

SERVICE MANUAL

Backhoe Loaders
BI00C / BI00CLR / BI00CTC
BII0C / BII0CTC / BII5C

Print No. 84568042A



INDEX

SECTION 00 - SAFETY RULES

FOREWORD.....	4
SAFETY INSTRUCTIONS	6
PREVENTION OF FIRE OR EXPLOSIONS	8
PREVENTION OF BURNS	9
PRECAUTIONS FOR WASTE DISPOSAL.....	10

SECTION 01 - MAINTENANCE

SECTION 02 - TECHNICAL SPECIFICATIONS

MODELS	3
IDENTIFICATION OF MAIN COMPONENTS.....	4
TECHNICAL SPECIFICATIONS.....	7
DIESEL ENGINE	7
TRANSMISSION.....	9
AXLES	10
BRAKES	10
STEERING.....	11
HYDRAULIC SYSTEM	11
FRONT COUNTERWEIGHT	12
BUCKETS	12
TYRES	13
DPF SYSTEM	14
DIMENSIONS AND PERFORMANCE.....	18
DIMENSIONS - 2WS SIDESHIFT	18
DIMENSIONS - 2WS CENTER PIVOT	19
DIMENSIONS - 2WS TC - SIDESHIFT	20
DIMENSIONS - 4WS SIDESHIFT	21
DIMENSIONS - 4WS CENTER PIVOT	22
LOADER ATTACHMENT PERFORMANCE.....	23
PERFORMANCE OF LOADER ATTACHMENT WITH FORKS	33
BACKHOE ATTACHMENT PERFORMANCE	38
BACKHOE ATTACHMENT LIFTING CAPACITY	58
MAXIMUM LIFTING LOADS.....	63
LOADER ATTACHMENT MAXIMUM LIFTING LOAD TABLE	63
BACKHOE ATTACHMENT MAXIMUM LIFTING LOAD TABLE	64
SUPPLY SUMMARY TABLE	65

SECTION 10 - ENGINE

REMOVAL AND INSTALLATION THE ENGINE HOOD, THE RADIATOR AND ENGINE	3
PRELIMINARY OPERATIONS	3
BATTERY	4
DISCONNECT	4
ENGINE HOOD	6
REMOVE	6
RADIATOR	9
REMOVE	9
ENGINE	16
REMOVE	16
INSTALL	26
RADIATOR	35
INSTALL	35
ENGINE HOOD	41
INSTALL	41
BATTERY	44
CONNECT	44
ENGINE ERROR CODES	46

SECTION 21 - TRANSMISSION

POWERSHUTTLE TRANSMISSION	3
TECHNICAL SPECIFICATIONS	4
CONTROLS	8
LUBRICATION	12
GREASING	15
REMOVAL FROM MACHINE	17
DISASSEMBLY AND ASSEMBLY	20
TROUBLESHOOTING	132
TRANSMISSION ERROR CODES	136
REPAIR TIMES	140
SPECIAL TOOLS	141
POWERSHIFT TRANSMISSION	142
TECHNICAL SPECIFICATIONS	142
CONTROLS	153
LUBRICATION	155
GREASING	157
REMOVAL FROM MACHINE	158
DISASSEMBLY AND ASSEMBLY	161
TROUBLESHOOTING	325
TRANSMISSION ERROR CODES	329
REPAIR TIMES	333
SPECIAL TOOLS	334

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>

SECTION 25 - FRONT AXLES

2WS FRONT AXLE.....	3
TECHNICAL SPECIFICATIONS.....	3
LUBRICATION AND GREASING	4
REMOVAL FROM MACHINE	6
DISASSEMBLY AND ASSEMBLY.....	7
TROUBLESHOOTING.....	7
4WD - 2WS FRONT AXLE	10
TECHNICAL SPECIFICATIONS.....	10
LUBRICATION AND GREASING	11
REMOVAL FROM MACHINE	13
DISASSEMBLY AND ASSEMBLY.....	14
TROUBLESHOOTING.....	57
SPECIAL TOOLS.....	61
4WS FRONT AXLE.....	62
TECHNICAL SPECIFICATIONS.....	62
LUBRICATION AND GREASING	63
REMOVAL FROM MACHINE	65

