

BELROBOTICS

TECHNICAL DATA

SERVICE MANUAL

GREENMOW T1 AND T2



*Use of this manual is strictly reserved for vendors of Belrobotics products —Version dated **21/10/2010***

BELROBOTICS 
THE GRASS MASTERS

1. <u>INTRODUCTION</u>	5
2. <u>ADMINISTRATIVE DETAILS: SECTION I</u>	6
3. <u>SERVICING AND UPGRADES</u>	7
3.1. <u>BODYWORK</u>	7
3.1.1. <u>DISMANTLING</u>	7
3.1.1.1. <u>FRONT BUSHING</u>	7
3.1.1.2. <u>REAR BUSHING</u>	7
3.1.1.3. <u>SONAR CABLE</u>	8
3.1.1.4. <u>CHARGING CONTACT CABLE</u>	8
3.1.2. <u>CLEANING</u>	9
3.1.3. <u>SERVICING</u>	9
3.1.3.1. <u>CHARGING CONTACT CONNECTOR</u>	9
3.1.3.2. <u>CHARGING CONTACT</u>	10
3.1.3.3. <u>FRONT BUSHING</u>	10
3.1.4. <u>MANDATORY UPGRADES</u>	11
3.1.4.1. <u>REAR BUSHING</u>	11
3.1.4.2. <u>BODYWORK REINFORCEMENT</u>	13
3.1.4.3. <u>CHARGING CONTACT SCREW</u>	15
3.1.5. <u>OPTIONAL UPGRADES</u>	15
3.1.5.1. <u>COVER POSITION MAGNETIC SENSOR</u>	15
3.1.5.2. <u>COVER LOCKING MAGNET</u>	17
3.1.5.3. <u>SONAR CARD</u>	19
3.1.6. <u>REFITTING THE BODYWORK</u>	20
3.2. <u>CHASSIS</u>	21
3.2.1. <u>CLEANING</u>	21

3.2.2. <u>SERVICING</u>	22
3.2.2.1. <u>CABLES</u>	22
3.2.2.2. <u>FRONT WHEELS</u>	22
3.2.2.3. <u>PANTOGRAPHS</u>	22
3.2.2.4. <u>CUTTING MOTORS</u>	23
3.2.2.5. <u>PROTECTION PLATES</u>	23
3.2.2.6. <u>CUTTING DISCS</u>	23
3.2.2.7. <u>ZEITLAUF REDUCTION GEAR MOTORS</u>	25
3.2.2.8. <u>DPM/IMS REDUCTION GEAR MOTORS</u>	26
3.2.2.9. <u>BATTERY PACK</u>	28
3.2.3. <u>MANDATORY UPGRADES</u>	29
3.2.3.1. <u>BATTERY PACK INSULATION</u>	29
3.2.3.2. <u>VERTICAL DISPLACEMENT MACHINE DATUM POINT (POM)</u>	29
3.2.3.3. <u>BACKWARD MOVEMENT SENSOR PVC BLOCK</u>	30
3.2.3.4. <u>CHASSIS REINFORCEMENT</u>	30
3.2.3.5. <u>REDUCTION GEAR SUPPORT PLATES</u>	33
3.2.3.6. <u>LUBRICATION ACCESS POINT DPM/IMS REDUCTION GEAR MOTORS</u>	33
3.2.4. <u>OPTIONAL UPGRADES</u>	34
3.2.4.1. <u>RESIN-COATED COIL KIT</u>	34
3.2.4.2. <u>DPM/IMS MOTORS</u>	35
3.3. <u>CHECKS AND TESTS</u>	36
4. <u>ADMINISTRATIVE DETAILS, SECTION II:</u>	36
5. <u>APPENDICES</u>	37
5.1. <u>PARTS REFERENCES</u>	37
5.2. <u>WORKING SHEET</u>	39
5.3. <u>SERVICING SHEET</u>	40

1. INTRODUCTION

Do not ignore this manual as the annual servicing of the machine is essential for proper operation.

This mower covers up to 2500 km each year. Some parts are subject to normal wear and must be replaced for each servicing operation.

Greenmow T1

Greenmow T2



2. ADMINISTRATIVE DETAILS, SECTION I

➤ **Check** the machine record using the DTS program. This is mandatory before starting any servicing or repair operation.

➤ **Fill out** the working sheet with: (see appendix 5.2)

- Customer name.
- Servicing date.
- Machine number (e.g.: GMT/... - ... - B).
- Software version.
- Operator name.
- Selected options.
- Statistics.
- Parameters (enter the code * 13870 in the startup MENU).
- Rest time.
- Any remarks made by the customer or operator on the condition of the machine (motor or cutting head noise, etc.).

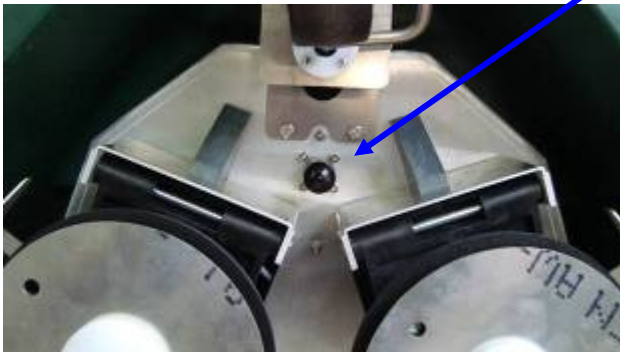
3. SERVICING AND UPGRADES

3.1. BODYWORK

3.1.1. DISMANTLING

3.1.1.1. FRONT BUSHING

- **Position** the machine upright
- **Remove** the protective rubber cap from the stainless steel shouldered spacer.
- **Remove** the stainless steel shouldered spacer. *Wrench size 10.*
- **Reposition** the machine horizontally and hold by the coil support bracket.



