

BELROBOTICS

TECHNICAL DATA

SERVICE MANUAL

PARCMOW AND BIGMOW



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BELROBOTICS 
THE GRASS MASTERS

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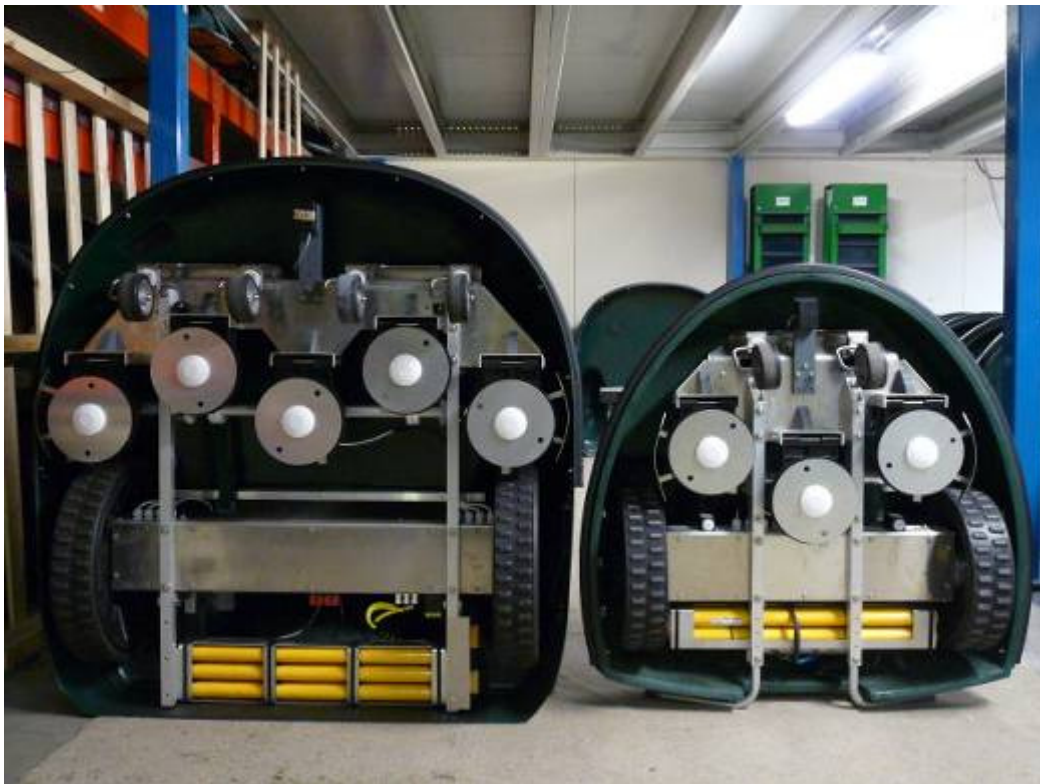
1. INTRODUCTION

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

This mower covers up to 5,000 km each year. Some parts are subject to normal wear and must be replaced for each servicing operation.

Bigmow (BM)

Parcmow (PM)



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.: PM-BM.../... - ... - 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

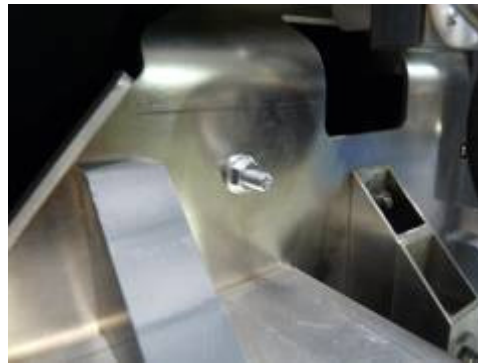
3.1. BODYWORK

3.1.1. DISMANTLING

3.1.1.1. FRONT BUSHING

Note: this phase is identical for both machines.

- **Position** the machine upright
- Depending on whether the machine is fitted with vertical displacement sensors or not, either **unscrew** the 2 M6 nuts from the base, or **remove** the protective rubber cap from the stainless steel shouldered spacers. *Socket wrench size 10.*
- **Reposition** the machine horizontally and hold by the coil support bracket.



3.1.1.2. REAR BUSHING

- **Position** the machine horizontally.
- **Remove** the 2 M6 nuts from the base of the PM, and the 2 hex head screws from the BM. *Wrench size 10 and Hex head key size 3 for the PM and Hex head key size 4 for the BM.*



