



EASI RIDER SERVICE MANUAL

SAFETY WARNING | Read this manual before using the unit and follow all instructions.

The information in this manual is current at time of printing. Under the Company's policy of continual product improvement, product specifications may change without notice.



Current Version – Issue B

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Easi Rider



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1. IMPORTANT SAFETY INFORMATION

DEFINITIONS

This document contains important information relating to the safe and correct servicing of the Easi Rider. When reading this document, please be aware of the following definitions and conventions:



This symbol indicates useful or important information to be noted.



This symbol indicates important safety-related information. Failure to comply with this information may result in personal injury.

Company: Refers to RIHA Industries PTY LTD U3, 59-61 West Avenue Edinburgh, SA 5111, Australia ABN: 26 143 984 758

Unit:

Refers to the Easi Rider.

Agent:

Refers to a person or organisation authorised by the Company to carry out servicing of the Unit, the intended user of this manual.

Manual:

Refers to this document and any associated service training carried out by an Agent.



The Unit must only be serviced by Agents authorised by the Company to do so, and who have read and understood this Manual. It must also be operated in accordance with the corresponding Operator's Manual.

Failure to use or service the Unit in accordance with the Manuals may result in personal injury or damage to property, and will invalidate the Unit's warranty.



2. SAFETY FIRST

The Unit must only be operated by persons who have been trained to use it by an Agent or accredited trained staff, and who have read and understood this manual.



WARNING :

Failure to use the Unit in accordance with this Manual may result in personal injury or damage to property, and will invalidate the Unit's warranty.

To ensure safe servicing, ALWAYS:

- Operate the Unit in accordance with the Operator's Manual.
- Ensure the Emergency Stop Button is pushed in before removing any covers.
- Ensure the Battery is disconnected before carrying out any servicing work. Care must be taken to prevent contact with the battery terminals to avoid the risk of electric shock.
- Carry out service work carefully. Pinch points and sharp edges normally covered may be exposed during servicing.

To prevent injury, **NEVER:**

- Operate or service the Unit whilst under the influence of drugs or alcohol.
- Expose the Unit to rain, moisture or other liquids.
- Expose the Unit to excessive heat or naked flames.
- Let anything fall into the interior of the Unit.
- Attempt to manually handle or lift the Unit. If the Unit cannot be moved under its own power enable the brake bypass or use the appropriate lifting equipment with a Safe Working Load of at least 175 kg.
- Service in an oxygen rich environment.
- Charge the Unit with a different charger to the one specified.

Note: In the case of a breakdown, the Easi Rider can be repositioned (from a thoroughfare) by manually releasing the brake clutch.



3. DEVICE SPECIFICATIONS

Basic Specifications:

- Safe Moving Load: 1500kg.
- Duty Cycle: Drive Mode: Continuous.
- **Classification:** Internally Powered Electrical Equipment (normal operation)
- Device Life: 7 to 10 years depending on usage and servicing
- IP21

Electrical Specifications:

Normal Operation:

- **Operating Voltage:** 24±6V DC
- 78A max. (<10s @ 20°C initial) 60A nominal
- 18A cont. (@ 20°C ambient) 15A nominal

Charging

- AC input: 115V/230V
- 8A Max
- 60/50Hz

4. TORQUE SETTINGS

The following torque settings are to be used when tightening fasteners used on the Unit.

Size	Socket Head Cap Screw	Socket Head Countersunk Screw	Socket Button Head Screw	Plain Cup Point Screw	Nyloc Nut
M10	77 Nm (680 lb.f)	-	-	-	25 Nm (22 lb.f)
M8	39 Nm (350 lb.f)	24 Nm (210 lb.f)	24 Nm (210 lb.f)	-	12 (9 lb.f)
M6	16 Nm (140 lb.f)	9.5 Nm (85 lb.f)	9.5 Nm (85 lb.f)	-	-
М5	95 Nm (85 lb.f)	-	5.5 Nm (50 lb.f)	4.0 Nm (35 lb.f)	-
M4	4.6 Nm (41 lb.f)	-	2.8 Nm (25 lb.f)	2.2 Nm (19 lb.f)	-



5. INITIAL START-UP

Conduct functional checks:

- 1. Release the Emergency Stop button. Turn the Speed Control Knob fully anti-clockwise.
- 2. Turn on Remote
- 3. Move the joystick to the right to perform a 360 degree clockwise turn
- 4. Check the brakes are working correctly by slowly pushing the joystick forward. Once the unit is moving release the joystick. The brakes should automatically stop the machine.
- 5. Check that the Horn is working
- 6. Push in the Emergency Stop Button. This will stop all drive functions.



