



GZ30 Bed Mover

Operating Manual

GZ30 Operating Manual—OM0031E

This manual contains important safety, installation and operating instructions for this unit. Read this manual thoroughly and completely, and retain for future reference. This unit can cause serious injury to personnel or damage to property if used incorrectly, therefore do not use this machine for any other purpose apart from its intended use. Using this unit incorrectly may void warranty.

Any damage audible or visible to this unit should be addressed at the time of discovery. Electrodrive Pty Ltd can provide parts and service support on request through its service partner company:

Serviced Equipment Pty Ltd

p: 1300 934 471

e: service@fallshaw.com.au

Made in Australia by:

Electrodrive Pty Ltd

2A Ayton Street, Sunshine North VIC Australia 3020

p: 1300 934 471 (within Australia)

p: +61 (03) 9300 8521 (International)

e: sales@electrodrive.com.au

w: www.electrodrive.com.au

© Electrodrive

Contents

Introduction.....	5
Operating instructions	6
Controls	6
Using the GZ30.....	8
Hitching and unhitching to a bed.....	9
Sleep mode.....	10
Charging	10
Maintenance	11
Batteries.....	11
Brakes.....	11
Motor	11
Electronic speed control	11
Fuses	11
Circuit breaker	12
Cleaning.....	12
General	12
Disposal of components or material.....	12
Warranty	13
Modifications and misuse will void your warranty	13
General wear items not covered under warranty.....	13
Appendix 1: Machine rating conditions.....	14
Appendix 2: Fault codes	15
Appendix 3: Hitch release instructions.....	16
Appendix 4: Charging procedures	17
Charging setup	17

During charging	17
Charger manual	17
Appendix 5: Spare parts list.....	18
Appendix 6: Wiring diagram	20
Service Log	21

Introduction

The GZ30 is a battery-powered unit to assist in the movement of hospital beds, stretchers and trolleys.

It is designed to save operator effort when pushing or pulling beds, stretchers and trolleys, while reducing the risk of back and shoulder strain.

The GZ30 includes the latest developments in DC motors with automatic electromagnetic park braking, as well as a high capacity programmable controller.

Features include quiet operation, ease of handling, high manoeuvrability, low maintenance, and the ability to handle heavy loads. The GZ30 machine slows down and stops automatically when the twist grip is released.

Under typical operation, the GZ30 battery capacity should be adequate for 8 hours of operation. Overnight charging is recommended, and in high-use situations additional “top-up” charging is advised. It is recommended to use the charger supplied with the GZ30 when charging the sealed maintenance-free batteries. This charger is especially designed to set the charge rate, prevent gassing, and automatically cut switch to “trickle charge” when charging is complete.

All bearings are pre-lubricated and sealed and should not require attention in normal use. Regular maintenance requirements on the vehicle are therefore minimal and are covered in this manual.

As with any machinery, safety considerations demand that the GZ30 be handled with caution, and only operated by trained and authorised personnel. In addition, all loads must be placed securely on the bed or trolley, and the bed or trolley securely locked to the GZ30.

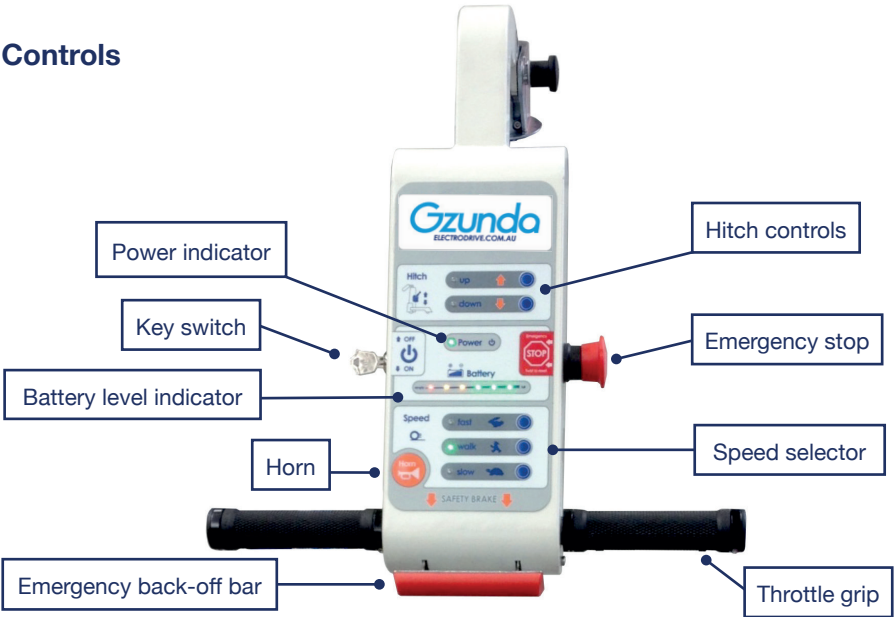


The GZ30 must only be operated by trained and authorised personnel.