Parcmow



Bigmow

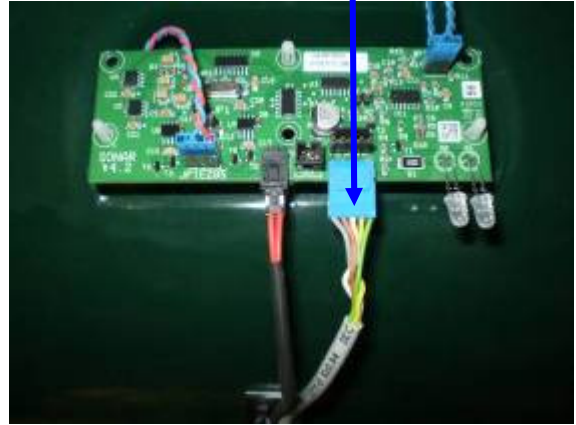
3.1.1.3. SONAR CABLE

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

Parcmow



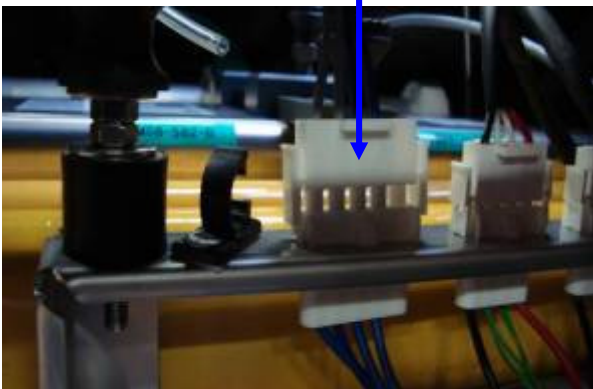
Bigmow



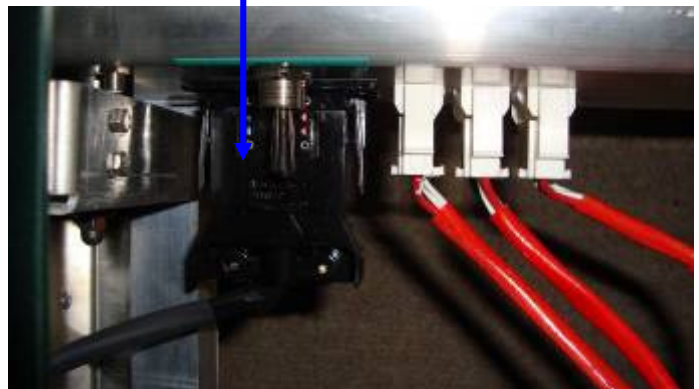
3.1.1.4. CHARGING CONTACT TERMINAL

Disconnect the charging contact terminal.

Parcmow



Bigmow



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 25-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*.

Parcmow



Bigmow



3.1.3.2. CHARGING CONTACT

Lightly sand charging contacts with *P400 sandpaper*.



3.1.3.3. FRONT BUSHING

Replace the front bushing. Make sure you select the right version.

- 2 versions exist for the PM. One version is for normal PMs (*BR34192, front hard bushing kit, 2 parts*) and the other version is for PMs with vertical displacement sensors (*BR34193, front hard bushing kit, 2 vertical displacement parts*).
- 2 versions exist for the Bigmow. One version is for BMs up to BM08-305-B and Bigmows from BM08-306-B fitted with vertical displacement sensors (*BR11190, Front BM bushing kit (2 parts) up to BM08-305 & from BM08-306-B with vertical displacement sensors*), and a second version for Bigmows from BM08-306-B without vertical displacement sensors (*BR11191, front BM bushing kit, 2 parts, from BM08-306-B*).



3.1.3.4. TOUCH-SENSITIVE BUMPER

If the machine is equipped with a touch-sensitive bumper with an electrical contact, for machines before BM07-298-B, check that the bumper is in its aluminium fitting and that no substantial tearing has occurred. If the bumper cannot be repaired, refer to point 3.1.5.3 of this manual for replacement with a touch-sensitive bumper with a pneumatic contact.

If the machine is equipped with a pneumatic bumper, check that this bumper is still on its ertalene strip (BM) or directly on the bodywork (PM). If small tears are detected, you can repair these tears with sealing putty (*BR14213: sealing putty*).

If the tear is large, replace the rubber bumper (*BR14210, Bircher PVC fitting for BIGMOW L=2.07 m & BR34201, Bircher PVC fitting for PM L=2.25*).

A). Parcmow:

- **Unscrew** the six black 2.9x13 screws (*BR_7981CH_2.9X13_NOIR*) from the top surface and the five black 2.9x16 screws from the bottom surface of the bumper. *Powered screwdriver with PH1 head.*



- **Remove** the sealing plug (*BR14211, Sealing plug for Bircher bumper*) and the connecting plug (*BR14212, Connecting plug for Bircher bumper*) at the ends of the bumper.
- **Loosen** the 2 locknuts. *Wrench size 7 and powered screwdriver + socket size 7.*



- **Remove** the damaged bumper.
 - **Drill** a 4-mm hole 20 mm from one of the edges of the new bumper, **recover** the M4x40 screw ([BR_933_M4X40_A2](#)) + M6x22x2 washer ([BR_440R_M6X22X2_A2](#)) and **insert** in the hole. *Drill + 4 mm bit and slide caliper.*
 - **Position** the bumper on the bodywork and **insert** the screw in the hole opposite the hose hole.
 - **Clip** the bumper in its fitting built into the bodywork.
 - **Cut** the extra bumper length next to the hose. *Cutter.*
 - **Drill** the second 4 mm hole by inserting the bit in the existing hole in the bodywork. *Drill and 4 mm bit.*
-  **IMPORTANT:** do not drill through the final bumper layer.
- **Recover** the second M4x40 screw + M6x22x2 washer and use to **attach** the other end of the bumper. **Tighten** both sides. *Wrench size 7 and powered screwdriver + socket size 7.*
 - **Tighten** the 11 black 2.9x13 screws. *Powered screwdriver with PH1 head.*
 - **Glue** 1 sealing plug and 1 connecting plug (hose side), **slide** the hose in the bumper and **apply** sealing putty. *Loctite 454.*

B). Bigmow:

- **Pull** on the 2 hoses until they protrude from the bumper.



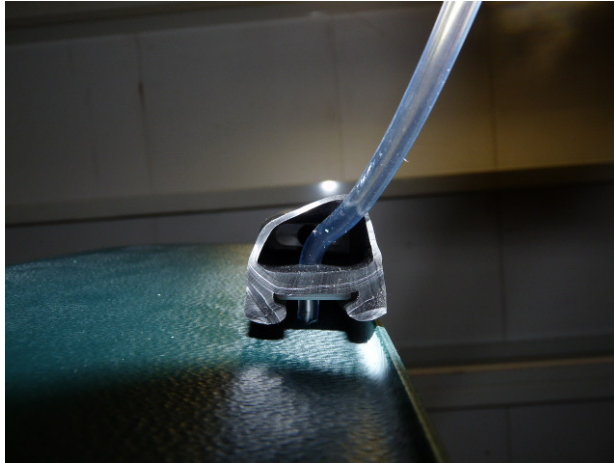
- **Loosen** the 11 M4 locknuts. *Powered screwdriver socket size 7.*
- **Remove** the bumper from its ertalene fitting.
- **Place** the new bumper on the old ertalene fitting. *Flat head screwdriver.*

- **Drill** a hole using a 5 mm bit. Insert the bit in the existing holes in the ertalene fitting, and the holes in the bumper. *Drill + 5 mm bit.*



IMPORTANT: do not drill through the final bumper layer.

