Toshiba e-STUDIO167 Service Manual

Multifunctional digital systems

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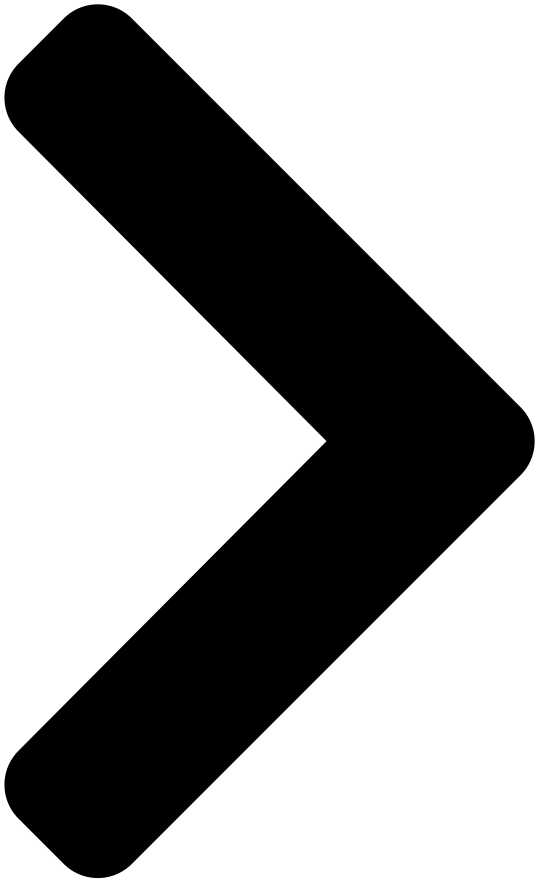

SERVICE MANUAL

MULTIFUNCTIONAL DIGITAL SYSTEMS

e-

STUDIO167/207/237

File No. SME060037A0
R061121D3500-TTEC
Ver01_2007-03

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GENERAL PRECAUTIONS REGARDING THE SERVICE FOR e-STUDIO167/207/237 The

installation and service should be done by a qualified service technician. 1) Transportation/Installation When transporting/installing the equipment, remove the drawer, employ two persons and be sure to hold the positions as shown in the figure.

Page 4 If these parts are short-circuited and their functions become ineffective, they may result in fatal accidents such as burnout. Do not allow a short-circuit or do not use the parts not recommended by Toshiba TEC Corporation. 4) Cautionary Labels During servicing, be sure to check the rating plate and cautionary labels such as “Unplug the power cable during service”, “CAUTION.

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* “–” means “Not acceptable”. * The copy speed in the above table are available when originals are manually placed for single side, multiple copying. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES...

Page 10 Eliminated portion ....Leading edges: 3.0±2.0 mm, Side/trailing edges: 2.0±2.0 mm (copy) Leading / trailing edges: 5.0±2.0 mm, Side edges: 5.0±2.0 mm (print) e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES 1 - 2...

Page 11 1.6 kW or less (200 V series) * The electric power is supplied to the ADF/RADF, PFU, PFP and ADU through the equipment. y Total counter ....Electronical counter © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES...

Page 12 Dimensions of the equipment ....W 600 x D 658.6 x H 462.5 (mm): See the figure below Fig. 1-1 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES 1 - 4...

Page 13: Accessories

ASU: Asia / Saudi Arabia SAD: Saudi Arabia ARD: Latin America CND: China TWD: Taiwan KRD: Korea JPD: Japan © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES 1 - 5 07/03...

Page 14: Options

The external keyboard (GJ-1040) is necessary for the installation of the fax kit (GD-1220) and the scanner upgrade kit (GA-1200). e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES 1 - 6...

Page 15: Supplies

PS-ZT1640T5 (4) (for Taiwan) PS-ZT1640E (1) (for Europe) PS-ZT1640E5K (1) (for Europe) Developer material D-2320 (except for China) D-2320C (for China) © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES 1 - 7...

Page 16: System List

System List Fig. 1-2 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES 1 - 8...

Page 17: Outline Of The Machine

Automatic original detection sensor S9-S13 Laser optical unit Polygonal motor Pickup roller Separation claw Paper empty sensor Registration sensor Registration roller Bypass pickup roller © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 1...

Page 18 Front cover opening/closing interlock switch Temperature/humidity sensor Switching regulator ADU cover opening/closing interlock switch ADU upper transport roller ADU lower transport roller ADU paper guide e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 2...

Page 19 Exit motor (Option) ADU motor (Option) CIS home position sensor Platen sensor Drawer detection switch CLT1 Registration clutch SOL1 Pickup solenoid SOL2 Bypass pickup solenoid © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 3...

Page 20: Electric Parts Layout

Electric Parts Layout [A] Scanner, control panel THMO2 HPNL LT series models Fig. 2-3 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 4...

Page 21 [B] Power supply section, switches Fig. 2-4 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 5...

Page 22 [C] Laser optical unit, fuser unit, toner cartridge section CTIF CTRG LAMP1 LAMP2 THMO1 THMS1 THMS2 THMS3 Fig. 2-5 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 6...

Page 23 [D] Developer unit section THMS4 THMO3 Fig. 2-6 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 7...

Page 24 [E] Driving section CLT1 SRAM MAIN SOL1 Fig. 2-7 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 8...

Page 25 [F] Drawer section Fig. 2-8 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 9...

Page 26 [G] Bypass unit, automatic duplexing unit SOL2 Fig. 2-9 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 10...

Page 27: Symbols And Functions Of Various Components

Driving the fuser unit and exit roller Fig. 2-5 MD-0103 Exit motor Option ADU-MOT Driving the automatic duplexing unit Fig. 2-9 MD-0103 ADU motor Option 1-23 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 11...

Page 28 16-9 Pickup solenoid the feed roller SOL2 SFB-SOL Controlling the power transmission of Fig. 2-9 14-15 Bypass pickup solenoid the bypass pickup roller e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 12...

Page 29 DRM-DH Preventing condensation of the drum Fig. 2-6 Drum damp heater Optional for NAD/MJD/CND model, standard for other models © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 13...

Page 30 • Supplying AC power to the heater lamp Displaying each information Fig. 2-3 4-19 LCD panel e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 14...

Page 31: General Description

General Description 2.4.1 System block diagram Fig. 2-10 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 15...

Page 32: Construction Of Boards

This is the interface board with the CTRG board in the toner cartridge. Information written in the IC chip on the CTRG board is read into the SoC on the MAIN board through this board. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 16...

Page 33 ADU board: This is the board to control the optional Automatic Duplexing Unit (ADU). It detects paper feeding with a sensor mounted on the ADU board. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE...

Page 34: Disassembly And Replacement Of Covers

Take off the front cover while lifting it up. Fig. 2-12 [B] Inner tray Remove 2 screws and take off the Inner tray. Inner tray Fig. 2-13 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 18...