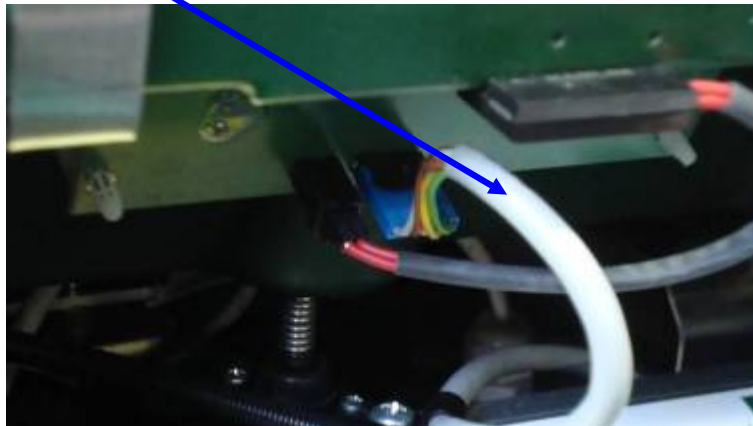
3.1.1.2. REAR BUSHING

Depending on the model, either **unscrew** the hex mobile rings between the bodywork and the chassis, or **unscrew** the 2 hex head screws on the top of the bodywork. *Hex head key size 4.*



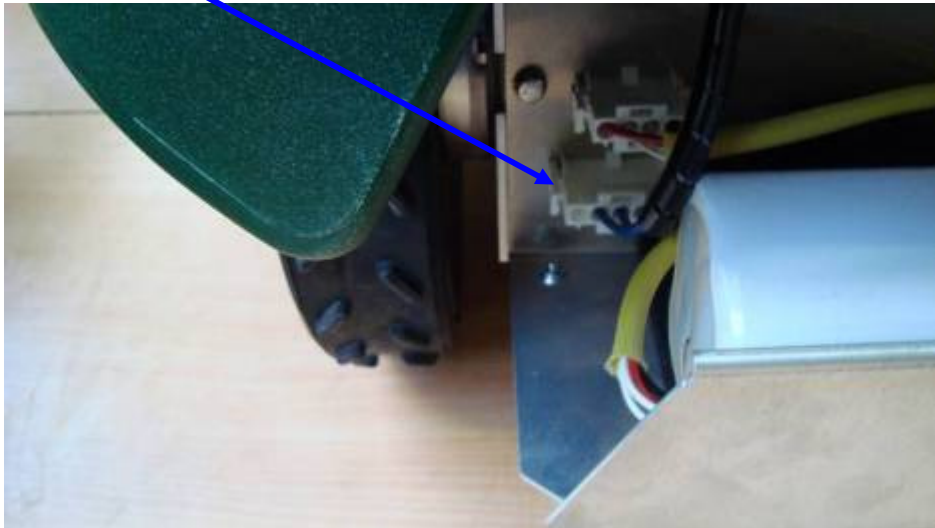
3.1.1.3.SONAR CABLE

Disconnect the "JUS" cable from the sonar card. (Grey cable/blue connector)



3.1.1.4.CHARGING CONTACT CABLE

Disconnect the charging contact terminal.



You can now **remove** the bodywork.

3.1.2. CLEANING

- **Blow, scrape and rub** the bodywork *using a compressor, spatula and small brush*, to **remove** as much grass as possible.



- Use a *wet sponge and special soap* to **clean** the bodywork. (*BR 90111 for the 30-litre model – BR 90112 for the 5-litre model*).

3.1.3. SERVICING

3.1.3.1. CHARGING CONTACT CONNECTOR

Check the condition of the charging contact terminal. If any rust is detected, spray with WD40 and blow using the compressor. *WD40 and a compressor*.



3.1.3.2.CHARGING CONTACTS

Lightly sand charging contacts with *P400 sandpaper*.



3.1.3.3.FRONT BUSHING

Change the front bushing (*BR21190: front bushing kit & part*).

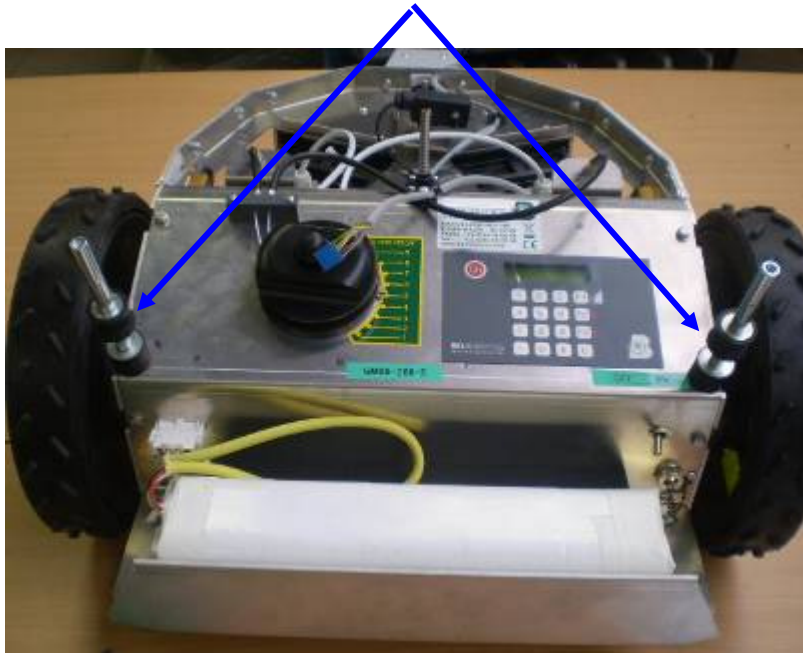


3.1.4. MANDATORY UPGRADES

3.1.4.1. REAR BUSHING

We no longer supply the former rear bushing consisting of a mobile ring. All machines before number **GMT2/09-278-B** must now **be upgraded**.

A). Chassis: simply **remove** the old bushing and **fit** the new bushing (*BR24192: rear bushing kit, outer screw, 2 parts*).



B). Bodywork: applicable procedure:

- **Pass** a bit with a diameter of 5.5 mm through the brass inserts previously used to attach the old bushing models. *Drill + 5.5 mm bit*



IMPORTANT: after **having drilled** the insert, do **not drill** through the bodywork.