- **Glue** a connecting plug on each side, inside the bumper, and make sure these plugs protrude clearly from the 5 mm hole used to route the hoses. *Loctite 454.*



- **Attach** the assembly to the bodywork using the 11 lock nuts. *Powered screwdriver socket size 7.*



IMPORTANT: do not overtighten.

- **Pass** the hoses in the bumper with their connecting plugs.
- **Glue** the 2 sealing plugs and **add** the sealing putty. *Loctite 454.*



3.1.4. MANDATORY UPGRADES

3.1.4.1. CHARGING CONTACT CONNECTORS (PM)

Machines prior to PM08-515-B were fitted with a two-way connector to link the bodywork contacts to the mainboard. This connector may have blackened over time. In this case, replace the 2-way male and female connector with 4 Faston lugs and a male-male strap ([BR 99106, PM-Bodywork cable repair kit](#)).



3.1.5. OPTIONAL UPGRADES

3.1.5.1. COVER POSITION MAGNETIC SENSOR (PM)

For versions since Parcmow **PM10-667-B**, the switch used to detect the closing of the small cover has been replaced with a magnetic contact ([BR14301, HAMLIN magnetic contact for BM/BP cover](#) & [BR14302, HAMLIN magnet for 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. *Wrench size 14.*
- **Position** the magnetic contactor on the left side, flush with the edge of the small cover (see photo opposite), and **drill** an initial hole using a 1.5 mm diameter 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.*



- **Fix** the magnet on the main bodywork, just below the magnetic contactor. **Drill** a hole with a 1.5 mm bit. *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. 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.



3.1.5.3. ELECTRICAL TOUCH-SENSITIVE BUMPER WITH PNEUMATIC SYSTEM (BM)

As mentioned in paragraph 3.1.3.4, if the electrical touch-sensitive bumper cannot be repaired, it must be replaced with a pneumatic version (*BR14290, electrical -> pneumatic bumper replacement kit*). The bodywork and chassis must be modified for this task. Apply the following instructions for this modification.

A). Bodywork:

- Position the bodywork upright.
- Unscrew the 5 nuts holding the electrical bumper in place. *Powered screwdriver socket size 5.*

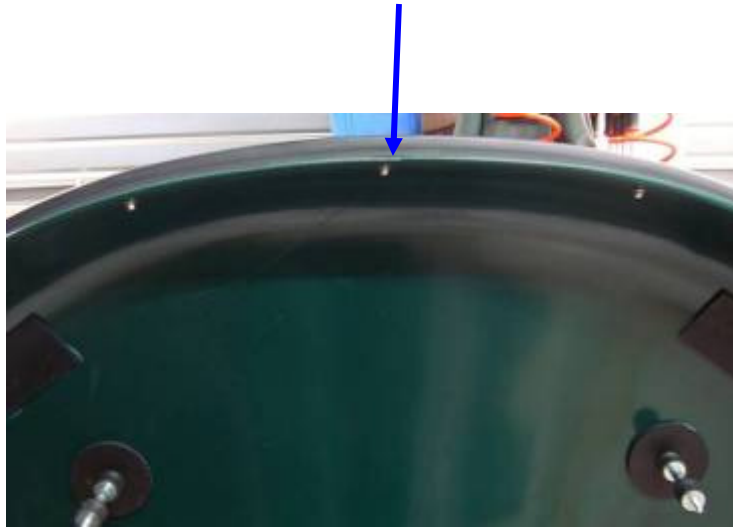


- Cut the brown wire and the purple wire at the 2 ends of the bumper. *Cutting pliers.*



- Remove the electrical bumper from its fitting on the bodywork.

- Widen the hole in the middle of the bodywork using a 4.5 mm bit. *Drill and 4.5mm bit.*

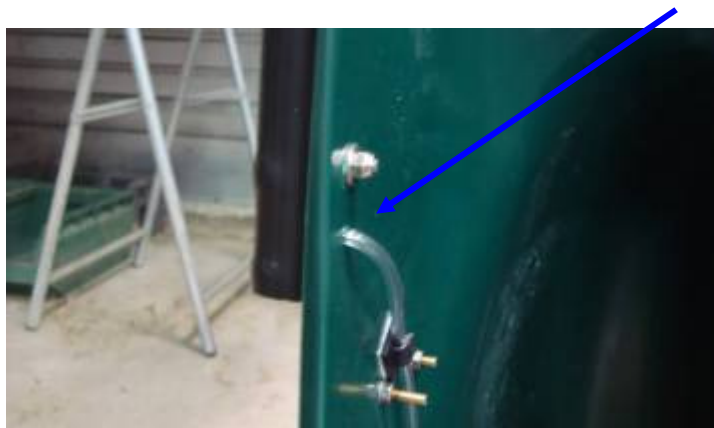


- **Pass** the central screw from the pneumatic bumper kit in the central hole in the bodywork, which you just widened, **engage and tighten** the first M4 locknut with its washer. The other holes can no longer be used. You must now **drill** the new holes and **tighten** the nuts for each individual screw. *Ratchet + socket size 7, drill and 4.5 mm bit.*

IMPORTANT: Finish tightening each screw before starting with the next screw, but do not overtighten.

- **Drill** a 5 mm hole between the last screw and the end of the bumper on each side of the bodywork. **Drill** the ertalene fitting plus the first layer of the bumper, starting from the inside of the bodywork to pass through the ABS. *Drill + 5 mm bit.*

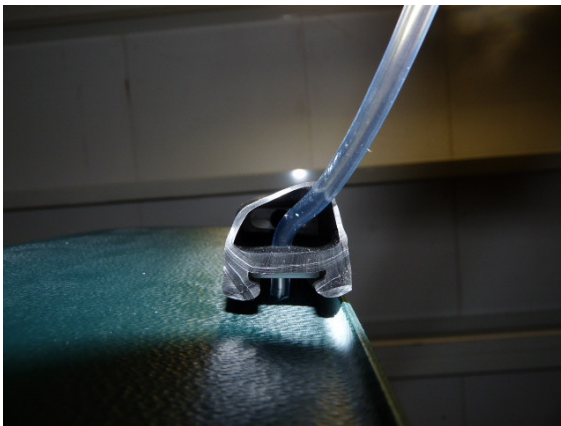
IMPORTANT: do not drill through the second part of the rubber bumper.