Page 35 [D] Tray rear cover Take off the left cover. P.2-19 "[C] Left cover" Take off the tray rear cover. Tray rear cover Fig. 2-15 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 19...

Page 36 Remove 2 screws and take off the front right cover. Fig. 2-16 [F] Front upper cover Remove 1 screw and take off the front upper cover. Front upper cover Fig. 2-17 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 20...

Page 37 Open the ADU cover. Pull out the drawer. Remove 2 screws and take off the right front cover. Right front cover Fig. 2-20 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 21...

Page 38 Take off the 2 screw and take off the right rear cover. Right rear cover Fig. 2-21 Rear cover Remove 5 screws and take off the rear cover. Rear cover Fig. 2-22 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 22...

Page 39: Disassembly And Replacement Of Pc Boards

3. Be sure to perform "05-310" with the platen cover or the ADF/RADF closed after replacing the MAIN board. MAIN board Fig. 2-24 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 23...

Page 40 NAD, CND and MJD.) Take off the rear cover. P.2-22 "[J] Rear cover" Remove 2 screws and take off the cover. Cover Fig. 2-27 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 24...

Page 41 Paper feed controller connectors at the same time before tak- Connector PC board ing off the paper feed controller PC board. Fig. 2-29 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 25...

Page 42 Switching regulator unit Fig. 2-32 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 26...

Page 43 Fig. 2-34 Remove 8 screws, release 1 locking support, and take off the switching regulator board. Locking support Switching regulator board Fig. 2-35 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 27...

Page 44 Switching regulator cooling fan P.2-19 "[C] Left cover" Disconnect 1 connector and take off the switching regulator cooling fan while sliding it upward. Connector Fig. 2-36 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 28...

Page 45: Removal And Installation Of Options

Remove 1 screw and take off the connector cover. Fig. 2-37 Remove the ground wire. Fig. 2-38 Disconnect the connector. Fig. 2-39 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 29...

Page 46 Remove 1 screw on the rear right side. Fig. 2-40 Remove 1 screw and 1 washer on the rear left side. Fig. 2-41 Open the ADF/RADF. Fig. 2-42 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 30...

Page 47 When PFP is not installed Turn the power OFF and unplug the power cable. Remove 1 screw and take off the PFU con- nector cover. Fig. 2-45 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 31...

Page 48 Remove the ground wire. Fig. 2-46 Disconnect the connector. Fig. 2-47 Install the PFU connector cover. Fig. 2-48 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 32...

Page 49 Take off the drawer of the equipment and PFU drawer. Fig. 2-50 Remove 1 screw and take off 1 fixing bracket on the front left side. Fig. 2-51 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 33...

Page 50 Fig. 2-53 (12) Remove 1 screw and take off 1 fixing bracket on the rear right side. Fig. 2-54 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 34...

Page 51 Fig. 2-56 Take off the equipment from the PFU. P.2-31 "[B-1] When PFP is not installed" Take off the PFP drawer. Fig. 2-57 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 35...

Page 52 Fig. 2-59 Remove 1 screw and take off 1 fixing bracket on the rear left side. Fig. 2-60 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 36...

Page 53 [C] KD-1022 (Paper Feed Pedestal (PFP)) Take off the equipment and the PFU. Then take off the PFP. P.2-35 "[B-2] When PFP is installed" Fig. 2-63 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 OUTLINE OF THE MACHINE 2 - 37...

Page 54 © February 2007 TOSHIBA TEC CORPORATION All rights reserved OUTLINE OF THE MACHINE 2 - 38...

Page 55: Copy Process

È Transfer bias: Improves transfer efficiency. È Transfer: Transfers the visible toner image on the photoconductive drum onto paper. È © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 COPY PROCESS 3 - 1...

Page 56: Details Of Copying Process

Time (t) Black area of original -500 White area of original Discharge Charging process process Electric potential of the photoconductive drum Fig. 3-3 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved COPY PROCESS 3 - 2...

Page 57 Light Image processing section Difference between "light " and "dark" is divided into 256 steps. Fig. 3-5 Dark Fig. 3-6 © February 2007 TOSHIBA TEC CORPORATION All rights

reserved e-STUDIO167/207/237 COPY PROCESS 3 - 3...

Page 58 (laser emission) to expose the drum surface and form an electrostatic latent image on it. Image LDR board processing section Polygonal mirror Semiconductive laser element Photo- conductive drum Fig. 3-7 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved COPY PROCESS 3 - 4...

Page 59 - 100V Fig. 3-10 Charging AC bias To obtain the stable development characteristics, AC bias (approx. 1,100 V) is charged to the development bias (DC bias). © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 COPY PROCESS 3 - 5...

Page 60 2. Toner scattering occurs. 3. Background fogging occurs. Solution: Replace the developer material. No frictional electrification occurs on the area where the toner is caked. Fig. 3-12 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved COPY PROCESS 3 - 6...

Page 61 The developer material forms a brush-like fluff which contacts the photoconductive drum surface. È This is caused by the magnetic force lines between the south and north poles. Photoconductive drum Magnetic force Magnetic roller line Fig. 3-13 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 COPY PROCESS 3 - 7...

Page 62 Is this graph, the toner consumption for copying in TEXT/PHOTO mode using chart “A” is defined as 100%. Output pages 140% 100% 24,000 or 5,900 pages TEXT/PHOTO TEXT PHOTO Type of originals Fig. 3-14 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved COPY PROCESS 3 - 8...

Page 63 (C) 369 µADC From 5 mm from trailing edge to trailing edge (L) 282 µADC Direction of transportation Drum rotation Transfer charger Toner Fig. 3-16 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 COPY PROCESS 3 - 9...

Page 64 To prevent this, a separation finger is used to forcibly separate the paper which was left around the drum. Separation finger Paper movement Separation charger Drum rotation Fig. 3-18 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved COPY PROCESS 3 - 10...

Page 65 The toner is then caught by the recovery blade. Recovery blade Cleaning blade Drum rotation Fig. 3-21 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 COPY PROCESS 3 - 11...

Page 66 È All of the negative charge remaining on the pho- toconductive drum is conducted to the ground. È Preparation for the next printing is completed. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved COPY PROCESS 3 - 12...

Page 67: Comparison With E-Studio230/280

PFA tube roller (ø30) PFA tube roller (ø25) • Cleaning Cleaning roller for pressure roller (ø16) None Å • Heater Heater lamp Turned ON/OFF by thermistor © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 COPY PROCESS 3 - 13...

Page 68 © February 2007 TOSHIBA TEC CORPORATION All rights reserved COPY PROCESS 3 - 14...

Page 69: General Operation

Overview of Operation Operation of equipment Operation during initializing, pre-running and ready Drawer feed copying by [START] button Copying operation Bypass feed copying Interrupt copying © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 GENERAL OPERATION 4 - 1...