6. CHASSIS ASSEMBLY - COVER



1	D004-C0059 – Machine Cover
2	M6 x 12 BHCS
3	M8 x 18 SHCS
4	D004-C0047 – Handle Base
5	Press in Bush 1008
6	M10 x 15 CS
7	D004-C1032 - Spring Loaded Castor D004-C0143 - Spacer Plate Castor
8	M10 Wahser
9	M10 Nyloc Nut



Inspection of covers



Before removing any of the Unit's covers, ensure the machine power is off and the Emergency Stop has been engaged in accordance with the Operators Manual.



Machine Covers are only to be removed by service personnel who have been trained to service the Unit. Improper removal of the covers may result in a hazard.

This will require the removal of 7 screws and washers at the bottom of the chassis and 4 screws and washers in front of the handle (front cover) when in the upright position.

Inspect all covers for damage or wear. Covers that are cracked or worn allowing the interior of the machine to be exposed must be replaced. All covers should be cleaned with Isopropyl wipes on the top and undersides.



New transfers are self-adhesive. Remove any residual adhesive with an organic solvent e.g. alcohol wipes then dry area thoroughly before applying new transfer



7. CHASSIS ASSEMBLY - DRIVE WHEELS, BEARINGS, MOTOR AND GEARBOX



- 1 D004-C1003 Motor Gearbox Kit RH
- 2 D004-C1002 Motor Gearbox Kit LH
 - D004-C0036 Motor Mounting Plate LH
 D004-C0037 Motor Mounting Plate RH
- 4 M10 Nyloc Nut
- 5 M10 Washer
- 6 M10 x 25 BHCS
- 7 M6 x 12 BHCS
 - 8 D004-C0031 150mm Drive Wheel (Serial 001-011) D004-C0160 – 175mm Drive Wheel (Serial 012-Onwards)
- 9 M10 Washer
- **10** M6 x 25 CS
- 11 Drive Key 6 x 6 x 28
- 12 Drive Shaft Bearing Spacer
- **13** M6 x 8 CS
- 14 Drive Shaft Support Bearing



Inspect the condition of the left and right hand Bearing and Drive wheel assemblies. Observe components for damage or wear and service defective components in accordance with the following procedure outlined below.



Inspection of the bearings is recommended during any service or maintenance procedure involving the removal of the Drive Wheel.

- 1. Remove the left and right hand drive wheels by undoing the M10 nyloc nut and washer
- 2. Slide the wheel off the axle and remove the key.



A bearing puller or slide hammer may be required to remove the wheel.

3. Remove spacer.



A 3mm spacer is to be used with deep groove ball bearings.

- 4. Inspect the left and right hand tyres (poly-urethane over-mould). Observe the condition for the following defects or damage:
 - Cuts and abrasions.
 - Bulges in poly-urethane over-mould or separation from the aluminium hub.
 - Foreign matter embedded in the tyre.
- 5. Measure the overall diameter of the wheels in three evenly spaced positions about the circumference to ensure roundness of the wheels. Acceptable variation: +/- 2mm on roundness, 148mm minimum overall diameter. Replace if required.
- 6. Inspect the Drive Wheel Keys and keyways in both the axles and wheels ensuring they are free of burrs or bruises.
- 7. Inspect the bearings supporting the axles. Replace if damaged, worn or noisy.
- 8. Replace Drive Wheel Keys if required and refit.
- 9. Fit the drive wheels ensuring there is no looseness or play between axles and keyways.
- 10. Secure wheels with M10 Nyloc Wheel nut and washer to the specified torque.



