR,METAL GLAZED(CHIP)	3.3K OHM 1 / 16 W 1608 5.00% D	
		R2R1	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R2R2	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R302	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R303	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R304	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R305	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R306	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R307	0RH5600C622	RESISTOR,METAL GLAZED(CHIP)	560 OHM 1 / 16 W 1608 5.00% D	
		R308	0RH5600C622	RESISTOR,METAL GLAZED(CHIP)	560 OHM 1 / 16 W 1608 5.00% D	
		R309	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R310	0RH5600C622	RESISTOR,METAL GLAZED(CHIP)	560 OHM 1 / 16 W 1608 5.00% D	
		R311	0RH5600C622	RESISTOR,METAL GLAZED(CHIP)	560 OHM 1 / 16 W 1608 5.00% D	
		R314	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R315	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R316	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R321	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R323	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R326	0RH1003C622	RESISTOR,METAL GLAZED(CHIP)	100K OHM 1 / 16 W 1608 5.00% D	
		R328	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R329	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R330	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R331	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R332	0RH3301C622	RESISTOR,METAL GLAZED(CHIP)	3.3K OHM 1 / 16 W 1608 5.00% D	
		R334	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R351	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R352	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R353	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R354	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R355	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R356	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R357	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R358	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R359	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R360	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R361	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R362	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R363	0RH1000C622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 16 W 1608 5.00% D	
		R364	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R365	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R366	0RH1502C622	RESISTOR,METAL GLAZED(CHIP)	15K OHM 1 / 16 W 1608 5.00% D	
		R3A0	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A1	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A2	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A3	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A4	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		R3A5	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A6	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A7	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A8	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3A9	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3B1	0RH0000D622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D	
		R3F1	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3F3	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R3F4	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R3F5	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R3F9	0RH1501C622	RESISTOR,METAL GLAZED(CHIP)	1.5K OHM 1 / 16 W 1608 5.00% D	
		R401	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R402	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R403	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R404	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R405	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R406	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R407	0RH2201C622	RESISTOR,METAL GLAZED(CHIP)	2.2K OHM 1 / 16 W 1608 5.00% D	
		R408	0RH5601C622	RESISTOR,METAL GLAZED(CHIP)	5.6K OHM 1 / 16 W 1608 5.00% D	
		R409	0RH1801C622	RESISTOR,METAL GLAZED(CHIP)	1.8K OHM 1 / 16 W 1608 5.00% D	
		R411	0RH1801C622	RESISTOR,METAL GLAZED(CHIP)	1.8K OHM 1 / 16 W 1608 5.00% D	
		R412	0RH7501C622	RESISTOR,METAL GLAZED(CHIP)	7.5K OHM 1 / 16 W 1608 5.00% D	
		R413	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R414	0RH0102C622	RESISTOR,METAL GLAZED(CHIP)	10 OHM 1 / 16 W 1608 5.00% D	
		R415	0RH0102C622	RESISTOR,METAL GLAZED(CHIP)	10 OHM 1 / 16 W 1608 5.00% D	
		R416	0RH4701C622	RESISTOR,METAL GLAZED(CHIP)	4.7K OHM 1 / 16 W 1608 5.00% D	
		R417	0RH7501C622	RESISTOR,METAL GLAZED(CHIP)	7.5K OHM 1 / 16 W 1608 5.00% D	
		R419	0RH4700C622	RESISTOR,METAL GLAZED(CHIP)	470 OHM 1 / 16 W 1608 5.00% D	
		R420	0RH4700C622	RESISTOR,METAL GLAZED(CHIP)	470 OHM 1 / 16 W 1608 5.00% D	
		R421	0RH7501C622	RESISTOR,METAL GLAZED(CHIP)	7.5K OHM 1 / 16 W 1608 5.00% D	
		R422	0RH3901C622	RESISTOR,METAL GLAZED(CHIP)	3.9K OHM 1 / 16 W 1608 5.00% D	
		R423	0RJ0622C677	RESISTOR,METAL GLAZED(CHIP)	62 OHM 1/16 W 5% 1608 R/TP	
		R424	0RJ0622C677	RESISTOR,METAL GLAZED(CHIP)	62 OHM 1/16 W 5% 1608 R/TP	
		R425	0RH3300C622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 16 W 1608 5.00% D	
		R426	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R427	0RH3300C622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 16 W 1608 5.00% D	
		R428	0RH2200C622	RESISTOR,METAL GLAZED(CHIP)	220 OHM 1 / 16 W 1608 5.00% D	
		R429	0RH0752C622	RESISTOR,METAL GLAZED(CHIP)	75 OHM 1 / 16 W 1608 5.00% D	
		R430	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R431	0RH2201C622	RESISTOR,METAL GLAZED(CHIP)	2.2K OHM 1 / 16 W 1608 5.00% D	
		R432	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R434	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R435	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R436	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R440	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R441	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R445	0RJ0622C677	RESISTOR,METAL GLAZED(CHIP)	62 OHM 1/16 W 5% 1608 R/TP	
		R447	0RJ0622C677	RESISTOR,METAL GLAZED(CHIP)	62 OHM 1/16 W 5% 1608 R/TP	
		R448	0RJ0622C677	RESISTOR,METAL GLAZED(CHIP)	62 OHM 1/16 W 5% 1608 R/TP	
		R450	0RH0331C622	RESISTOR,METAL GLAZED(CHIP)	3.3 OHM 1 / 16 W 1608 5.00% D	
		R451	0RH8200C622	RESISTOR,METAL GLAZED(CHIP)	820 OHM 1 / 16 W 1608 5.00% D	
		R452	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R453	0RH0222C622	RESISTOR,METAL GLAZED(CHIP)	22 OHM 1 / 16 W 1608 5.00% D	
		R454	0RH0222C622	RESISTOR,METAL GLAZED(CHIP)	22 OHM 1 / 16 W 1608 5.00% D	
		R455	0RH1001C622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 5.00% D	
		R456	0RH8200C622	RESISTOR,METAL GLAZED(CHIP)	820 OHM 1 / 16 W 1608 5.00% D	
		R503	0RH1500C422	RESISTOR,METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 1.00% D	
		R504	0RH1001C422	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 16 W 1608 1.00% D	
		R505	0RH0102C622	RESISTOR,METAL GLAZED(CHIP)	10 OHM 1 / 16 W 1608 5.00% D	
		R511	0RH3301C622	RESISTOR,METAL GLAZED(CHIP)	3.3K OHM 1 / 16 W 1608 5.00% D	
		R514	0RH0222C622	RESISTOR,METAL GLAZED(CHIP)	22 OHM 1 / 16 W 1608 5.00% D	
		R515	0RH0222C622	RESISTOR,METAL GLAZED(CHIP)	22 OHM 1 / 16 W 1608 5.00% D	
		R516	0RH3300C622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 16 W 1608 5.00% D	
		R520	0RH0222C622	RESISTOR,METAL GLAZED(CHIP)	22 OHM 1 / 16 W 1608 5.00% D	
		R522	0RH0222C622	RESISTOR,METAL GLAZED(CHIP)	22 OHM 1 / 16 W 1608 5.00% D	
		R525	0LC0233002B	INDUCTOR,CHIP	HB-1S1608-800JT CERATECH R/TP	
		R534	0RH1002C622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 16 W 1608 5.00% D	
		R580	0RH0222C622	RESISTOR,METAL GLAZED(CHIP)	22 OHM 1 / 16 W 1608 5.00% D	
		R588	0RH0752C622	RESISTOR,METAL GLAZED(CHIP)	75 OHM 1 / 16 W 1608 5.00% D	
		R589	0RH0752C622	RESISTOR,METAL GLAZED(CHIP)	75 OHM 1 / 16 W 1608 5.00% D	
		R590	0RH0752C622	RESISTOR,METAL GLAZED(CHIP)	75 OHM 1 / 16 W 1608 5.00% D	
		R591	0RH0752C622	RESISTOR,METAL GLAZED(CHIP)	75 OHM 1 / 16 W 1608 5.00% D	
		R597	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R5A1	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R5A2	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		R5A3	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R5A4	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R5A5	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R5A6	0RH0000C622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 16 W 1608 5.00% D	
		R601	0RD5601F608	RESISTOR,FIXED CARBON FILM	5.6K OHM 1/6 W 5.00% TA26	
		R602	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	
		R603	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	
		R604	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	
		R605	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	
		R606	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	
		R607	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	
		R608	0RD1003F608	RESISTOR,FIXED CARBON FILM	100K OHM 1/6 W 5.00% TA26	
		R609	0RD1003F608	RESISTOR,FIXED CARBON FILM	100K OHM 1/6 W 5.00% TA26	
		R610	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	
		R611	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	
		R612	0RD1003F608	RESISTOR,FIXED CARBON FILM	100K OHM 1/6 W 5.00% TA26	
		R613	0RD1003F608	RESISTOR,FIXED CARBON FILM	100K OHM 1/6 W 5.00% TA26	
		R614	0RD0222F608	RESISTOR,FIXED CARBON FILM	22 OHM 1/6 W 5.00% TA26	
		R615	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	
		R616	0RD3900F608	RESISTOR,FIXED CARBON FILM	390 OHM 1/6 W 5.00% TA26	
		R617	0RD3901F608	RESISTOR,FIXED CARBON FILM	3.9K OHM 1/6 W 5.00% TA26	
		R618	0RD2700F608	RESISTOR,FIXED CARBON FILM	270 OHM 1/6 W 5.00% TA26	
		R901	0RD3301F608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/6 W 5.00% TA26	
		R902	0RD3301F608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/6 W 5.00% TA26	
		R903	0RD3301F608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/6 W 5.00% TA26	
		R904	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	
		R906	0RD3301F608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/6 W 5.00% TA26	
		R908	0RD3301F608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/6 W 5.00% TA26	
		R910	0RD4701F608	RESISTOR,FIXED CARBON FILM	4.7K OHM 1/6 W 5.00% TA26	
		R911	0RD3301F608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/6 W 5.00% TA26	
		R912	0RD2201F608	RESISTOR,FIXED CARBON FILM	2.2K OHM 1/6 W 5.00% TA26	
		R913	0RD1501F608	RESISTOR,FIXED CARBON FILM	1.5K OHM 1/6 W 5.00% TA26	
		R914	0RD1201F608	RESISTOR,FIXED CARBON FILM	1.2K OHM 1/6 W 5.00% TA26	
		R915	0RD8200F608	RESISTOR,FIXED CARBON FILM	820 OHM 1/6 W 5.00% TA26	
		R916	0RD6800F608	RESISTOR,FIXED CARBON FILM	680 OHM 1/6 W 5.00% TA26	
		R917	0RD1501F608	RESISTOR,FIXED CARBON FILM	1.5K OHM 1/6 W 5.00% TA26	
		R918	0RD1201F608	RESISTOR,FIXED CARBON FILM	1.2K OHM 1/6 W 5.00% TA26	
		R919	0RD8200F608	RESISTOR,FIXED CARBON FILM	820 OHM 1/6 W 5.00% TA26	
		R920	0RD6800F608	RESISTOR,FIXED CARBON FILM	680 OHM 1/6 W 5.00% TA26	
		R925	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R926	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R927	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	
		R928	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	
		R929	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	
		R941	0RD4701F608	RESISTOR,FIXED CARBON FILM	4.7K OHM 1/6 W 5.00% TA26	
		R942	0RD4701F608	RESISTOR,FIXED CARBON FILM	4.7K OHM 1/6 W 5.00% TA26	
		R943	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R944	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R945	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R946	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R947	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R948	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R949	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R950	0RD0332F608	RESISTOR,FIXED CARBON FILM	33 OHM 1/6 W 5.00% TA26	
		R951	0RD1200F608	RESISTOR,FIXED CARBON FILM	120 OHM 1/6 W 5.00% TA26	
		R953	0RD8201F608	RESISTOR,FIXED CARBON FILM	8.2K OHM 1/6 W 5.00% TA26	
		R954	0RD1502F608	RESISTOR,FIXED CARBON FILM	15K OHM 1/6 W 5.00% TA26	
		R955	0RD2702F608	RESISTOR,FIXED CARBON FILM	27K OHM 1/6 W 5.00% TA26	
		R956	0RD1502F608	RESISTOR,FIXED CARBON FILM	15K OHM 1/6 W 5.00% TA26	
		R957	0RD8201F608	RESISTOR,FIXED CARBON FILM	8.2K OHM 1/6 W 5.00% TA26	
		R958	0RD4701F608	RESISTOR,FIXED CARBON FILM	4.7K OHM 1/6 W 5.00% TA26	
		R959	0RD3301F608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/6 W 5.00% TA26	
		R960	0RD2201F608	RESISTOR,FIXED CARBON FILM	2.2K OHM 1/6 W 5.00% TA26	
			REMOTE CONTROLLER			
		RC901	6712R0838GA	REMOTE CONTROLLER RECEIVER	TSOP1238UQ1 TEMIC 8MM 37.9KHZ	
			SWITCH			
		SW901	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW902	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW903	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW904	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW905	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW906	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW907	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW908	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	