- **Pass** the hoses into their respective holes and ensure they **protrude** from the bumper using the long pliers. *Long pliers.*



- **Ensure** the tube is slightly slack and **introduce** the hoses into the bumper. Ensure they protrude from the pre-glued connecting plug by 5 cm.



- When the hoses are in position, **glue** the sealing plugs at the end of the bumper using Loctite 454 and **apply** sealing putty. *Loctite 454.*



- **Drill** a 4 mm hole 9 cm below the aluminium reinforcement bracket on the right side of the bodywork and insert a **rivet** from the external side (4x10 rivet) to secure the base used to attach the hose routing to the casing. *Drill + 4 mm bit, and riveting machine.*
- **Run** the hoses along the electrical braid and **secure** using the clips, up to the bases below the aluminium reinforcement brackets.
IMPORTANT: do not **overtighten** the clips, they could pinch the hoses.



B). Chassis:

- **Position** the machine horizontally and **glue** 4 adhesive bases to the battery pack holder. These bases will be used to clip the bumper hoses before they are connected to the pressure sensors. *Grease remover and paper.*



- **Position** the machine upright and **remove** the casing closing plate to access the MainBoard. *Powered screwdriver socket size 8 or cross head screwdriver.*
- **Disconnect** the batteries.



- **Remove** the battery pack by removing the 6 attachment rivets. 3 on the right strut and 3 on the left strut. *Drill and 8 mm bit, hammer and mallet.*



- **Mark and punch** the 4 holes on the rear casing fitting to position the sockets of the pressure switches according to the diagram enclosed in appendix. *Slide caliper, strip, scribe and punch.*
- **Open** the main casing and **clear** the cables away from the area where you will **drill** the 4 holes.

- **Drill** the 4 holes with a 8 mm bit and **remove burrs**. *Drill + 8mm bit, and cutter.*
(Diagram in appendix, see paragraph 5.4).
- **Check** that no filings remain inside the casing.
- **Pass** the sockets inside the terminal, followed by their red washers, and their respective lugs (from right to left: red wire, black wire, black wire and green wire), nuts and locknuts.
Ratchet socket size 8.



- **Connect** the cable to the JBMP line on the MainBoard.



- **Adjust** the pressure switches using a multimeter and a flat screwdriver. **Tighten** the large screw (grey or white) until the multimeter beeps and then loosen this screw by a 3/4 turn.
Multimeter and flat head screwdriver.



- **Insert** the two bent pressure switches in the sockets.



- **Fit** the atmospheric vent hoses on the outlets (adjustment screw side) of the 2 pressure switches.
- **Fit** the battery pack holder using the six 6x12 rivets. *Riveting machine.*
- **Connect** the batteries.
- **Close** the main casing. *Powered screwdriver socket size 8 or cross head screwdriver.*

3.1.6. REFITTING THE BODYWORK

- **Remove** the bodywork from the machine.

IMPORTANT: with the Parcmow, check that the bumper contacts are correctly guided into the bodywork.



- **Connect** the charging contact terminal.

IMPORTANT: with the Parcmow, use the black clip cable correctly.



- **Fix** the bodywork on the rear bushing, washer and nuts for the Parcmow and the hex head screws for the Bigmow *Wrench size 10 or hex head key size 4.*
- **Secure** the front section of the bodywork using 2 M6 base nuts or 2 stainless steel shouldered spacers + protective caps if the machine is fitted with vertical displacement sensors. *Wrench size 10.*
- **Connect** the sonar.
- **Connect** the bumper hose(s) to the pressure switches.
IMPORTANT: with the Bigmow, **clip** the hoses into the adhesive bases on the battery pack and **check** that they do not rub against any other component by triggering backward movement by the bodywork.

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 90111 for the 25-litre model – BR 90112 for the 5-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 axels in question and **replace** with new axels. *Hammer and mallet.*



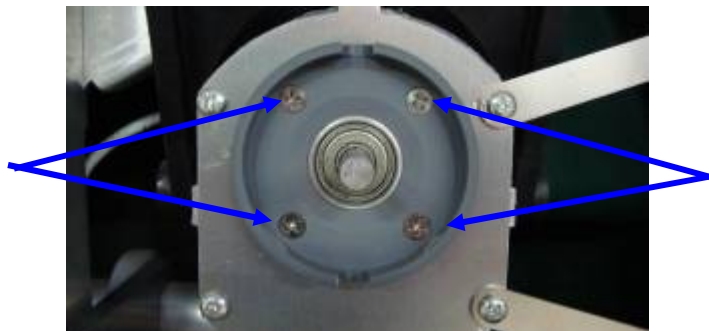
IMPORTANT: you must **replace** the M4*12 screws ([BR_933SZ_M4X12_A2](#)) with new screws and **fit** using blue Loctite.



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.*

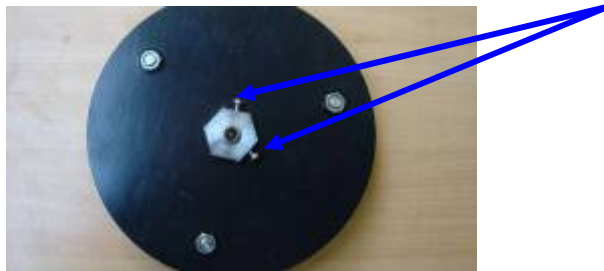
3.2.2.5. PROTECTION PLATES

Check the condition of the protection plates. They may be cracked or broken. (*BR12116: left and right plate*).

