CAUTION
BEFORE SERVICING THE UNIT, READ THE "SAFETY PRECAUTIONS"
IN THIS MANUAL.
SECTION 1
SUMMARY

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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 RECOMMENDATIONS. GUIDELINES OTHER WISE, 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, BARRIER 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. REPLACE 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 RECEPTACLE OR CONNECTOR POINT. PERFORM LEAKAGE TESTING ON ALL EXPOSED METALLIC PARTS OF THE CABINET MODIFICATIONS.

6. 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. VOLT-METER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELLED 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: 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 PHOSPHORIZED PICTURE TUBE. HOWEVER, NO EMIT X-RAYS WHEN THE HIGH VOLTAGE IS AT THE FACTORY SPECIFIED LEVEL. THE PROPER VALUE IS GIVEN IN THE APPLICABLE SCHEMATIC. OPERATING THE TUBE 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 DESIRED LIMITS.

2. ONLY FACTORY SPECIFIED C.R.T. ANODE CONNECTORS MUST BE USED. DEGAUSSING SHIELDS ALSO SERVE AS X-RAY SHIELD IN COLOR SETS, ALWAYS RE-INSTALL THEM.

3. IT IS ESSENTIAL 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 A HIGH VOLTAGE CIRCUITRY IS OPERATING PROPERLY THERE IS NO POSSIBILITY OF AN X-RADIATION PROBLEM. EACH TIME A COLOR CHASSIS IS SERVICED, THE PHOSPHOR 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 PROPERLY. 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 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, CUBBY-HOLE OR CLOSELY FITTING SHELF SPACE. OVER OR CLOSE TO A 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 PALCMENT WHERE DRAPERIES MAY OBSTRUCT REAR 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 WHEELS, BUT THERE IS NO POSSIBILITY OF AN X-RADIATION PROBLEM. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.

7. 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.

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.

SUBJECT: GRAPHIC SYMBOLS

THE LIGHTNING FLASH WITH APROHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF INSULATED "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: EARTH GROUND

GOOD EARTH GROUND SUCH AS THE WATER PIPE, CONDUIT, ETC.

PLACE THIS PROBE ON EACH EXPOSED METAL PART.

A.C. VOLT METER

0.15μF

1500 OHM

10 WATT

1-3
CAUTION : Before servicing the DVD covered by this service data and its supplements and addends, 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.

Remembers 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 which 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 correctly 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 soldering 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 protective 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.)
SPECIFICATIONS

• GENERAL

Power requirements: AC 110-240 V, 50/60 Hz
Power consumption: 8W
Dimensions (Approx.): 430 x 35 x 242 mm (W x H x D) without foot
Weight (Approx.): 1.9 kg
Operating temperature: 5 °C to 35 °C (41 °F to 95 °F)
Operating humidity: 5 % to 90 %

• OUTPUTS

VIDEO OUT: 1 Vp-p 75 Ω, sync negative, RCA jack x 1 / SCART (TO TV)
COMPONENT VIDEO OUT: (Y) 1.0 V (p-p), 75 Ω, negative sync, RCA jack x 1
(Pb)/(Pr) 0.7 V (p-p), 75 Ω, RCA jack x 2
AUDIO OUT: 2.0 Vrms (1 kHz, 0 dB), 600 Ω, RCA jack (L, R) x 1 / SCART (TO TV)

DIGITAL OUT (COAXIAL): 0.5 V (p-p), 75 Ω, RCA jack x 1

• SYSTEM

Laser: Semiconductor laser, wavelength 650 nm
Signal system: PAL / NTSC
Frequency response: DVD (PCM 96 kHz): 8 Hz to 44 kHz
                     DVD (PCM 48 kHz): 8 Hz to 22 kHz
                     CD: 8 Hz to 20 kHz
Signal-to-noise ratio: More than 100 dB (ANALOG OUT connectors only)
Harmonic distortion: Less than 0.008%
Dynamic range: More than 95 dB (DVD/CD)