S	AL	LOCA. NO.	PART NO.(LG)	DESCRIPTION	SPECIFICATION	REMARKS
		SW909	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW910	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW911	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW913	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW915	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW916	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW918	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
		SW921	556-219B	SWITCH,TACT	THVV502GAA POSTECH NON 12V 5A	
TRANSFORMER,RESONATOR,CRYSTAL.ZENER DIODE						
		T101	642-024B	TRANSFORMER,SMPS	SJE-024B SOOJEONG WIDE EER2828	
		VR901	6110R-RU03A	VOLUME,ROTARY	RK09L12B0 J-ALPS D=ETC H 500 B	
		X201	6202R-BM01A	CRYSTAL,SMD	HC-49/SM5H KONY CHIP 33.8688MH	
		X501	6202R-BL01A	CRYSTAL,SMD	HC-49/SM5H KONY CHIP 27MHZ 20P	
		X5A1	6212R-K001A	RESONATOR	CSTCC10M0G53-R0 MURATA 10MHZ R	
		X901	6202R-BJ01A	CRYSTAL,STANDARD	HC-49/S SUNNY RADIAL 5.0000MHZ	
		ZD101	0DZ560009CA	DIODE,ZENER	MTZ5.6B TP ROHM-K	
		ZD601	0DZ562609BA	DIODE,ZENER	GDZJ5.6C 26MM TP GRANDE DO34	
		ZD602	0DZ562609BA	DIODE,ZENER	GDZJ5.6C 26MM TP GRANDE DO34	
		ZD603	0DZ562609BA	DIODE,ZENER	GDZJ5.6C 26MM TP GRANDE DO34	
		ZD604	0DZ562609BA	DIODE,ZENER	GDZJ5.6C 26MM TP GRANDE DO34	

