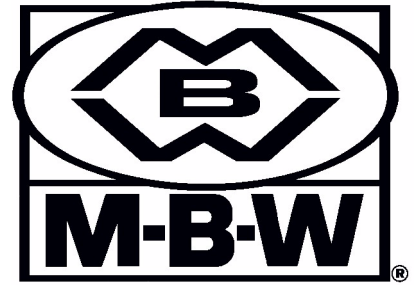


OPERATOR'S SAFETY AND SERVICE MANUAL



SP80 SP125 SP160

This manual covers the following serial numbers
and higher for each model listed:

SP80	3830125
SP125	3830125
SP160	3830125



SOIL PICK

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SAFETY INFORMATION

Introduction



This Safety Alert Symbol is used to call attention to items or operations which may be dangerous to those operating or working with this equipment. The symbol can be found throughout this manual and on the unit. Please read these warnings and cautions, along with all decals, carefully before attempting to operate the unit. Make sure every individual who operates or works with this equipment is familiar with all safety precautions.

WARNING

GENERAL WARNING. Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment and/or severe bodily injury or death.

CAUTION

GENERAL CAUTION. Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment.

Safety Precautions



LETHAL EXHAUST GAS: An internal combustion engine discharges carbon monoxide, a poisonous, odorless, invisible gas. Death or serious illness may result if inhaled. Operate only in an area with proper ventilation. **NEVER OPERATE IN A CONFINED AREA!**



DANGEROUS FUELS: Use extreme caution when storing, handling and using fuels, as they are highly volatile and explosive in vapor state. Do not add fuel while engine is running. Stop and cool the engine before adding fuel. **DO NOT SMOKE!**



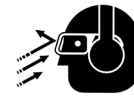
SAFETY GUARDS: It is the owner's responsibility to ensure that all guards and shields are in place and in working order.



IGNITION SYSTEMS: Breakerless, magneto, and battery ignition systems can cause severe electrical shocks. Avoid contacting these units or their wiring.



SAFE DRESS: Do not wear loose clothing, rings, wristwatches, etc. near machinery.



NOISE PROTECTION: Wear OSHA specified hearing protection devices.



EYE PROTECTION: Wear OSHA specified eye shields, safety glasses, and sweat bands.



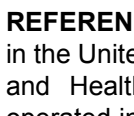
FOOT PROTECTION: Wear OSHA specified steel-tipped safety shoes.



HEAD PROTECTION: Wear OSHA specified safety helmets.



DUST PROTECTION: Wear OSHA specified dust mask or respirator.






OPERATOR: Keep children and bystanders off and away from the equipment.

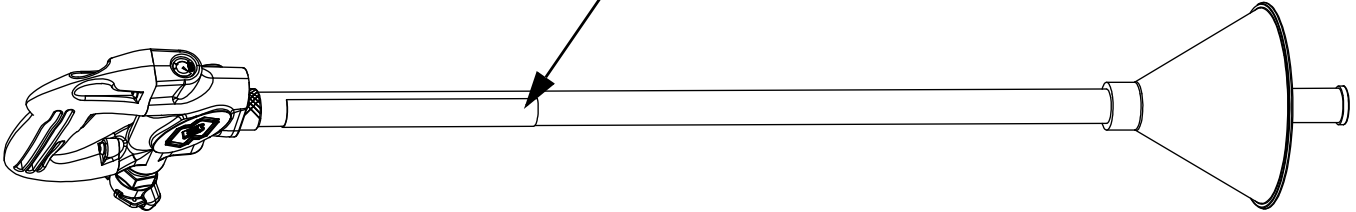
REFERENCES: For details on safety rules and regulations in the United States, contact your local Occupational Safety and Health Administration (OSHA) office. Equipment operated in other countries must be operated and serviced in accordance and compliance with any and all safety requirements of that country. The publication of these safety precautions is done for your information. MBW does not by the publication of these precautions, imply or in any way represent that these are the sum of all dangers present near MBW equipment. If you are operating MBW equipment, it is your responsibility to insure that such operation is in full accordance with all applicable safety requirements and codes. All requirements of the United States Federal Occupational Safety and Health Administration Act must be met when operated in areas that are under the jurisdiction of that United States Department.

