

TOSHIBA

Toshiba Black Gold TB Series Operation Manual

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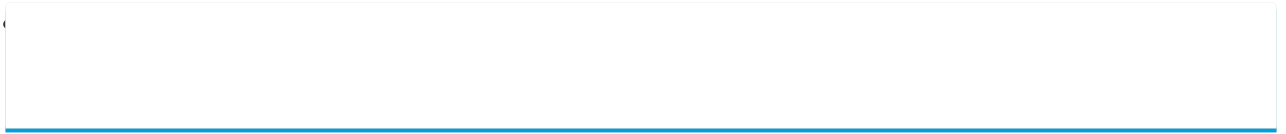
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Troubleshooting

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UNINTERRUPTIBLE

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High performance inverter (317 pages)

[Power Supply Toshiba 1600EP Series Instruction Manual](#)

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[Power Supply Toshiba CPS002Z Instruction Manual](#)

Control power supply backup unit for tosvert vf series (8 pages)

[Power Supply Toshiba 1600EP User Manual](#)

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[Power Supply Toshiba Power TS4 Specifications](#)

Toshiba ts matching cabinet instruction manual (2 pages)

[Power Supply Toshiba QX7 Series Brochure & Specs](#)

Adjustable speed drives (6 pages)

Summary of Contents for Toshiba Black Gold TB Series

[Page 2: Note](#)

UNINTERRUPTIBLE POWER SUPPLY Please complete the Extended Warranty Card Supplied with this UPS and return it by prepaid mail to Toshiba. This activates the extended warranty. If additional information or technical assistance is required call Toshiba's marketing department toll free at (800) 231-1412 or write to: Toshiba International Corporation, 13131 W.

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[Page 5: Introduction](#)

TOSHIBA INTRODUCTION Thank you for purchasing the BLACK GOLD TB SERIES UPS. This Series features the very latest state of the art microprocessor technology and also uses IGBT transistors for fast, high power and low noise PWM (pulse with modulation) switching. Also, the Series features a low impedance output transformer to provide isolation even during bypass operation.

[Page 6: General Safety Instructions](#)

TOSHIBA GENERAL SAFETY INSTRUCTIONS Warnings in this manual appear in any of four ways: Danger - The danger symbol is a lightning bolt mark enclosed in a triangle, which precedes the 3/16" high letters spelling the word "DANGER". The danger symbol is used to indicate imminently hazardous situations, locations, and conditions which, if not avoided, WILL result in death, serious injury, and/or severe property damage.

[Page 7: Important Safety Instructions](#)

The maximum ambient temperatures in which the UPS should be operated or stored is 40°C (104°F). The nominal battery voltage for these models is 72VDC. Servicing of the batteries should only be performed by a qualified Toshiba Representative who is knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.

[Page 8: Important Safety Instructions \(Cont.\)](#)

TOSHIBA IMPORTANT SAFETY INSTRUCTIONS (CONT.) Personnel knowledgeable of batteries and the required precautions WARNING should perform installation and servicing of batteries. Keep unauthorized personnel away from the batteries. Proper maintenance to the battery system of this unit must be done by a...

[Page 9: Product Description](#)

Application and use Toshiba's BLACK GOLD TB on-line Uninterruptible Power Supply (UPS) system provides continuous computer-grade isolated AC power in a compact, efficient, high performance unit. The UPS assures safe, reliable operation of critical equipment, ranging from personal computers to mini-computers to local area networks (LAN).

[Page 10: Inspection/Storage/Disposal](#)

It is illegal to dump lead-acid batteries in landfills or dispose of improperly. Please help our Earth by contacting the environmental ATTENTION protection agencies in your area, the battery manufacturer, or call Toshiba International Corporation toll-free at (800) 231-1412 for more information about recycling batteries.

[Page 11: Precautions](#)

Installation Precautions (Rack mounted) 1) Install the UPS in a conventional rack-style structure. The recommended rack slide for the BLACK GOLD TB series UPS is General Devices, CTS- 124 (Call Toshiba for further information on rack slides). The rack must be bolted to the floor, secured permanently to a wall, or otherwise secured to prevent toppling.

[Page 12: Prestart Precautions](#)

TOSHIBA Precautions (Cont.) Prestart Precautions 1) Before connecting the UPS to a power source move all the breakers (MCCB1, 2, 3, and 4), on the front panel, to the OFF position and move the operation STOP/RUN, on the front panel (See Section 9 for location), to the STOP position.

[Page 13: Specifications](#)

(Pin 9 not used) Options Software for unattended computer Contact Toshiba for details on this option shutdown. (*) Output capacity reduced when input voltage is between -15% and -30% of nominal. (**) Battery backup time may vary depending on the operating conditions and ambient temperature at the installation site.

[Page 14: Operating The Ups](#)

TOSHIBA Operating the UPS Operation Modes 5.1.1 AC Input Mode (normal operation) Bypass circuit MCCB MCCB1 Input Power Input Xfmr Batteries Power Flow Power flow in AC input mode for the 2000VA 120V BLACK GOLD TB Model Bypass circuit MCCB...