• ACCESSORIES

Remote control (1), Batteries (2)
SECTION 2
CABINET & MAIN CHASSIS

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* KARAOKE MODEL ONLY

* 5.1CH Model ONLY
2. Deck Mechanism Section (DP-9)
3. Packing Accessory Section

- **808** BATTERY
- **900** REMOCON
- **803** PACKING
- **802** BOX CARTON
- **810** CABLE SET ASS’Y
- **806** RF CABLE
- **811** PLUG ASS’Y 1WAY(YELLOW)
- **812** PLUG ASS’Y 2WAY
- **820** PLUG ASS’Y 1WAY(BLACK)
- **804** PACKING SHEET
- **803** PACKING
- **801** OWNER’S MANUAL
- **805** OPTIONAL PARTS
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ELECTRICAL TROUBLESHOOTING GUIDE

1. Power check flow

No 3.3VA

- **YES**
  - Is the FR101 Normal?
    - **YES**
      - Replace the FR101 (Use the same ICW)
    - **NO**
      - Replace the D105/ D106/ D107 /D108

- **NO**
  - Is the Vcc (about 8.7V) supplied to IC101 Pin2?
    - **YES**
      - Replace the D105/ D106/ D107 /D108
    - **NO**
      - Check or Replace the IC101

Is the D121 normal?

- **YES**
  - Replace the D121

- **NO**
  - Is there about 2.5V at the IC103 Pin1?
    - **YES**
      - Replace the IC103
    - **NO**
      - Replace the D123

Is the D123 normal?

- **YES**
  - Replace the D123

- **NO**
  - Is the D125 Normal?
    - **YES**
      - Replace the D125
    - **NO**
      - Power Line of Main PCB(DVD) is short

No REG 5.0V

- **YES**
  - Is the Vcc(=5.6V) supplied to Q123 Collector?
    - **YES**
      - Check or Replace the D123
    - **NO**
      - Check the ‘PWR CTL “H” signal from µ-com

- **NO**
  - Is the Vcc(=12V) supplied to Q126 Base?
    - **YES**
      - Check or Replace the Q126
    - **NO**
      - Check or Replace the IC103

No 12V

- **YES**
  - Is the Vcc(=14V) supplied to Q123 Collector?
    - **YES**
      - Check or Replace the D125
    - **NO**
      - Check the ‘PWR CTL “H” signal from µ-com

- **NO**
  - Is the Vcc(=12V) supplied to Q126 Base?
    - **YES**
      - Check or Replace the Q123
2. System operation flow

1. 8032 initializes SERVO, DSP & RISC registers
2. Write RISC code to SDRAM
3. Reset RISC

Show LOGO

Tray Closed?

Tray Close to Closed position

SLED at Inner Side?

SLED Moves to Inner Position

1. Judge whether have disc and disc type
2. Jump to related disc reading procedure

Receive OPEN/CLOSE Key?

1. Execute Pressed Key & IR Key
2. System operation Routine Loop

1. Stop Playback & Open Tray
2. Display tray open message & LOGO

Receive CLOSE Key?
3. Test & debug flow

TEST

Check the AC Voltage
Power PCBA (110V or 220V)

YES

Switch on the Power PCBA

YES

Is the DC Voltage outputs OK?
(5V, 3.3V, 12V, 5.6V MOTOR)

YES

Make sure the main PCBA don’t short on VCCs and switch it on.

YES

Is 3.3V and 1.8V DC outputs normal on main PCBA?

YES

Connect to PC RS232 Cable and update the FLASH memory code.

YES

Update FLASH successfully?

YES

A

NO

Replace power PCBA or AC transformer.

NO

Repair or Replace Power PCBA

NO

Check the regulators or related diodes.

1. Check 27MHz system clock.
2. Check system reset circuit.
3. Check FLASH R/W enable signal PRD,RWR.
4. Check RS232 SIGNALS.
5. Check FLASH Memory related circuit.
A

Show LOGO?

NO

Flash Memory operates properly?

NO

Check connection lines between FLASH & MT1389C and the FLASH access time whether is suitable or not.

YES

SDRAM works properly?

NO

Check connection lines between SDRAM & MT1389C and the SDRAM is damaged.

YES

MT1389C VIDEO outputs properly?

NO

Check the related circuit of MT1389C.