Safety Decals

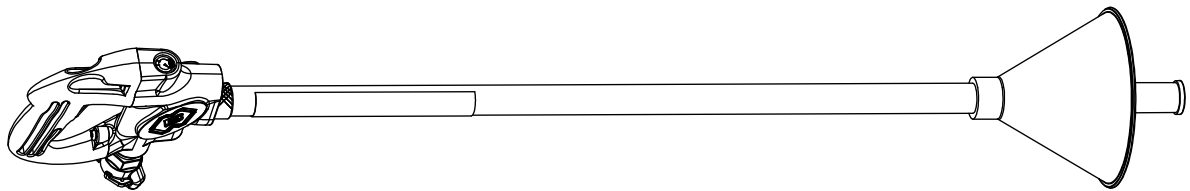
Carefully read and follow all safety decals. Keep them in good condition. If decals become damaged, replace as required. If repainting the unit, replace all decals. Decals are available from authorized MBW distributors. Order the decal set listed on the following page(s).

US PATENT #5,170,943 	<ul style="list-style-type: none"> • MINIMIZE SCATTER BY KEEPING BOTTOM OF DEFLECTOR SHIELD THREE INCHES (3") ABOVE NOZZLE. • PULL TRIGGER AND CHECK PRESSURE GAUGE. IF INDICATED PRESSURE IS NOT BETWEEN 100 AND 125 PSI (INDICATED BY A GREEN SECTION ON SOME GAUGES), INCREASE AIR SUPPLY BEFORE PROCEEDING. 	 	WARNING
			High pressure air/skin puncture hazard. Do not point nozzle at people.
			CAUTION
			Flying debris and loud noise hazard. Wear ear and eye protection.

17762



SPECIFICATIONS



SP125

	SP80	SP125	SP160
Volume of Air	80 cfm (38 L/s)	125 cfm (59 L/s)	160 cfm (76 L/s)
Minimum Operating Pressure	100 psi (689 kPa)	100 psi (689 kPa)	100 psi (689 kPa)
Maximum Operating Pressure	175 psi (1210 kPa)	175 psi (1210 kPa)	175 psi (1210 kPa)
Exit Velocity	1476 mph (660 M/s)	1476 mph (660 M/s)	1476 mph (660 M/s)
Cutting Edge¹	4 in (10 cm)	4 in (10 cm)	8 in (20 cm)
Operating Weight	6.7 lbs (3.0 kg)	6.7 lbs (3.0 kg)	6.7 lbs (3.0 kg)
Noise Level²	100 dBA	100 dBA	100 dBA

1. Cutting edge will vary with different soil conditions.
2. Noise levels based upon normal operating conditions.

Specifications subject to change without notice

OPERATION

Introduction

This parts manual contains only standard parts. Variations of these parts as well as other special parts are not included. Contact your local MBW distributor for assistance in identifying parts not included in this manual.

Before Starting & Operating

- REMEMBER! It is the owner's responsibility to communicate information on the safe use and proper operation of this unit to the operators.
- Review ALL of the Safety Precautions listed on page 1 of this manual.
- Familiarize yourself with the operation of the machine and confirm that all controls function properly.
- Know how to STOP the machine in case of an emergency.
- Make sure hands, feet, and clothing are at a safe distance from any moving parts.

Connecting to Air Compressor

For proper operation, the air supply must deliver the volume and pressure required for the Soil Pick model being used. Refer to Specifications, page 3 for minimum requirements.

1. Start compressor and check pressure gage to verify proper operation of the compressor.
2. Connect air hose to compressor outlet and install safety clips if required.
3. Connect air hose to Soil Pick coupler and install safety clips if required.
4. Open compressor valve to pressurize Soil Pick.