[Page 15: Battery Backup Mode](#)

TOSHIBA Operating the UPS Operation Modes (Contd.) 5.1.2 Battery Backup Mode Bypass circuit MCCB1 MCCB Input Power Input Xfmr Batteries Power Flow Power flow in battery backup mode for the 2000VA 120V BLACK GOLD TB Model Bypass circuit MCCB1 MCCB...

[Page 16: Circuit-Bypass Mode](#)

TOSHIBA Operating the UPS Operation Modes (Contd.) 5.1.3 Circuit-bypass Mode Bypass circuit MCCB1 MCCB Input Power Input Xfmr Batteries Power Flow Power flow in circuit-bypass mode for the 2000VA 120V BLACK GOLD TB Model Bypass circuit MCCB1 MCCB Input Power...

[Page 17: System Protection Features](#)

TOSHIBA Operating the UPS System Protection Features The schematic shown below depicts the electrical locations of the protection devices on the 2000 VA 120V UPS model. Bypass Overcurrent Overvoltage/ Undervoltage Input Xfmr MCCB1 MCCB Rectifier/ Input Inverter Charger/ Chopper Output 2...

[Page 18: Operation Monitoring](#)

TOSHIBA Operating the UPS Operation Monitoring 5.3.1 Visual Indicator Functions The following LED (light emitting diode) indicators are located on the front panel (See Section 5.4 Front Panel Layout). Refer to these lamps for visual information about the operating condition of the UPS (See Section 5.3.3 "Visual and Audible Indicator Function Chart").

[Page 19: Front Panel Layout](#)

TOSHIBA Operating the UPS Front Panel Layout AC LINE (green lamp) Lights green when normal ac input is being supplied to the UPS Unit. INVERTER (green lamp) Lights green when the UPS unit is operating in the run mode and the output is normal.

[Page 20: Battery Recharging](#)

TOSHIBA Operating the UPS Battery Recharging The graph below shows the typical voltage requirements for recharging the UPS unit's batteries. The recharge process usually consists of three periods. During the first period, the current is maintained at approximately 0.4 amperes. In the second period, the constant voltage control starts and the current gradually decreases as the batteries continue to charge.

[Page 21: Battery Backup Time](#)

TOSHIBA Operating the UPS Battery Backup Time The 2000 VA UPS unit's batteries provide about 6 minutes of backup time. These times are valid when the unit is operating under full load. When the units are operating at half load, the batteries can power the load equipment about 3 times longer. The exact length of these times will depend on the condition of the batteries, amount of load, temperature, and other variables.

[Page 22: Ups Control Interface](#)

TOSHIBA UPS Control Interface Remote Contact and IBM AS/400 The AS/400 interface is standard feature and is available as dry switch contacts through a DB9 male connector located on the back side of the UPS (See Section 9.1). The AS/400 interface uses standard pins numbered 5 through 9. Pins number 1 through 4 are also assigned for usage in addition to AS/400.

[Page 23: Rs-232C Communication Interface](#)

DB9 female connector located on the back side of the UPS (See Section 9.1). This interface allows monitoring and control of UPS in conjunction with Toshiba UPS software accessories. The available data from the UPS, via the RS-232C communication...

[Page 24: Troubleshooting Procedures](#)

Resonance with load equipment one piece overvoltage LED flash equipment at a time. alternately Red and Green Contact your Toshiba Chopper fault undervoltage LED flash service representative. alternately Check for airflow Red and Cooling fan outage or restriction. If none is...

[Page 25: Fatal Fault Mode](#)

Display Status Problem Cause Corrective Action Red and Green Inverter fault overcurrent LED flash alternately Red and Green Chopper fault Contact your Toshiba overvoltage LED flash service representative. alternately Red and Input Green Chopper fault overcurrent LED flash alternately Red and...

[Page 26: Preventive And Scheduled Maintenance/Parts](#)

Preventive and Scheduled Maintenance/Parts Preventive Maintenance Toshiba's Uninterruptible Power Systems have been designed to provide years of trouble-free operation requiring a minimum of preventive maintenance. The best preventive measure that the UPS user can take is to keep the area around the unit, particularly the air inlet vents, clean and free of moisture and dust accumulations.

[Page 27: External Dimensions/Shipping Weights/Panel Layout](#)

TOSHIBA External Dimensions/Shipping Weights/Panel Layout External Dimensions for the 2000 VA (120V and 230V) BLACK GOLD TB Model. 19.00 2.25 5.25 1.50 18.062 16.25 4.922 25.125 1.50...

[Page 28: Panel Layout/Shipping Weight](#)

TOSHIBA External Dimensions/Shipping Weights/Panel Layout Panel Layout/Shipping Weight Stop/Run Main Circuit Switch Breaker Airflow-In Battery Tray Front view for UC1A1A020C6RKBIG Indicator and UC1E1E020C5RKBIG Output Receptacle Breakers 120V 20A Output Airflow-Out AS/400 (male) RS-232C (female) Receptacles Back view for UC1A1A020C6RKBIG 120V 20A...

[Page 29](#) TOSHIBA TOSHIBA INTERNATIONAL CORPORATION INDUSTRIAL DIVISION 13131 WEST LITTLE YORK RD., Houston Texas 77041 Tel: (800) 231-1412 Fax: (713) 466-8773 Telex: 762078 Printed in U.S.A.