

Toshiba 15DL15 Service Manual

Lcd color television

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See also: Owner's Manual



SERVICE**TOSHIBA** LCD Color Television 150L15

FILE NO. 050-200513

15Db35ва 20DL75

- 1 -Published in Japan, Sep. 2005 (YC) TOSHIBA CORPORATION 2005

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(76 pages)

Summary of Contents for Toshiba 15DL15

Page 1: Service Manual

FILE NO. 050-200513 SERVICE MANUAL LCD Color Television 15DL15 15DL75 20DL75 - 1 - Published in Japan, Sep. 2005 (YC) TOSHIBA CORPORATION 2005...

Page 2: Table Of Contents

Page 3: Service Safety Precautions

SERVICE SAFETY PRECAUTIONS • The caution items shown here describe major safety issues and should always be observed. • The meanings of the various indications are as follows. Indicates a hypothetical situation in which service personnel and nearby third parties, or even WARNING end users due to a product defect after the service operation is completed, could possibly be in danger of injury or even death in the event of operational error.

<u>Page 4</u> WARNING • Always advise users to keep children away. There is danger of injury to children from tools, disassembled products, etc. KEEP CHILDREN AWAY • Always disconnect the power plug before starting work whenever power is not required. Failure to disconnect the power plug before starting work can result in electrical shock. UNPULUG •...

Page 5: Handling The Lcd Module

HANDLING THE LCD MODULE Safety Precautions 3. If the panel surface becomes soiled, wipe with cotton or a In the event that the screen is damaged or the liquid crystal soft cloth. If this does not remove the soiling, breathe on (fluid) leaks, do not breathe in or drink this fluid.

<u>Page 6</u> 7. Do not expose the LCD module to direct sunlight or strong ultraviolet rays for an extended period of time. 8. Do not store the LCD module below the temperature con- ditions described in the specifications. Failure to do so could result in freezing of the liquid crystal due to cold air or loss of resilience or other damage.

Page 7: Service Mode

1.Service Mode 1-1.Starting Service Mode *Set LCD TV to the normal TV signal receive mode. Note: In this "Service Mode" section, [] shows a button. 1-1-1. Press [MUTE] on the remote control once. 1-1-2. Presss [MUTE] again, and press [] on LCD TV.

Page 8: Adjustment

Connect Pattern Generator to the 15-pin D-Sub Jack of LCD TV. Change the TV input mode to PC mode. Set Pattern Generator to the following: 15DL15,15DL75: XGA (1024x768) 16-step or 11-step grayscale 20DL75 : VGA (640x480) 16-step grayscale Go into service mode, and Auto Gain menu appears, and then press VOL [+].

Page 9: Ddc Edid Data Read & Write

2-3. DDC EDID Data Read & Write The following software programs are used to read/write DDC EDID data. DLPortIO.exe t15.edi t20.edi UserPort.exe UserPort.sys (Windows/system32/Drivers) WinEDID_2.0.exe Be very careful that DDC EDID data read/write varies depending on Operating System conditions of (See the fl...

Page 10 2-3-1. Port Setup (Windows 2000, XP only) Copy "UserPort.sys" fi le to c:\windows\system32\drivers. - 10 -...

Page 11 Double-click "DLPortIO.exe" to install port setting program. Double-click "DLPortIO.exe" When the port setting program starts up, the installation program runs automatically. Continue the installation by following instructions on the window. Click "Next" to continue Click "Yes" to continue the installation.

<u>Page 12</u> Select "Yes, I want to restart.." for PC restart and click "Finish" to complete the installation. Select "Yes, I want to restart.." and click "Finish" to complete the installation. Double-click "UserPort.exe" to begin the installation. Double-click "UserPort.exe". Click the numbers in the red circle on the UserPort window, and click "Remove" to remove all default numbers.

Page 13 Add data value "300-3FF" to two areas on the UserPort window and click "Add". After key in Value "300-3FF", click [Add] to store "300-3FF". Confi rm that "300-3FF" is added on the UserPort window. Then update the driver using the following procedure.