3.2.2.6. CUTTING DISCS

Please apply the following procedure to service cutting discs. If these discs are fitted with old inserts, refer to paragraph 3.2.3.2 to fit new inserts.

- **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*.

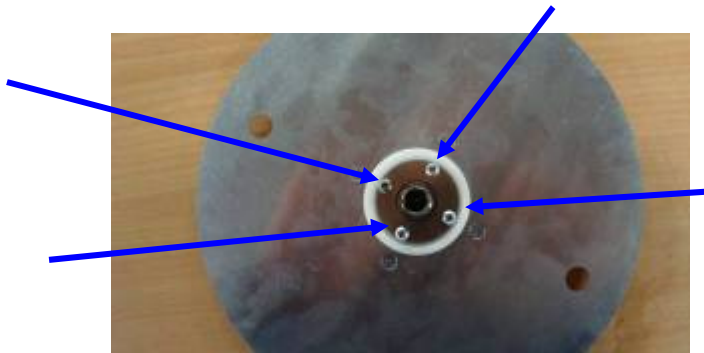
Parcmow: (*BR32370: Cutting blade kit, 9 parts*).

Bigmow: (*BR 12370: Cutting blade kit, 15 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 PZI 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 or operate for 1 years (you can check statistics 3 and 4, which correspond to the number of metres covered by the right and left wheels). After 5000 kilometres or 12 months, grease must be changed by applying 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.



- Clean and grease the axels of the reduction gear motors before refitting the wheels. *Ratchet wrench with socket 8 and silicone grease.*

3.2.2.8. DPM/IMS REDUCTION GEAR MOTORS (PM52/BM62)

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 hub/rim assembly from the wheel motor. *Ratchet size 8 or wrench size 27.*
- **Disconnect** the cable routing from the reduction gear motor to the motor card.
- **Unscrew** the motor assembly from the chassis plate.
- **Remove** the 4 plugs and **unscrew** the 4 hex head screws to separate the electric motor from the reduction gear and **access** the gear rings. *Hex head key size 3 mm for PMs and size 4 mm for BMs.*



- **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, 1 ml per gear ring for PMs and 1.5 ml per gear ring for BMs.*

- **Refit** the second ring and **lubricate**. *Seringue, 1 ml per gear ring for PMs and 1.5 ml per gear ring for BMs.*
- **Refit** the first ring and **lubricate**. *Seringue, 1 ml per gear ring for PMs and 1.5 ml per gear ring for BMs.*
- **Retighten** the 4 hex head screws. Tightening torque: 3 Nm. *Hex head key size 3 or 4.*
- **Refit** the 4 plugs.
- **Attach** the plate/motor assembly to the casing.
- **Connect** the cable to the MainBoard.
- **Refit** the wheel to the wheel motor. *Ratchet size 8 or torque wrench with socket size 27.*



IMPORTANT: fit using blue Loctite for PMs, to a torque of 65 Nm for the Bigmow KTR.

3.2.2.9. BATTERY PACK

The simplest means of checking the state of your batteries (*BR35390, NiCd 24V-5 Ah battery pack kit: 2 strips for Parcnow and BR15390, NiCd 24V - 5 Ah battery pack kit: 3 strips for BM/BP*), is to **analyse** machine records. 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:

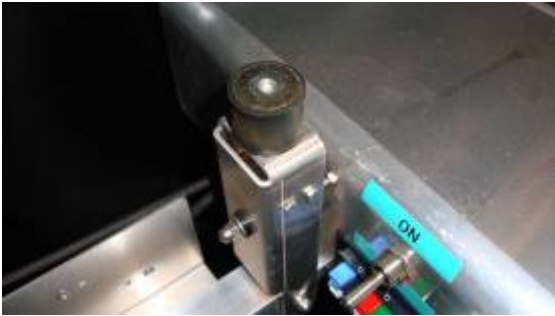
- **Charge** the battery pack to maximum.
- **Disconnect** the pack and **measure** its voltage. *Multimeter.*
- **Remeasure** voltage 1 hour later. If the voltage **has dropped** by more than 1 volt, you can consider the battery pack as non-compliant. *Multimeter.*



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.

3.2.2.10. REAR BUSHING

Unscrew bushings and **replace** with new bushings.



Parcmow: *BR34190 (Parcmow rear bushing kit, 2 parts).*

Bigmow: *BR14190 (Bigmow rear bushing kit, 2 parts).*

3.2.3. MANDATORY UPGRADES

3.2.3.1. MAINBOARD GROUND CONNECTOR

If you are using a MainBoard with Anderson ground connectors, you must modify the MainBoard to avoid heating.

- **Open** the main casing to access the MainBoard. *Powered screwdriver socket size 8 or cross head screwdriver.*
- **Remove** the two black ground connectors (TPBATM and TPCHGM) and **check** their condition. If the ground connectors are hot, refer to the repair manual to replace the Mainboard. If they are in good condition, continue with this procedure.
- **Cut** the two cables and **strip** the 4 ends. *Cutting pliers and cable stripper.*



- **Crimp** 4 Faston connectors (*BR17710, red 6.35 Faston lug, with complete pre-insulation*) on the 4 wires. *Crimping tool.*
- **Connect** the 4 Faston connectors of the ground wires to a transparent 4-way male-male connector (*BR15108, 4-way 6.35 male Faston strap*).



- **Close** the main casing. *Powered screwdriver socket size 8 or cross head screwdriver.*

3.2.3.2. CUTTING BLADE INSERT

If the machine cutting discs are equipped with old inserts, **replace** them with new inserts. (*BR12393, Stainless steel insert + nut kit for 2009 cutting blade, 1 part*).