Starting Soil Pick

⚠ WARNING ⚠
Never aim the Soil Pick at exposed skin or people.

1. Aim Soil Pick away from people, and pull the trigger.
2. If the pressure reading is less than 100 psi (indicated as a red section on some gages), the air pressure at the source must be increased.
3. If the pressure reading is greater than 125 psi, the air pressure at the source must be decreased to prevent damage and possible injury.

⚠ WARNING ⚠
Do not operate the Soil Pick at a pressure greater than 125 psi.

4. Adjust the rubber deflector so the bottom of the cone is about three inches (3") above the nozzle tip.

Operating

⚠ WARNING ⚠
Always wear safety goggles and hearing protection when operating Soil Pick.

1. If the area to be excavated is covered with grass or other plant material, it may be easier to remove it with a shovel or rake before proceeding with the Soil Pick.
2. Hold the Soil Pick perpendicular to the soil surface to be worked.
3. With the nozzle in contact with the soil, pull the trigger momentarily to break up the soil in immediate contact with the nozzle tip.
4. While keeping the nozzle submerged in the loosened soil, hold the trigger down and work the nozzle in a circular motion.
5. As the soil is loosened and the Soil Pick is worked deeper into the ground, move the deflector up the barrel to minimize scatter.
6. After loosening the soil, it can be easily removed using an industrial vacuum system or using conventional methods.

Stopping Soil Pick

1. Close compressor valve to release supply pressure to Soil Pick.
2. Aim Soil Pick away from people, and pull the trigger to relieve all residual air pressure in the hose.
3. Disconnect air hose on both ends.
4. Turn compressor OFF.
5. Slowly open compressor valve to relieve air pressure in the tank.

Tips & Tricks

1. The Soil Pick can be used alone for safe excavation on small jobs, or used as an underground locating and exposing tool in conjunction with higher production excavators, backhoes, and trenchers.

2. The Soil Pick is not an elaborate blow pipe. Conventional blow pipes produce subsonic air stream velocities between 500 and 600 mph, and cannot provide the cutting edge required for soil excavation. Blow pipes can be used for moving loose debris, but even then are outperformed by the Soil Pick.
3. The Soil Pick is a selective excavator. The violent decompression of air is sufficient to loosen porous soil, but will have virtually no effect on non-porous objects such as buried utilities or plant roots.
4. The Soil Pick has a cutting edge of four to eight inches, depending on the model. This means the nozzle must be kept close to the soil for the decompression to be effective. Beyond the cutting edge, substantial decompression has occurred and the Soil Pick becomes a highly effective blower for loose debris.
5. The Soil Pick will not cut through frost, but it will work well below the frost line.
6. The Soil Pick works extremely well in all types of granular soils and cohesive soils with a good granular gradation. The effectiveness will drop off as the granular component in cohesive soils decreases. Wet clay soils may be too plastic to loosen.
7. The Soil Pick does not require lubrication. The air supply must be free of oil to achieve proper performance.
8. The Soil Pick is not designed as an impact or prying tool. The barrel is manufactured of a composite material designed to withstand high internal pressure. It is not designed to withstand prying or impact forces.
9. The Soil Pick is an effective excavation tool even when there is no concerns of buried utilities. In most cases, productivity is enhanced dramatically compared to pick and shovel work.
10. The Soil Pick is highly effective when used to clean saw joints and cracks in concrete. It can grossly outperform a blow pipe, and provide a very clean surface for excellent sealant adhesion.
11. The Soil Pick is an effective tool for nursery applications. Because it is a selective excavator, it will not damage roots. Because it is an air tool, it is also aerating the soil while digging.
12. The Soil Pick has an almost endless list of uses. It can effectively clean barges, railroad cars, construction equipment, and more. It can be used for shallow trenching, post hole digging, stump removal, pothole preparation prior to patching, and many more unique applications.