SECTION 27 - REAR AXLE

2WS REAR AXLE (B100C - B100CTC).....	3
TECHNICAL SPECIFICATIONS.....	3
LUBRICATION AND GREASING	5
REMOVAL FROM MACHINE	7
DISASSEMBLY AND ASSEMBLY.....	8
TROUBLESHOOTING.....	61
REPAIR TIMES.....	67
SPECIAL TOOLS.....	68
2WS REAR AXLE (B110C - B110CTC).....	69
TECHNICAL SPECIFICATIONS.....	69
LUBRICATION AND GREASING	71
REMOVAL FROM MACHINE	73
DISASSEMBLY AND ASSEMBLY.....	74
TROUBLESHOOTING.....	127
REPAIR TIMES.....	133
SPECIAL TOOLS.....	134
4WS REAR AXLE (B115C).....	135
TECHNICAL SPECIFICATIONS.....	135
LUBRICATION AND GREASING	138
REMOVAL FROM MACHINE	140
DISASSEMBLY AND ASSEMBLY.....	141
TROUBLESHOOTING.....	219
REPAIR TIMES.....	225
SPECIAL TOOLS.....	227

SECTION 33 - BRAKE SYSTEM

PARKING BRAKE	3
TECHNICAL SPECIFICATIONS	3
OPERATION	3
ADJUSTMENT	4
DISASSEMBLY AND ASSEMBLY	6
SERVICE BRAKE	15
TECHNICAL SPECIFICATIONS	15
OPERATION	15
BRAKE PUMP - Remove	16
BRAKE PUMP - Install	18

SECTION 35 - HYDRAULIC SYSTEM

HYDRAULIC DIAGRAMS	3
HYDRAULIC DIAGRAM - 2WS SIDESHIFT MECHANICAL MODELS POWERSHUTTLE (B100C - B100CTC)	3
HYDRAULIC DIAGRAM - 2WS SIDESHIFT PILOT MODELS POWERSHUTTLE (B100C - B100CTC - B110C - B110CTC)	5
HYDRAULIC DIAGRAM - 2WS SIDESHIFT PILOT MODELS POWERSHUTTLE (B100CLR)	7
HYDRAULIC DIAGRAM - 2WS SIDESHIFT MECHANICAL MODELS POWERSHUTTLE (B100CLR)	9
HYDRAULIC DIAGRAM - 2WS SIDESHIFT MECHANICAL MODELS POWERSHIFT (B110CTC)	11
HYDRAULIC DIAGRAM - 4WS SIDESHIFT MECHANICAL MODELS POWERSHIFT (B115C)	13
HYDRAULIC DIAGRAM - 4WS SIDESHIFT PILOT MODELS POWERSHIFT (B115C)	15
HYDRAULIC DIAGRAM - 4WS CENTER PIVOT PILOT MODELS POWERSHIFT (B115C)	17
HYDRAULIC PUMP	19
HYDRAULIC FIXED-FLOW-RATE GEAR PUMP	19
HYDRAULIC VARIABLE-FLOW-RATE PISTON PUMP	30
CONTROL VALVES	44
LOADER CONTROL VALVE	53
BACKHOE ATTACHMENT CONTROL VALVE	57
RELIEF VALVES	69
BACKHOE ATTACHMENT CONTROL VALVE PILOT SOLENOID VALVE	78
ACCUMULATOR "AUTO GLIDE RIDE" PARKER	81
TECHNICAL SPECIFICATIONS	81
MAINTENANCE	81
SAFETY	81
CHECKING AND ADJUSTING THE PRECHARGE PRESSURE	82
HYDRAULIC SWING SYSTEM	84
OPERATION	84
HYDRAULIC CYLINDERS	87
LOADER ATTACHMENT BOOM CYLINDER	88
LOADER BUCKET CYLINDER	95
4X1 LOADER BUCKET CYLINDER	101
BACKHOE BOOM CYLINDER	104
BACKHOE ATTACHMENT DIPPER CYLINDER	108
BACKHOE BUCKET CYLINDER	112
TELESCOPIC CYLINDER	116