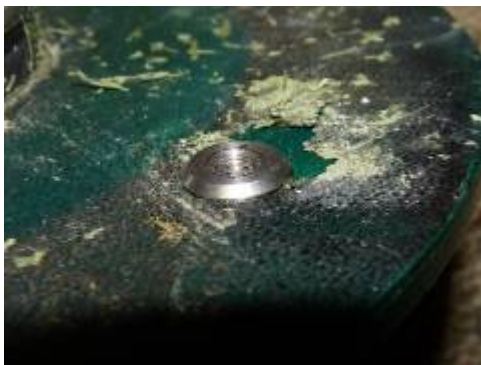
- **Remove** the old inserts. *Hammer and mallet.*



- **Drill** an 8 mm hole. *Drill and 8 mm bit.*



- **Position** the new insert and press. *Press.*
- **Screw** the nut onto the insert using green Loctite. *Wrench size 13 and green Loctite.*



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.

A). Parcmow: (*BR37082, Resin-coated coil kit for PMs*).

- **Dismantle** the old coil, including the cable and holder. *Powered screwdriver + socket size 8 + wrench size 19.*
- **Loosen** the 2 screws in the middle of the suspension system, **position** the adapter (*BR31130, Parcmow coil holder in folded sheet metal*) and **retighten** both screws. *Ratchet + socket size 10 + wrench size 10.*

- **Attach** the coil on the adapter using the M6x12 screws ([BR_933_M6x12_A2](#)) + M6x18 washer ([BR_9021_M6x18x1.6_A2](#)) + Blue Loctite. *Ratchet + socket size 10 + blue Loctite.*
- **Secure** the cable at the locations designated for this purpose using clips ([BR11314](#)), **tighten** the cable gland and **connect** to the MainBoard. *Cutting pliers and wrench size 19.*



B). Bigmow: ([BR11197](#), *Resin-coated coil kit for BMs*).

- **Dismantle** the old coil, including the cable and holder. *Powered screwdriver + socket size 8 + wrench size 19.*
- **Screw** the adapter ([BR11130](#), *Spring-mounted stainless steel intermediate coil holder for BMs*) in the right direction (see photo) using the 3 attachment screws from the old holder.
- **Attach** the coil on the adapter using the screws ([BR_933_M6x12_A2](#)) + M6x18 washer ([BR_9021_M6x18x1.6_A2](#)) + Blue Loctite. *Ratchet + socket size 10 + blue Loctite.*
- **Secure** the cable at the locations designated for this purpose using clips ([BR11314](#)), **tighten** the cable gland and **connect** to the MainBoard. *Cutting pliers and wrench size 19.*



3.2.4.2. DPM/IMS MOTORS

A). Parcmow:

With Parcmows, this update is not possible due to dimensions. However, the first Parcmow equipped with DPM/IMS motors is the PM10-694-B (main casing modified + short keyboard tab). For all PMs, before this number, use the reference ([BR13151, ZEITLAUF reduction gear motor, 94 W](#)).

B). Bigmow:

This update is however compatible with all Bigmows. Apply the following steps, ([BR13198, Reduction gear motor upgrade kit, former casing BM62 \(R+L\) + cards](#)) for Bigmows with the old main casing, up to BM08-334-B and ([BR13199, Reduction gear motor upgrade kit, BM62 \(R+L\) + cards](#)) for Bigmows with a 1 part casing, with no wheel motor card inserts, from BM08-335-B to BM10-487-B.



- **Remove** the bodywork. *Wrench size 10 and hex head key size 4.*
- **Remove** the rear wheels. *Powered screwdriver + socket size 8 or wrench size 27.*
- **Open** the main casing. *Powered screwdriver socket size 8 or cross head screwdriver.*
- **Disconnect** the cables routing from the MainBoard to the motor cards.
- **Loosen** the 4 screws and the 2 nuts (old casing) or the 6 screws (new casing, 1 part) on each side, holding the motor plate on the chassis. *Powered screwdriver with PZ2 head, wrench size 10, powered screwdriver + socket size 8.*
- **Remove** the Zeitlauf motors.
- With the bodywork backward movement sensors, **replace** the four M4*12 washers with four M6*14 washers ([BR_E25_M6x14x1.2_A2](#)), replace the two blind M4 nuts with 2 M4 lock nuts ([BR_985_M4_A2](#)) and **add** the 2 black M4 nut caps ([BR21434, Black plastic M4](#)

nut cap). This is necessary to prevent contact between the new DPM/IMS motors and the bodywork backward movement system.



- **Position** the new motors on plates in the casing.
- **Tighten** the 4 screws and the 2 nuts (old casing) or the 6 screws (new casing, 1 part) on each side, holding the motor plate on the chassis. *Powered screwdriver with PZ2 head, wrench size 10, powered screwdriver + socket size 8.*
- **Connect** the cables routing from the MainBoard to the motor cards and those routing from the motors to the motor cards.
- **Close** the main casing. *Powered screwdriver socket size 8 or cross head screwdriver.*
- **Secure** the rear wheels:
 - If the machine is fitted with old rims with a cotter pin hub, **refit** the wheel on the axle **and secure** with a M5*16 screw ([BR_933_M5x16_A2](#)) + split ring lock washer M5 ([BR_6798A_M5_A2](#)) + M5*18 washer ([BR_440R_M5x18x2_A2](#)). *Powered screwdriver + socket size 8 + blue Loctite.*
 - If the machine is fitted with old rims, but is already equipped with the KTR hub or new rotomoulded rims with a built-in hub. Remove the cotter pin and fit a Belleville washer ([BR_2093A_28x14.2x1.5](#)) before replacing the wheel. *Torque wrench with socket 27-65 Nm.*



KTR



IMPORTANT: do not forget to insert a new version of the programme, compatible with the new motors.