Page 70: Description Of Operation

When no button is pressed for a certain period of time, - Set number “1” is displayed. Equipment returns to the normal ready state. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved GENERAL OPERATION 4 - 2...

Page 71: Drawer Feed Copying

7) Timing chart for copying one A4 size sheet fed from the drawer (Unit : ms) Main motor 9400 Registration sensor 2354 4829 Registration clutch 2594 5009 MVDEN signal 2801 5103 Exit sensor 4615 6921 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 GENERAL OPERATION 4 - 3...

Page 72: Bypass Feed Copying

LED “INTERRUPT” OFF by pressing the [INTERRUPT] button o “READY to resume job” is displayed 4) Press the [START] button o The copying operation before the interruption is resumed e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved GENERAL OPERATION 4 - 4...

Page 73: Detection Of Abnormality

(D) Replace the toner cartridge (E) Developer unit not installed properly 3) Abnormality not cleared without turning OFF the main switch (F) Call for service © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 GENERAL OPERATION 4 - 5...

Page 74: Description Of Abnormality

OFF: It is judged that there is no paper È The lamp on the control panel corre- sponding to the drawer blinks (When the drawer is selected) e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved GENERAL OPERATION 4 - 6...

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“Misfeed in bypass“ is displayed : E12 È Copying operation is disabled È Solution: The bypass paper sensor is turned OFF by removing the paper from the bypass tray. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 GENERAL OPERATION 4 - 7...

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The registration sensor (S4) is not turned ON in a fixed period of time when paper is fed out of the ADU. È Paper jam (E11) e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved GENERAL OPERATION 4 - 8...

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Control circuit Æ The toner lamp brinks: the copying operation disabled Solution: Open the front cover and replace the toner cartridge with a new one. Toner is supplied Æ copying operation enabled. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 GENERAL OPERATION...

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Error code is displayed instead of the set number by pressing the [CLEAR] button and [8] button simultaneously when the service call lamp is blinking. Refer to the error code table in the Service Handbook. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved GENERAL OPERATION 4 - 10...

Page 79: Flow Chart

Exit sensor ON? detected? 13 - 15 seconds ADU sensor ON? Peak detected? elapsed? Paper jam Call for service Call for service "E03" "C26" "C21" Fig. 4-3 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 GENERAL OPERATION 4 - 11...

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Call for service Call for service Call for service Fuser roller “C41” “C44” “CA1” reached ready “C43” temp.? READY Fig. 4-4 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved GENERAL OPERATION 4 - 12...

Page 81: Automatic Paper Feed Copying

Remaining set number=0? Scanning system control completed Exit sensor detected leading edge of paper? Laser OFF Paper jam Processing system control completed “E01” Fig. 4-5 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 GENERAL OPERATION 4 - 13...

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“E02” Polygonal motor OFF Main charger OFF Discharge LED OFF Developer bias OFF Exit motor OFF Drum rotation reversed Main motor OFF READY Fig. 4-6 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved GENERAL OPERATION 4 - 14...

Page 83: Control Panel

When the operator’s attention is required, graphic symbols appear with messages explaining the condi- tion of the equipment in the LCD panel. Fig. 5-1 e-STUDIO167/207/237 CONTROL PANEL 5 - 1...

Page 84: Items Shown On The Display Panel

4) When input values can be changed by the up or down button in the self-diagnosis mode, the LED in the center of the up, down, left and right buttons is lit. e-STUDIO167/207/237 CONTROL PANEL 5 - 2...

Page 85: Message

Maintenance and inspection by a quali- • Displayed when it is time for pre- fied service technician ventive maintenance and inspection • Capable of copying e-STUDIO167/207/237 CONTROL PANEL 5 - 3...

Page 86: Relation Between Equipment State And Operation

*2 [SCAN] button: This button is enabled when GA-1190 and GA-1200 are installed, and disabled when they are not installed. *3 [FAX] button: This button is enabled when GD-1220 is installed and disabled when it is not installed. e-STUDIO167/207/237 CONTROL PANEL 5 - 4...

Page 87: Operation

+5V, +5VB, -12V Control panel data bus (OD0-7) Panel controlling ASIC Hard-key matrix Serial data (OPLDSO) driver Buzzer ON signal (BZON) ASIC Buzzer Fig. 5-5 e-STUDIO167/207/237 CONTROL PANEL 5 - 5...

Page 88: Led Display Circuit

The LED is turned ON only when the two conditions below are met. 1) The FET connected to the LED anode is ON. 2) The cathode side of the LED is “L” level. e-STUDIO167/207/237 CONTROL PANEL 5 - 6...

Page 89: Disassembly And Replacement

When installing the control panel unit, be sure not to have the harness being caught by the front right cover and the unit. Control panel unit Fig. 5-8 e-STUDIO167/207/237 CONTROL PANEL 5 - 7...

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Bracket Fig. 5-10 Remove 11 screws, disconnect 1 connector, and then take off the control panel PC board. Control panel PC board Connector Fig. 5-11 e-STUDIO167/207/237 CONTROL PANEL 5 - 8...

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Take off the control panel pc board. P.5-8 "[B] Control panel PC board (HPNL)" LCD PC board Remove 2 screws and take off the LCD PC board. Fig. 5-12 e-STUDIO167/207/237 CONTROL PANEL 5 - 9...

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 CONTROL PANEL 5 - 10...

Page 93: Scanner

Damp heater Damp heater CIS unit CIS unit Automatic original detection sensor Automatic original detection sensor Damp heater Damp heater A4 series LT series Fig. 6-1 e-STUDIO167/207/237 SCANNER 6 - 1...

Page 94: Construction

RGB light guiding tube Rod-lens array Drive section Scan motor (M1) Automatic original detection sen- sor (S9-S13) CIS home position sensor (S1) Others Damp heater (DH1, DH2) e-STUDIO167/207/237 SCANNER 6 - 2...

Page 95: Functions

Works as an assistant light for the RGB light guiding tube. This YG-LED array is used to reduce the shadow of the original when scanning is performed.This LED array produces the output power of 7.68W. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER...

Page 96 5) Automatic original detection sensor (S9-S13) The size of an original placed on the glass is instantly detected using the APS sensors fixed on the base frame. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 4...

Page 97: Scanning Operation

Scanning an original on the ADF/RADF The CIS unit (CIS) stops and stays at the shading position during the shading correction, and at the scanning position during the scanning operation. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER...

Page 98: Scan Motor Drive Circuit

SCNEN: Cutting off of the drive output ENABLE SCNCLK: Clock input CLOCK VREF SCNMVR: Voltage to set value for the motor current IC53 Driver IC MAIN board Fig. 6-3 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 6...