Operating instructions



Controls



Controls

Key switch

The key switch must be turned clockwise to switch the GZ30 on. When on, the LED status indicator will be illuminated. It is important to note that the unit should be switched off and the key removed, whenever it is not in use. This eliminates the risk of unauthorised movement and also prevents an unnecessary use of battery power.

Emergency back-off bar

When the Emergency back-off bar is activated (depressed) while in motion, the GZ30 will behave in one of two ways.

1. In reverse (towards the operator), the GZ30 will stop and then move away from the operator for a short distance.
2. In the forward direction, the GZ30 will reduce to a slow speed and come to a smooth stop.



Any accessories installed that prevent the safe operation of the emergency back-off bar may create a crush hazard for the user.

Throttle grip

The throttle grip provides variable speed control. Releasing the grip stops the unit.

An automatic park brake is applied after a short delay after the grip has returned to its neutral position. Under no load, the park brake will maintain the GZ30 in a stationary position. Under load, the brake may not be capable of holding the system stationary, particularly on a sloping surface.

Speed selector

The speed selector will always start in the slow position. Select a speed that you are comfortable using. The speed can be changed whilst driving. It is advisable that the operator select a slow speed when approaching a bed or trolley to hitch; entering a confined area; on a slippery or slightly sloped floor surface; turning, or reversing.

Battery level indicator

The battery level indicator indicates the amount of charge left in the batteries. When it appears to be running low, return the GZ30 to the closest charging station to charge the batteries. Being aware of the level of charge of the batteries will eliminate the possibility of running low on power whilst away from the charging station. Red light only indicates no usable battery power remaining.

Horn

Push to sound the horn, release to turn off.

Brakes

When the throttle grip is released the GZ30 is slowed electronically with dynamic braking until the GZ30 and the accompanying load stops.

Using the GZ30

Safety check

Before using the GZ30, the operator should complete the following safety check.

1. The charger is disconnected from the GZ30.
2. The emergency back-off bar works
3. The battery condition indicator shows adequate charge.
4. The braking system is in operation, so that when stopped, the unit cannot be manually moved, and that the unit slowly moves when the throttle is applied.
5. The GZ30 hitch is not damaged and securely latches onto the bed frame.

Safe operation

1. The unit, when attached with a hospital bed, may present a hazard to other staff and moving hospital equipment during an emergency. Setting the proper speed and using the horn to attract attention is advised in such cases.
2. Even though the electromagnetic or other interference of the GZ30 is not significant, it may still have an impact on some high accuracy hospital equipment. It is advised that you do not park or keep the GZ30 too close to this kind of equipment when they are in use.
3. Always begin driving the GZ30 in slow speed to ensure you maintain control. The GZ30 has an intuitive control system, so it becomes easier to use the more you use it. Select a speed that is suited to the competency of the operator. If unsure, start with slow speed then adjust up accordingly.

Hitching and unhitching to a bed

The GZ30 has multiple hitch options for hitching to hospitals beds and equipment.

Flex hitch (flexi-straps—anti-microbial)

The Flex hitch (flexi-straps—anti-microbial) suits various bed types. Adaptable to suit frames with bulky foot and head boards where the bed frame isn't fully exposed.

The flex hitch is controlled from the control panel using the up/down buttons and by hand.



Hitching to a bed using the Flex hitch:

1. Adjust the height of the hitch so that it is aligned vertically with the bed frame using the up/down buttons on the control panel.
2. Release the locks on the hitch strap (handles in the raised position). Pull the straps out from the hitch box, and strap around the bed frame. Pulling the bed gently against the GZ30 at this stage will improve the hitching. Lock the handles by moving them to the lower position. You will feel the resistance in the handle, indicating a firm grip of the bed.
3. Ensure to do this on both sides.
4. Ensure that the castors on the bed are in the neutral position and that the bed is not plugged into the wall or connected to external equipment. The bed is ready to be moved.