INDEX

STABILIZER CYLINDER - CENTER PIVOT	120
STABILIZER CYLINDER - SIDESHIFT	124
SWING CYLINDER.....	128
BACKHOE ATTACHMENT LOCK CYLINDER - SIDESHIFT	132
SPECIAL TOOLS.....	133
HYDRAULIC CONTROL LEVERS	134
TECHNICAL SPECIFICATIONS.....	134
CONTROLS AND OPERATION	135
COMPONENTS	136
DISASSEMBLY AND ASSEMBLY.....	138
CONTROL LEVER VALVE	141
TROUBLESHOOTING	143
PRELIMINARY CHECKS.....	143
TROUBLESHOOTING (WITH "REXROTH" CONTROL VALVES).....	144
SWING.....	146
HYDRAULIC PUMP	147

SECTION 39 - CHASSIS

DESCRIPTION	3
REMOVAL AND INSTALLATION OF COMPONENTS	6
COMPONENTS WITHIN THE CHASSIS	6
COMPONENTS OF THE LOWER PART OF THE CHASSIS	7
COMPONENTS ATTACHED OUTSIDE THE CHASSIS.....	11
COMPONENTS OF THE UPPER PART	12

SECTION 41 - STEERING SYSTEM

DESCRIPTION	3
2WS STEERING SYSTEM	4
4WS STEERING SYSTEM	7
POWER STEERING	11
TECHNICAL SPECIFICATIONS.....	11
COMPONENTS	13
DISASSEMBLY.....	15
ASSEMBLY	18

SECTION 50 - CAB HEATING AND AIR CONDITIONING

TECHNICAL SPECIFICATIONS.....	3
GENERAL.....	3
CAB HEATING.....	5
CONTROLS	5
OPERATION	6
OVERHAUL	9
TROUBLESHOOTING.....	11

INDEX

AIR CONDITIONING.....	12
PRINCIPLES OF AIR CONDITIONING	12
CONTROLS	17
OPERATION.....	18
TROUBLESHOOTING AND TESTING.....	25
FLUSHING THE SYSTEM.....	43
DRAINING THE SYSTEM.....	45
CHARGING THE SYSTEM.....	46
OVERHAUL	47
COMPRESSOR	52
TECHNICAL SPECIFICATIONS.....	52
REMOVAL AND INSTALLATION	53
DISASSEMBLY AND ASSEMBLY.....	56
TROUBLESHOOTING.....	65

SECTION 55 - ELECTRIC SYSTEM

ELECTRIC DIAGRAMS	3
ELECTRIC DIAGRAMS - POWERSHUTTLE CAB (B100C - B100CTC - B110C - B110CTC).....	3
ELECTRIC DIAGRAMS - POWERSHIFT CAB (B110C - B110CTC).....	21
ELECTRIC DIAGRAMS - 4WS POWERSHIFT CAB (B115C)	40
CONTROLS AND INSTRUMENTS.....	59
FRONT INSTRUMENT PANEL	59
SIDE INSTRUMENT CLUSTER PANEL (B100C - B100CTC - B110C - B110CTC - B115C).....	62
SIDE INSTRUMENT CLUSTER (B100C - B100CTC - B110C - B110CTC - B115C).....	64
ANTI-START SYSTEM	66
DIAGNOSTIC DISPLAY (B100C - B100CTC - B110C - B110CTC - B115C).....	67
SYMBOLS.....	69
SETUP MENU.....	70
PROCEDURE ABOUT SELF TEST.....	71
ON BOARD ERROR CODE RETRIEVAL.....	72
BACKLIGHTING AND DIMMING.....	73
WORK HOURS.....	74
OPERATION.....	75
WARNING SYSTEM.....	79
MAINTENANCE.....	80
WARNING MESSAGES.....	82
STARTING SYSTEM	88
OPERATION.....	88
STARTER MOTOR.....	91
TROUBLESHOOTING.....	98
ALTERNATOR.....	100
TECHNICAL SPECIFICATIONS.....	100
OPERATION.....	100
COMPONENTS	102
REMOVAL.....	103
PRELIMINARY CHECKS AND TESTS.....	104
TROUBLESHOOTING.....	113