Page 14 2-3-2. Preparation EDID Reading & Writing Connect the LCD TV and PC using DDC Jig. (See the fi gure below.) After connection is completed, turn the power ON of the LCD TV. LCD TV Parallel Port Parallel Port Cable D-SUB Cable Power inlet Power cord Power select switch...

Page 15 2-3-3. EDID Reading Double-click "WinEDID.exe" to read EDID data. Double-click "WinEDID.exe". The WinEDID window opens. The program might read the current EDID data automatically. Current EDID data might be displayed on the WinEDID window. Ignore this error message appearing several times by clicking OK. - 15 -...

Page 16 2-3-4. EDID Writing Click [Open] on the WinEDID window, and search for EDIC fi le(*.edi) that matches TV size. t15.edi : 15DL15,15DL75 t20.edi : 20DL75 Click [Open] When the fi le is found, click the fi le to open. Select EDIC fi le(*.edi) that matches TV size and click [Open] The content of selected EDID fi...

Page 17 Click [Write] on the WinEDID window to update EDID data. Click [Write] When checksum error message appears, ignore this error and click [Y]. Upon writing process completed, "Write Data ...Finished" message will appear. Click [Y] Upon writing process completed, "Write Data ...Finished"...

Page 18 2-3-5. Confi rmation of Updated EDID Data Click [Read] to confi rm that the EDID data are written as copied from original data. Click [Read] Upon reading process completed, "Read Data ..Finished" message will appear. - 18 -...

Page 19: Vcti Firmware Installations/Upgrading

3. VCTi Firmware Installation/Upgrading This LCD TV uses two fi rmware programs. 1. VCTi fi rmware 2. SCALER fi rmware When the main board or IC200 is replaced, be sure to install the VCTi49xxY fi rmware. (No program is included in the IC200 spare parts.) This fi...

Page 20: Vcti Firmware Installations

3-1. VCTi Firmware Installation 3-1-1. Preparation Create a new folder on PC and copy the following fi les to the folder. VCTi_TSBxxx_xxx_Vxxx.bin (Vxxx shows fi rmware version.) vct49xyi.zip Setup_Visual_I2C_v3xxx.exe SetupLptDrv9x010400.exe Setup_LptDrv_v0202_XP_2000.exe Note: These software programs are supplied as required. Double-click Setup_Visual_I2C_v3xxx.exe. Continue the installation by following instructions on the window.

<u>Page 21</u> Select appropriate driver fi le according to your PC OS. Windows 98 : SetupLptDrv9x010400.exe Windows 2000/XP : Setup_LptDrv_v0202_XP_2000.exe Double-click the fi le appropriate for your PC OS. The following window opens. Click [I Agree] on the installation window to complete the driver installation. Click [I Agree] to complete the driver installation.

<u>Page 22</u> 3-1-2. Proceeding VCTi Firmware Upgrading Preparation: Connect PC and TV using Jig before proceeding. Disconnect AC power cord of TV. Connect Jig to PC connector on TV with D-sub cable. Connect USB connector on Jig to USB connector on PC. Connect LPT port of Jig to LPT port of PC.

Page 23 Double-click "vcth_tvt.vi2c" fi le in "vct49xyi" folder to install the fi rmware. Doubleclick "vcth_tvt.vi2c" fi le. An error message appears. Ignore this message. Click [OK] to continue installation. Click [OK] The following window appears. Double-click the fi le name next to [Load Bin -> Flash]. Double-click this fi...

Page 24 Select VCTi_TSBxxx_xxx_Vxxx.bin copied in 3-1-1 and click [Open]. Confi rm that the selected fi le is displayed in "Name" on the Watch Item... window. Necessary fi rmware has been appeared. Click [OK]. Click [OK] Set printer (LPT) on the vcth_txt_vi2c window. Select "File"...

Page 25 Click cross box mark till 21 or 22 appears. If 21 or 22 does not appear, TV may not be in the fi rmware installation mode. Unplug the AC power cord of TV and repeat steps from 3-1-2 "Preparation". Click [Erase Flash] to erase fl ash memory data. 10) Click [Load Bin ->...