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
Parcmow front (hard) bushing kit (2 parts).	BR34192
Parcmow front (hard) bushing kit with vert. disp. sensor, 2 parts	BR34193
BM front bushing kit (2 parts) up to BM08-305-B	BR11190
BM front bushing kit (2 parts) from BM08-306-B	BR11191
Sealing putty for pressurised bumper	BR14213
Bircher PVC fitting for BIGMOW L=2.07 m	BR14210
Bircher PVC fitting for PARCMOW L=2.25 m	BR34201
Black Philips Mushroom head sheet metal screw, DIN7981CHAcZn ST2.9x13	BR_7981CH_2.9X13_NOIR
Sealing plug for Bircher bumper	BR14211
Connecting plug for Bircher bumper	BR14212
Hex head screw, DIN 933, Stainless steel, M4x40	BR_933_M4X40_A2
Large washer, DIN 440R, Stainless steel, M6x22x2	BR_440R_M6X22X2_A2
PM-Bodywork cable repair kit	BR99106
Magnetic contactor, 59135-010-10W HAMLIN, BM/BP cover	BR14301
HAMLIN magnet 57135 000 0309 for BM/BP cover	BR14302
Mushroom head sheet metal screw, Pozi DIN 7981CZ AcZn ST2.9x13	BR_7981CZ_2.9X13_ZN
Washer, DIN 125, Stainless steel, M3	BR_125_M3_A2
Sealed sonar kit (card+transmitter+receiver)	BR15290
Electrical -> pneumatic bumper replacement kit	BR14290
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
Parcmow cutting blade kit, 9 parts	BR32370
Bigmow cutting blade kit, new in 2008, 15 parts	BR12370
Cutting head bearing and axis kit (1 part)	BR12386
Grease for reduction gear, 400 g cartridge	BR99114
NiCd 24V-5 Ah battery pack kit: 2 strips for Parcmows	BR35390
NiCd 24V - 5 Ah battery pack kit: 3 strips for BMs/BPs	BR15390

Parcmow rear bushing kit (2 parts)	BR34190
Bigmow rear bushing kit (2 parts)	BR14190
Red 6.35 Faston lug, with complete pre-insulation	BR17710
Faston 6.35 male 4-way strap	BR15108
Stainless steel insert + nut kit for 2009 cutting blade (1 part)	BR12393
PM coil kit with resin-coated card	BR37082
Parcmow coil holder in folded sheet metal	BR31130
Hex head screw, DIN 933, Stainless steel, M6x12	BR_933_M6X12_A2
Large washer, DIN 9021, Stainless steel, M6x18x1.6	BR_9021_M6X18X1.6_A2
Black 'medium' Colson clip, 140x3 mm	BR11314
BM coil kit with resin-coated card	BR11197
BM spring-mounted stainless steel intermediate coil holder	BR11130
ZEITLAUF reduction gear motor, 94 W	BR13151
Reduction gear motor upgrade kit for OLD CASING BM62 (R+L)+sonar+cards	BR13198
Reduction gear motor upgrade kit for BM62 (R+L)+sonar+cards	BR13199
Large washer NF E25 - 513/514, Stainless steel, M6x14x1.2	BR_E25_M6X14X1.2_A2
Locknut, DIN 985, Stainless steel, M4	BR_985_M4_A2
Black plastic M4 nut cap	BR21434
Hex head screw, DIN 933, Stainless steel, M5x16	BR_933_M5X16_A2
Split ring lock washer, DIN 6798A, Stainless steel, M5	BR_6798A_M5_A2
Large washer, DIN 440R, Stainless steel, M5x18x2	BR_440R_M5X18X2_A2
Belleville steel washer 28x14.2x1.5 mm	BR_2093A_28X14.2X1.5

5.2. WORKING SHEET

[illegible]

5.3. SERVICING SHEET

SERVICE SHEET



Technician:

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

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

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

Tests & Measurements	Parts checked	Parts replaced
Machine cleaning		
Field testing		

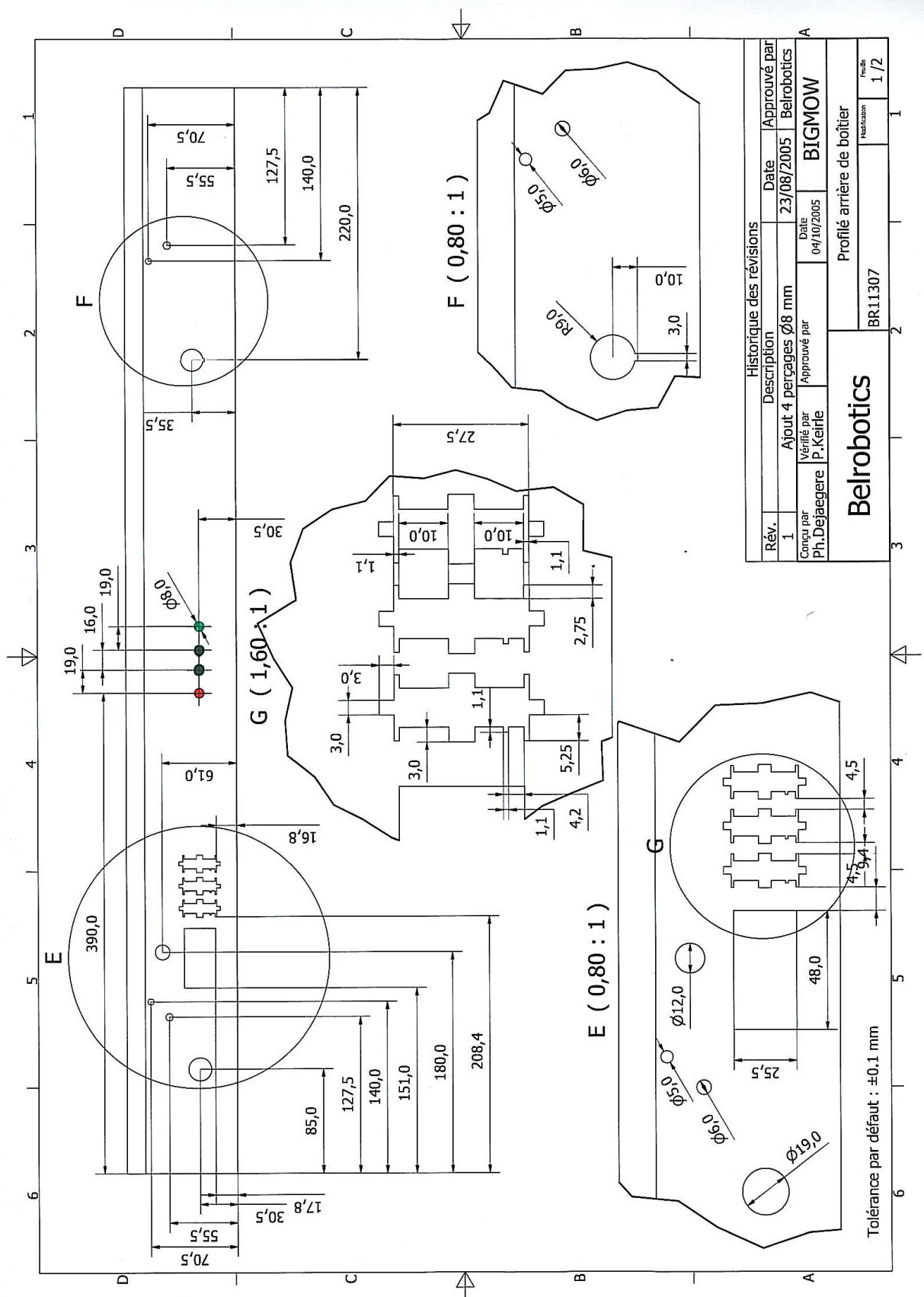
1	Bushing		
	Front		
	Rear		
2	Right rear wheel		
	Hub		
	Retaining rings		
	Tyre		
	Reduction gear motor		
	Lubrication after 5000 km		
3	Left rear wheel		
	Hub		
	Retaining rings		
	Tyre		
	Reduction gear motor		
	Lubrication after 5000 km		
4	Tête de coupe 1 (BM)		
	Anti-friction disc		
	Bearing		
	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		

