



# **TOSHIBA**

Toshiba 21N21B2 Service Manual



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TOSHIBA  
SERVICE MANUAL  
COLOUR

# TELEVISION

# 21N21B2

PRINTED IN UK. 2002 C

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[TV Toshiba 14R01B Service Manual](#)

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## Summary of Contents for Toshiba 21N21B2

[Page 1](#) TOSHIBA SERVICE MANUAL COLOUR TELEVISION 21N21B2 PRINTED IN UK. 2002 C...

### [Page 2: Servicing Notices On Checking](#)

SERVICING NOTICES ON CHECKING 1. KEEP THE NOTICES 6. AVOID AN X-RAY As for the places which need special attentions, Safety is secured against an X-ray by consider- they are indicated with the labels or seals on the ing about the cathode-ray tube and the high cabinet, chassis and parts.

### [Page 3: Table Of Contents](#)

CONTENTS SERVICING NOTICES ON CHECKING ..... A1-1 HOW TO ORDER PARTS ..... A1-1 IMPORTANT .....A1-1 CONTENTS .....A2-1 GENERAL SPECIFICATIONS .....A3-1~A3-5 DISASSEMBLY INSTRUCTIONS 1.REMOVAL OF ANODE CAP .....B1-1 2.REMOVAL AND INSTALLATION OF FLAT PACKAGE IC ..... B2-1, B2-2 SERVICE MODE LIST .....

### [Page 4: General Specifications](#)

GENERAL SPECIFICATIONS CRT Size / Visual Size 21 inch / 544.5mmV System CRT Type NORMAL Deflection degree Magnetic Field BV/BH +0.45G/0.18G Color System Speaker 1 Speaker Position Front Size 1.5 x2.7 Inch Impedance Sound Output 5.0 W 10%(Typical) 4.0 W DDR SECAM NTSC3.58(AV)+NTSC4.43 PAL60Hz...

[Page 5](#) GENERAL SPECIFICATIONS On Screen Menu Display Menu Type Character Picture Contrast Brightness Colour Tint (NTSC Only) Sharpness Audio Bass Treble Balance BBE On/Off Stable Sound On/Off CH Tuning Manual Auto CH MAPPING CH Allocation Language Clock Set On/OffTimer Set On Timer Set Pin Code Registration Panel Lock Nicam Auto Off...

[Page 6](#) GENERAL SPECIFICATIONS G-10 Remote Unit RC-GX Control Glow in Dark Remocon Format Custom Code 40-BF h Power Source Voltage(D.C) UM size x pcs UM-4 x 2 pcs Total Keys 34 Keys Keys Power 1/Rename 2/Move Volume Up / + Volume Down / - Previous Select Picture Menu...

[Page 7](#) GENERAL SPECIFICATIONS G-11 Features Auto Degauss Auto Shut Off Canal+ CATV Anti-theft(Back Up 30 Min.) Memory(Last CH) Memory(Last Volume) Auto Search CH Allocation CH MAPPING Just Clock Function Game Position CH Label VM Circuit Full OSD Noise Blue Back T'Text Text type Fastext Text Language...

[Page 8](#) GENERAL SPECIFICATIONS G-13 Interface Switch Front Power (Tact Sw) System Select Main Power SW Sub Power Channel Up Channel Down Volume Up Volume Down Rear AC/DC TV/CATV Selector Degauss Main Power SW Indicator Power Stand-by Stand-by/ON Yes(Red) On Timer Yes(Green) Terminals Front Video Input...

### [Page 9: Disassembly Instructions](#)

DISASSEMBLY INSTRUCTIONS 3. After one side is removed, pull in the opposite direction to 1. REMOVAL OF ANODE CAP remove the other. Read the following NOTED items before starting work. NOTE After turning the power off there might still be a potential Take care not to damage the Rubber Cap.

### [Page 10: Removal And Installation Of Flat Package Ic](#)

DISASSEMBLY INSTRUCTIONS REMOVAL AND INSTALLATION OF When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using FLAT PACKAGE IC a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 2-3.) REMOVAL NOTE Put the Masking Tape (cotton tape) around the Flat...

[Page 11](#) DISASSEMBLY INSTRUCTIONS INSTALLATION When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin- Take care of the polarity of new IC and then install the tip Soldering Iron. (Refer to Fig. 2-8.) new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily.