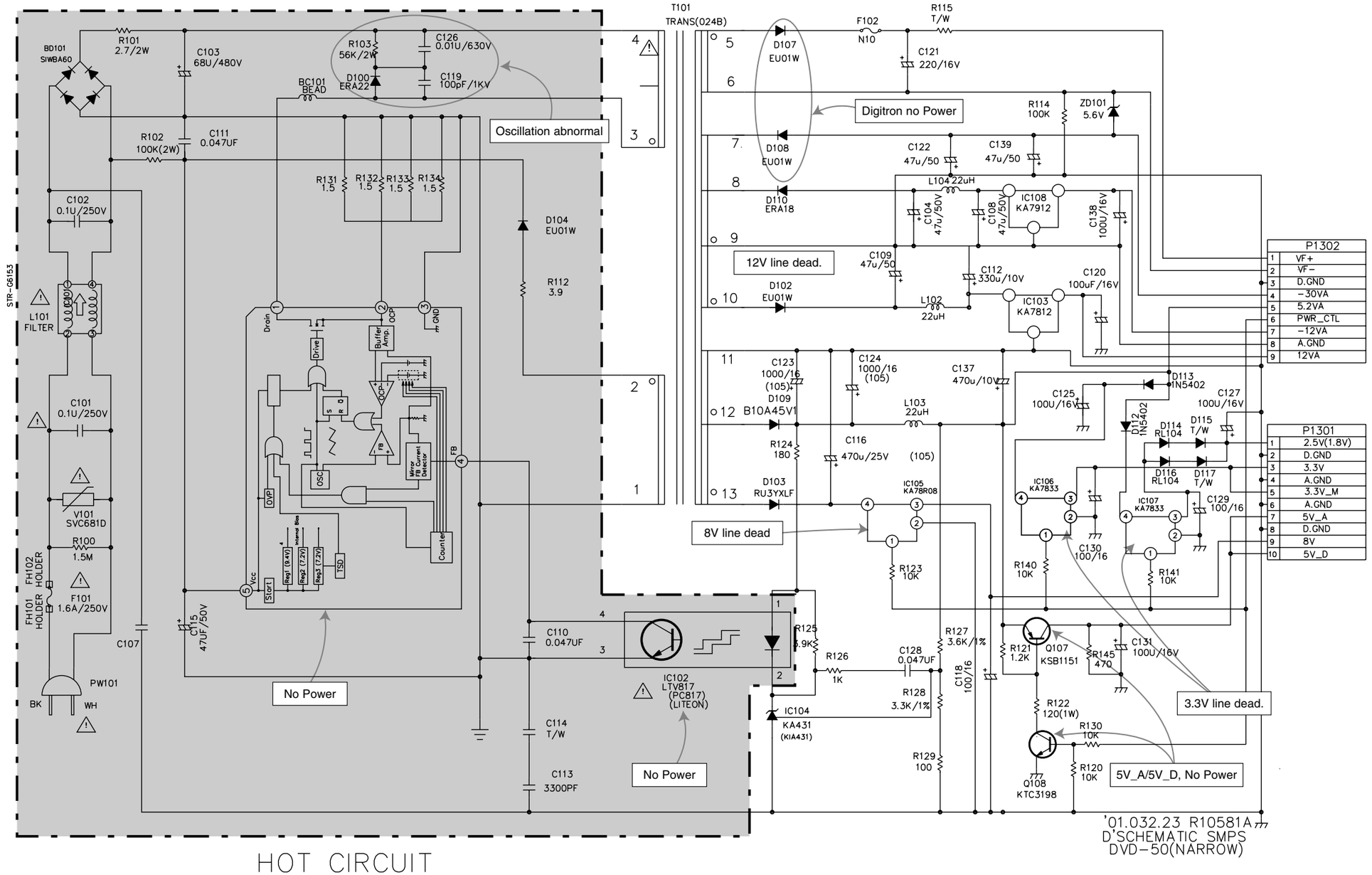
DVD50 Ribbon cables

6850R-GR26Z JUMPER FILM	18P FRT TO P-U From Timer and Key Circuit (Display PCB) to Pantera PCB (SHIELDED) 260mm
6850R-GV20D JUMPER FILM	22P (PMD03) From Pantera PCB to PCB Assembly Junction MECHANISM(A00)---- MAIN PCB(A46) 200mm
6850R-GW16Z JUMPER FILM	23P (PMD02) From Pantera PCB to PCB Assembly Junction (Cloth covered) (SHIELDED) MAIN PCB(A46) 160mm
6850R-GZ09A JUMPER FILM	26P (P6401) From Pantera PCB to A/V Jack PCB JACK PCB(A47) ---- MAIN PCB(A46) 90mm
6850R-JW14Z JUMPER FILM	23P MECHANISM(A00)---- MECHANISM(A00) 5 ½" (140mm). SUBJECT OF SERVICE BULLETIN HK2002-02

CIRCUIT DIAGRAM

1. POWER(SMPS) CIRCUIT DIAGRAM

NOTE :
1. Shaded(■) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.

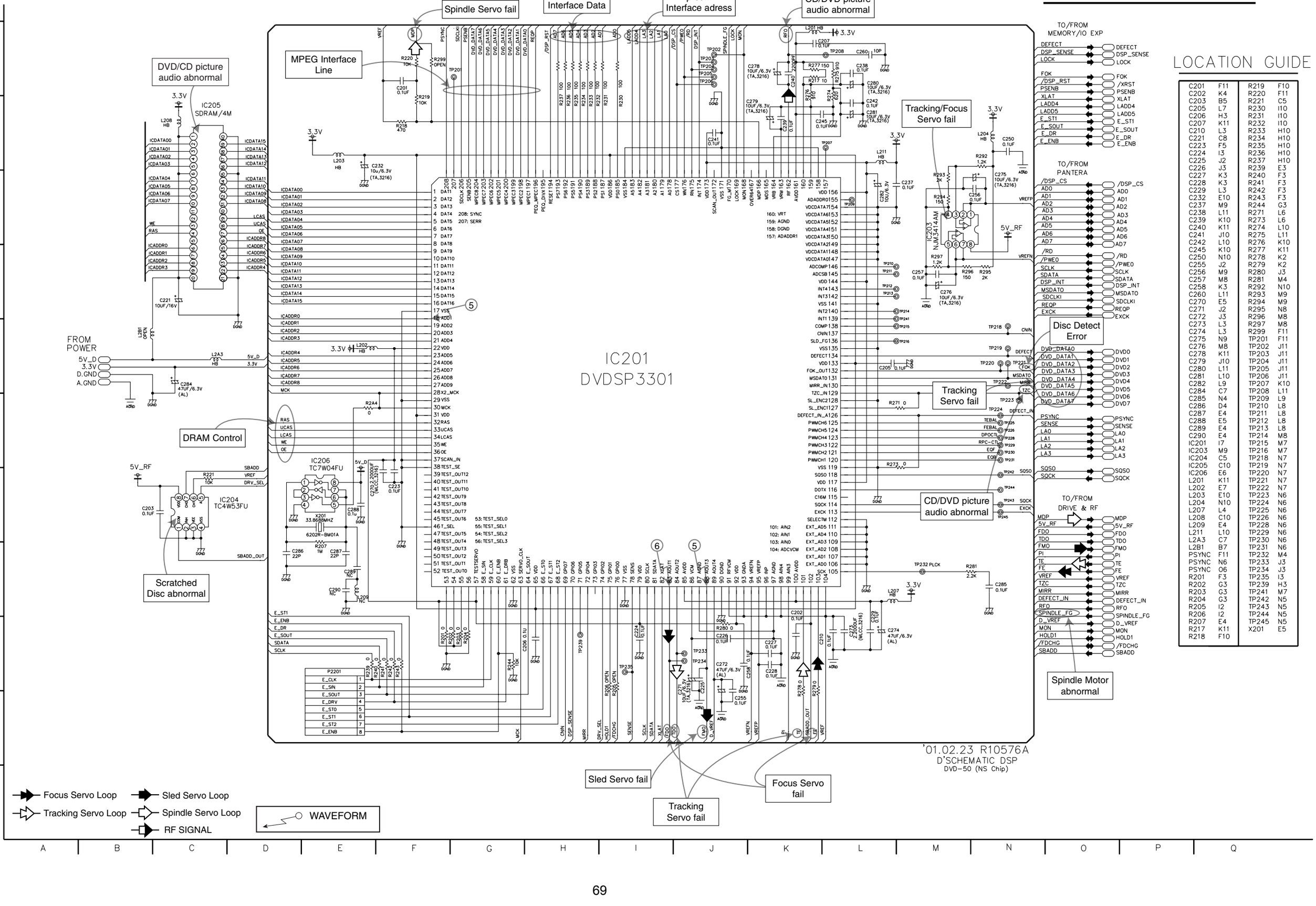


LOCATION GUIDE

BC101	C8	FH101	A4
BD101	A8	FH102	A4
C101	A5	IC101	A6
C102	A7	IC102	F3
C103	C8	IC103	I6
C104	H7	IC104	G3
C107	B3	IC105	H5
C108	I7	IC106	I5
C109	H7	IC107	J5
C110	E3	IC108	I7
C111	C8	L101	A6
C112	I6	L102	H6
C113	E2	L103	H5
C114	E3	L104	H7
C115	C3	P1301	K5
C116	H5	P1302	L7
C118	I3	PW101	B3
C119	D8	Q107	I3
C120	J6	Q108	I2
C121	H8	R100	A4
C122	H7	R101	B8
C123	G6	R102	B8
C124	H6	R103	D8
C125	I5	R112	E6
C126	D8	R114	I8
C127	K5	R115	H9
C128	H3	R120	J2
C129	K5	R121	I3
C130	J4	R122	I3
C131	J3	R123	H4
C137	I6	R124	G5
C138	J7	R125	G4
C139	I7	R126	H3
D100	D8	R127	I3
D102	G6	R128	H3
D103	G5	R129	H2
D104	E7	R130	J3
D107	G8	R131	C7
D108	G7	R132	D7
D109	G5	R133	D7
D110	G7	R134	D7
D112	J5	R140	I4
D113	J6	R141	J4
D114	J5	R145	J3
D115	K5	T101	F9
D116	J5	V101	B4
D117	K5	ZD101	J8
F102	H8		