Page 26: Scaler Firmware Installations

3-2. SCALER Firmware Installation 3-2-1. Preparation Create a new folder on PC and copy the following fi les to the folder. CGProbe Redistributable 5.1.0.5.exe ISPUtility 1.0.0.6.exe Toshiba_15(SCALER)_Verx.xx.hex (for 15-inch TV) Toshiba_20(SCALER)_Verx.xx.hex (for 20-inch TV) Note: These software programs are supplied as required. Double-click "CGProbe

Redistributable 5.1.0.5.exe"...

Page 27 Double-click "ISPUtility1.0.0.6.exe" to start installation of Genesis ISP Utility1. Continue the installation following instructions on the window. Double-click this to start installation Select "I accept the agreement" and click [Next] Click [Next] Click [Next] to continue the installation. Click [Next] Click [Next] Select the "create a desktop icon"...

Page 28 3-2-2. Proceeding SCALER Firmware upgrading Preparation: Connect PC and TV using Jig before proceeding. Disconnect AC power cord of TV. Connect Jig to PC connector on TV with D-sub cable. Connect USB connector on Jig to USB connector on PC. Connect D-sub 9 pin connector on PC.

<u>Page 29</u> Double-click "ISP Utility" icon created on the desktop to run the Genesis ISP Utility program. Set "connection" in ISP Settings to "Serial" on the Genesis ISP Utility window. Click [] to select "Serial" Set "Chip" in ISP Settings to "GM5221BC" on the Genesis ISP Utility window. Click [] to select "GM5221BC"...

Page 30 Set all the settings on the Connection Settings window to those in the table below. Check all the settings, and then click [OK]. Item Setting Port COM1 Baud Rate 115200 Datat Bits Parity None Stop Bits Read Interva Read Multiplier Read Constant Write Multiplier Write Constant...

<u>Page 31</u> 3-2-3. SCALER Firmware Upgrading Set TV to service mode. Starting Service Mode Press [MUTE] on the remote control once. Keep pressing [MUTE] again. Volume indication appears on the TV screen. Press [] on TV when the Volume indication disappears. The Service Mode window appears on the TV screen.

<u>Page 32</u> Click [Start] on the Genesis ISP Utility window of PC to start installing new SCALER fi rmware. Click [Start] to install new SCALER fi rmware Check that the new SCALER fi rmware has been installed. Upon completion of the installation, "ISP successful"...

Page 33: Troubleshooting

4. TROUBLESHOOTING Process A No power Ref.1/1-1 Check 15V or ST_5V Check short circuits of Main B/D of Power B/D or Change Power B/D Fail Pass Change IC200 Check Output of Check IC 1004, IC1005 Of Main B/D IC1004, IC1005(Main B/D) PIN 7 LEVEL(High 3.3V) Fail Fail...

Page 34 Process B No Raster on Component ,D2 Signal Repeat Process A Pass Check R217 of Main B/D Check short circuits of Main B/D 1.Component Jack (high) & JACK B/D Fail 2.D-JACK (LOW) Pass Ref.2 Check short circuits of Check the Input/ Check R715 of Main Level(high 3.3V) Main B/D...

Page 35 No Raster on PC Signal Repeat Process A Pass Ref.4/4-1 Check the input/ Check short circuits of Check R715 of Main B/D output of IC701 of Main B/D main B/D Level(LOW 0V) Fail Fail Pass Pass Re-soldering or Change IC701 of Main B/D Ref.5/5-1 Check the Input / Output Re-soldering or...

Page 36 No Raster on video Signall No Raster on TV(RF) (Video1) Signal Pass Check 5V, 33V of TU100 Check the output of Re-soldering or Change Repeat Process A TU100 Fail the defect part Pass Check the input Check short circuits of Main B/D source &...

Page 37 No Raster on video Signall (Video2, S-video) Repeat Process A Pass Check the input Check short circuits of Main B/D source & side B/D Fail Pass Check R212 of Main B/D Check short circuits of Main B/D 1.Video2 : HIGH Only for 20DL75 &...