- **Drill** through the insert and the bodywork with a bit with a diameter of 6.0 mm. *Drill + 6.0 mm bit*

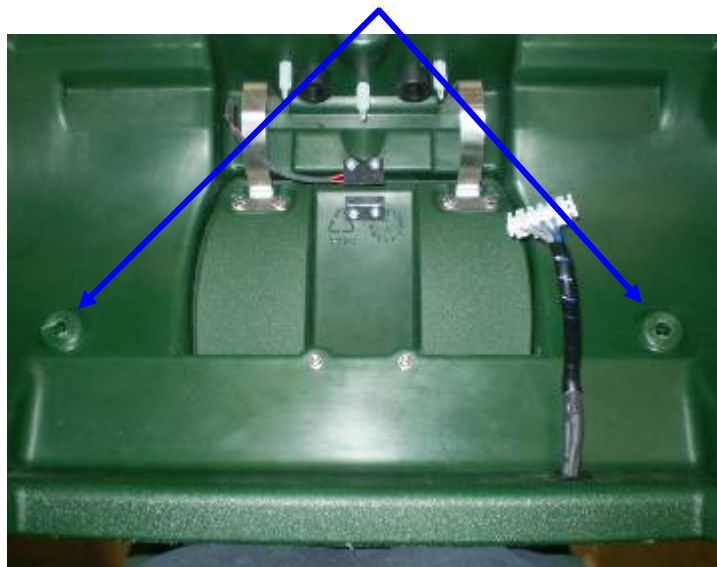


IMPORTANT: make sure you **drill** straight to ensure the bushing is opposite the hole for refitting.



- **Drill** through the insert with a bit with a diameter of 7.5 mm to **remove** the insert, then drill with a 10 mm bit to create the diameter of the new bushing model. *Drill + 7.5 and 10 mm bits.*

IMPORTANT: do **not** **drill** through the entire bodywork.



The bodywork is now ready to fit the new rear bushing.

3.1.4.2. BODYWORK REINFORCEMENT

All machines before number **GMT2/09-233-B** require 2 reinforcement brackets ([BR21105: lateral reinforcement bracket, 1 part](#)) on the front of the bodywork. **Apply** the following procedure for this modification:

- **Place** the bodywork upsidedown.
- **Unscrew** the front bushing and **remove** the large plug.



- **Position** the reinforcement bracket and **screw** the front bushing to hold the part in position.



- **Drill** the 4 holes with a 5 mm bit. *Drill + 5 mm bit.*



IMPORTANT: do **not** drill through the bodywork.



- **Screw** the 4 M5*12 screws ([BR_933_M5X12_A2](#)) + M5 washer ([BR_125_M5_A2](#)) and M5 collar nut ([BR_6923_M5_ZN](#)). *Metabo torque wrench 5 + socket 8.*



- **Glue** a new plug ([BR24121: bodywork closing plug GM D 58.2mm](#)). *Glue.*



3.1.4.3. CHARGING CONTACT SCREWS

To avoid any contact between the charging contact screws and the rear wheels, **replace** the M6*12 T hex head screws with M6x14 mushroom head screws ([BR_7380E_M6X14_A2](#)). You must also **replace** the split ring lock washers ([BR_6798A_M6_A2](#)) with new washers.



IMPORTANT: Use blue Loctite to fit.



3.1.5. OPTIONAL UPGRADES

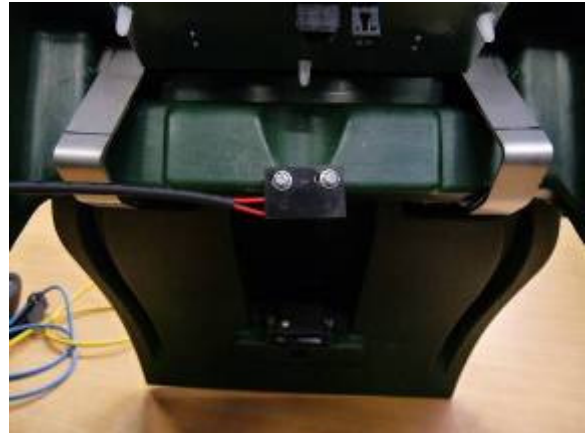
3.1.5.1. COVER POSITION MAGNETIC SENSOR

For versions since Greenmow **GMT2/09-225-B**, the switch used to detect the closing of the small cover has been replaced with a magnetic contact ([BR14301: HAMLIN magnetic contactor, BM/BP cover](#)). **Please** apply the following steps for this **modification**:

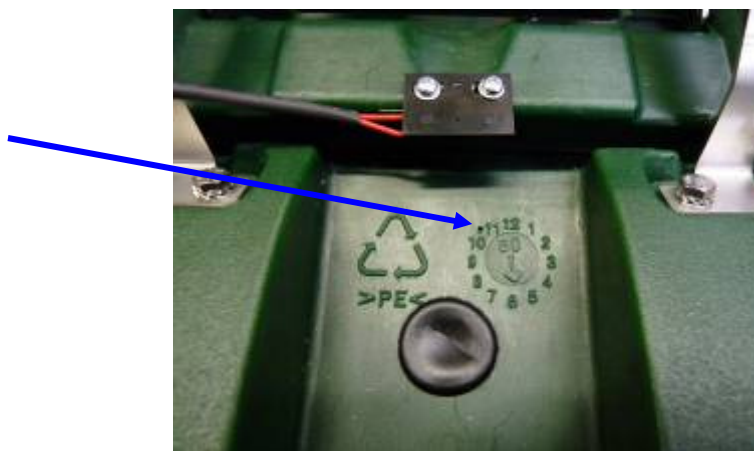
- **Disconnect** the switch cable from the sonar card. **Dismantle** the switch and remove the cable from the bodywork.
- **Center and position** the magnetic sensor at its stop on the part of the main bodywork above the sonar card and **drill** an initial hole using a 1.5 mm bit. *Drill and 1.5 mm bit.*



- **Insert and tighten** a 2.9*13 screw ([BR_7981CZ_2.9X13_ZN](#)) + M3 washer ([BR_125_M3_A2](#)) in the first hole, then **drill** the second hole and **insert and tighten** the second screw. *Drill and 1.5 mm bit, powered screwdriver with PZ1 head.*