INDEX

BATTERY	114
TECHNICAL SPECIFICATIONS.....	114
OPERATION.....	114
REPLACEMENT	115
CHARGE AND ELECTROLYTE LEVEL CHECK	116
CONNECTING A BOOSTER BATTERY	117
BATTERY MASTER SWITCH	117
TROUBLESHOOTING.....	118

SECTION 82 - LOADER

LOADER ATTACHMENT CONTROLS.....	4
LOADER ATTACHMENT OPERATION	4
4x1 LOADER BUCKET CONTROL (Optional)	7
LOADER ATTACHMENT CONTROL LOCK (Specific to certain countries).....	8
LOADER BUCKET SELF-LEVELLING.....	9
LOADER ATTACHMENT SAFETY STRUT.....	12
LOADER ATTACHMENT SAFETY STRUT (B100C - B110C).....	12
LOADER ATTACHMENT SAFETY STRUT (B100CTC - B110CTC - B115C)	14
REMOVAL AND INSTALLATION OF LOADER BUCKET	15
LOADER BUCKET (B100C - B110C).....	15
LOADER BUCKET (B100CTC - B110CTC - B115C)	16
LOADER BUCKET WITH FORKS (Optional)	17
BUCKET TEETH REPLACEMENT.....	18
LOADER REMOVAL.....	19
LOADER ATTACHMENT (B100C - B110C).....	19
LOADER ATTACHMENT (B100CTC - B110CTC - B115C)	21

SECTION 84 - BACKHOE

DESCRIPTION AND OPERATION.....	3
BACKHOE ATTACHMENT CONTROLS.....	6
BACKHOE ATTACHMENT MECHANICAL CONTROLS	7
BACKHOE ATTACHMENT HYDRAULIC CONTROLS	17
BACKHOE ATTACHMENT SIDESHIFT (Sideshift version)	23
BACKHOE ATTACHMENT DISASSEMBLY	25
CENTER PIVOT BACKHOE ATTACHMENT DISASSEMBLY.....	25
SIDESHIFT BACKHOE ATTACHMENT DISASSEMBLY.....	28
BACKHOE BUCKET REPLACEMENT	30
BUCKET TEETH REPLACEMENT.....	31
DIPPER REMOVE	32
TELESCOPIC DIPPER REVISION.....	35
OVERHAUL	35
BACKHOE ATTACHMENT HYDRAULIC HANDLING	38
CONTROLS.....	38
HYDRAULIC DIAGRAM	38
DISASSEMBLY AND ASSEMBLY.....	39

B100C - B100CLR - B100CTC

B110C - B110CTC

B115C



SECTION 00 - SAFETY RULES

SAFETY INSTRUCTIONS

WARNING

This warning symbol points out important messages involving your safety.

Carefully read the safety rules contained herein and follow advised precautions to avoid potential hazards and to safeguard your safety and personal integrity.

In this manual you will find this symbol together with the following keywords:

WARNING

This symbol warns about the possibility of potential damages to the machine that can involve the operator's safety.

WARNING

With specific warnings about potential dangers for the operator's or other persons integrity directly or indirectly involved.

The non-compliance with the warnings preceded by the above-mentioned keywords (WARNING and DANGER) can cause serious accidents or even the death of the persons involved.

Moreover, in the present Manual, some instructions are given with text in italics, preceded by the words **NOTE** and **CAUTION**.

NOTA: *it emphasizes and underlines to the operator the correct technique or correct procedure to follow.*

WARNING

This symbol warns about the possibility of potential damages to the machine that can involve the operator's safety.