Inspection of Motor and Gearboxes

- The Motors are a low maintenance motor and require only periodic inspections. The batteries should be disconnected during any maintenance procedure.
- Inspect the motors and service in accordance with the following procedure.

Left- and Right-Hand Motor Inspection and Service Procedure

- 1. Check for loose, damaged or corroded connectors and terminals and rectify. Replaced damaged cabling or wiring looms.
- 2. Check motor mountings are securely fastened in accordance with recommended torque settings
- 3. Remove any built up dust or dirt from the motor casing with a damp cloth.
- 4. Remove the rear covers and inspect brush lengths are no less than 10mm long, if so replace the brushes.
- 5. Check for signs of damage indicating external impact. Assess if the damage affects the operation of the machine in accordance with the operator's manual. Replace the motor if required.
- 6. Check motor and gearbox for increased backlash, play and excessive noise. Replace the motor and gearbox if required.
- 7. In the event of a drive motor failure, it is possible to isolate the gear box to allow the machine to freewheel and be moved manually. In the top cover there are two grommets, and by removing these and turning the protruding levers from the top of the gearbox it possible to disconnect the gear box drives with the Brake Release Tool by turning the brake clutch pin through 90 degrees.

Chassis Inspection

Inspect the Chassis for signs of damage caused by impact or overloading paying close attention to the following areas.

- 1. Motor mountings, affecting wheel alignment.
- 2. Check chassis for cracks.
- 3. Ensure fasteners are securely fastened in accordance with recommended torque settings.
- 4. Verify all E-Clips are secure, if required replace.



8. HANDLE ASSEMBLY



1	D004-B0033 – Handle Assembly
2	M8 Washer
3	M10 Washer
4	M10 x 25 BHCS
5	M8 x 110 BHCS
6	M8 Nyloc Nut





1	D004-C1025 – Remote Controller	9	M4 Washer
2	D004-C0142 – Controller Support Plate	10	M5 x 20 SHCS
3	D004-B032 – Handle Welded	11	M4 x 12 BHCS
4	D004-C1009 – Handle Grip	12	D004-C3001 – Side Transfer
5	D004-C2001 – Front Cover	13	Press in Bush 1008
6	D004-C1011 – Emergency Stop Back Plate	14	D004-C0048 – Handle Pin
7	D004-C1010 – Emergency Stop	15	Circlip 7mm
8	M5 x 12 SHCS		



Handle Assembly Removal and Corrective Service Procedure

- 1. Remove the chassis cover if required in accordance with Section 3 Protective Covers.
- 2. Remove E-Clips from Pin that secures the handle to the chassis.
- 3. Unplug the connections from the main wiring loom.
- 4. Unplug the Remote wiring loom from the Power module.
- 5. Remove two M10 screws located at the handle base.
- 6. Supporting the handle, remove the Pin securing the handle to chassis and remove handle.



Take care when removing the handle that wiring looms and cables, do not get caught on obstacles while being drawn through the chassis

- 7. Inspect pins, screws, handle pivots and handle base.
- 8. Replace worn or damaged parts and reassemble the handle assembly.
- 9. Refit the handle assembly to the chassis.
- 10. Inspect the condition of the rubber handle grips and replace if damaged or worn.



9. BATTERIES & POWER MODULE



1	D004-C1006 – 50A Circuit Breaker
2	M5 x 12 SHCS
3	D004-C1001 – 12V 20A Deep Cycle Gel Battery
4	D004-C1026 – Power Module
5	M6 x 12 BHCS
6	D004-C0034 – Fixing Brcket
7	M6 x 12 CS
8	D004-C3001 – Side Transfer



- 1. Remove the Chassis cover in accordance with Section 3 Protective Covers
- 2. All batteries are to be replaced regardless of their condition at 3 yearly intervals with Gel Batteries approved by RIHA Industries.



When replacing batteries, label the replacement batteries with the date they were replaced. Check battery replacement date at every service. Always replace all batteries.