- **Attach** the magnet ([BR14302: HAMLIN magnet for BM/BPP cover](#)) to the small cover. **Drill** a hole using a 1.5 mm bit in the small cover at the intersection between the horizontal section running from the middle of the "11" and the vertical section running from "0" to "10". *Drill and 1.5 mm bit, powered screwdriver with PZ1 head.*



- **Insert and tighten** a 2.9*13 screw ([BR_7981CZ_2.9X13_ZN](#)) + M3 washer ([BR_125_M3_A2](#)), then **drill** the second hole and **insert and tighten** the second screw. *Drill and 1.5 mm bit, powered screwdriver with PZ1 head.*



- **Check** that the magnetic system is fully operational using the "beep" function option on the multimeter. **Close** the cover gently, the multimeter **must not emit a beep** before closing, but must emit a **beep** when the cover is closed. *Multimeter.*



3.1.5.2. COVER LOCKING MAGNET

For versions since Greenmow **GMT2/10-343-B**, the mechanical cover latch has been replaced with a magnetic latch ([BR24193: GM magnetic latch kit](#)).

The various stages in this modification are described below:

- **Draw** a line under the male part of the mechanical latch with a felt pen. *Felt pen.*



- **Draw** a line perpendicular to the hook using a felt pen, running from the left end of the right attachment screw for the hook. *Felt pen.*



- **Remove** the hook.
- **Drill** an initial hole using a 2 mm bit at the intersection of the 2 lines and **then attach** the magnet plate using a 2.9x25 screw ([BR_7981CZ_2.9X25_ZN](#)) and 3 Skiffy spacers ([BR14119](#)). *Drill and 2 mm bit.*
- **Drill** a second hole 2 mm to the left for the 2nd plate attachment screw. *Drill and 2 mm bit.*



IMPORTANT: drill straight along the line.



- **Unscrew** the 2nd part of the cover latch. *Flat head screwdriver.*



- **Attach** the new magnetic latch using two M4x16 screws ([BR_84_M4X16_A2](#)) + M4x12x1.5 washer ([BR_9021_M4X12_A2](#)). *Flat head manual or powered screwdriver.*



3.1.5.3. SONAR CARD

If a defective sonar card is detected during pre-servicing tests or reported by the customer, replace the card. The former sonar card model has been replaced with a sealed model combined with a transmitter and receiver. ([BR15290: sealed sonar kit](#)). Apply the following procedure:

- **Disconnect** the old sonar card from the bodywork.
- **Remove** the 2 black protection tubes from the old card.
- **Fit** the transmitter (red and blue wire) on the left and the receiver (2 blue wires) on the right (looking from behind the machine), in the small bodywork cover. *Hammer.*



- **Clip** the new sonar card on its support plates **and pass** the sonar wires over the top side of this card. **Connect** the transmitter to "JPIEZOS" and the receiver to "JPIEZOR" on the electronic card.



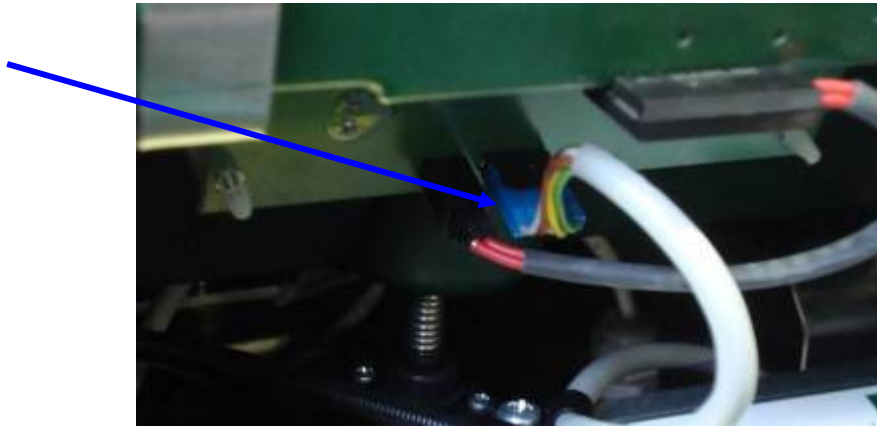
 **IMPORTANT:** if you have recently replaced a sonar with a sealed sonar, you must update the machine software.

3.1.6. REFITTING THE BODYWORK

- **Remove** the bodywork from the chassis.
- **Connect** the charging contact terminal and **guide** the rear bushing in the bodywork.
- **Attach** the bodywork on the rear bushing. *Hex head key size 4.*
- **Connect** the sonar cable.
- **Place** the front bushing correctly through the aluminium plate of the vertical displacement sensor.

 **IMPORTANT:** the bodywork backward movement contact rod must be placed in the hole in the bodywork intended for this purpose.





- **Unscrew** the stainless steel shouldered spacer and **fit** the protective cap. *Wrench size 10.*

3.2. CHASSIS

3.2.1. CLEANING

- **Dismantle** the rear wheels and cutting discs.
- **Blow, scrape and rub** the chassis, rear wheels and cutting discs using a compressor, spatula and small brush to **remove** as much grass as possible.



- Use a wet sponge and special soap to **clean** all parts. *(BR 99112 for the 5-litre model – BR 90111 for the 30-litre model).*

3.2.2. SERVICING

3.2.2.1. CABLES

Check the condition of the cables routing from the main terminal to the different components (cutting heads, coil, vertical displacement sensors, sonar, recharging station) visually. **If necessary**, replace these cables. For information, these cables may have been gnawed on by rodents. In this case, use repellent.

If the coil cable must be changed, refer to paragraph 3.2.4.1.

3.2.2.2. FRONT WHEELS

Check the general condition of the front wheels ([BR11223](#)) and their axels. If these wheels make too much noise or clearance is excessive, **replace them**. *Flat key size 13.*

3.2.2.3. PANTOGRAPHS

If you **consider** that the pantographs have excessive clearance, **retighten or change** the tubular-axels M4-6*128 mm ([BR12220: Round bar L128 D6+2xM4x15-zinc-plated steel cutting head](#)).