Page 38 No Sound No Sound (ALL MODE) (Only VIDEO 1 or PC mode) Change source Check short Check the input Check the R750 Level Input circuits of Main B/D source Video1 : High Fail Fail PC : Low Pass Pass Check the input/output Check Input / Ouput Re-soldering or...

Page 39: Exploded View

5. EXPLODED VIEWS 15DL15,15DL75,20DL75 - 39 -...

Page 40: Chassis And Cabinet Replacement Parts List

• The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description. * • The PC board assembly with mark is no longer available after the end of the production. Model : 15DL15/15DL75/20DL75 Capacitors CD Ceramic Disk : Plastic Film : Electrolytic Resistors

Page 41 Location Parts No. Reference Description C200 72795180 0CK106EF56A CERAMIC, 10UF 3216 16V 10% X7 C201 72795155 0CH6102K406 CERAMIC CHIP, 1000PF 50V J SL 2012 C202 72795180 0CK106EF56A CERAMIC, 10UF 3216 16V 10% X7 C205 72795155 0CH6102K406 CERAMIC CHIP, 1000PF 50V J SL 2012 C207 72795177 0CK104CK56A...

Page 42 Location Parts No. Reference Description C321 72795172 0CH3104K566 CERAMIC, 0.1UF 50V 10% X7R 20 C322 72795156 0CH6152K406 CERAMIC CHIP, 1500PF 50V J SL 2012 C323 72795172 0CH3104K566 CERAMIC, 0.1UF 50V 10% X7R 20 C324 72795171 0CH3103K516 CERAMIC, 10000PF 50V 10% B(Y5 C325 72795165 0CC270DK41A...

Page 43 Location Parts No. Reference Description C907 72795172 0CH3104K566 CERAMIC, 0.1UF 50V 10% X7R 20 C908 72795182 0CK224CF56A CERAMIC, 0.22UF 1608 16V 10% C909 72795172 0CH3104K566 CERAMIC, 0.1UF 50V 10% X7R 20 C910 72795183 0CK225DH94A CERAMIC, 2.2UF 2012 25V 80%, - C911 72795172 0CH3104K566...

Page 44 Location Parts No. Reference Description C1300 72795188 0CK475DD57A CERAMIC, 4.7UF 2012 10V 10% X C1301 72795174 0CH6470K416 CERAMIC, 47PF 50V 5% NP0 2012 C1502 72795157 0CH6471K416 CERAMIC CHIP, 470F 50V J NP0 2012 C1505 72795161 0CH6331K416 CERAMIC CHIP, 330PF 50V J NP0 2012 C1515 72795145 0CE106BF618...

Page 45 Location Parts No. Reference Description R114 72795396 0RJ5101D677 METAL GLAZE, 5.1K OHM 1/10 W 5% 1 R115 72795374 0RJ0102D677 METAL GLAZE, 10 OHM 1/10 W 5% 160 R116 72795345 0RH4701D622 METAL GLAZE, 4.7K OHM 1 / 10 W 20 R117 72795359 0RH0000D622 METAL GLAZE, 0 OHM 1 / 10 W 2012...

Page 46 Location Parts No. Reference Description R330 72795380 0RJ1000D677 METAL GLAZE, 100 OHM 1/10 W 5% 16 R331 72795352 0RH7501D622 METAL GLAZE, 7.5K OHM 1 / 10 W 20 R332 72795364 0RH1002D622 METAL GLAZE, 10K OHM 1 / 10 W 201 R333 72795373 0RJ0000D677...

Page 47 Location Parts No. Reference Description R922 72795365 0RH1003D622 METAL GLAZE, 100K OHM 1 / 10 W 20 R1000 72795362 0RH1000D622 METAL GLAZE, 100 OHM 1 / 10 W 201 R1001 72795345 0RH4701D622 METAL GLAZE, 4.7K OHM 1 / 10 W 20 R1002 72795359 0RH0000D622...