Unhitching from a bed:

1. Confirm the GZ30 and bed are stationary, and on level ground.
2. Apply bed brakes.
3. Release the hitch straps and unhook from the bed. The GZ30 can now be taken to the charging station, or to the next bed.

Gripper hitch

The standard Gripper hitch suits bed frames between 35-55mm thickness.

Hitching to a bed using the Gripper hitch:

1. Ensure bed is on a flat surface and the castor brakes are locked so the bed cannot move.
2. Using the up/down buttons on the control panel, press the 'down' button until the Gripper bar is in its lowest position.



3. Drive the GZ30 up to the bed frame so that the Gripper hitch is directly under the bed frame.
4. Using the up/down buttons on the control panel, press the 'up' button until the grippers are completely closed over the bed frame and cannot move up any further.
5. Ensure that the castors on the bed are in the neutral position and that the bed is not plugged into the wall or connected to external equipment. The bed is now ready to be moved.

Unhitching from a bed:

1. Confirm the GZ30 and bed are stationary, and on level ground.
2. Apply brakes to lock the bed in position.
3. Press the down button until both grippers are totally free from the bed frame. The GZ30 can now be taken to the charging station, or to the next bed.



Always park the GZ30 in a safe place.

Sleep mode

After a period of 30 minutes of inactivity, the GZ30 will switch into a sleep mode to extend battery life. To resume operation, simply reset by turning key OFF then ON.

Charging

1. Use only the supplied battery charger to charge the unit.
2. Always position the unit to allow enough space to connect or disconnect the charger socket from the unit.

For detailed charging procedures refer to Appendix 4.

Maintenance

Batteries

If the GZ30 is not being used for an extended period of time, it should be connected to the battery charger to check the battery level on a regular basis, and placed on charge overnight if required. This will ensure the batteries are kept in good condition.

The batteries are sealed and maintenance free. DO NOT attempt to open these batteries. If the GZ30 is not charged as above, the batteries may be exhausted and have dropped below the charging threshold of the battery charger. The supplied charger cannot begin to charge the batteries unless they have a small amount of charge. If this occurs, contact Electrodrive or your local service agent.

A sign that the batteries need replacing is when they no longer hold charge.



Irregular charging may cause premature battery failure. The battery can only be replaced by a qualified technician.

Brakes

The park brake does not require regular maintenance. If the GZ30 is not remaining stationary when in the OFF position, contact Electrodrive or your local service agent.

Motor

Motor brushes should be inspected every six months and replaced as required.

Electronic speed control

This unit is factory programmed, and is not serviceable by the customer. The LED status indicator on the membrane console flashes to indicate a fault with the controller. The number of flashes will refer to a particular fault (see Appendix 2). Contact Electrodrive or your local service agent for diagnosis and advice.

Fuses

The control circuit is protected against inadvertent current overloads with a 1 Amp fuse. The charger circuit is protected by a 10 Amp fuse. These fuses are located next to the electronic controller on the electrical panel.

Circuit breaker

The GZ30 is fitted with a self-resetting circuit breaker in case of momentary overload. This switch can be found next to the fuses as shown.

If the circuit breaker continues to trip multiple times in succession, test the machine, as the motor may be damaged. Continued use could damage the unit further.

The controller is also equipped with safety shut down capabilities and will limit the battery current as well as detect low battery voltage.

Cleaning

To clean exterior of machine wipe surfaces down with a warm damp cloth. A mild detergent may be used for harder-to-remove grime.



Do NOT use chemical solvents, highly concentrated caustic soda or abrasive cleaning agents. These may damage the surface quality and may affect the integrity of polyurethane and machine lubricant properties.

General

Any damage audible or visible to the GZ30 should be addressed at the time of discovery.

When not in use the unit should be stored in a cool dry place. Please ensure it is not parked in a manner that obstructs access, causes a tripping hazard, or any other safety related issue.

Disposal of components or material

All replaced or damaged components should be disposed or recycled properly based on its category.

Warranty

Electrodrive Pty Ltd warrants that this product is free from defects in materials and workmanship for a period of twelve months from the date of dispatch from the Electrodrive plant.