- **Loosen** the M4*12 T slotted hex head screws. *Powered screwdriver socket size 7.*
- **Remove** the tubular axes in question and **replace** with new axels. *Hammer and mallet.*



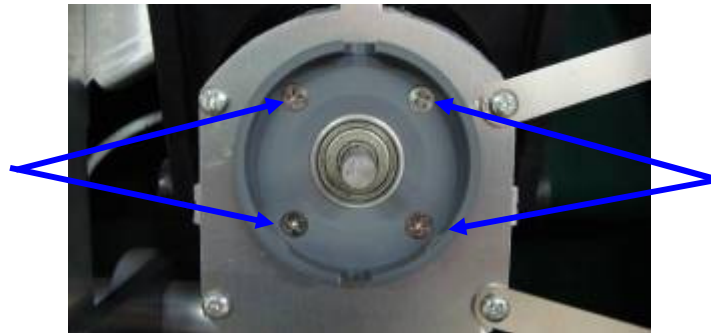
IMPORTANT: you must **replace** the M4*12 screws ([BR_933SZ_M4X12_A2](#)) with new screws and **fit** using blue Loctite.



3.2.2.4. CUTTING MOTORS

To check the cutting motors, rotate the axis manually and determine if the noise level is excessive. If noise is excessive, change the cutting motor. (*BR 12101: cutting motors*).

- **Place** the machine horizontally and **unscrew** the top 4 screws (2 sheet metal screws 4.2*16 and 2 sheet metal screws 4.2*32) from the cutting motor casing. *Powered screwdriver with PZ2 head.*
- **Position** the machine upright and **remove** the 4 screws securing the cutting motor and its support plate. *Powered screwdriver with PH1 head.*



- **Replace** the defective motor with a new motor.



IMPORTANT: fit the 4 screws using blue Loctite and in the direction of the PVC baffle to access the cutting head attachment screws. *Powered screwdriver with PH1 head.*

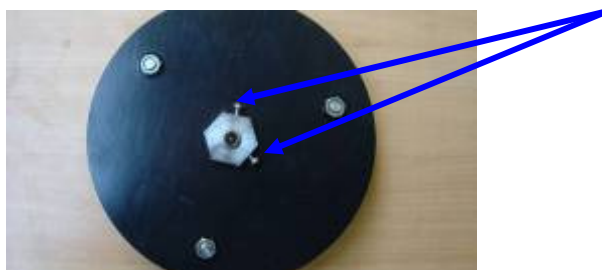
3.2.2.5. PROTECTION PLATES

Check the condition of the protection plates. They may be cracked or broken. (*BR12116: for the T1 model; BR22116: right plate on the T2 model and BR22117: left plate on the T2 model*).

3.2.2.6. CUTTING DISCS

Please apply the following procedure to service cutting discs.

- **Remove** the 2 screws from the cutting disc to separate the ABS disc from the aluminium disc. *Flat head screwdriver.*



- **Change** the blades of the cutting discs. This step is clearly mandatory for all servicing operations. *Flat head screwdriver.*

Greenmow T1: *(BR22371: Greenmow T1 cutting blade kit, 3 parts).*

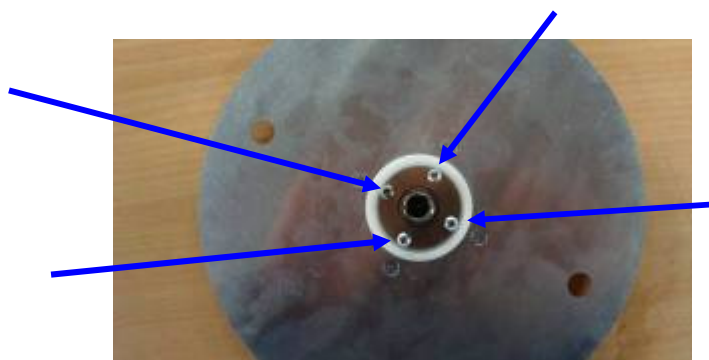
Greenmow T2: *(BR 22370: Greenmow T2 cutting blade kit, 6 parts).*

- **Check** the condition of the bearing for the aluminium disc. If noise is excessive, replace the bearing. **Remove** the four 2.9*13 screws to achieve this. *Screwdriver with PZ1 cross head.*

(BR 12386: Cutting head bearing and axis, 1 part).



IMPORTANT: you must replace the four 2.9*13 screws *(BR_7981CZ_2.9X13_ZN)* with new screws.



- **Assemble** the 2 parts of the cutting disc and make sure they are **positioned** correctly: the screws must pass through the axis. *Flat head screwdriver.*
- **Lubricate** the motor axis and **attach** the cutting disc. Make sure the 2 screws provided for this purpose are tightened appropriately. *Flat head screwdriver and silicone grease.*

3.2.2.7. ZEITLAUF REDUCTION GEAR MOTORS, 60 W OR 94 W

On average, a motor lubricated with Mobil Polymex EM grease (*BR99114: Reduction gear grease, 400 g cartridge*) can cover 5000 km (you can check statistics 3 and 4, which correspond to the number of metres covered by the right and left wheels). However, if, when you rotate the wheel, you consider that motor noise is excessive, or if the customer comments on motor noise, apply the following procedure.

- **Draw** a mark between the electric motor and the reduction gear to ensure you maintain the same position during refitting.
- **Remove** the 4 Torx screws to extract the electric motor and access the reduction gear. *Powered screwdriver with T15 head.*
- **Remove** the 2 gear rings and make sure you refit them in the same order. **Remove all grease.** *Cleaning tray.*
- **Refit** the second ring and lubricate. *Seringue, 2 ml per ring.*
- **Refit** the first ring and lubricate. *Seringue, 2 ml per ring.*
- **Attach** the electric motor with the reduction gear on the basis of the marks drawn during dismantling.



IMPORTANT: Fit the Torx screws using blue Loctite.



If the reduction gear motors do not need lubricating, the wheels must still be **removed** to **clean and lubricate** the axels of the reduction gear motors. *Ratchet wrench with socket 8 and silicone grease.*



IMPORTANT: replace screws (*BR_933_M5X16_A2, screw + BR_440R_M5X18X2_A2, large washer + BR_6798A_M5_A2, split ring lock washer*) and fit using blue Loctite.