### [Page 12: Service Mode List](#)

SERVICE MODE LIST This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily. To enter the Service Mode, press both set key and remote control key for more than 2 seconds. Remocon Key Operations Set Key Reset the user setting items (PICTURE, VOLUME and LANGUAGE) to the initial state VOL.

### [Page 13: Electrical Adjustments](#)

ELECTRICAL ADJUSTMENTS 1. ADJUSTMENT PROCEDURE 2. BASIC ADJUSTMENTS Read and perform these adjustments when repairing the 2-1: CONSTANT VOLTAGE circuits or replacing electrical parts or PCB assemblies. Place the set with Aging Test for more than 5 minutes. CAUTION Connect the digital voltmeter to TP501. Set condition is AV MODE without signal.

[Page 14](#) ELECTRICAL ADJUSTMENTS 2-6: FOCUS 2-10: BRIGHT CENT Receive a 70dB monoscope pattern. Receive the PAL black pattern\*. (RF Input) Turn the Focus Volume fully counterclockwise once. Using the remote control, set the brightness and Adjust the Focus Volume until picture is distinct. contrast to normal position.

[Page 15](#) ELECTRICAL ADJUSTMENTS 2-13: TINT Receive the NTSC color bar pattern. (Audio Video Input) Using the remote control, set the brightness and contrast to normal position. Connect the oscilloscope to TP024. Activate the adjustment mode display of Fig. 1-1 and press the channel button (20) on the remote control to select "TINT".

[Page 16](#) ELECTRICAL ADJUSTMENTS PURITY AND CONVERGENCE 3-3: STATIC CONVERGENCE ADJUSTMENTS NOTE Adjust after performing adjustments in section 3-2. NOTE Receive the crosshatch pattern from the color bar Turn the unit on and let it warm up for at least 30 generator. minutes before performing the following adjustments.

[Page 17](#) ELECTRICAL ADJUSTMENTS 4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION) CRT PCB TP024 CP806 TP022 J801 CP802B CP803B VR420 J701 VR401 FB401 CP401 CD802 TP501 R521 TP001 CP802A AC IN DEGAUSS COIL SPEAKER CD501 CP502 CP1002 CP501 J702 OS101 J703 J704 MAIN PCB...

### [Page 18: Block Diagram](#)

BLOCK DIAGRAM CH UP TU001 MICON W/T.TEXT IC CH DOWN IC101 OECF012A Q102 SCL SDA VOL UP LED DRIVE ON\_TIMER Q103 KEY\_IN VOL DOWN LED DRIVE STANDBY LED ON TIMER P.CON+5V D103 STAND BY/P.ON SDA 19 MEMORY IC CHROMA IC D101 AVDD1 IC199...

### [Page 19: Printed Circuit Boards Main/Crt](#)

PRINTED CIRCUIT BOARDS MAIN/CRT (INSERTED PARTS) SOLDER SIDE CP101 C408\_1 R430 VR420 W112 R407 L706 R428 W833 L708 J701\_1 L711 L704 W804 L707 W115 W016 D410 R713 R715 D712 R720 R714 R716 W033 W012 C412 Q702 D405 W027 D527 R703 R412 W071 W013...

[Page 20](#) PRINTED CIRCUIT BOARDS MAIN/CRT (CHIP MOUNTED PARTS) SOLDER SIDE R132 Q703 R137 Q103 Q102 R738 C736 R102 R103 R104 R101 R107 R603 C140 C109 C108 R605 R816 Q601 C102 C112 W853 R811 C111\_1 C101 C104 C132 R148 IC102 R512 C139\_1 C509 IC199 Q1002...

[Page 21](#) MICON/TUNER SCHEMATIC DIAGRAM (MAIN PCB) TU001 TUWRF4EK-778F2A OS101 LED DRIVE ON TIMER RPM7138-H5 Q102 D103 2SA1037AK R137 R104 R103 R102 R101 ACCESSORY LTL-1CHGE-002A 2.2K 1.2K LED DRIVE STAND BY/P.ON GREEN Q103 D101 CP001 UM-4 2SA1037AK R132 003P-2100 BT001 C122 R03(AB)2PXGPI SLR-342VCT32 UM-4 TM101...