FOREWORD

Loader backhoes B100C - B100CLR - B100CTC - B110C - B110CTC - B115C have been designed to perform most earth-moving operations.

If you use this machine for duties involving the use of attachments, accessories, or special tools, consult your Dealer to make sure that the adaptations or modifications carried out are in conformity with the machine's technical specifications and with current regulations on safety.

Any modifications or adaptations which are not approved by the manufacturer may invalidate the machine's original conformity with safety requirements.

The machine must be used according to its intended use, respecting the safety and precautionary rules and strictly following the operating instructions.

Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.

DANGER

A different use of the excavator or of its working equipment:

- for lifting or transporting persons;
- as working platform;
- for lifting loads without the attachment being approved for this purpose;
- for pulling loads;
- is considered unintended use.

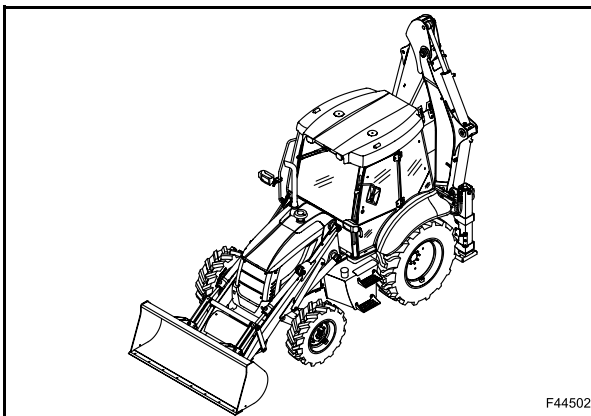
Unintended use may cause injury or life-threatening risks for the operator and for other persons.

The manufacturer/supplier cannot be held responsible for any damage resulting from unintended use. The risk involved in such misuse lies entirely with the user.

DANGER

It is absolutely forbidden to tamper with and/or change the setting of any of the hydraulic system valves to avoid damaging machine components, with a consequent risk for personal safety.

The current Operator's Manual is the user's guide for correct run-in, use and maintenance of the machine.



Carefully read this Operator's Manual and store it in the cab for quick location and reference.

Instructions concerning safety, operation and maintenance have been developed to permit safe service and repair of this machine without any risk.

In the event of queries or suggestions relevant to your machine do not hesitate to address to your Dealer.

Dealers have qualified and trained personnel at disposal as well as Original Spares, means and equipment suitable to carry out all necessary maintenance.

Any modifications or adaptations which are not approved by the manufacturer may invalidate the machine's original conformity with safety requirements.

IMPORTANTE: *the engine and fuel system on your machine are designed and built to government emissions standards. Tampering by dealers, customers, operators and users is strictly prohibited by law. Failure to comply with this prohibition could result in government fines, rework charges, invalid warranty, legal action and possible confiscation of the machine until rework to original condition is completed. Engine service and/or repairs must be carried out by a certified technician only.*

NOTA: *each machine is supplied complete with a copy of this Manual. Descriptions and illustrations provided herein are not binding. The Manufacturer, provided that the basic characteristics of machine types described and shown in this Manual remain the same, reserves the right to change components, parts and accessories supplied without any commitment to timely update this publication; and this any time it deems it convenient for improvement purposes or due to commercial or manufacturing requirements. For exact information, please consult your Dealer or contact the Manufacturer's Branch Offices, who remain at your disposal for further help.*

SPARE PARTS

The "non-genuine" spare parts have not been checked and authorized by the Manufacturer.

The assembly and/or use of such products may have negative effects on the machine design features and could impair its operation safety.

The Manufacturer is not liable for any damage caused by "non-genuine" spare parts or accessories.

WARRANTY

This machine is under warranty according to the regulations in force in Your Country and in compliance with the sales agreement drawn up with the Dealer.

The warranty, however, expires if the operation and maintenance instruction for this machine and contained in this manual, have not been followed.