SERVICE

Assembly and disassembly should be performed by a service technician who has been factory trained on MBW equipment. The unit should be clean and free of debris. Pressure washing before disassembly is recommended.

- Prior to assembly, wash all parts in a suitable cleaner or solvent.
- Check moving parts for wear and failure. Refer to the Replacement section in this manual for tolerance and replacement cycles.
- All shafts and housings should be oiled prior to pressing bearings. Also, ensure that the bearings are pressed square and are seated properly.
- All bearings should be replaced when rebuilding any exciter or gearbox.
- All gaskets and seals should be replaced after any disassembly.

Torque Chart

SIZE	GRADE 2	GRADE 5	GRADE 8
1/4-20	49 in·lbs	76 in·lbs	9 ft·lbs
1/4-28	56 in·lbs	87 in·lbs	10 ft·lbs
5/16-18	8 ft·lbs	13 ft·lbs	18 ft·lbs
5/16-24	9 ft·lbs	14 ft·lbs	20 ft·lbs
3/8-16	15 ft·lbs	23 ft·lbs	33 ft·lbs
3/8-24	17 ft·lbs	26 ft·lbs	37 ft·lbs
7/16-14	24 ft·lbs	37 ft·lbs	52 ft·lbs
7/16-20	27 ft·lbs	41 ft·lbs	58 ft·lbs
1/2-13	37 ft·lbs	57 ft·lbs	80 ft·lbs
1/2-20	41 ft·lbs	64 ft·lbs	90 ft·lbs
9/16-12	53 ft·lbs	82 ft·lbs	115 ft·lbs
5/8-11	73 ft·lbs	112 ft·lbs	159 ft·lbs
5/8-18	83 ft·lbs	112 ft·lbs	180 ft·lbs
3/4-16	144 ft·lbs	200 ft·lbs	315 ft·lbs
1-8	188 ft·lbs	483 ft·lbs	682 ft·lbs
1-14	210 ft·lbs	541 ft·lbs	764 ft·lbs
1-1/2-6	652 ft·lbs	1462 ft·lbs	2371 ft·lbs
M 6	3 ft·lbs	4 ft·lbs	7 ft·lbs
M 8	6 ft·lbs	10 ft·lbs	18 ft·lbs
M 10	10 ft·lbs	20 ft·lbs	30 ft·lbs

CONVERSIONS

in·lbs x 0.083 = ft·lbs

ft·lbs x 12 = in·lbs

ft·lbs x 0.1383 = kg·m

ft·lbs x 1.3558 = N·m

Service Tools

Part No.	Description
20563	VALVE GREASE, SILICONE, .21 oz
20565	REBUILD KIT, SOIL PICK

Handle Disassembly

Refer to Handle Assembly, page 12.

1. Remove three screws (#18) securing handle and remove, taking care to not lose spring (#10).
2. Remove two screws (#15) holding bottom cover (#5) and remove cover.
3. Using a wrench across flats on valve spool (#4), loosen and remove screw securing trigger (#8).
4. Use a pick or small screwdriver, remove shaft wiper (#2).
5. Remove snap ring (#15).
6. Using a wrench across the flats on valve spool (#4), remove screw securing lower spool (#7).
7. Pull spool (#4) out the top of the body. Guide (#6) will come out with spool.
8. Push lower valve spool (#7) out the bottom of the valve body (#9).
9. Insert a long standard bladed screwdriver through the inlet of the valve body to unscrew the gage (#11).

Handle Assembly

Refer to Handle Assembly, page 12.

Note: All o-rings and seals should be replaced after any disassembly.

1. Thread gage (#11) into body (#9) using a long standard blade screwdriver and thread sealing compound.
2. Place o-rings (#12, 14) into grooves on valve spool (#4). Coat o-rings with grease and insert spool (#4) into body (#9).
3. Place o-ring (#14) into groove on lower valve spool (#7), coat o-ring with grease, and insert into bottom of body. Secure to valve spool (#14) with screw (#17). Use wrench across flats on valve spool to tighten screw.
4. Place o-ring in groove on upper guide (#6), coat with grease, and insert into main body over the valve spool.