[Page 22](#) IF/CHROMA SCHEMATIC DIAGRAM (MAIN PCB) TO SOUND AMP SIF BUFFER Q204 W823 2SC2412K R206 MONO\_A\_IN VIF PRE.AMP L206 C204 Q201 L204 W850 0.27uH 0.001 B KTC3881S-RTK CF202\_1 15uH R217 J1951M FROM/TO 21PIN C621 MONO\_A\_OUT1 TUNER\_V\_OUT L202 3700005 EXT\_A\_IN SCART\_V\_IN1 SCART\_V\_IN2/Y 21\_B 21\_G 21\_R...

[Page 23](#) 21PIN/AV SW SCHEMATIC DIAGRAM (MAIN PCB) C742 L717 FROM SOUND AMP 10uH FRONT\_A\_IN\_L FRONT\_V\_IN3 C741 W824 L711 22uH W836 FROM/TO MICON/TUNER FORTH\_D\_VCR\_1 FROM/TO IF/CHROMA BUFFER Q702 L704 KTC3198 SCART\_V\_IN2/Y 22uH EXT\_A\_IN R703 MONO\_A\_OUT1 220 1/4W 21\_B 21\_G 21\_R VIDEO IN 21\_Y VIDEO OUT TUNER\_V\_OUT...

[Page 24](#) SOUND AMP SCHEMATIC DIAGRAM (MAIN PCB) TO 21PIN FRONT\_A\_IN\_L FRONT\_V\_IN3 SOUND AMP IC IC1002 AN5276 ATT.CONT. ATT. FRONT VIDEO RIPPLE J703 FILTER HTJ-032-03AY STAND MUTE FROM IF/CHROMA 20.5 10.3 21.7 10.3 MONO\_A\_IN R707 100 1/2W FRONT AUDIO L J704 HTJ-032-03AW FROM MICON/TUNER R1004 C736...

[Page 25](#) DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB) CP802A CP802B B2013H02-6P B2013H02-6P FROM/TO IF/CHROMA R602 CUT OFF CUT OFF 560 1/4W B.OUT B.OUT B.OUT R.OUT R.OUT R.OUT G.OUT G.OUT G.OUT PROTECT PROTECT V-DRIVE IC IC401 TDA8174A VAMP PROTECT CP803A V\_OUT CP803B Q403 B2013H02-4P B2013H02-4P ABCL KRC102SRTK...

[Page 26](#) POWER SCHEMATIC DIAGRAM (MAIN PCB) ICP502 R543 D526 FE201-6L49 0.39 3W

20P\_3000 R521 0.82 3W D506 R524 1SS133 47K 1/4W 11.5 C503\_1 D520 RELAY SW Q505  
30DF6-FC 100V KTC3203\_Y C517 EMERGENCY Q509 680P TO DEFLECTION/CRT 2SA1624  
H.DRV+B P.CON+8V RY501 ALKS321 P.CON SW Q513 2SA1371...

### [Page 27: If/Chroma](#)

WAVEFORMS MICON/TUNER IF/CHROMA 50µs 20µs 0.5µs 100mV 0.5V 10ms 50µs 100mV  
200mV 20µs 20µs 50µs 0.5V 0.2ms 20µs 20µs 50µs 0.2ms 20µs 100mV NOTE: The following  
waveforms were measured at the point of the corresponding balloon number in the schematic  
diagram.

[Page 28](#) WAVEFORMS 20µs 20µs 20µs 100mV 20µs 20µs 200mV 20µs 10ms 100mV 200mV  
DEFLECTION/CRT 20µs 20µs 10ms 200mV 21PIN/AV SW 10ms 20µs 20µs NOTE: The following  
waveforms were measured at the point of the corresponding balloon number in the schematic  
diagram.

### [Page 29: Sound Amp](#)

WAVEFORMS 10ms 20µs 20µs 20µs SOUND AMP 20µs 0.5V 2µs 0.2ms 200V 20µs NOTE: The  
following waveforms were measured at the point of the corresponding balloon number in the  
schematic diagram.

### [Page 30: Mechanical Exploded View](#)

MECHANICAL EXPLODED VIEW PCB110 (CRT PCB ASS'Y) PCB010 (MAIN PCB ASS'Y) 101C 101D  
101E 101B 101A...