Page 99 Motor wire current value can be set in the range of 0 to 2.0 (A)/phase by applying the analog voltage of 0 to 5 (V). © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 7...

Page 100: Contact Image Sensor Unit Control Circuit

MAIN board Contact image sensor unit +24V Green Blue Yellow-Green SCNLEDVR3-1 Serial data SCNLEDVR1-1 converter SCNLEDVR2-1 SCNLEDROFF-1 SCNLEDGOFF-1 ASIC SCNLEDBOFF-1 SCNLEDASTOFF-1 Fig. 6-4 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 8...

Page 101: Ccd Control Circuit

TRCLCK CK2B MCLCK RSCLCK IMGDTA[0] SCNIMGA[0] IMGDTA[1] SCNIMGA[1] CDIN1 IMGDTA[2] SCNIMGA[2] CDIN2 IMGDTA[3] SCNIMGA[3] CDIN3 IMGDTA[4] SCNIMGA[4] CDIN4 IMGDTA[5] SCNIMGA[5] IMGDTA[6] SCNIMGA[6] IMGDTA[7] SCNIMGA[7] Fig. 6-5 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 9...

Page 102 Chip 7 Chip 8 Chip 9 Chip 10 Chip 11 Channel 1 Channel 2 Channel 3 Channel 4 Primely scanning: 7084 pixels (1 line) Fig. 6-6 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 10...

Page 103 (S - K) I = k (W - K) Coefficient Image data before correction Black data (stored in "Black" memory) White data (stored in "White" memory) © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 11...

Page 104: Automatic Original Size Detection Circuit

(when scanning black image). [A4 Series] [LT Series] Original Original glass Original Original glass APS-R APS-R APS-3 APS-3 APS-2 APS-1 APS-C APS-C APS-2 Fig. 6-7 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 12...

Page 105: Process Of Detection Of Original Size

[LT Series] +5VAPS +5VAPS APS-R APS-R APS-C APS-C Reflection type Reflection type ASIC ASIC APS-3 photosensor photosensor APS-3 APS-2 APS-1 APS-2 MAIN board MAIN board Fig. 6-8 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 13...

Page 106 Sensor detection points [A4 Series] APS-R APS-C A5-R B5-R A4-R APS-3 APS-1 APS-2 Fig. 6-9 [LT Series] APS-R APS-C ST-R APS-3 LT-R APS-2 Fig. 6-10 e-STUDIO167/207/237 ©

February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 14...

Page 107 The latest original size (or no original state) recognized right before the platen sensor (S2) is turned ON is retained regardless of the status the APS sensor output signals. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER...

Page 108 The pulse modulation is performed inside the reflection type phototransistor. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 16...

Page 109: Disassembly And Replacement

4. The rubber caps are not installed in the equipment for NAD, CND, AUD, TWD, KRD and ARD. Fig. 6-13 Take off the ADF original glass. ADF Original glass Fig. 6-14 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 17 07/03...

Page 110 P.2-20 "[F] Front upper cover" Take off the control panel unit. P.5-7 "[A] Control panel unit" Remove 8 screws and take off the scanner top cover. Fig. 6-16 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 18...

Page 111 APS sensor. Take off 4 APS sen- sors. Note: When installing the automatic original detec- Connector tion sensor, connect the connector (yellow) to the connect one. Connector (Yellow) Fig. 6-18 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 19...

Page 112 Take off the scanner top cover. P.6-18 "[B] Scanner top cover" Disconnect 1 connector. Connector Fig. 6-19 Remove 2 screws and take off the scan motor. Scan motor Fig. 6-20 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 20...

Page 113 Take off the original glass. P.6-17 "[A] Original glass" Remove 1 screw and take off the CIS home position sensor with the bracket. Bracket CIS home position sensor Fig. 6-23 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 21...

Page 114 Connector Disconnect 1 harness clamp and 1 connec- tor. Fig. 6-25 Release 2 latches and take off the platen sensor. Platen sensor Fig. 6-26 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 22...

Page 115 Place the flat harness along the edge of the scanner base. Align the seal with the two edges of the scanner base. Harness Fig. 6-29 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 23...

Page 116 V- groove on the inside of the CIS unit drive belt-1. CIS unit drive belt-1 Fig. 6-32 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 24...

Page 117 Fig. 6-34 CIS unit drive belt-1 Take off the CIS case. P.6-24 "[H] CIS case" Tension bracket Loosen 1 fixing screw of the tension bracket. Fig. 6-35 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 SCANNER 6 - 25...

Page 118 When assembling the CIS unit drive belt-2, CIS unit drive belt-2 be sure to perform the tension adjustment for the scan motor. P.6-20 "[D] Scan motor (M1)" Fig. 6-38 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved SCANNER 6 - 26...

Page 119: Image Processing

High quality image processing, image memory editing, gamma correction, gradation processing, scanner high quality image processing, smoothing processing, image area control, laser related control and printer high quality image processing © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 IMAGE PROCESSING...

Page 120: Configuration

Scanner high-quality image processing Smoothing processing Image area control Laser related control Printer high-quality image processing LDR board Image data flow Laser drive Fig. 7-2 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved IMAGE PROCESSING 7 - 2...

Page 121: Features

High quality image processing Image memory editing Gamma correction Gradation processing Scanner high quality image processing Smoothing processing Image area control Laser related control Printer high quality processing © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 IMAGE PROCESSING 7 - 3...

Page 122: Functions Of Image Processing Circuit

When the matrix is (3 x 1): a+b+x x' = The above averaging operation is performed for all the pixels to accomplish the high reproducibil- ity of original. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved IMAGE PROCESSING 7 - 4...

Page 123 Enlargement/Reduction Enlargement/Reduction is accomplished by using the line memory control function in the process of the image processing operation. <Example> Enlargement 100% 200% © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 IMAGE PROCESSING 7 - 5...

Page 124 This function performs the APC (Auto Power Control). 9) Printer high quality processing This function reproduces the image signals output from the printer controller sharper. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved IMAGE PROCESSING 7 - 6...

Page 125: Laser Optical Unit

H-sync returning mirror SNS board fθ lens-2 Slit glass LDR board Fine focus lens Aperture (Slit) fθ lens-1 Cylinder lens Polygonal motor Fig. 8-2 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 LASER OPTICAL UNIT 8 - 1...

Page 126: Structure

The following cautionary label for the laser is attached to the front right cover (inside of the front cover). Fig. 8-3 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved LASER OPTICAL UNIT 8 - 2...

Page 127 (C). One scan is performed on one plane of the polygonalmirror. Six scans can be made with one rotation of the polygonal mirror. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 LASER OPTICAL UNIT 8 - 3...

Page 128 5) Slit glass Slit glass is located where the laser beams are output from the laser optical unit, and it protects the unit from dust. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved LASER OPTICAL UNIT 8 - 4...