YES

Have TV signal output?

NO

Check the filtering and amp circuit of TV signal.

YES

Check AV cable connection to TV set.

B

Does Tray move inside when it is not at closed position?

NO

Normal TROUT & TRIN signals?

NO

Check the load OPEN & CLOSE switch

YES

Normal TRCLOSE & TROOPEN signal?

NO

Check the Tray control IO pins on MT1389C & IP9005.

YES

Normal LOAD+ & LOADsignal?

NO

Check the Tray control amplifying circuit on Motor driver.

YES

Check the cable connection between main PCBA and loader.
Does the SLED move to inner side when it is at outer position?

NO

Motor Driver STBY Pin is High?

YES

Is FMSO DC Level higher than 1.4V?

NO

Check the related circuit of FMSO.

YES

SL+ and SL- output properly?

NO

Check the amp circuit on motor driver.

YES

Check the cable connection with MECHA.

Optical Lens has movements for searching Focus?

NO

Proper FOSO outputs to motor driver?

NO

Check FOSO connection on MT1389C and motor driver.

YES

Proper F+ & F- outputs?

NO

Check the amp circuit on motor driver.

YES

Check cable connect on with pick-up head.

C
C

Laser turns on when reading disc?

NO

LD01 or LD02 output properly?

NO

Check the laser power circuit on MT1389C and connecting to power transistor.

YES

Collector voltage of power transistor is OK?

NO

Check the related circuit on laser power transistor

YES

Check cable connection between transistor output and pick-up head.

Put disc in?

NO

Laser off

YES

Disc ID is correct?

NO

Proper RFL signal on MT1389C?

NO

Check the related circuit on MT1389C RFL signal.

YES

Check LDO1 & LDO2 signal

Does spindle rotate?

NO

Proper DMSO signal on MT1389C

NO

Check DMSO related circuit on MT1389C.

YES

SP+ & SP- output properly?

NO

Check the spindle control amp circuit of motor driver.

YES

Check the cable connection between spindle and main PCBA.

D
Focus ON OK?

NO

Check connections between MT1389C and pick-up head.

YES

Proper signals on A, B, C, D of MT1389C

NO

Check the FOSO connection on MT1389C and motor driver.

YES

Check FEO signal on MT1389C

NO

Check FOSO signal on MT1389C

YES

Check the TRSO connection on MT1389C and motor driver.

NO

Check the tracking control amp circuit on motor driver.

YES

Check cable connection on pick-up head.

Track On OK?

NO

Normal TEO Signal on MT1389C?

NO

Check the related circuit on MT1389C

YES

Properly TRSO signal on MT1389C?

NO

Check the TRSO connection on MT1389C and motor driver.

YES

T+ & T- output properly?

NO

Check the tracking control amp circuit on motor driver.

YES

Check cable connection on pick-up head.

Disc is play?

NO

Check RFO & RFLVL signal waveform.

YES
E

Normal Audio output when disc playback?

YES

NO

Audio DAC received correct data stream?

YES

NO

Check connection between MT1389C & Audio DAC.

Normal Audio DAC out?

YES

NO

Check the related circuit of Audio DAC.

Check Audio filter, amplify, mute circuit.

COMMUNICATIONS BETWEEN IR.VFD FRONT PANEL KEY & MT1389C IS NORMALLY?

NO

Check communication lines on MT1389C.

YES

Check the cable connection on Front panel.

Normal IR.VFD & Front panel key functions?

YES

TEST END

NO
4. KARAOKE Flow (KARAOKE MODEL ONLY)

Start

Insert the Mic jack

Is the Mic signal at the IC801 pin3.

YES

Is the Mic signal at the IC801 Pin 2.

YES

Replace IC801.

NO

Replace the IC508.

Is the Digital signal output at the IC508 Pin1.

YES

Replace IC501.

NO

Check pattern.

Does the Mic signal input the IC501 Pin224.

YES

Replace the VR801.

NO

Replace the mic jack

Is the Mic signal at the IC801 Pins3, 7 normal?

NO

Replace IC601.