- 3. Inspect the outside appearance of the battery for the following:
- 4. Check for signs of damage in the casing. Replace any batteries if the casing is dented or cracked.
- 5. Check the terminal posts and connections are free of dirt, fluids and corrosion. Clean with a wire brush, remove dust and grit with a damp cloth and dry.
- 6. Check for any fluids on and around the batteries, which may indicate electrolyte spilling, leaching or leaking out. Leaking batteries must be replaced.
- 7. Check all battery cables and connections, replace broken or frayed connections and ensure the terminal bolts are securely fastened in accordance with recommended torque settings
- 8. Ensure that the batteries are securely clamped to the chassis by means of the battery ties and wing-nuts

10. BATTERY CHARGER

Inspection of Batteries

Ensure only approved power cords are used with the approved Battery charger.

For power cord specifications appropriate to your region, refer to table below.

POWER CORD SPECIFICATION TABLE						
Turne	Plug		Wiring		Connector	
type	Description	Standard	Description	Standard	Description	Standard
US/Canada	3 pin Hospital Grade (Green Dot) - Clear PVC Straight	NEMA Approved to Standards IEC62321:2008,	SJT 18AWG 3C 105C Length=1.83m	Approved to UL 627 CSA22.2 No.49-06 (Flexible Cords and Cables)	C13	Approved to IEC60320-1(ed2)
Europe	2 pin with dual earth contact system	IEC 60884-1 (ed3)	H05VV-F 0.75mm2 3G Length=1.83m	IEC 227	C13	Approved to IEC60320-1(ed2)
UK	2 pole with earthing contact with 13A fuse	BS 1363:Part 1:1995 plus amendments 1,2 & 3	H05VV-F 0.75mm2 3G Length=1.83m	IEC 227	C13	Approved to BSEN60320-1 (ed2) / BSEN 60320-2-2
Australia	Non-rewireable 3 pin, flat pin (2 insulated live pin)	IEC62321:2008, AS/NZS 4417, AS/NZS3112:2004 A1	H05VV-F 0.75mm2 3G Length=1.83m	AS/NZS 60227.5 : 2003 A1	C13	Approved to IEC60320-1(ed2)



11. ELECTRICAL SYSTEM

Wiring Schematic



1	D004-C1003 – Motor Gearbox Kit RH
2	D004-C1001 – 12V 20A Deep Cycle Gel Battery
3	D004-C1026 – Power Module
4	D004-C1025 – Remote Controller
5	D004-C1010 – Emergence Stop
6	D004-C1006 – 50A Circuit Breaker
7	D004-C1002 – Motor Gearbox Kit LH



12. TOWING BRACKET



1	M16 Nyloc Nut
2	M16 Washer
3	D004-C0055 – Towing Bracket
4	D004-C0056 – Towing Bar



13. ADJUSTABLE HITCH



1	D004-C0071 – Threaded Pin	9	D004-C1017 – Gas Strut 400N
2	D004-C2003 – Rotating Bush	10	D004-B0039 – Lifting Face
3	D004-C0141 – Adjustable Hitch Spacer	11	M8 x 16 SHCS
4	D004-C0065 – Rotating Bracket	12	D004-C0069 - Jaw
5	D004-C0063 – Hitch Arm Pin	13	Press in Bush 1008
6	7mm Circlip	14	M10 Nylon Washer
7	M16 Nyloc Nut	15	D008-B0042 – Lifting Arm

8 D004-B0040 – Rotating Bracket Assembly



14. DIAGNOSTICS

The LiNX Remote will indicate if there is an abnormal condition somewhere on the unit

The nature of the abnormal condition is indicated by a flash code. This is a sequence of flashes, separated by a pause, followed by a repetition of the sequence. The number of flashes relates to the condition. For instance, four flashes of the LiNX Information Gauge, a pause, followed by four flashes, etc. indicates a right motor fault. Five flashes would indicate a left park brake fault.



The LiNX Remote displays flash codes using a red indicator light

Download the Dynamic Controls MyLinx App to your phone which enables the phone to read out the error code.