Page 129: Laser Diode Control Circuit

Power source Laser power Semiconductive laser Laser driver comparison circuit circuit Constant optical output Monitor efficiency Monitor output regulation circuit Fig. 8-8 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 LASER OPTICAL UNIT 8 - 5...

Page 130: Polygonal Motor Control Circuit

PMTR-0 Polygonal motor ON signal PMTRCLK Polygonal motor reference clock PMTRSTS-0 Polygonal motor PLL control signal Rotating at a constant Stopping or error speed e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved LASER OPTICAL UNIT 8 - 6...

Page 131: Disassembly And Replacement

P.2-26 "[E] Switching regulator unit (PS)" Remove 1 screw. Pull out the laser optical unit while lifting it up and take it off. Laser optical unit Fig. 8-11 © February 2007 TOSHIBA TEC

CORPORATION All rights reserved e-STUDIO167/207/237 LASER OPTICAL UNIT 8 - 7...

Page 132 © February 2007 TOSHIBA TEC CORPORATION All rights reserved LASER OPTICAL UNIT 8 - 8...

Page 133: General Description

Drive unit Fuser roller Toner motor Toner recovery auger Drum Mixer Bypass feed roller Bypass pickup roller Main motor Pickup roller PFU drive gear Fig. 9-1 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRIVE UNIT 9 - 1...

Page 134: Configuration

Fuser unit (Fuser roller) Timing belt, gears Rollers (Pickup roller, Bypass feed roller, Timing belt, gears Bypass pickup roller and PFU) Toner motor (M2) Toner cartridge Gears e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRIVE UNIT 9 - 2...

Page 135: Functions

The main motor is a DC motor which is controlled by control signals output from the MAIN board. The driving force of the toner motor is transmitted to the toner cartridge via gears. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237...

Page 136: Main Motor Control Circuit

9) When MMTRBK-0 signal from the ASIC becomes "L" level, the motor is braked. When the MMTR-0 signal becomes "H" level, the motor is stopped. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRIVE UNIT 9 - 4...

Page 137 MMTRBK-0 signal: This signal applies a brake on the main motor. When this signal becomes "L" level, a brake is applied to the rotation of the motor. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRIVE UNIT 9 - 5...

Page 138: Disassembly And Replacement

Disconnect 1 connector, remove 1 screw, take off the toner motor with the bracket, and then remove 1 bushing and 1 gear. Bushing Bracket Gear Fig. 9-4 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRIVE UNIT 9 - 6...

Page 139 Rotation stopper Fig. 9-6 Remove 1 clip and take off 1 bushing. Clip Bushing Fig. 9-7 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRIVE UNIT 9 - 7...

Page 140 Connector Main motor drive unit Fig. 9-8 Loosen 1 tensioner fixing screw and remove the tension spring. Tensioner spring Fig. 9-9 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRIVE UNIT 9 - 8...

Page 141 Install the main motor drive unit to the equipment. Tensioner spring Loosen the tensioner fixing screw. Let the spring force produce tension Fig. 9-11 for the belt, and tighten the fixing screw. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRIVE UNIT 9 - 9...

Page 142 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRIVE UNIT 9 - 10...

Page 143: Paper Feeding System

Registration roller Pickup roller Paper empty sensor Bypass feed roller Bypass pickup roller Separation claw Bypass paper sensor Bypass separation pad Registration sensor Fig. 10-1 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 1...

Page 144: Configuration

Bypass sensor (S8) Bypass pickup solenoid (SOL2) Bypass pickup clutch Bypass feed clutch Registration roller Registration roller clutch (CLT1) Registration sensor (S4) Drawer detection switch (SW5) e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights

reserved PAPER FEEDING SYSTEM 10 - 2...

Page 145: Functions

(SOL2) is turned OFF, the spring tension of the one-way clutch decreases so that the bypass pickup roller moves to the upper position (standby position), and moves to the lower position (operation position) when the solenoid is turned ON. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM...

Page 146 Also, it is used to detect the trailing edge of the paper has passed the registration roller. 15)Drawer detection sensor (SW5) The switch to detect whether the drawer is fully inserted or not. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 4...

Page 147: Operation

(S4) within a specified period of time or not is substituted for the paper jam detection. Pickup clutch Pickup solenoid Pickup roller Fig. 10-2 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 5...

Page 148 Separation claw Pickup clutch Pickup solenoid Pickup roller Fig. 10-3 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 6...

Page 149: Bypass Tray

Bypass feed clutch Bypass pickup clutch Bypass feed clutch Bypass feed roller Bypass pickup clutch Bypass separation pad Bypass pickup solenoid Bypass pickup roller Fig. 10-4 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 7...

Page 150 Bypass feed clutch Bypass pickup clutch Bypass feed roller Bypass feed roller Bypass separation pad Spring Bypass separation pad Bypass pickup roller Fig. 10-5 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 8...

Page 151: General Operation

• The registration clutch (CLT1) is turned ON and the paper aligned by the registration roller is trans- ported to the transfer unit. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 9...

Page 152: Disassembly And Replacement

Guide Screw Note: When installing the bypass unit, place the guide behind the transfer unit. Screw Bypass unit Fig. 10-8 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 10...

Page 153 Fig. 10-10 Remove 1 screw on the bottom of the bypass separation pad unit, and take off the cover. Cover Fig. 10-11 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 11...

Page 154 [D] Bypass roller unit Take off the bypass unit. P.10-10 "[A] Bypass unit" Remove 2 screws, and take off the cover. Cover Fig. 10-14 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 12...

Page 155 Bypass roller unit Note: When installing the bypass roller unit, insert Coupling the shaft into the coupling on the rear side. Shaft Fig. 10-17 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 13...

Page 156 P.10-12 "[D] Bypass roller unit" Bypass feed roller Remove 1 clip. Then pull out the shaft. Take off the bypass feed roller. Shaft Clip Fig. 10-19 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 14...

Page 157 Actuator Spring Bracket Fig. 10-21 Release 2 latches, take off the bypass sen- sor, and disconnect the connector. Bracket Connector Bypass sensor Fig. 10-22 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM

10 - 15...

Page 158 Remove 1 E-ring, 1 bushing and 2 screws. Then take off the 1 bracket and 2 gears. Gear Gear Bracket Bushing E-ring Fig. 10-25 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 16...

Page 159 Cover the spring and cover so that the center slit of the cover and the center of the cam are aligned. Spring Fig. 10-28 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 17...

Page 160 Remove 1 E-ring, and take off the bypass feed clutch. E-ring Bypass feed clutch Fig. 10-29 Remove the gear, cover, spring and cap. Cover Spring Gear Fig. 10-30 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 18...

Page 161 Screw Damp heater unit or dummy plate Fig. 10-32 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 19...

Page 162 Fig. 10-33 Release 2 latches and take off the paper empty sensor from the bracket. Bracket Paper empty sensor Fig. 10-34 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 20...