YES

NO
1. SYSTEM 27MHz CLOCK, RESET, FLASH R/W SIGNAL.
   1) MT1389C main clock is at 27MHz (X501)

   FIG 1-1

   2) MT1389 reset is low active.

   FIG 1-2
3) RS232 waveform during procedure (Downloading)

4) Flash R/W enable signal during download (Downloading)
2. SDRAM CLOCK

DCLK = 128MHz, Vp-p=2.2, Vmax=2.7V

FIG 2-1

3. TRAY OPEN/CLOSE SIGNAL

FIG 3-1
4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)

5. LENS CONTROL RELATED SIGNAL (NO DISC CONDITION)
6. LASER POWER CONTROL RELATED SIGNAL (NO DISC CONDITION)

DCLK = 128MHz, Vp-p=2.2, Vmax=2.7V

7. DISC TYPE JUDGEMENT WAVEFORM
8. FOCUS ON WAVEFORM
9) SPINDLE CONTROL WAVEFORM (NO DISC CONDITION)
10. TRACKING CONTROL RELATED SIGNAL (System checking)

FIG 10-1 (DVD)

FIG 10-2 (CD)
11. MT1389C AUDIO OPTICAL AND COAXIAL OUTPUT (SPDIF)

![SPDIF Waveform](image)

FIG 12-1

13. MT1389C VIDEO OUTPUT WAVEFORM

1) 100%

![Video Waveform](image)

FIG 13-1
2) COMPOSITE VIDEO SIGNAL

FIG 13-2

14. MT1389C AUDIO OUTPUT TO AUDIO DAC

FIG 14-1
15. AUDIO OUTPUT FROM AUDIO DAC

FIG 15-1
BLOCK DIAGRAMS
1. Overall Block Diagram
2. Power(SMPS) Block Diagram

![Power(SMPS) Block Diagram](image-url)

- **Input**: AC100~240V
- **Filter**: π FILTER
- **Rectifier**: RECTIFIER
- **Switching IC**: SWITCHING IC
- **Trans**: TRANS
- **LPF**: Low Pass Filter
- **5V, 5.6V(M)/5.6VA, 12V, 3.4V, 8V**: Various output voltages
- **PWR CTL**: Power Control
- **With 1389C, 1389D**: Reference numbers
3. SERVO Block Diagram
4. MPEG & MEMORY Block Diagram
5. VIDEO & AUDIO Block Diagram
6. KARAOKE Block Diagram (KARAOKE MODEL ONLY)

1. The unit turns to KARAOKE MODE with on-screen lyrics display and melody sound when it plays back VCD or DVD KARAOKE DISC.

2. IF a microphone is connected at this time, MICON recognizes the connection and prepares the composition of external voice and internal melody.

3. The week signal of the microphone is converted to the digital signal after voice output that has passed through PREAMP (BA3308) and AMP (KA741) passes through (CS5331) that is Audio ADC (Analog to Digital converter).

4. This digital signal enters NT1389C that is MPEG IC.

5. This mixed signal is output to AV JACK after passing through AUDIO DAC (CS4344).
1. POWER(SMPS) CIRCUIT DIAGRAM

IMPORTANT SAFETY NOTICE
WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE LG ELECTRONICS CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADIED ON THE SCHEMATIC FOR EASY IDENTIFICATION.

THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

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.
4. DRIVER CIRCUIT DIAGRAM

DESIGN SCHEMATIC SERVO (U JINGXIN)

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3854P16002B (1:10)
5. TIMER CIRCUIT DIAGRAM
6.5.1 CH (OPTIONAL PART) & KARAOKE (KARAOKE MODEL ONLY) CIRCUIT DIAGRAM
7. SCART CIRCUIT DIAGRAM

[SCART Circuit Diagram Image]
PRINTED CIRCUIT DIAGRAMS
1. MAIN P.C.BOARD
2. KEY P.C.BOARD  
(7 TOOL ONLY)  
(Solder Side)

3. TIMER P.C.BOARD  
(7 TOOL ONLY)  
(TOP VIEW)  
(BOTTOM VIEW)  
(Solder Side)

8 TOOL ONLY  
(Solder Side)

9 TOOL ONLY  
(Solder Side)