Number of Flashes	Fault Text	Possible Solution	
1	Remote / Joystick Error	Remote / Joystick ErrorReplace remote module	
2	Network or configuration error	 Check cables and connectors Check Bluetooth pairing Reconfigure the system Recharge the battery Check charger Replace modules Contact supplier 	
3	Left Motor fault	Check cables and connectorsReplace power moduleCheck and/or replace left motor	
4	Right Motor fault	 Check cables and connectors Replace power module Check and/or replace right motor 	
5	Left Park Brake fault	Check cables and connectorsCheck left park brake is released	
6	Right Park Brake fault	Check cables and connectorsCheck left park brake is released	
7	Power Module error	 Check cables and connectors Check modules Replace LiNX Access Key Replace power module Recharge battery If the Easi Rider stalled, reverse away or remove obstacles, or if the wheelchair was moved while turned off, cycle the power. 	



15. SOFTWARE PARAMETERS

The Easi Rider is delivered with standard factory settings. No unauthorized modifications are allowed to these settings which are shown in the table below.

Parameter	Default Setting
Maximum Forward Speed (%)	100
Forward Acceleration (%)	60
Forward Deceleration (%)	60
Maximum Reverse Speed (%)	100
Reverse Acceleration (%)	60
Reverse Deceleration (%)	60
Maximum Turn Speed (%)	40
Turn Acceleration (%)	40
Turn Deceleration (%)	75
Load Compensation (m.Ohm)	70
Turn Transition (%)	80



Warning – The Easi Rider must only be operated with the recommended values shown on the table above. Operating outside of these values will invalidate the warranty and may result in hazardous situations.



16. SERVICE SCHEDULE

	Time in months	6	12	18	24	30	36	42	48	54	60	66	72
Wheels	Right drive - check treads for wear/damage	•	•	•	•	•	•	•	•	•	•	•	•
	Left drive - check treads for wear/damage	•	•	•	•	•	•	•	•	•	•	•	•
	Front Castors - review condition of surface and of bearings	•	•	•	•	•	•	•	•	•	•	•	•
	Check wheels for looseness or play	•	•	•	•	•	•	•	•	•	•	•	•
	Check drive bearings for noise	•	•	•	•	•	•	•	•	•	•	•	•
Jaw	Check Mounting Bolts secure	•	•	•	•	•	•	•	•	•	•	•	•
	Check condition of lifting arms and jaws	•	•	•	•	•	•	•	•	•	•	•	•
	Inspect all linkages for signs of wear or cracking	•	•	•	•	•	•	•	•	•	•	•	•
	Check function - up, down, left, right	•	•	•	•	•	•	•	•	•	•	•	•
Handle	Mounting Secure	•	•	•	•	•	•	•	•	•	•	•	•
	Check Front Cover Fasteners	•	•	•	•	•	•	•	•	•	•	•	•
Sub- frame	Check Drive motor mounting bolts	•	•	•	•	•	•	•	•	•	•	•	•
	Verify E-Clips on all pins	•	•	•	•	•	•	•	•	•	•	•	•
	Check all fixing screws	•	•	•	•	•	•	•	•	•	•	•	•
Electrical	Check battery connections	•	•	•	•	•	•	•	•	•	•	•	•
	Check Battery clamps and shrouds	•	•	•	•	•	•	•	•	•	•	•	•
	Replace battery						•						•
	Check condition of all leads and plugs	•		•		•		•		•		•	
	Controller functions – including check program	•	•	•	•	•	•	•	•	•	•	•	•
	Check function of E-Stop	•	•	•	•	•	•	•	•	•	•	•	•
	Replace Motor Brushes				•				•				•
Gearbox	Check for grinding noises	•	•	•	•	•	•	•	•	•	•	•	•
General	Condition of covers	•	•	•	•	•	•	•	•	•	•	•	•
	Verify presence of handle grips	•	•	•	•	•	•	•	•	•	•	•	•
	Verify that all fasteners are thight	•	•	•	•	•	•	•	•	•	•	•	•
	Verify presence of static chain	•	•	•	•	•	•	•	•	•	•	•	•
	Vacuum of chassis cavity	•	•	•	•	•	•	•	•	•	•	•	•



17. ESSENTIAL TOOLS LIST

- Flat-Head screw drivers
- Phillips Head Screwdrivers
- Metric spanners set
- Metric Sockets set
- Metric hex- keys set
- Wheel puller
- Vacuum cleaner
- Handheld Programmer
- Side Cutters
- Pliers
- 300mm ruler



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