### [Page 31: Mechanical Replacement Parts List](#)

MECHANICAL REPLACEMENT PARTS LIST Location Part Number Description AE000888  
A3M507Y720 CABINET,FRONT ASSY 101A AE000889 701WPJC178 CABINET,FRONT 101B  
AE000504 711WPA0171 PLATE,FRONT 101C AD301499 713WPA0214 GUIDE,REMOCON 101D  
AE000505 735WPA0667 BUTTON,BASE 101E AE000890 735WPBA659 BUTTON,FRAME  
AE000891 A3M507Y740 CABINET,BACK ASSY AE000796 752WSAA006 PLATE,SHIELD AE000797  
752WSAA008 SHIELD,CASE AE000798...

### [Page 32: Electrical Replacement Parts List](#)

ELECTRICAL REPLACEMENT PARTS LIST Location Part Number Description RESISTORS R003  
AE000356 R002T4271J 270 OHM 1/4W R004 AE000356 R002T4271J 270 OHM 1/4W R005  
AE001013 R903N8823J 82K OHM 1/8W R006 AE000970 R903N8153J 15K OHM 1/8W R007  
AE000985 R903N8750J OHM 1/8W R101 AE000977 R903N8391J 390 OHM 1/8W R102...

[Page 33](#) ELECTRICAL REPLACEMENT PARTS LIST Location Part Number Description  
RESISTORS R427 AE000367 R801R7101J 100 OHM 1/10W R428 BZ210150 R002T2010J OHM  
1/2W R430 BZ210164 R002T4104J 100K OHM 1/4W R446 AE000353 R002T2471J 470 OHM 1/2W  
! R501 BZ210206 R002T2155J 1.5M OHM 1/2W R502 AE000966 R903N8103J 10K OHM 1/8W...

[Page 34](#) ELECTRICAL REPLACEMENT PARTS LIST Location Part Number Description  
RESISTORS R726 AD300780 R903N8102J OHM 1/8W R727 AE000967 R903N8104J 100K OHM  
1/8W R728 AE000967 R903N8104J 100K OHM 1/8W R736 AE000966 R903N8103J 10K OHM  
1/8W R737 BZ210143 R903N8563J 56K OHM 1/8W R738 AE000979 R903N8472J 4.7K OHM 1/8W  
R745...

[Page 35](#) ELECTRICAL REPLACEMENT PARTS LIST Location Part Number Description  
CAPACITORS C220 BZ110042 E02LU1471M 470 UF 10V C221 AE000311 CS0RB0315K 0.1 UF  
25V B C403 BZ110149 E02LT4471M 470 UF 35V C404 BZ110180 E02LTD2R2M 2.2 UF 250V  
C407 AE000960 P232W1104J 0.1 UF 100V MMTS C408 AD301348 E02LU5100M...

[Page 36](#) ELECTRICAL REPLACEMENT PARTS LIST Location Part Number Description  
CAPACITORS C725 AE000336 E02LU1101M 100 UF 10V C726 AE000325 CS0RCH4Q2J 470 PF  
50V CH C727 AE000325 CS0RCH4Q2J 470 PF 50V CH C731 AE000312 CS0RB0414K 0.01 UF 50V  
B C736 BZ110278 CS0RB0216K UF 16V B C741 BZ110096 E50HU2100M...

[Page 37](#) ELECTRICAL REPLACEMENT PARTS LIST Location Part Number Description IC199  
AE000994 A3M507Y015 S-24C04BFJ-TB IC201 AE000034 I0WDE2246E STV2246E ! IC401  
BZ611081 I0WTD81740 TDA8174A IC502 BZ611089 I1KA98R09A KIA78R09API IC503 AE000475  
I1KA98R060 KIA278R06PI ! IC506 BZ410088 0002E00610 PHOTO COUPLER LTV-817M-VB IC701



AD301988 I0UF015010 MM1501XNRE IC1002 AD300056 I0FSP52760...

[Page 38](#) ELECTRICAL REPLACEMENT PARTS LIST Location Part Number Description VARIABLE  
RESISTORS VR501 BZ210128 V1163H3BTC VOLUME,SEMI FIXED EVNCYAA03BE3 P.C.BOARD  
ASSEMBLIES PCB010 AE000993 A3M507Y010K PCB ASS'Y TMC572A PCB110 AE000995  
A3M507Y110K PCB ASS'Y TCC433A MISCELLANEOUS B501 BZ310121 024HT03553 CORE,BEADS  
W5RH3.5X5X1.0 B504 BZ310129 024HT03564 CORE,BEADS W4BRH3.5X6X1.0 B701  
BZ310129...

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