SAFETY INSTRUCTIONS

Carefully read the safety rules contained herein and follow advised precautions to avoid potential hazards and to safeguard your safety and personal integrity.

Your safety and that of the people around you depends on you.

It is essential that you understand this manual for a correct inspection, lubrication and repair of this machine.

Read this manual carefully and check that:

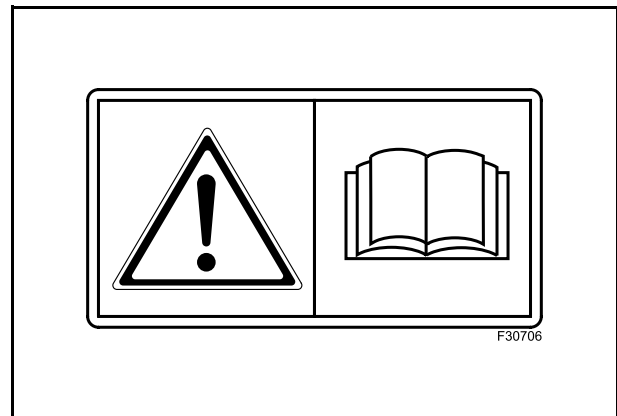
- you understand fully the symbols on the controls and the safety signs used in this manual and on the machine;
- you understand fully the speed, stability, braking and steering characteristics of the machine. If you are in any doubt, consult your Dealer.

The safety messages in this section concern situations which may arise during normal machine operation, servicing and repair. These safety messages also indicate the different ways of coping with these situations. Other safety messages are used throughout the manual to indicate specific dangers.

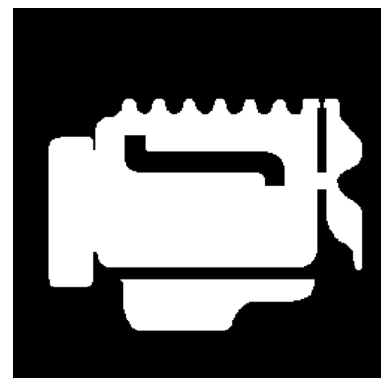
The information given in this chapter is a summary of the basic rules to respect at all times and does not exempt you from observing traffic regulations or the requirements of insurance companies.

The presence of grease, oil, mud or (in winter) ice on the steps and access handles can cause accidents. Make sure they are always clean.

When mounting or dismounting from the machine always face the machine and use the steps and access handles on the left-hand side of the machine.



B100C - B100CLR - B100CTC B110C - B110CTC B115C



SECTION 10 - ENGINE

REMOVAL AND INSTALLATION THE ENGINE HOOD, THE RADIATOR AND ENGINE	3
PRELIMINARY OPERATIONS	3
BATTERY	4
DISCONNECT	4
ENGINE HOOD	6
REMOVE	6
RADIATOR	9
REMOVE	9
ENGINE	16
REMOVE	16
INSTALL	26
RADIATOR	35
INSTALL	35
ENGINE HOOD	41
INSTALL	41
BATTERY	44
CONNECT	44
ENGINE ERROR CODES	46

REMOVAL AND INSTALLATION OF THE ENGINE HOOD, THE RADIATOR AND ENGINE

Preliminary operations

- Position the machine on a flat and compact surface.
- Apply the parking brake and chock the wheels with wedges.
- Use only the recommended tools.
- Do not insert hands or extraneous components between parts.
- Disconnect the battery before proceeding.

WARNING

Do not allow unauthorized persons to repair or service this machine. Be certain to read the Use and Maintenance Manual with care before starting, operating, servicing, refuelling or repairing this machine.

Turn the **STARTER SWITCH** to the **OFF** position and display the “**DO NOT START**” warning notice.

IMPORTANT: *From this point onwards, mark all electrical connections and hydraulic pipes to facilitate the process of RESTORING CONNECTIONS DURING REFITMENT.*

- Unscrew the cap of the hydraulic oil tank slowly to release the air pressure from inside the tank.
- Move the control lever repeatedly back and forth to release pressure in the hydraulic circuit.
- With oil warm, remove plug from the bottom of the machine and drain the oil into a receptacle of suitable capacity.