5. Insert retaining ring (#15) and make certain it is fully seated in groove.
6. Coat the inner diameter of the dust wiper (#2) with grease and insert into main body. The lip of the seal should be facing out, and the shoulder should be flush with the surface of the body.
7. Attach trigger (#8) to valve spool with screw (#17). Do not overtighten screw. place spring in the well of the trigger (#8).
8. Attach Handle (#3) to body with three screws (#17). Use Medium strength loctite on these screws.
9. Assemble lower cover (#5) to body with two screws (#15)
10. Test action of trigger to ensure complete closing of valve after trigger is released.

Parts Replacement Cycles and Tolerances

Bearings	Replace anytime a bearing is rough, binding, discolored or removed from housing or shaft.
Hardware	Replace any worn or damaged hardware as needed. Replacement hardware should be grade 5 and zinc plated unless otherwise specified.
Safety Decals	Replace if they become damaged or illegible.
Seals & Gaskets	Replace if a leak is detected and at every overhaul or teardown.

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REPLACEMENT PARTS

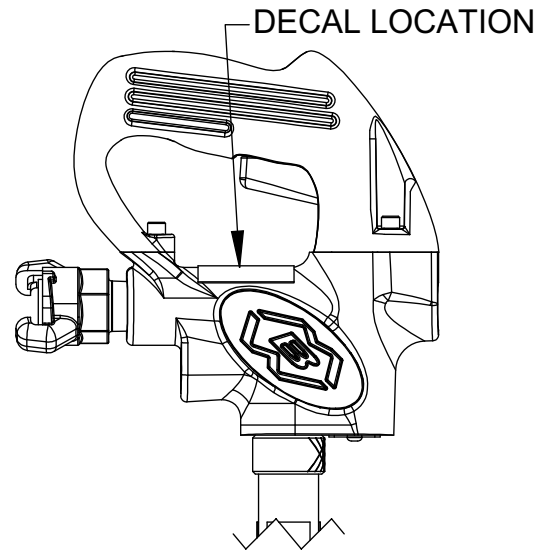
The warranty is stated in this book on page 14. Failure to return the Warranty Registration Card renders the warranty null and void.

MBW has established a network of reputable distributors/dealers with trained mechanics and full facilities for maintenance and rebuilding, and to carry an adequate parts stock in all areas of the country. Their sales engineers are available for professional consultation. If you cannot locate an MBW distributor in your area, contact MBW or one of our Sales Branches listed below.

When ordering replacement parts, be sure to have the following information available:

- Model and Serial Number of machine when ordering MBW parts
- Model and Serial Number of engine when ordering engine parts
- Part Number, Description, and Quantity
- Company Name, Address, Zip Code, and Purchase Order Number
- Preferred method of shipping

REMEMBER - You own the best! If repairs are needed, use only MBW parts purchased from authorized MBW distributors.



The unit's serial number can be found in the following locations:

- The serial number decal is located on the handle body adjacent to the pressure gage.

Write Model Number here

Write Serial Number here

Contact Information

MBW, Inc.