Page 163 When installing the registration roller holder, engage the arm of the registration roller clutch with the rotation stopper of the regis- tration roller holder. Rotation stopper Fig. 10-37 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 21...

Page 164 Remove 1 screw and take off the pickup solenoid bracket. Bushing Note: Be sure not to drop the bushing. Screw Pickup solenoid bracket Fig. 10-40 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 22...

Page 165 Remove 1 E-ring, and take off the drawer pickup clutch. Drawer pickup clutch E-ring Fig. 10-42 Take off the cover-A, cover-B, spring and flange. Cover-B Cover-A Fig. 10-43 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 23...

Page 166 Fig. 10-45 Remove 2 washers, 1 E-ring, 1 gear, and 1 pin from the registration roller. Washer Gear E-ring Washer Registration roller (rubber) Fig. 10-46 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 24...

Page 167 Take off the pickup solenoid bracket. P.10-22 "[N] Pickup solenoid (SOL1)" Remove 2 screws, and then take off the feed gear unit. Feed gear unit Fig. 10-49 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 25...

Page 168 Take off the rear cover. P.2-22 "[J] Rear cover" Release the harness from the harness clamp and disconnect 1 connector. Connector Harness clamp Fig. 10-52 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 26...

Page 169 Registration guide Release the harness from the harness clamp, disconnect the connector, remove 3 screws, and then take off the registration guide. Connector Fig. 10-55 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PAPER FEEDING SYSTEM 10 - 27...

Page 170 Remove the seal, release 2 latches, and take off the registration sensor. Registration sensor Seal Fig. 10-56 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PAPER FEEDING SYSTEM 10 - 28...

Page 171: Drum Related Section

Main charger Recovery blade Drum thermistor Post-Transfer guide Exhaust fan Separation

charger Transfer charger Transfer guide roller Pre-Transfer guide Ozone filter Drum Fig. 11-1 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 1...

Page 172: Configuration

Transfer charger wire PM parts Separation charger wire PM parts Exhaust fan (M5) Ozone filter PM parts Transport guide Temperature/humidity sensor (S3) Switching regulator (PS) e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 2...

Page 173: Functions

Therefore, the needle electrode enables to reduce the ozone amount. Main charger Needle electrode Charge Fig. 11-2 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 3...

Page 174 Thus the main charger grid, transfer/separation charger, transfer guide bias, developer bias, laser output and auto-toner output are controlled to be at their optimum states. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 4...

Page 175: High-Voltage Output Control Circuit

HVTM-0 Transfer HVTAC-0 Transfer charger bias HVTT-0 ASIC Separation HVTSP-0 Separation charger bias HVTGB-0 Transfer guide HVSDWN-0 Transfer guide bias Leakage detection Fig. 11-3 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 5...

Page 176: Description Of Operation

High-voltage generation circuit leakage detection signal (HVSDWN-0): This signal is for leakage detection of the high-voltage generation circuit. This signal becomes "L" level at the occurrence of such an abnormality. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 6...

Page 177: Drum Temperature Detection Circuit

A/D converter becomes smaller along with the rise of the temperature. MAIN board Digital data DRTH-1A converter Drum thermistor Fig. 11-4 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 7...

Page 178: Temperature/Humidity Detection Circuit

SoC. The higher the temperature or the humidity is, the higher the output voltage of this sensor becomes. MAIN board Temperature/ humidity sensor TEM-1A (Temp) Digital data converter HMS-1A (Hum) Fig. 11-5 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 8...

Page 179: Disassembly And Replacement

When installing the process unit, make sure that the connector (harness) is not caught under the developer unit. Process unit Fig. 11-6 except for MJD Process unit Fig. 11-7 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 9 07/03...

Page 180 Harness tact the gears and harness of the process unit front cover each other. Process unit front cover Fig. 11-10 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 10 07/03...

Page 181 Release 1 latch and take off the discharge LED unit. Note: Be careful not to touch or scratch the drum surface at this time. Discharge LED unit Latch Fig. 11-13 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 11...

Page 182 Remove the spring and take off the main Main charger grid charger grid. Note: Do not touch the mesh area of the grid. Spring Fig. 11-16 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 12...

Page 183 1. Do not touch the needle electrode directly with bare hands. 2. Make sure not to hold or bend the needle Terminal electrode. Spring Fig. 11-19 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 13...

Page 184 Remove 2 screws and take off the drum Drum cleaning blade cleaning blade. Note: Be careful not to touch or scratch the edge of the drum cleaning blade. Fig. 11-21 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 14...

Page 185 Take off 2 drum separation finger units. P.11-15 "[J] Drum separation finger" Remove 2 screws, and take off the whole recovery blade with the bracket. Recovery blade Fig. 11-24 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 15...

Page 186 Release 2 latches and take off the terminal cover on the front side. Release 2 latches and take off the terminal Terminal cover cover on the rear side. Fig. 11-27 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 16...

Page 187 Open off the ADU cover. Take off 2 guides. Guide Fig. 11-29 Take off the transfer unit while pulling the lever. Transfer unit Fig. 11-30 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 17...

Page 188 Screw Harness cover Fig. 11-31 Disconnect 1 connector. Connector Fig. 11-32 Take off the transfer unit while lifting it up. Transfer unit Fig. 11-33 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 18...

Page 189 Post transfer guide Take off the transfer/separation charger. P.11-16 "[L] Transfer/Separation charger" Remove 1 screw and take off the post trans- fer guide. Fig. 11-36 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 19...

Page 190 Fig. 11-38 Release the harness from the harness clamp, remove the two-sided tape and take off the exhaust fan. Exhaust fan Duct Fig. 11-39 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 20...

Page 191 Connector Disconnect 1 connector, remove 1 screw and then take off the toner cartridge interface PC board. Toner cartridge interface PC board Fig. 11-41 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DRUM RELATED SECTION 11 - 21...

Page 192 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DRUM RELATED SECTION 11 - 22...

Page 193: Development System

(M3) to rotate the mixers and the developer sleeve. Drum thermistor Drum Doctor blade Toner recycling auger Mixer-3 Mixer-2 Auto-toner sensor Mixer-1 Developer sleeve Fig. 12-1 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 1...

Page 194: Construction

Recovered toner supply mechanism (Toner recycling auger) Toner cartridge Toner cartridge PC board CTRG Toner cartridge interface PC board CTIF Toner motor M2 (Ch. 9) e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 2...

Page 195: Functions

(M2). The toner cartridge in this equipment mounts the toner cartridge PC board (CTRG), and the data identifying recommended TOSHIBA toner cartridges and the counter values determining that the cartridge is nearly empty are written in this board. These data are read out by the toner cartridge interface PC board (CTIF) in this equipment, and data related to toner supply are also written in the toner cartridge PC board (CTRG).