3.2.2.8.DPM/IMS REDUCTION GEAR MOTORS, GM 42, 58 W

For the same reasons mentioned in paragraph 3.2.2.7, it may be necessary **to change** the grease in reduction gear motors. (*BR99114: Grease for reduction gear, 400 g cartridge*)

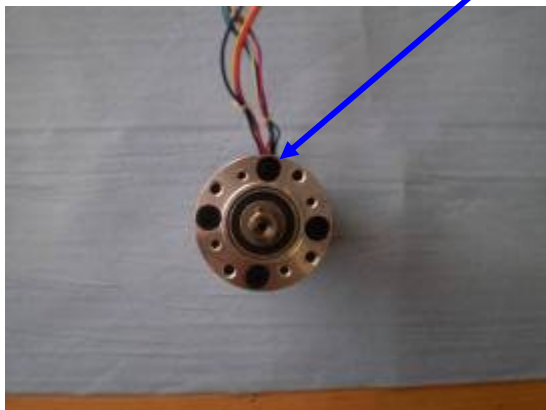
- **Remove** the rim from the hub. *Powered screwdriver with flat head.*
- **Disconnect** the cable routing from the reduction gear motor to the motor card.
- **Remove** the 4 attachment screws (accessible via the hub) for the small square plate on the reduction gear motor support plate. *Powered screwdriver with PH1 head.*



- **Extract** the motor/hub assembly from the machine.
- **Remove** the 4 attachment screws from the small square plate on the reduction gear motor and rotate to access the 4 hex head screws. *Powered screwdriver with PH1 head.*



- **Remove** the 4 hex head screws to separate the electric motor from the reduction gear and access the gear rings. *Hex head key size 3.*



- **Remove** the 3 gear rings and make sure you refit them in the same order. **Remove all grease.** *Cleaning tray.*



- **Refit** the third ring and **lubricate**. *Seringue, 0.5ml per ring.*
- **Refit** the second ring and **lubricate**. *Seringue, 0.5ml per ring.*
- **Refit** the first ring and **lubricate**. *Seringue, 0.5ml per ring.*
- **Retighten** the 4 hex head screws. Tightening torque: 3 Nm. *Hex head key size 3.*
- **Retighten** the small square plate on the reduction gear motor and then screw the assembly to the reduction gear motor support plate. *Powered screwdriver with PH1 head.*
- **Refit** the rim on the hub. *Powered screwdriver with flat head.*



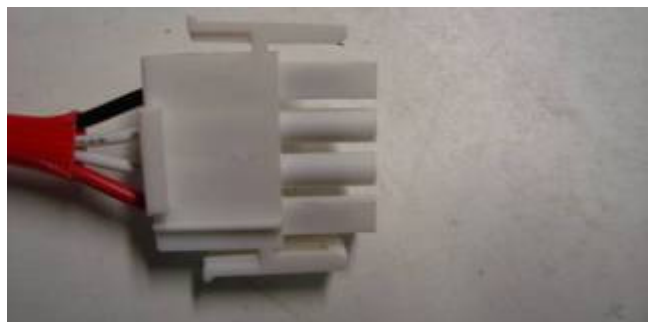
IMPORTANT: use blue Loctite to fit.

3.2.2.9. BATTERY PACK

To check the condition of your batteries (*BR25301*), the simplest approach is to **analyse** the machine record. If the machine has run for less than 15 minutes for several successive cycles, the batteries are nearing the end of their service life.

Alternatively you can:

- **Charge** the battery pack to maximum.
- **Disconnect** the pack and **measure** its voltage. *Multimeter.*
- **Remeasure** voltage 1 hour later. If the voltage **has dropped** by more than 1 volt, you can consider the battery pack as non-compliant. *Multimeter.*



IMPORTANT: it is important to charge the batteries to maximum before winter storage and to set the main switch to "OFF" or disconnect the battery pack.

3.2.3. MANDATORY UPGRADES

3.2.3.1. BATTERY PACK INSULATION

For Greenmow before **GMT2/09-228-B**, place an adhesive strip on both ends of the battery pack.



3.2.3.2. VERTICAL DISPLACEMENT MACHINE DATUM POINT (POM)

For Greenmow before **GMT2/09-194-B**, create a cutout in the POM of the vertical displacement sensor to prevent the front vertical displacement spring from blocking on the POM.

- **Remove** the front screw from the vertical displacement sensor. *Ratchet wrench with socket 7.*



- **Rotate** the plate to release the POM.
- **Cut** a circle in the POM. *Dremel cutter.*
- **Refit** the plate and **retighten** the screw. *Ratchet wrench with socket 7.*

3.2.3.3. BACKWARD MOVEMENT SENSOR PVC BLOCK

For Greenmow before **GMT2/09-228-B**, you must position a PVC block ([BR21130, Greenmow PVC backward movement switch spacer](#)) behind the backward movement contact to prevent the sensor support bracket from deforming and maintain sensitivity over time.

- **Remove** the 2 screws fastening the backward movement switch down to the inserts.
Powered screwdriver and socket size 7.



- **Position** the PVC block between the chassis and the backward movement sensor support plate and **check** that the block is held in position between the 2 parts. If this is not the case, **fold** the support bracket slightly in the appropriate direction. **Retighten** the 2 screws. *Powered screwdriver and socket size 7.*



3.2.3.4. CHASSIS REINFORCEMENT

For Greenmow before **GMT2/09-228-B**, you must fit 2 chassis reinforcement brackets ([BR21105, Greenmow lateral reinforcement bracket](#)) to rigidify the front left and right sections of the machine.

- **Remove** the two M5*10 screws from the load resistance support bracket. *Powered screwdriver and socket size 8.*



- **Screw** the reinforcement bracket using the 2 same screws and **position** the bracket straight using the locking jaws. *Powered screwdriver + socket size 8 + locking jaws.*



- **Drill** the 3 holes with a 5 mm bit. *Drill and 5 mm bit.*



- **Remove** the reinforcement bracket **and deburr** both sides of the 6 holes. *Powered screwdriver + socket size 8 + hand cutter.*



- **Replace** the two M5*10 screws in the charging contact support bracket with M5*12 screws ([BR_933_M5X12_A2](#)). Re-use the old washers and add three M5*12 screws ([BR_933_M5X12_A2](#)) + M5 washer ([BR_125_M5_A2](#)) + M5 collar nut ([BR_6923_M5_ZN](#)).