If a defect is reported, Electrodrive will repair or replace the defective part, at its own discretion. This warranty does not apply if the GZ30 has been misused, damaged, or modified in any way.

Modifications and misuse will void your warranty

The following activities (including, but not limited to) are examples:

Modifications

- The machine is re-wired by an unauthorized service agent.
- The motor controller is re-programmed by an unauthorized service agent.
- There are modifications to the body or frame of the machine.
- Use of non-specified parts.
- The machine is serviced by an unauthorized service agent.

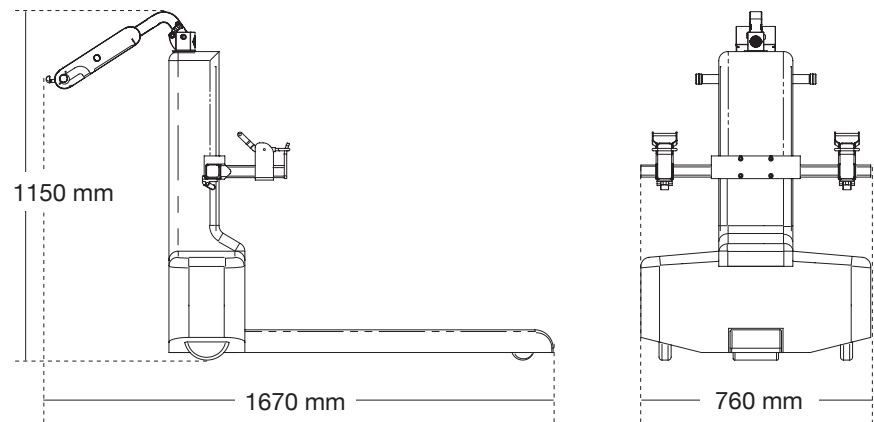
Misuse

- Overloading the unit either during towing or lifting.
- Carrying people or other foreign objects.
- Exposed to rain or other precipitation.
- Using the emergency back-off system to change direction regularly.
- Exposed to a corrosive environment.
- Driven off road—potholes, gravel, etc.
- Not being charged adequately.

General wear items not covered under warranty

- Castors.
- Drive wheels, motors and motor brushes.
- Hand grips.

Appendix 1: Machine rating conditions



Model	Safe Working Load	Max Load
GZ30(NH)	500 kg	500 kg

























The GZ30 has been designed to move the rated weight capacity on a level firm surface. Variations in the working environment may impede the performance of the GZ30. Such parameters include (but are not limited to) the following:

- Ramps and sloped surfaces.
- Soft surfaces (for example carpet).
- Slippery surfaces (gravel, water, oil on the ground, etc).



It is important that the GZ30 NOT to be operated outside of the recommended conditions.

Appendix 2: Fault codes

		LED codes	Explanation
LED off			No power or defective controller.
Solid on			Controller operational; No faults.
<hr/>			
	1, 1		Thermal cutback fault.
	1, 2		Throttle fault.
	1, 3		Speed limit pot fault.
	1, 4		Undervoltage fault.
	1, 5		Overvoltage fault.
<hr/>			
	2, 1		Main contactor drive 'off' fault.
	2, 3		Main contactor fault.
	2, 4		Main contactor drive 'on' fault.
<hr/>			
	3, 1		HPD fault present for > 10 seconds.
	3, 2		Brake 'on' fault.
	3, 3		Precharge fault.
	3, 4		Brake 'off' fault.
	3, 5		HPD (high pedal disable) fault.
<hr/>			
	4, 1		Current sense fault.
	4, 2		Motor voltage fault (hardware failsafe).
	4, 3		EEPROM fault.
	4, 4		Power section fault.

 = Must cycle keyswitch to clear.

† = Must use programmer to clear, as follows: Select 'parameters menu'; alter data value of any parameter; cycle keyswitch.

Note: Only one fault is indicated at a time, and faults are not queued up.

Appendix 3: Hitch release instructions

The powered hitch function of the GZ30 has built in safety controls to limit the output force of the hitch. When this force is exceeded, the hitch will stop.

1. In the event of the hitch stopping unexpectedly, press the “Lower” button on the hitch controls. This resets the safety circuit, and allows the hitch to function normally.
2. If, for some reason, the hitch is overloaded in its extreme low position, there is an alternative method of “driving” the hitch out of a bind. This will only work if the hitch is in its lowest position. Whilst holding the hitch “Lower” button on the controls, press the “Raise” button simultaneously. This will momentarily override the safety circuit to get the hitch working in its normal range.