DANGER

Fluid under pressure; Before removing the plug or cap, turn slowly to release pressure from the system. See the Use and Maintenance Manual.

Put a container below radiator drain. Remove radiator cap. Remove cap and drain coolant into container. Install cap after coolant has drained. Install radiator cap.

Put a container below engine oil drain. Remove cap and drain oil into container. Install cap after oil has drained.

Battery - Disconnect

⚠ WARNING ⚠

Explosive gas!

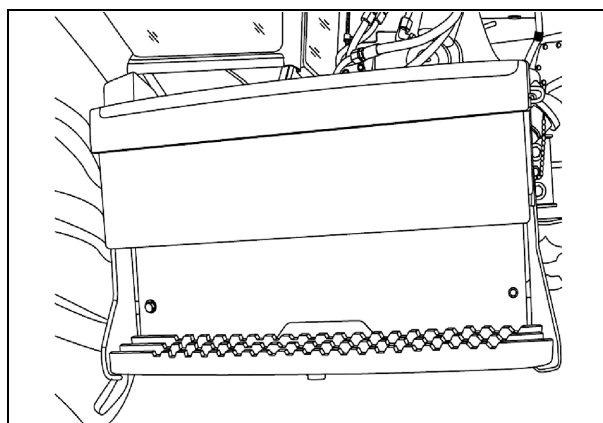
Batteries emit explosive hydrogen gas and other fumes while charging. Ventilate the charging area. Keep the battery away from sparks, open flames, and other ignition sources. Never charge a frozen battery. Failure to comply could result in death or serious injury.

⚠ WARNING ⚠

Hazardous chemicals!

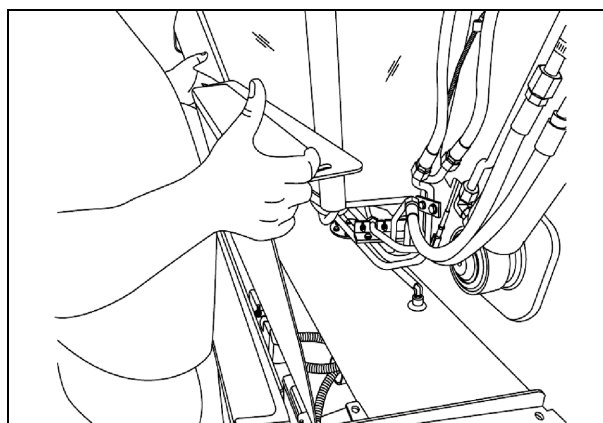
Battery electrolyte contains sulfuric acid. Contact with skin and eyes could result in severe irritation and burns. Always wear splash-proof goggles and protective clothing (gloves and aprons). Wash hands after handling. Failure to comply could result in death or serious injury.

Remove the battery cover hardware.



TBR00002

Remove the battery cover.



TBR00003



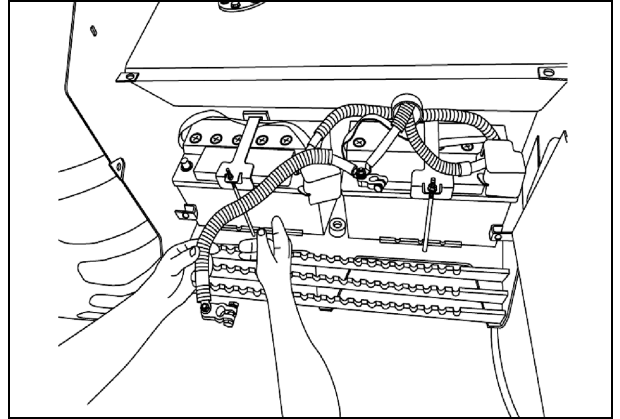
Suggest:

If the above button click is invalid.

Please download this document first, and then click the above link to download the complete manual.

Thank you so much for reading

Disconnect the negative battery cable from the negative battery terminal.



TBR00004

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>