Page 196: Functions Of The Toner Cartridge Pc Board (Ctrg)

The toner cartridge in this equipment mounts the toner cartridge PC board (CTRG). An IC chip is embedded in this board, and the data identifying the recommended TOSHIBA toner cartridge and thresholds to determine if the cartridge is nearly empty are written in this chip.

Page 197 When the cartridge detecting function is set to ON (08-695 is set at “1”), the value of the toner near- empty status threshold setting (08-971) is automatically set at “1” and the toner remaining check func- tion is enabled. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM...

Page 198: Recovered Toner Supply Mechanism

1. They are further mixed by the mixer-1 and transported to the developer sleeve. Drum cleaner Mixer-1 Mixer-2 Toner recovery auger Mixer-3 Toner cartridge Fresh toner Recovered toner Toner recycling auger Fig. 12-2 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 6...

Page 199: Toner Motor Control Circuit

The toner motor is driven when the ON/OFF signal (TNRMTON-0) output from the ASIC becomes “L” level. MAIN board +24VCOV-OFF Toner motor ASIC TNRMTON-0 Fig. 12-3 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 7...

Page 200: Auto-Toner Circuit

Recovered toner supply mechanism Toner Toner motor Main Recovered motor toner converter Toner density signal Auto-toner sensor Control voltage signal Developer material converter Fig. 12-4 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 8...

Page 201: Function Of Auto-Toner Sensor

Toner is supplied from toner cartridge. o The auto-toner sensor output changes. o The toner density returns to normal value. o The toner-empty state is cleared. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 9...

Page 202 The ratio of the toner against the carrier in the developer material increases. o The magnetic resistance increases. o The detection output decreases. o The auto-toner output V decreases. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 10...

Page 203: Disassembly And Replacement

1. Be careful not to touch or scratch the drum surface at this time. Developer unit Fig. 12-6 2. Do not deform the Guide Mylar by touch- ing this. Guide mylar Fig. 12-7 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 11...

Page 204 Remove the developer material from rear side. Note: When removing the developer material, be careful not to drop the developer material on the gears of the developer unit. Fig. 12-10 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 12...

Page 205 Place the developer unit upside down. Disconnect 1 connector, release 1 latch, and then rotate the auto toner sensor counter- clockwise to take it off. Fig. 12-12 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 13...

Page 206 Remove 1 screw. Disconnect 1 connector while taking off the recovered toner drive unit. Remove 1 gear. Connector Gear Recovered toner drive unit Fig. 12-15 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 14...

Page 207 (Mark the position if needed.) When reassembling, match the polarity adjustment lever with the previously marked position on the scale. Polarity adjustment lever Fig. 12-18 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237

DEVELOPMENT SYSTEM 12 - 15...

Page 208 Remove 1 E-ring and take off the guide roller on the front side. E-ring Guide roller Fig. 12-20 Remove 1 screw and the gear. Gear Fig. 12-21 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 16...

Page 209 (12) Remove 1 E-ring, 1 pin and 1 pulley. (13) Take off the guide roller on the rear side. Guide roller Pulley E-ring Fig. 12-24 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 17...

Page 210 Fig. 12-26 [G] Mixer Take off the developer sleeve. P.12-14 "[F] Guide roller / Developer sleeve" Doctor sleeve Take off the doctor sleeve. Fig. 12-27 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 18...

Page 211 (Replacement of Oil seal: P.12-21 "[H] Oil seal Replacement of Oil Seal") Bushing Fig. 12-29 Take off the mixers-2 and -3. Mixer-3 Mixer-2 Fig. 12-30 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 19...

Page 212 End section of mixer-1 (Replacement of Oil seal: P.12-21 "[H] Replacement of Oil Seal") Bushing Oil seal Fig. 12-32 (10) Take off the mixer-1. Mixer-1 Fig. 12-33 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 20...

Page 213 Apply the grease (Alvania No.2; amount of 2 rice grains) on entire surface of the oil seal evenly. Grease Note: Wipe off the excessive grease. Oil seal Fig. 12-35 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 DEVELOPMENT SYSTEM 12 - 21...

Page 214 © February 2007 TOSHIBA TEC CORPORATION All rights reserved DEVELOPMENT SYSTEM 12 - 22...

Page 215: Fuser / Exit Unit

Fuser separation finger Exit roller Exit sensor Center heater lamp Side heater lamp Pressure roller Fuser thermostat Center/Side/Edge thermistor Fuser roller Fig. 13-1 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT 13 - 1...

Page 216: Configurations

Thermistor (THM1, 2, 3) Fuser thermostat (THMO1) Non-contact type (170ºC) Separation finger Periodic replacement part Exit roller Exit motor (M7) Stepping motor: option e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 2...

Page 217: Functions

The exit roller, which transports the paper to the inner tray, is driven by the main motor (M3). It is driven by the exit motor (M7) when the ADU (optional) is installed. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237...

Page 218 ADU. Install this exit motor (M7) when the ADU (optional) is installed. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 4...

Page 219: Operation

And if printing is not performed within another specified period of time after the equipment has entered the Auto Power Save Mode, the equipment then enters the Auto Shut Off mode to turn OFF the 2 heater lamps. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT...

Page 220: Fuser Unit Control Circuit

Center heater lamp control signal converter Side heater lamp control signal AC line DC line Forcible power-off Relay-OFF signal circuit MAIN board Fig. 13-2 e-STUDIO167/207/237 ©

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Page 221: Temperature Detection Section

(Approx. 235ºC), the heater lamp is turned OFF regardless of the temperature of the area where the paper passes on. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT...

Page 222 (Heater lamp OFF) Warming-up Ready During printing Auto °C Shut Off Mode Fixed time (08-206) Temperature of fuser roller Heater lamp Fig. 13-4 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 8...

Page 223 After confirming that it is the fuser unit abnormality, correct the abnormality and reset the counter value (08-400) to “0” to start up the equipment normally. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237...

Page 224 OFF the power when the temperature of heater lamp exceeds the specified temperature. Center thermistor MTH-1A Side thermistor STH-1A ADCD0 converter ETH-1A Edge thermistor Fig. 13-5 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 10...

Page 225 40°C or below On usual 40°C or below 40°C or below The figures in the “priority” section denote the priority of error checking. © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT 13 - 11...

Page 226: Disassembly And Replacement

Fig. 13-7 Note: Separate the pressure roller and the heat roller while pressing the thermistor ground leaf spring. Thermistor ground leaf spring Fig. 13-8 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 12...

Page 227 Release the latch and take off the gear-A. Gear-A Fig. 13-9 Take off the gear-B. Gear-B Fig. 13-10 Remove the bracket. Bracket Fig. 13-11 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT 13 - 13...

Page 228 Then slide its rear hinge downward. Note: Keep the guide being slid to the front side during the steps (3) and (4). Guide Fig. 13-14 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 14...