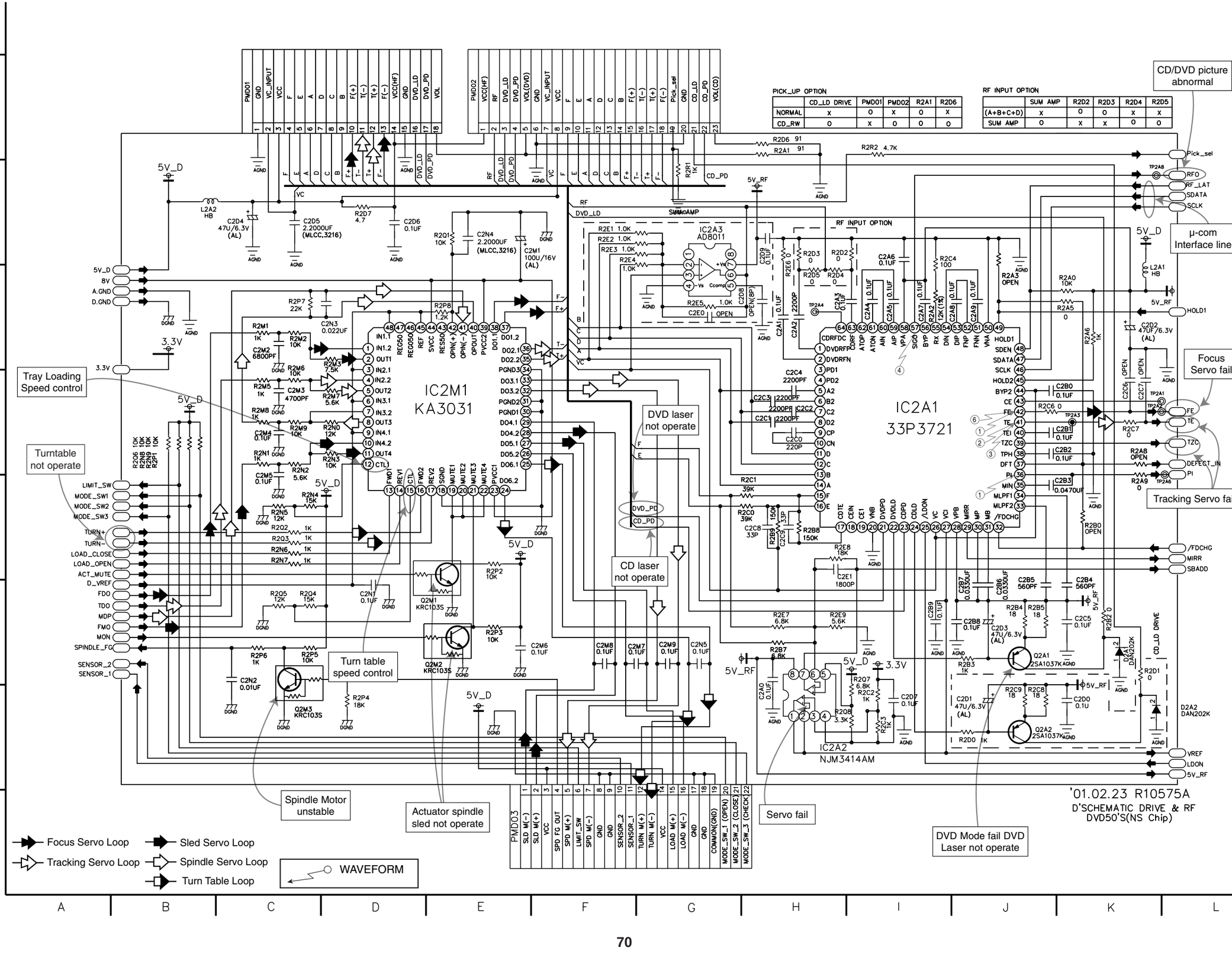
NOTES) ⚠ Warning
Parts that are shaded are critical
With respect to risk of fire or
electricial shock.