- **Insert** all screws and **tighten**. *Powered screwdriver + socket size 8 + flat key size 8.*



- **Repeat** this operation on the other side.

3.2.3.5. REDUCTION GEAR SUPPORT PLATES

From **GMT2/09-101-B** to **GM09/T2-125-B**, wheel motor support plates are fitted with M5 inserts for the rear bushings. These plates must therefore be changed (*BR23102 for the right plate & BR23103 for the left plate*) to be compatible with the M6 bushings.

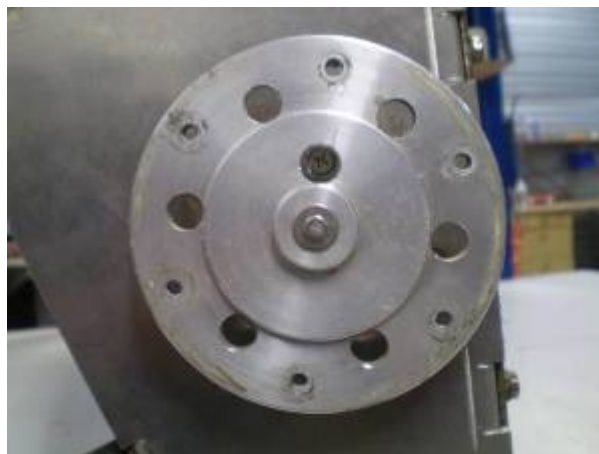
Proceed as follows to change the motor plates:

- **Remove** the wheel attachment screw. *Powered screwdriver + socket size 8.*
- **Remove** the 6 screws attaching the motor plate to the chassis and the rear bushing. *Powered screwdriver and socket size 8.*
- **Remove** the four screws attaching the motor to its plate. *Powered screwdriver and socket size 8.*
- **Attach** the new plate to the motor. Use green Loctite to fit. *Powered screwdriver and socket size 8.*
- **Attach** the plate + motor assembly to the chassis. *Powered screwdriver and socket size 8.*
- **Attach** the wheel to the motor. Use blue Loctite to fit. *Powered screwdriver and socket size 8.*



3.2.3.6. LUBRICATION ACCESS POINT FOR DPM/IMS REDUCTION GEAR MOTORS

For Greenmow T1 before **GMT1/10-124-B** and for Greenmow T2 already equipped with DPM/IMS reduction gear motors before **GMT2/10-323-B**, a hole with a diameter of 10 mm must be created in the hub to access the screws of the reduction gear and change the grease for the gear.



3.2.4. OPTIONAL UPGRADES

3.2.4.1. RESIN-COATED COIL KIT

If the coil cable is defective, replace with a resin-coated coil kit ([BR21193](#)).

If your Greenmow is before **GMT2/10-290-B**, the following procedure is mandatory.

- **Position** the adapter ([BR21194, coil support kit](#)) on the front part of the chassis and **hold in place** using a locking jaw.
- **Drill** 4 holes using a 5 mm bit. *Drill and 5 mm bit.*
- **Fit and tighten** the four M5*12 screws ([BR_933_M5X12_A2](#)) + four M5*10 washers ([BR_125_M5_A2](#)) + four M5 collar nuts ([BR_6923_M5_ZN](#)). *Powered screwdriver + socket size 8 + flat key size 8.*
- **Attach** the coil to the adapter using the two M6x12 screws ([BR_7380E_M6X12_A2](#)) + two M6x18 washers ([BR_9021_M6X18X1.6_A2](#)) + two M6 collar nuts ([BR_6923_M6_ZN](#)). *Hex head key size 4 and flat key size 8.*



3.2.4.2.DPM/IMS MOTORS, GM 42, 58 W

Apply the following procedure to switch from Zeitlauf motors to DPM/IMS motors.

- **Order** the kit (*BR23196, GM reduction gear motor kit including cards*).
- **Remove** the bodywork, wheels and casing closing plate.
- **Disconnect** motor cards.
- **Remove** the 12 screws attaching the motor plates to the chassis and the rear bushings.
Powered screwdriver socket size 8.
- **Attach** the new motor kits pre-equipped with their cards. *Powered screwdriver socket size 8.*



- **Connect** the motor cables routing from the MainBoard to the respective cards.
- **Dismantle** the rear wheel hubs and **attach** these hubs to the machine.



IMPORTANT: use blue Loctite to fit.



IMPORTANT: If you replace the motors, you must update the machine software.
(See paragraph 3.1.5.3)

3.3. CHECKS AND TESTS

When the bodywork is refitted on the chassis, check the work completed via the following tests:

- **Set** parameter P000 to 000.



IMPORTANT: make sure you check the parameters before the final test...

- Enter the code "* 13870".
- Press "F3" to drop down the arborescence to P000
- Press "#", to modify the parameter.
- Press "0" once to set the parameter to 0.
- Confirm the modification by pressing on "#".

- **Press** to ON to start the machine.

- **Test** the bumper, shock sensor and sonar. (walk in front of the machine, if it slows down, the sonar system is operational).

If the machine makes no abnormal noise and reacts as required to the different tests, servicing is complete!



IMPORTANT: do not forget to return parameter P000 to 030 or the previous value.

4. ADMINISTRATIVE DETAILS, SECTION II

Fill out the working sheet with all parts replaced.

Indicate working time.

Indicate any remarks.