Page 229 Fig. 13-16 Remove the Mylar. Exit sensor Disconnect 1 connector, release 2 latches, and then take off the exit sensor. Connector Mylar Fig. 13-17 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT 13 - 15...

Page 230 Remove 3 screws and take off the sub guide. Sub guide Fig. 13-19 Remove 5 springs from the hooks. Fuser roller unit Spring Fig. 13-20 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 16...

Page 231 P.13-12 "[B] Pressure roller unit / Fuser roller unit" Remove 2 screws on each terminal of both center heater lamp and side heater lamp. Fig. 13-22 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT 13 - 17...

Page 232 • Do not apply force onto the roller because Fig. 13-25 it may be deformed. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 18...

Page 233 Fig. 13-27 Remove 2 springs. Note: When installing the spring, be sure to hang the spring on the upper hook. Spring Fig. 13-28 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT 13 - 19...

Page 234 Remove each 1 screw of the thermistors, and then take off each thermistor by releas- ing its harness out of the harness clamp. Thermistor Fig. 13-31 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 20...

Page 235 Disconnect 1 connector, remove 1 screw, and then take off the exit motor with the bracket while sliding it toward the right. Exit motor Screw Fig. 13-34 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 FUSER / EXIT UNIT 13 - 21...

Page 236 Release the harness from harness clamp, remove 2 screws, and then takeoff the exit Exit motor motor. Bracket Fig. 13-35 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved FUSER / EXIT UNIT 13 - 22...

Page 237: Automatic Duplexing Unit (Adu) (Option: Md-0103)

Exit motor Exit roller ADU motor Upper transport roller Paper guide ADU sensor ADU driving PC board Lower transport roller Fig. 14-1 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 1...

Page 238: Specifications Of Md-0103

5 pcs Screw (M3 × 6) 1 pc Option Paper feed controller (GH-1060) MD-0103 and GH-1060 are to be installed together. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 2...

Page 239: Construction

ADU driving PC board (ADU) ADU sensor Mounted on the ADU driving PC board (ADU) Upper transport roller Lower transport roller © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 3...

Page 240: Functions

This sensor is mounted on the ADU driving PC board to detect paper being transported within the ADU. 4) Upper transport roller / Lower transport roller These rollers transport paper within the ADU. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 4...

Page 241: Drive Of Adu

ADU motor Upper transport roller ADU sensor ADU driving PC board Lower transport roller Fig. 14-2 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 5...

Page 242: Description Of Operation

The figures in the following pages show the circulating operations during duplex copying. The numbers in the figures indicate the page numbers. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 6...

Page 243 With the paper larger than A4/LT size, duplex printing (back-side printing Æ front-side printing) is performed for one sheet at a time as shown below. Fig. 14-3 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103)

Page 244 Back side of the 1st sheet Æ Back side of the 2nd sheet Æ Front side of the 1st sheet Æ Front side of the 2nd sheet Fig. 14-4 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 8...

Page 245 Timing chart for duplex copying from upper drawer (A4, 4 sheets) Fig. 14-5 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 9...

Page 246 Timing chart for duplex copying from upper drawer (A3, 1 sheet) Fig. 14-6 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 10...

Page 247: Flow Chart

Registration in process ADU misfeeding (E11) Registration process completed ADU motor stopped Next paper is ready for the registration Fig. 14-7 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 11...

Page 248: Disassembly And Replacement

When installing the ADU, be sure to put the ADU stopper on the rear side through the rear slit of the ADU. Fig. 14-10 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 12...

Page 249 ADU motor Bracket Fig. 14-12 Remove the gear. Gear Remove 2 screws and take off the ADU motor. ADU motor Fig. 14-13 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 13...

Page 250 (ADU)" Remove 2 E-rings, 2 pulleys and 2 pins, and Pulley then take off the timing belt. Pulley E-ring Fig. 14-16 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 14...

Page 251 Fig. 14-18 Release 1 latch and take off the paper guide Paper guide while sliding it toward the font. Latch Fig. 14-19 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 15...

Page 252 © February 2007 TOSHIBA TEC CORPORATION All rights reserved AUTOMATIC DUPLEXING UNIT (ADU) (OPTION: MD-0103) 14 - 16...

Page 253: Power Supply Unit

AC power is supplied to each heater lamp (center and side) in the fuser unit. For details of the heater lamp control circuit, see the following. P.13-6 "13.5 Fuser Unit Control Circuit" © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 POWER SUPPLY UNIT...

Page 254: Operation Of Dc Output Circuit

If the protection circuit is activated (except when the fuse is blown), repair the causes such as short-circuiting. Turn ON the power again 1 minute later to clear the overcurrent protection. e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved POWER SUPPLY UNIT 15 - 2...

Page 255: Output Channel

The following is an output channel for the cover switch line. 1) +24V +24VCOV-OFF: CN104 Pins 23 and 24 Output to the MAIN board © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 POWER SUPPLY UNIT 15 - 3...

Page 256: Fuse

Exit motor ADU board ADU motor +24VDF +24VCOV-OFF MAIN board Toner motor F201: 4A Main motor Exhaust fan Auto-toner sensor Discharge LED Coin controller e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved POWER SUPPLY UNIT 15 - 4...

Page 257: Configuration Of Power Supply Unit

15.5 Configuration of Power Supply Unit CN104 CN110 CN112 CN113 CN108 CN105 Regulator CN106 Fig. 15-1 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 POWER SUPPLY UNIT 15 - 5...

Page 258: Power Supply Sequence

(Linked with main switch) OPEN Cover opening/closing CLOSE interlock switch 200 ms or lower +24VD (Linked with cover switch) Fig. 15-2 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved POWER SUPPLY UNIT 15 - 6...

Page 259: Ac Wire Harness

15.7 AC Wire Harness Fig. 15-3 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 POWER SUPPLY UNIT 15 - 7...

Page 260 © February 2007 TOSHIBA TEC CORPORATION All rights reserved POWER SUPPLY UNIT 15 - 8...

Page 261: Pc Boards

16. PC BOARDS 1) PWA-F-MAIN Fig. 16-1 2) PWA-F-SRAM Fig. 16-2 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PC BOARDS 16 - 1...

Page 262 3) PWA-F-LDR Fig. 16-3 4) PWA-F-SNS Fig. 16-4 5) PWA-F-HPNL Fig. 16-5 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PC BOARDS 16 - 2...

Page 263 6) PWA-F-FUS Fig. 16-6 7) PWA-F-PFC Fig. 16-7 © February 2007 TOSHIBA TEC CORPORATION All rights reserved e-STUDIO167/207/237 PC BOARDS 16 - 3...

Page 264 8) PWA-F-ADU Fig. 16-8 e-STUDIO167/207/237 © February 2007 TOSHIBA TEC CORPORATION All rights reserved PC BOARDS 16 - 4...

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