2. DVD DSP CIRCUIT DIAGRAM



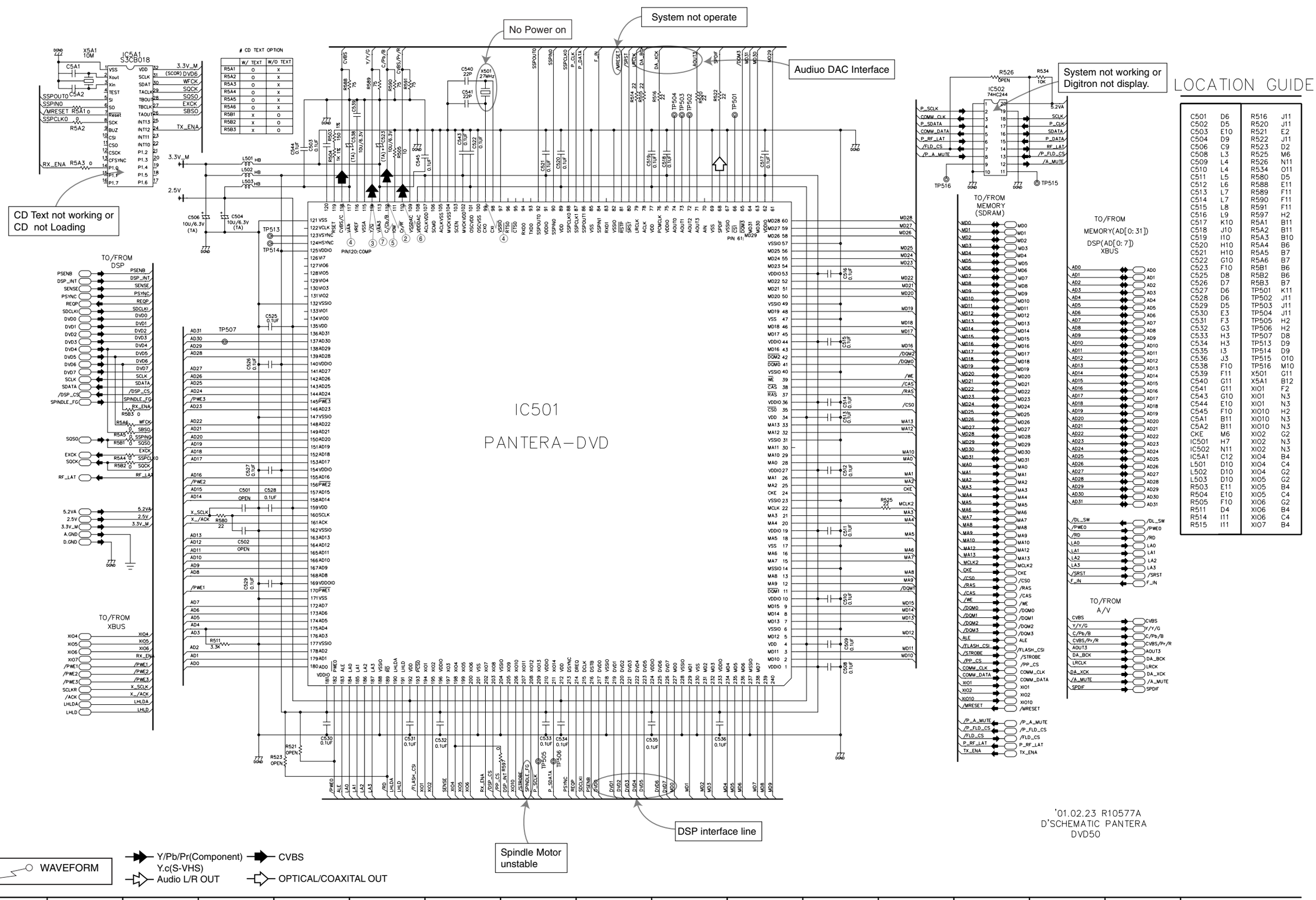
LOCATION GUIDE

C201	F11	R219	F10
C202	K4	R220	F11
C203	B5	R221	C5
C205	L7	R230	I10
C206	H3	R231	I10
C207	K11	R232	I10
C210	L3	R233	H10
C221	C8	R234	H10
C223	F5	R235	H10
C224	I3	R236	H10
C225	J2	R237	H10
C226	J3	R239	E3
C227	K3	R240	F3
C228	K3	R241	F3
C229	L3	R242	F3
C232	E10	R243	F3
C237	M9	R244	G3
C238	L11	R271	L6
C239	K10	R273	L6
C240	K11	R274	L10
C241	J10	R275	L11
C242	L10	R276	K10
C245	K10	R277	K11
C250	N10	R278	K2
C255	J2	R279	K2
C256	M9	R280	J3
C257	M8	R281	M4
C258	K3	R292	N10
C260	L11	R293	M9
C270	E5	R294	M9
C271	J2	R295	N8
C272	J3	R296	M8
C273	L3	R297	M8
C274	L3	R299	F11
C275	N9	TP201	F11
C276	M8	TP202	J11
C278	K11	TP203	J11
C279	J10	TP204	J11
C280	L11	TP205	J11
C281	L10	TP206	J11
C282	L9	TP207	K10
C284	C7	TP208	L11
C285	N4	TP209	L9
C286	D4	TP210	L8
C287	E4	TP211	L8
C288	E5	TP212	L8
C289	E4	TP213	L8
C290	E4	TP214	M8
IC201	I7	TP215	M7
IC203	M9	TP216	M7
IC204	C5	TP218	N7
IC205	C10	TP219	N7
IC206	E6	TP220	N7
L201	K11	TP221	N7
L202	E7	TP222	N7
L203	E10	TP223	N6
L204	N10	TP224	N6
L207	L4	TP225	N6
L208	C10	TP226	N6
L209	E4	TP228	N6
L211	L10	TP229	N6
L2A3	C7	TP230	N6
L2B1	B7	TP231	N6
PSYNC	F11	TP232	M4
PSYNC	N6	TP233	J3
PSYNC	O6	TP234	J3
R201	F3	TP235	I3
R202	G3	TP239	H3
R203	G3	TP241	M7
R204	G3	TP242	N5
R205	I2	TP243	N5
R206	I2	TP244	N5
R207	E4	TP245	N5
R217	K11	X201	E5
R218	F10		



LOCATION GUIDE

C2A0	H2	Q2A1	J3	R2N8	B5
C2A1	H6	Q2A2	J2	R2N9	B5
C2A2	H6	Q2M1	D3	R2P1	B5
C2A3	H6	Q2M2	D3	R2P2	E4
C2A4	I6	Q2M3	C2	R2P3	E3
C2A5	I6	R2A0	K6	R2P4	D2
C2A6	I7	R2A1	H8	R2P5	C3
C2A7	I6	R2A2	I6	R2P6	C3
C2A8	J6	R2A3	J6	R2P7	C6
C2A9	J6	R2A5	K6	R2P8	E6
C2B0	K5	R2A6	K6	R2Q1	E7
C2B1	K5	R2A8	K5	R2Q2	C4
C2B2	J5	R2A9	K4	R2Q3	C4
C2B3	J4	R2B0	K4	R2Q4	C3
C2B4	K3	R2B2	K3	R2Q5	C3
C2B5	J3	R2B3	J3	R2Q6	B5
C2B6	J3	R2B4	J3	R2Q7	I3
C2B7	J3	R2B5	J3	R2Q8	H2
C2B8	J3	R2B7	H3	R2R1	G7
C2B9	I3	R2B8	H4	R2R2	I8
C2C0	H5	R2B9	H4	TP2A1	K5
C2C1	H5	R2C0	G4	TP2A2	K5
C2C2	H5	R2C1	H4	TP2A3	K5
C2C3	H5	R2C2	I2	TP2A4	H6
C2C4	H5	R2C3	I2	TP2A6	K4
C2C5	K3	R2C4	I7	TP2A8	K7
C2C6	K5	R2C6	J5		
C2C7	K5	R2C7	K5		
C2C8	H4	R2C8	J2		
C2C9	H4	R2C9	J2		
C2D0	K2	R2D0	J2		
C2D1	J2	R2D1	K3		
C2D2	K6	R2D2	H7		
C2D3	J3	R2D3	H7		
C2D4	C7	R2D4	H6		
C2D5	C7	R2D5	H6		
C2D6	D7	R2D6	H8		
C2D7	I2	R2D7	D7		
C2D8	H6	R2E1	F7		
C2D9	H7	R2E2	F7		
C2E0	G6	R2E3	F7		
C2E1	H4	R2E4	F7		
C2M1	E7	R2E5	G6		
C2M2	C6	R2E6	H6		
C2M3	C5	R2E7	H3		
C2M4	C5	R2E8	H4		
C2M5	C4	R2E9	H3		
C2M6	F3	R2M1	C6		
C2M7	F3	R2M2	C6		
C2M8	F3	R2M3	D6		
C2M9	G3	R2M5	C5		
C2N1	D3	R2M6	C5		
C2N2	C3	R2M7	D5		
C2N3	D6	R2M8	C5		
C2N4	E7	R2M9	C5		
C2N5	G3	R2N0	D5		
D2A1	K3	R2N1	C5		
IC2A1	I5	R2N2	C5		
IC2A2	H2	R2N3	D5		
IC2A3	G7	R2N4	C4		
IC2M1	E5	R2N5	C4		
L2A1	K6	R2N6	C4		
L2A2	B7	R2N7	C4		



LOCATION GUIDE

C501	D6	R516	J11
C502	D5	R520	J11
C503	E10	R521	E2
C504	D9	R522	J11
C506	C9	R523	D2
C508	L3	R525	M6
C509	L4	R526	N11
C510	L4	R534	O11
C511	L5	R580	D5
C512	L6	R588	E11
C513	L7	R589	F11
C514	L7	R590	F11
C515	L8	R591	F11
C516	L9	R597	H2
C517	K10	R5A1	B11
C518	J10	R5A2	B11
C519	I10	R5A3	B10
C520	H10	R5A4	B6
C521	H10	R5A5	B7
C522	G10	R5A6	B7
C523	F10	R5B1	B6
C525	D8	R5B2	B6
C526	D7	R5B3	B7
C527	D6	TP501	K11
C528	D6	TP502	J11
C529	D5	TP503	J11
C530	E3	TP504	J11
C531	F3	TP505	H2
C532	G3	TP506	H2
C533	H3	TP507	D8
C534	H3	TP513	D9
C535	I3	TP514	D9
C536	J3	TP515	O10
C538	F10	TP516	M10
C539	F11	X501	G11
C540	G11	X5A1	B12
C541	G11	XIO1	F2
C543	G10	XIO1	N3
C544	E10	XIO1	N3
C545	F10	XIO10	H2
C5A1	B11	XIO10	N3
C5A2	B11	XIO10	N3
CKE	M6	XIO2	G2
IC501	H7	XIO2	N3
IC502	N11	XIO2	N3
IC5A1	C12	XIO4	B4
L501	D10	XIO4	C4
L502	D10	XIO4	G2
L503	D10	XIO5	G2
R503	E11	XIO5	B4
R504	E10	XIO5	C4
R505	F10	XIO6	G2
R511	D4	XIO6	B4
R514	I11	XIO6	C4
R515	I11	XIO7	B4