Page 48 Q2002 72795446 0TR387500AA TRANSISTOR, CHIP 2SC3875S(ALY) B D101 72795241 0DSRM00148A DIODE, 1SS355 ROHM R/TP SOD D301 72795242 0DVTB00048A DIODE, VARICAP1SV324E, LF TOSHIBA R D1000 72795238 0DR340009AA DIODE, MBRS340 TP FAIRCHILD D1200 72795240 0DSGF00019A DIODE, 1N4148 GULF TP D035 LED1301 72795283...

Page 49 72795324 6871TSTB50A PC BOARD ASSY, SUB, TOSHIBA 20-15 (NT-CK #1,#2 72781902 6871TSTB51J PC BOARD ASSY, SUB, TOSHIBA 15 USA (NT-C 72781905 6871TSTB51C PC BOARD ASSY, SUB, TOSHIBA 20-15 USA (N 72781907 6871TSTB49D PC BOARD ASSY, SUB, TOSHIBA 20-I5 USA C...

Page 50: Pc Boards Top & Bottom View

7. PC BOARDS TOP & BOTTOM VIEW * The information contained in this section subjects to model. MAIN BOARD BOTTOM (FOIL) SIDE - 50 -...

Page 51 MAIN BOARD TOP (COMPONENT) SIDE - 51 -...

Page 52 CONTROL BOARD CONTROL BOARD BOTTOM (FOIL) SIDE TOP (COMPONENT) SIDE JACK JACK BOTTOM (FOIL) SIDE TOP (COMPONENT) SIDE SIDE BOARD (20DL75) SIDE BOARD (20DL75) BOTTOM (FOIL) SIDE TOP (COMPONENT) SIDE - 52 -...

Page 53 SIDE BOARD (15DL75) SIDE BOARD (15DL75) BOTTOM (FOIL) SIDE TOP

(COMPONENT) SIDE IR BOARD IR BOARD BOTTOM (FOIL) SIDE TOP (COMPONENT) SIDE HEADPHONE BOARD (20DL75) HEADPHONE BOARD (20DL75) HEADPHONE BOARD (15DL75) BOTTOM (FOIL) SIDE TOP (COMPONENT) SIDE BOTTOM (FOIL) SIDE HEADPHONE BOARD (15DL75) TOP (COMPONENT) SIDE - 53 -...

Page 54: Schematic Diagram

8. SCHEMATIC DIAGRAM MODEL : 15DL15 / 15DL75 / 20DL75 WARNING : BEFORE SERVICING THIS CHASSIS, READ THE "SERVICE SAFETY PRECAUTIONS" ON PAGE 3 OF THIS MANUAL. CAUTION : The international hazard symbols " " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Page 55: Wiring Diagram

8-1. WIRING DIAGRAM - 55 -...

Page 56: Block Diagram (20DI75)

20DL75 8-2. BLOCK DIAGRAM (- 56 -...

Page 57: Block Diagram (15Dl15,15Dl75)

15DL15,15DL75 8-3. BLOCK DIAGRAM (- 57 -...

<u>Page 58</u> 1. Video Controller Unit & Display Data Conversion Unit The video controller unit receives the video signals inputted through the tuner, AV port (VIDEO1, VIDEO2), and converts them into an ITU656 signal through the microcomputer (VCTI) combined with the video decoder that integrates various functions in one chip.

Page 59 * The information contained in this section subjects to model. 15DL15,15DL75,20DL75 SCALER (1/17) - 59 -...

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- Page 61 15DL15,15DL75,20DL75 POWER (3/17) 61 -...
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- Page 63 15DL15,15DL75,20DL75 INPUT (5/17) 63 -...
- Page 64 15DL15,15DL75,20DL75 S/W & ROM (6/17) 64 -...
- Page 65 15DL15,15DL75,20DL75 INTERFACE (7/17) 65 -...
- Page 66 15DL15,15DL75,20DL75 TUNER (8/17) 66 -...
- Page 67 15DL15,15DL75,20DL75 VCTI (9/17) 67 -...
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This manual is also suitable for:

15dl7520dl75