Please note: These instructions should only be carried out by a qualified maintenance technician. If there is any uncertainty, please contact your local Electrodrive Authorised Service Agent for further advice. To avoid the hitch being unnecessarily overloaded, please avoid lowering the bed into the hitch.

Appendix 4: Charging procedures

- Always charge batteries when work is complete and the equipment is not required for use.
- Opportunity charging is NOT recommended. This can also shorten battery life.
- Never leave batteries in a discharged state as this will shorten the batteries life.
- For maximum battery life, a battery must be recharged to 100% capacity. Recharging less than 100% may result in premature battery failure. Batteries are not covered under warranty if they are not recharged properly.
- If batteries are disconnected from the machine and not used for lengthy periods of time, it is recommended to give them a maintenance charge once every two months.

Charging setup

- Ensure you have the correct charger for the batteries. The correct voltage and current is important to ensure the full life of the batteries.
- Check all connections are tight and in good condition.
- The green charger LED will illuminate to confirm charging is in progress.
- If charger lights do not come on, call your service technician.
- When charger is plugged in, drive function of machine is automatically inhibited.

During charging

- Ensure there is enough airflow to help keep the batteries as cool as possible.
- If the batteries are swollen turn off immediately and call your service technician.
- Always leave batteries on charge until the charge is COMPLETE. This is indicated when charger LED turns off.
- If the battery pack smells or sounds unusual in the process of charging or discharging, stop immediately.
- If problems appear during charging or discharging, please contact Fallshaw Group, do not disassemble without permission.

Charger manual

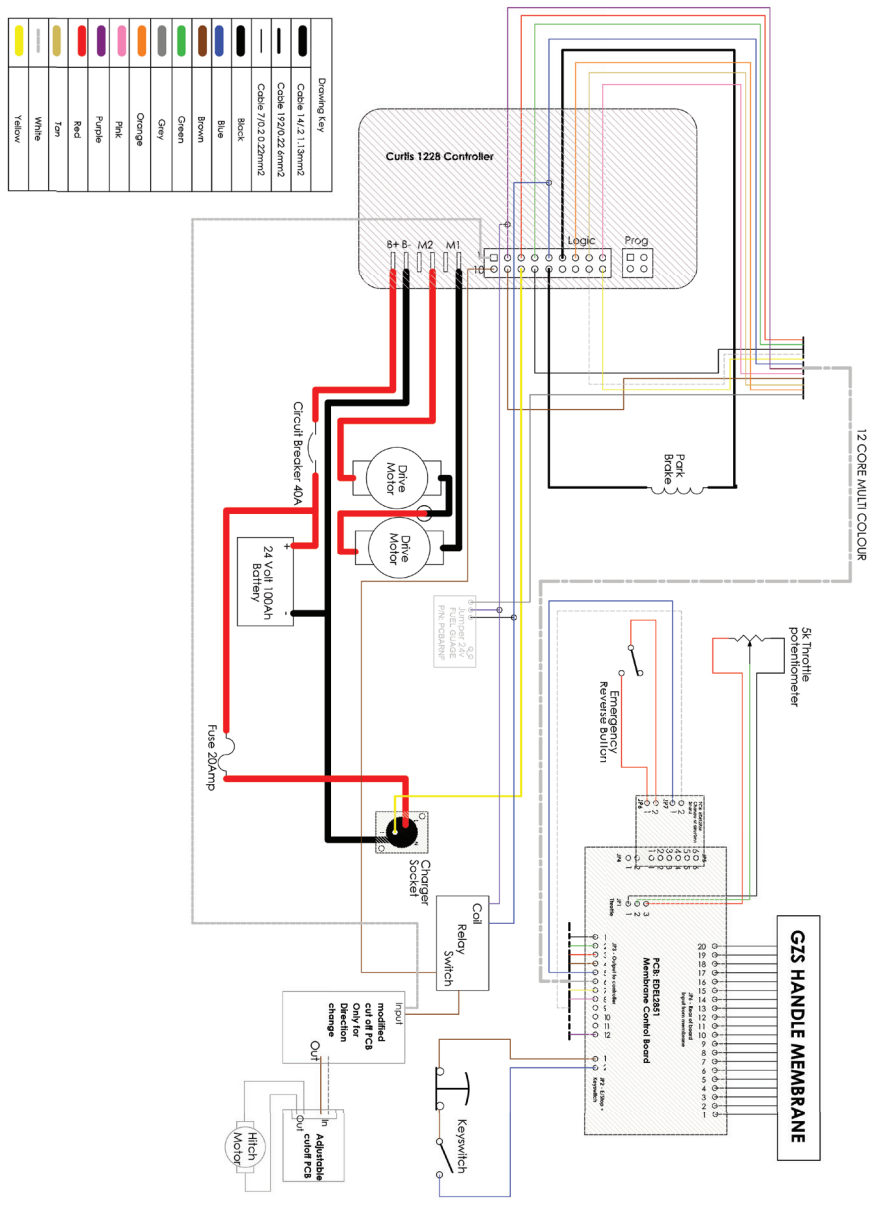
Please read Battery Charger Operating Manual for more information.