'01.02.23 R10577A
D'SCHEMATIC PANTERA
DVD50

Program download fail

Digitron abnormal

Not power on

Not used

System not operate

Digitron all not display
System not working

Digitron all not display
System not working

Not memoried
setup Menu

Disc number
detect error

Digitron all not display and
system not operate

"No Disc" display

Turntable not operating

Tray not open/close

Pick-up not initial operating

Tray not closed

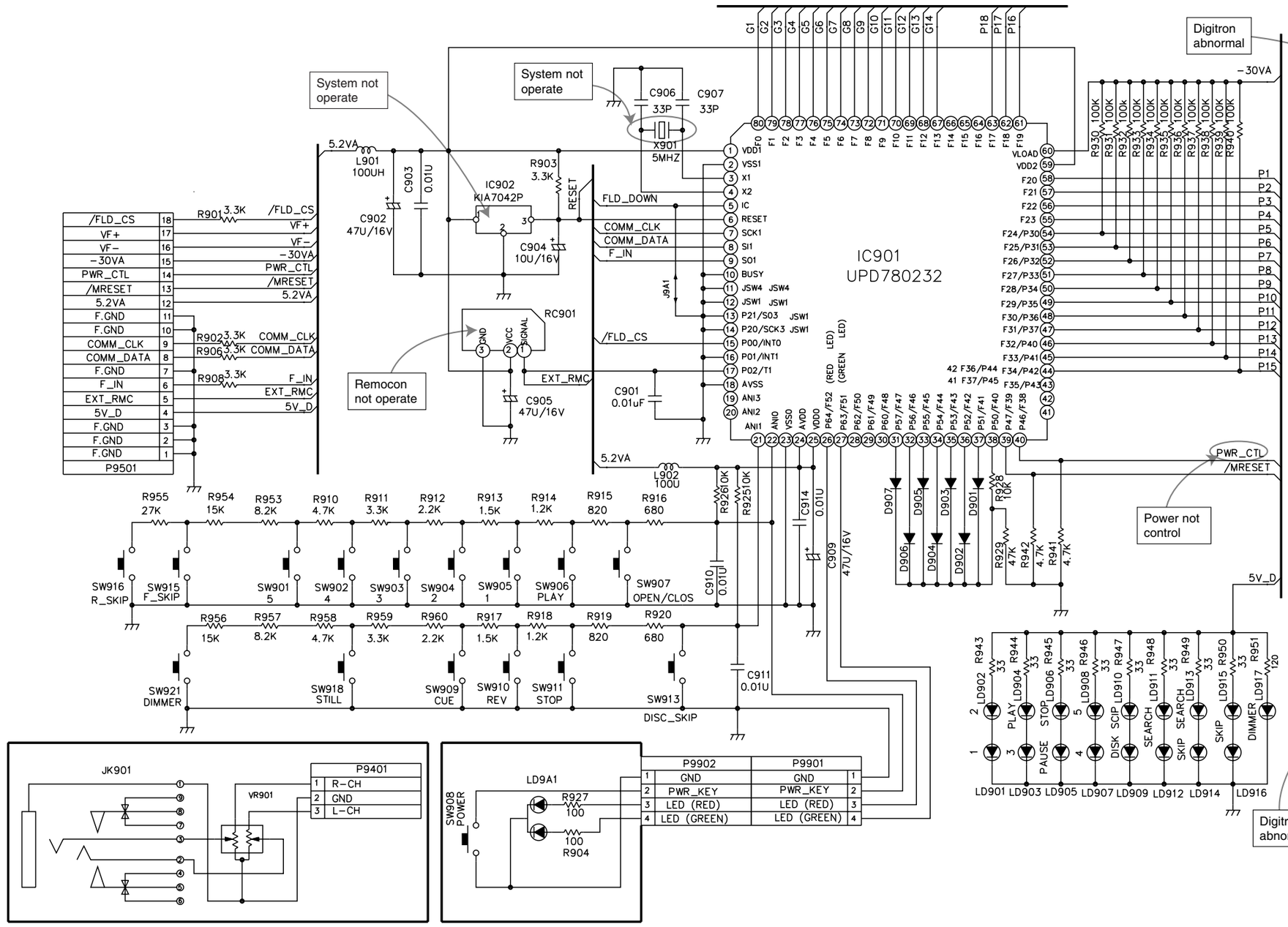
Disc Detec Error

	NTSC	PAL	AUTO
AUTO_SW	H	H	L
PAL_SW	H	L	H

LOCATION GUIDE

C301	G3	R354	C11	TP353	H6
C302	I7	R355	C11	TP354	C9
C303	H7	R356	C11	TP355	H5
C304	F7	R357	C11	TP356	H7
C305	E6	R358	C11	TP357	G7
C306	F3	R359	C11	TP358	G7
C307	J12	R360	C11	TP359	G7
C308	J10	R361	C10	TP360	E3
C309	L7	R362	C10	TP361	E3
C310	L5	R363	C10	TP362	G7
C311	J3	R364	E3	TP363	C11
C312	J5	R365	E2	TP3A1	O3
C313	J6	R366	D2	TP3A2	O3
C314	K9	R367	M8	TP3A3	O3
C315	K9	R368	O8	TP3A4	O2
C316	D6	R3A0	I11	TP3A5	L3
C317	L7	R3A1	I11	TP3A6	L2
C318	E2	R3A2	I11	TP3A7	O2
C319	E11	R3A3	I10	XIO2	C6
C320	D10	R3A4	I10	XIO2	C6
C3F1	O10	R3A5	I10	XIO2	D4
C3F2	N9	R3A6	I10	XIO2	O2
C3F3	J12	R3A7	I10	XIO4	O3
C3F4	N11	R3A8	I10	XIO4	P3
C3F5	M7	R3A9	I10	XIO4	P3
C3F6	O7	R3F1	O8	XIO5	D4
IC301	F5	R3F3	O11	XIO5	L3
IC302	J12	R3F4	N8	XIO5	P3
IC303	J9	R3F5	M9	XIO5	P3
IC304	K7	R3F6	M9	XIO6	O3
IC305	M11	R3F8	O3	XIO6	P3
IC306	M11	R3F9	M7	XIO7	L3
IC307	E9	TD01	D10	XIO7	P2
L301	H7	TP301	N10	XIO7	P2
L302	L7	TP302	N10		
L3F1	O11	TP303	O10		
L3F2	K12	TP304	O10		
L3F3	N11	TP305	O10		
L3F4	L7	TP306	O10		
L3F5	O11	TP307	O10		
P3101	F10	TP308	O9		
P3102	F11	TP309	O9		
P3301	B12	TP310	O9		
P3302	B10	TP311	O9		
P3303	N4	TP312	O9		
P3901	E9	TP313	O9		
Q301	D3	TP314	O9		
R302	I5	TP315	O9		
R303	I6	TP316	O9		
R304	I6	TP317	O8		
R305	I5	TP318	O8		
R306	H3	TP319	N8		
R307	G3	TP320	N8		
R308	G3	TP321	M9		
R309	H6	TP322	M9		
R310	G3	TP323	O10		
R311	F3	TP324	M10		
R312	K9	TP325	M10		
R313	I6	TP326	M10		
R314	H8	TP327	M10		
R315	H4	TP328	M10		
R316	H4	TP329	M10		
R318	D3	TP330	M10		
R319	E3	TP331	M10		
R320	E3	TP332	M9		
R321	H6	TP333	M9		
R322	D4	TP334	M9		
R323	E5	TP335	M9		
R324	E4	TP336	M8		
R325	D11	TP337	M8		
R326	D9	TP338	M8		
R327	D9	TP339	M8		
R328	F2	TP340	M8		
R329	F2	TP341	M8		
R330	G2	TP342	N8		
R331	G2	TP343	P9		
R332	E9	TP344	I6		
R333	D11	TP345	C10		
R334	D9	TP349	C10		
R350	C12	TP350	C10		
R351	C12	TP351	C10		
R352	C11	TP352	C9		
R353	C11				