Fill out the servicing sheet. (See 5.3)

5. APPENDICES

5.1. PARTS REFERENCES

Cleaning product - 25 L	BR90111
Cleaning product - 5 L	BR90112
GM front bushing kit (1 part)	BR21190
GM rear bushing kit, outer screw (2 parts)	BR24192
Greenmow lateral reinforcement bracket	BR21105
Hex head screw, DIN 933, Stainless steel, M5x12	BR_933_M5X12_A2
Washer, DIN 125, Stainless steel, M5	BR_125_M5_A2
Toothed collar nut, DIN 6923 AcZn M5	BR_6923_M5_ZN
Bodywork closing plug GM D 58.2 mm	BR24121
Mushroom head screw (6 parts) with integrated washer, ISO7380E, Stainless steel, M6x14	BR_7380E_M6X14_A2
Split ring lock washer, DIN 6798A, Stainless steel, M6	BR_6798A_M6_A2
Magnetic contactor, 59135-010-10W HAMLIN, BM/BP cover	BR14301
Mushroom head sheet metal screw, Pozi DIN 7981CZ Ac Zn ST2.9x13	BR_7981CZ_2.9X13_ZN
Washer, DIN 125, Stainless steel, M3	BR_125_M3_A2
HAMLIN magnet 57135 000 0309 for BM/BP cover	BR14302
GM magnetic latch kit	BR24193
Mushroom head sheet metal screw, Pozi DIN 7981CZ Ac Zn ST2.9x25	BR_7981CZ_2.9X25_ZN
4.2x8x5 spacer for latch stud, BM/BP cover	BR14119
Slotted cheese head screw, DIN 84, Stainless steel, M4x16	BR_84_M4X16_A2
Large washer, DIN 9021, Stainless steel, M4x12	BR_9021_M4X12_A2
Sealed sonar kit (card+transmitter+receiver)	BR15290
Front wheel, ALU IEC 100 with stainless steel bearings, 2RS	BR11223
Round bar L128 D6+2xM4x15-zinc-plated steel cutting head	BR12220
Slotted hex head screw, DIN 933 SZ, Stainless steel, M4x12	BR_933SZ_M4X12_A2
Cutting motor, PAPST VD-3-54-14 - stainless steel bearings	BR12101
Cutting head protective deflector, stainless steel, spring-mounted	BR12116
Cutting head protective deflector, stainless steel, spring-mounted, GM, Right	BR22116
Cutting head protective deflector, stainless steel, spring-mounted, GM, Left	BR22117
Greenmow cutting blade kit, 6 parts	BR22370

Greenmow T1 cutting blade kit, 3 parts	BR22371
Cutting head bearing and axis kit (1 part)	BR12386
Grease for reduction gear, 400 g cartridge	BR99114
Hex head screw, DIN 933, Stainless steel, M5x16	BR_933_M5X16_A2
Large washer, DIN 440R, Stainless steel, M5x18x2	BR_440R_M5X18X2_A2
Tooth lockwasher, DIN 6798A, Stainless steel, M5	BR_6798A_M5_A2
NiCd 24V 5Ah Sanyo battery for Greenmow	BR25301
Greenmow PVC backward movement switch spacer	BR21130
Greenmow lateral reinforcement bracket	BR21105
Greenmow right reduction gear support plate	BR23102
Greenmow left reduction gear support plate	BR23103
Resin-coated GM coil kit (injected black plastic support bracket)	BR21193
Coil aluminium adapter kit, GM2 before GM09-290	BR21194
Mushroom head screw (6 parts) with integrated washer, ISO7380E, Stainless steel, M6x12	BR_7380E_M6X12_A2
Large washer, DIN 9021, Stainless steel, M6x18x1.6	BR_9021_M6X18X1.6_A2
Toothed collar nut, DIN 6923 AcZn M6	BR_6923_M6_ZN
GM reduction gear motor kit + sealed sonar kit including cards	BR23196

5.2.WORKING SHEET

[illegible]

5.3. SERVICE SHEET

SERVICE SHEET



BELROBOTICS
BELGIUM ROBOTIC SYSTEMS



Technician:

Start date : ... / ... / 200...

Notified on : ... / ... / 200...

End date : ... / ... / 200...

Contrôles & Mesures	Parts checked	Parts replaced
Machine cleaning		
Field testing		

1	Bushing		
	Front		
	Rear		
2	Right rear wheel		
	Hub		
	Retaining rings		
	Tyre		
	Reduction gear motor		
	Lubrication after 5000 km		
3	Left rear wheel		
	Hub		
	Retaining rings		
	Tyre		
	Reduction gear motor		
	Lubrication after 5000 km		
4	Tête de coupe 1 (BM)		
	Anti-friction disc		
	Bearing		
	Pantograph		
	Cutting blades		
5	Tête de coupe 2 (PM, BM)		
	Anti-friction disc		
	Bearing		
	Pantograph		
	Cutting blades		
6	Tête de coupe 3 (GMT1&2, PM, BM)		
	Anti-friction disc		
	Bearing		
	Pantograph		
	Cutting blades		
7	Tête de coupe 4 (GMT2, PM, BM)		
	Anti-friction disc		
	Bearing		
	Pantograph		
	Cutting blades		
8	Tête de coupe 5 (BM)		
	Anti-friction disc		
	Bearing		
	Pantograph		
	Cutting blades		

Customer :	Cust. ref. :
Telephone :	
Address :	
Machine code :	
Record, PC :	
Serial no. :-.....-B	
Customer approval :	

Contrôles & Mesures	Parts checked	Parts replaced
---------------------	---------------	----------------

9	Chassis		
	Visual check		
10	Front train		
	Stainless steel suspension, 2 mm		
	Wheels: Clean + lubricate		
11	Electronic terminal		
	Visual check		
	Checking connections		
12	Bodywork/chassis connector		
	Charging contact terminal		
	Charging contact terminal adapter		
13	Battery pack		
	Condition (record)		
	Connector		
14	Coil		
	Test		
	Attachment & Connector		
15	Touch-sensitive bumper		
	Tests		
	P atm vent		
16	Shock sensor		
	Tests		
	Spring condition		
17	Sonar		
	Tests		
18	Station		
	Charging contact		
	Sonar		
19	Lawn profile		
20	Cutting height		
	Lawn condition		
21	Additional remarks		

GREENMOW

Belrobotics SA/NV
Avenue Lavoisier, 16b Industriepark, 75
B - 1300 Wavre 9100 Sint-Niklaas
Belgium

Tel.Wavre : 0032 (0) 10 48 00 48
Tel.Sint-Niklaas : 0032 (0) 3 780 17 72
Fax: 0032 (0) 10 48 00 49
E-mail: info@belrobotics.com
Website: www.belrobotics.com