Appendix 5: Spare parts list

Part number	Description
EDMCHGZ30-036	Machined OBQ150 wheel
EDMCHGZ30-053	Machined 6B sprocket
EDSPKIDL30T06B	Plate sprocket OD 94 12 ID 30 teeth 6B chain
EDMCHGZ30-012	Front wheel shaft
EDMCHGZ30-013	Front wheel spacer
EDEP0038	ELE01-4404 knuckle body
EDEP0039	ELE01-4405 knuckle front
EDMCHBRTCBM077	Machined WH1070 wheel
EDMCHGZSBACKOFF	ELE01-9206J-Safety stop plastic front
EDBAB6004X20	Bearing 6004 2RS X 20mm
EDBAB6004X58	Bearing 6004 2RS 5/8"
EDBAB62022RS	6202 2RS precision bearing
EDBRG62032RS	Bearing 6203 2RS (HBC)
EDGM1085	Bearing 6804 2RS
EDCIREXT12	External circlip Dn 12mm
EDCIREXT16	External circlip Dn 16mm
EDCIREXT24	External circlip Dn 24mm
EDCPLM8HALF	Lovejoy coupling—half
EDCPLM8INS	Lovejoy coupling—insert
EDEL1910	Circuit breaker—40Amp
EDEL2110	Controller 1228, blank ready to program
EDEL2380	Emergency stop button 40mm
EDEL2450	Fuse 1 Amp (controller) (3AG)
EDEL2470	Fuse 10 Amp (charger) (3AG)
EDEL2486	Fuse Blade 20Amp
EDEL2500	Glass fuse holder
EDEL2630	Horn buzzer
EDEL2720	Key switch with key-A126

Part number	Description
EDEL2822	Microswitch-lever mini GZ10
EDEL2851	PCB membrane control board
EDEL3015	Potentiometer—5K self return
EDGM1120	Bearing housing for TUG & FB
EDGM1230	Bearing TUG/FB—A
EDGM1360	Chain 06B1
EDGM1801	Handgrips to suit GZ10
EDGM2854	Raven 915mm brush strip door seal
EDMOTGZ3012V180W	Motor, 24V, 180W, 80D, Doryoku
EDMOTGZ3012V30W	Motor, 24V, 30W, 80D, Doryoku
EDSPL-SFU1605-600	Ball screw and nut, 16mm DIA, pitch 5, 600mm long
EDSPKIDL15T6B	Sprocket, idler, 15 teeth, 6B chain
EDSPR2X16X100	2 X 16 X 100 spring flat ground both end
EDSTKGZSMEM	GZS membrane
EDBATLITH100A24V	Li-ion 24V 100Ah battery
EDPCHARGER16A24V	Li-ion battery charger

Appendix 6: Wiring diagram



Service log

Service recommendations

To ensure this equipment is kept in a safe and reliable condition, it is important to follow a preventative maintenance program. Maintain a log of the service work on the cards below, and always use an approved Electrodrive service agent to conduct the works. Approved service personnel will be provided with all necessary documents and components in service repair, including but not limited to, circuit diagrams, component part lists, descriptions, service checklists and spare parts.

6 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

12 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

18 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

24 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

30 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

36 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

42 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

48 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

54 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

60 month service

Date of service		Service agent	
Machine serial number			
Summary of works			
Next service due			

Notes

Mobility solutions to help you push, pull & lift with ease.

www.electrodrive.com.au