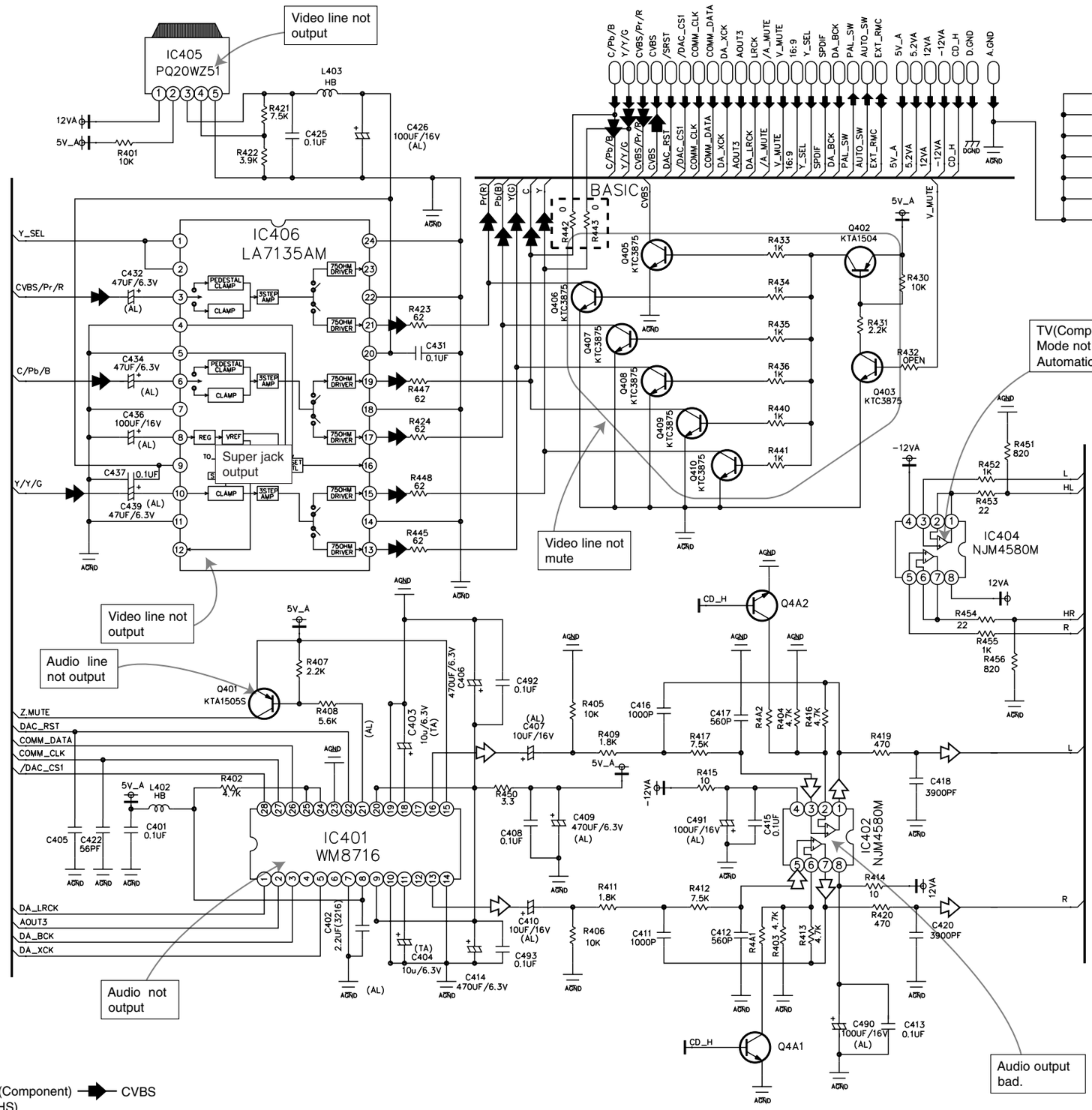
'01.02.23 R10578A
D'SCHEMATIC MEMORY
DVD-50 (NS Chip)



LOCATION GUIDE

C901	F5	R915	E5
C902	D7	R916	F5
C903	D7	R917	E4
C904	E7	R918	E4
C905	E5	R919	E4
C906	F8	R920	F4
C907	F8	R925	G5
C909	G4	R926	F5
C910	F4	R927	E3
C911	G3	R928	H5
C912	K7	R929	H4
C913	K3	R930	I7
C914	G5	R931	I7
D901	H5	R932	I7
D902	H4	R933	I7
D903	H5	R934	I7
D904	H4	R935	J7
D905	H5	R936	J7
D906	H4	R937	J7
D907	H5	R938	J7
DIG901	K8	R939	J7
IC901	G6	R940	J7
IC902	E7	R941	I4
J9A1	F6	R942	I4
JK901	B3	R943	H4
L901	D7	R944	H4
L902	F5	R945	I4
LD901	H3	R946	I4
LD902	H3	R947	I4
LD903	H3	R948	I4
LD904	I3	R949	J4
LD905	I3	R950	J4
LD906	I3	R951	J4
LD907	I3	R953	C5
LD908	I3	R954	C5
LD909	I3	R955	B5
LD910	I3	R956	C4
LD911	I3	R957	C4
LD912	I3	R958	C4
LD913	J3	R959	D4
LD914	J3	R960	D4
LD915	J3	RC901	E6
LD916	J3	SW901	C4
LD917	J3	SW902	C4
LD9A1	E3	SW903	D4
P9401	D3	SW904	D4
P9501	B5	SW905	E4
P9901	G3	SW906	E4
P9902	F3	SW907	F4
R901	C7	SW908	D2
R902	C6	SW909	D3
R903	E7	SW910	E3
R904	E2	SW911	E3
R906	C6	SW913	F3
R908	C6	SW915	B4
R910	C5	SW916	B4
R911	D5	SW918	C3
R912	D5	SW921	B3
R913	E5	VR901	C3
R914	E5	X901	F7