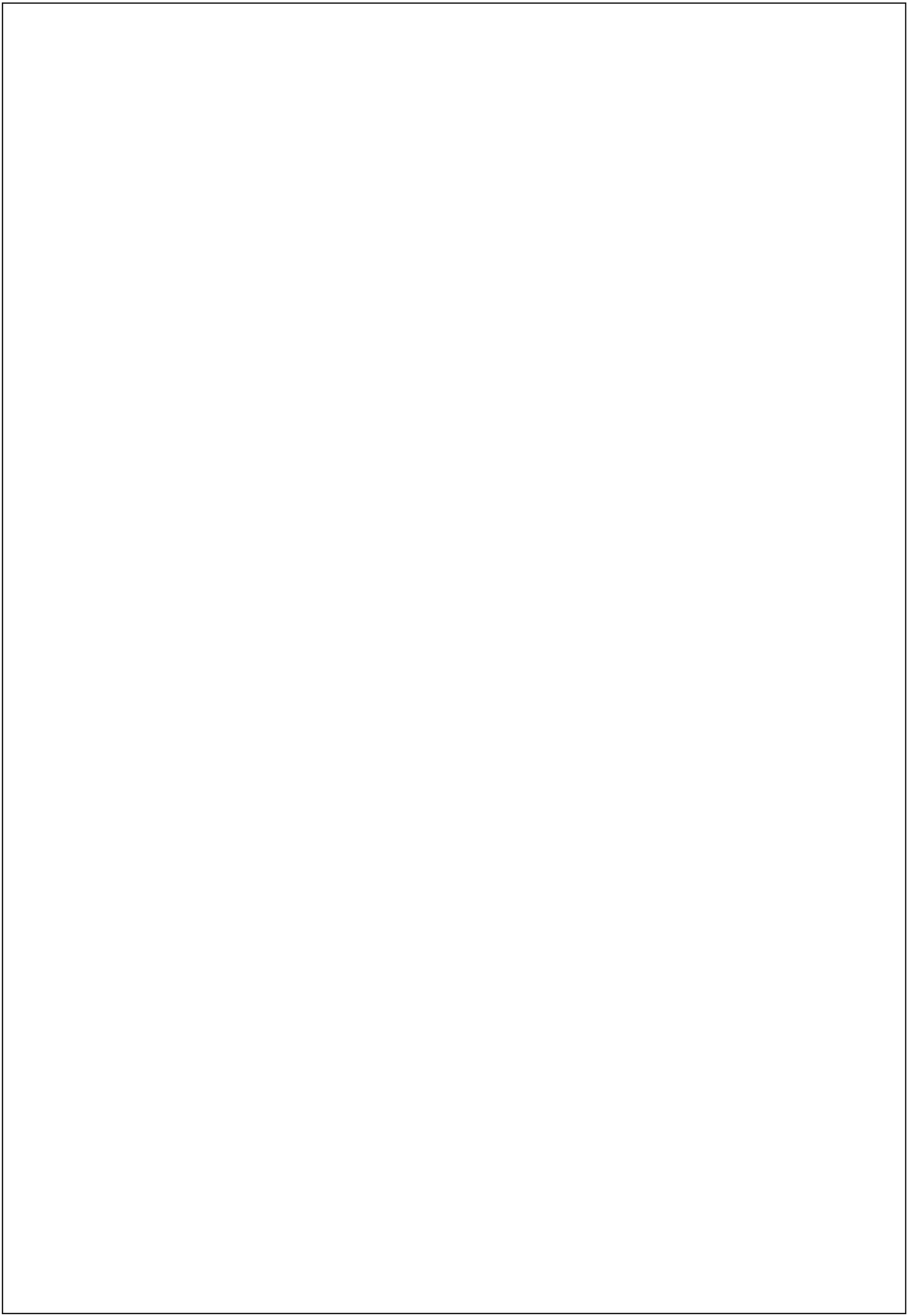
Customer :	Cust. ref. :
Telephone :	
Address :	
Machine code :	
Record, PC :	
Serial no. :-.....-B	
Customer approval :	

Tests & Measurements	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		

5.4. DIAGRAM





PARCMOW - BIGMOW

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