'01.02.23 R10582A
D'SCHEMATIC TIMER & KEY
DVD50

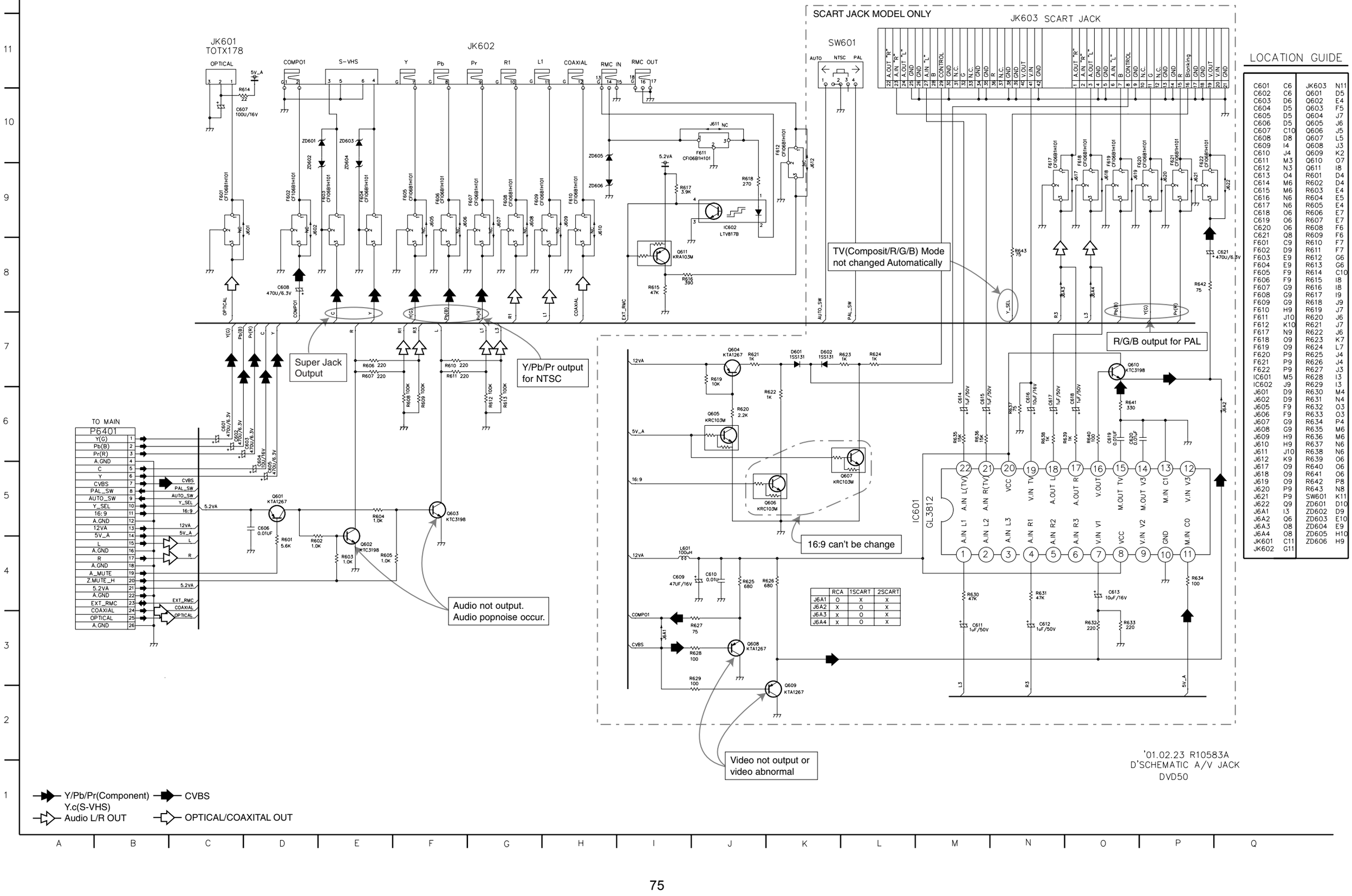


LOCATION GUIDE

C401	B3	Q408	F6
C402	D2	Q409	F6
C403	D3	Q410	F5
C404	D2	Q4A1	G1
C405	B3	Q4A2	G4
C406	E4	R401	B8
C407	E3	R402	C3
C408	E3	R403	G2
C409	E3	R404	G3
C410	E2	R405	E4
C411	F2	R406	E2
C412	F2	R407	C4
C413	H1	R408	D4
C414	E2	R409	F3
C415	G3	R411	F2
C416	F4	R412	F2
C417	F4	R413	G2
C418	H3	R414	G2
C420	H2	R415	F3
C422	B3	R416	G3
C423	L3	R417	F3
C424	J2	R419	G3
C425	C8	R420	G2
C426	D8	R421	C8
C431	D6	R422	C8
C432	B7	R423	D6
C434	B6	R424	D6
C436	B6	R425	J4
C437	B5	R426	J3
C439	B5	R427	K3
C490	G1	R428	J2
C491	F3	R429	J2
C492	E4	R430	H7
C493	E2	R431	G6
IC401	D3	R432	H6
IC402	G3	R433	G7
IC403	J4	R434	G7
IC404	H5	R435	G6
IC405	B8	R436	G6
IC406	C7	R440	G6
L402	B3	R441	G5
L403	D8	R442	E7
L404	J7	R443	F7
L405	I8	R445	D5
L406	I8	R447	D6
L407	I8	R448	D5
L408	I8	R450	E3
L409	I7	R451	I5
L410	I7	R452	H5
Q401	C4	R453	H5
Q402	G7	R454	H4
Q403	H6	R455	H4
Q404	K3	R456	H4
Q405	F7	R4A1	G2
Q406	E6	R4A2	G3
Q407	E6		

'01.02.23 R10579A
D'SCHEMATIC A/V
DVD50

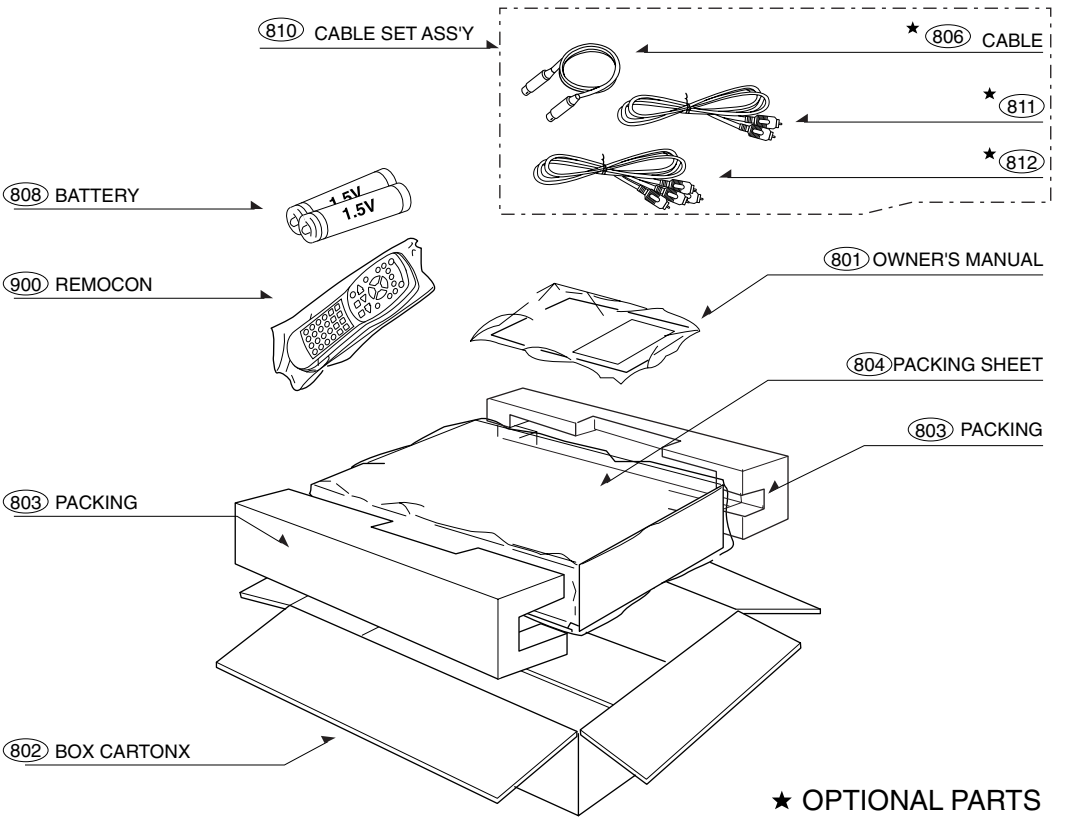
8. A/V JACK CIRCUIT DIAGRAM



LOCATION GUIDE

C601	C6	JK603	N11
C602	C6	Q601	D5
C603	D6	Q602	E4
C604	D5	Q603	F5
C605	D5	Q604	J7
C606	D5	Q605	J6
C607	C10	Q606	J5
C608	D8	Q607	L5
C609	I4	Q608	J3
C610	J4	Q609	K2
C611	M3	Q610	O7
C612	N3	Q611	I8
C613	O4	R601	D4
C614	M6	R602	D4
C615	M6	R603	E4
C616	N6	R604	E5
C617	N6	R605	E4
C618	O6	R606	E7
C619	O6	R607	E7
C620	O6	R608	F6
C621	Q8	R609	F6
F601	C9	R610	F7
F602	D9	R611	F7
F603	E9	R612	G6
F604	E9	R613	G6
F605	F9	R614	C10
F606	F9	R615	I8
F607	G9	R616	I8
F608	G9	R617	I9
F609	G9	R618	J9
F610	H9	R619	J7
F611	J10	R620	J6
F612	K10	R621	J7
F617	N9	R622	J6
F618	O9	R623	K7
F619	O9	R624	L7
F620	P9	R625	J4
F621	P9	R626	J4
F622	P9	R627	J3
IC601	M5	R628	I3
IC602	J9	R629	I3
J601	D9	R630	M4
J602	D9	R631	N4
J605	F9	R632	O3
J606	F9	R633	O3
J607	G9	R634	P4
J608	G9	R635	M6
J609	H9	R636	M6
J610	H9	R637	N6
J611	J10	R638	N6
J612	K9	R639	O6
J617	O9	R640	O6
J618	O9	R641	O6
J619	O9	R642	P8
J620	P9	R643	N8
J621	P9	SW601	K11
J622	Q9	ZD601	D10
J6A1	I3	ZD602	D9
J6A2	Q6	ZD603	E10
J6A3	O8	ZD604	E9
J6A4	O8	ZD605	H10
JK601	C11	ZD606	H9
JK602	G11		

Packing



• Packing Accessory Parts List

Ref #	Part Number	Description
801	3835RS0016K	DVD50 OWNER'S MANUAL (USA)
802	3890R-H907M	DVD50 OUTER CARTON (120V)
803	3920R-E018A	STYRO END PADS (2)
804		PACKING SHEET
806	17-1355	DVD50 S-VIDEO CABLE
808		1.5V AA BATTERY FOR RC (PAIR)
810	861-520G	CABLE ASSEMBLY SET
811	564-017B	PLUG ASSY PHONO CORD 1WAY (YL)
812	564-018B	PLUG ASSY PHONO CORD 2WAY (RD/WH)
900	6711R1Z017D	DVD50 REMOTE CONTROL