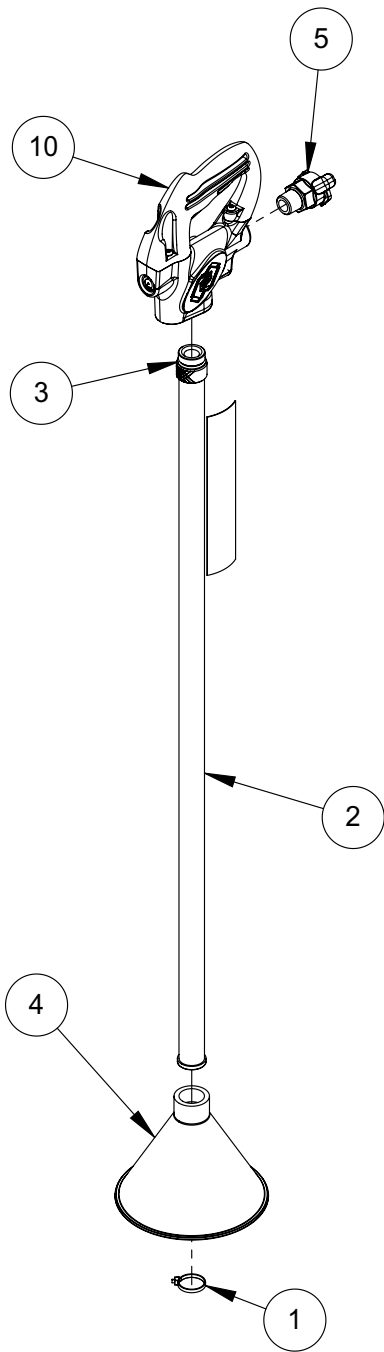
250 Hartford Rd • PO Box 440
Slinger, WI 53086-0440
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Fax: (262) 644-5169
Email: mbw@mbw.com
Website: www.mbw.com

MBW (UK) Ltd.

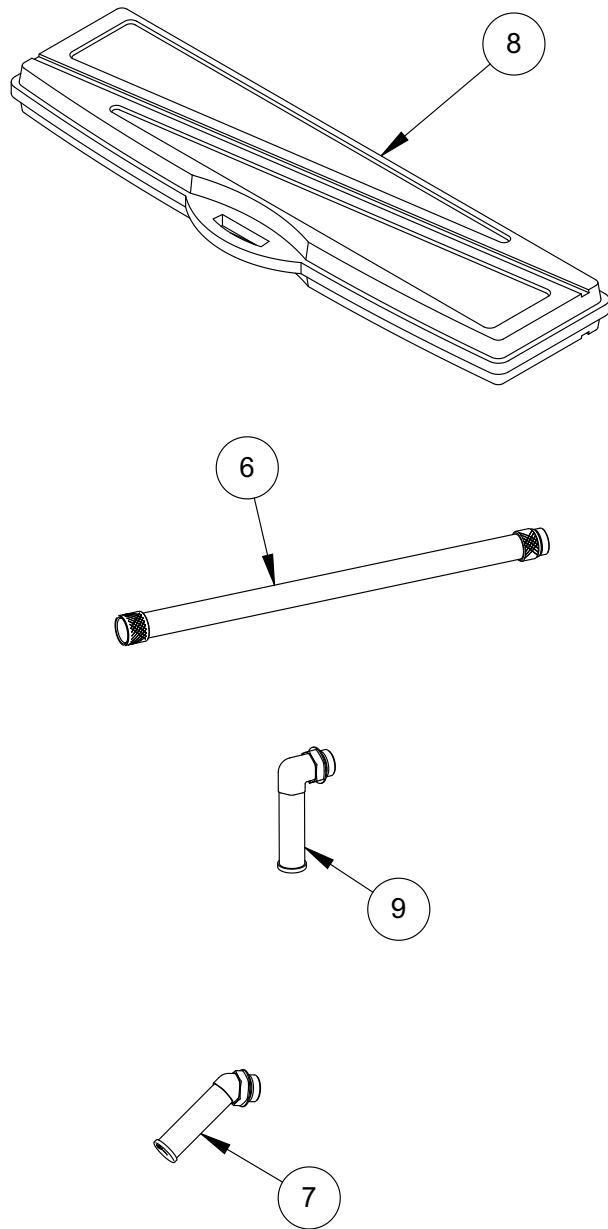
Units 2 & 3 Cochrane Street
Bolton BL3 6BN, England
Phone: 01204 387784
Fax: 01204 387797

MBW France S.A.R.L

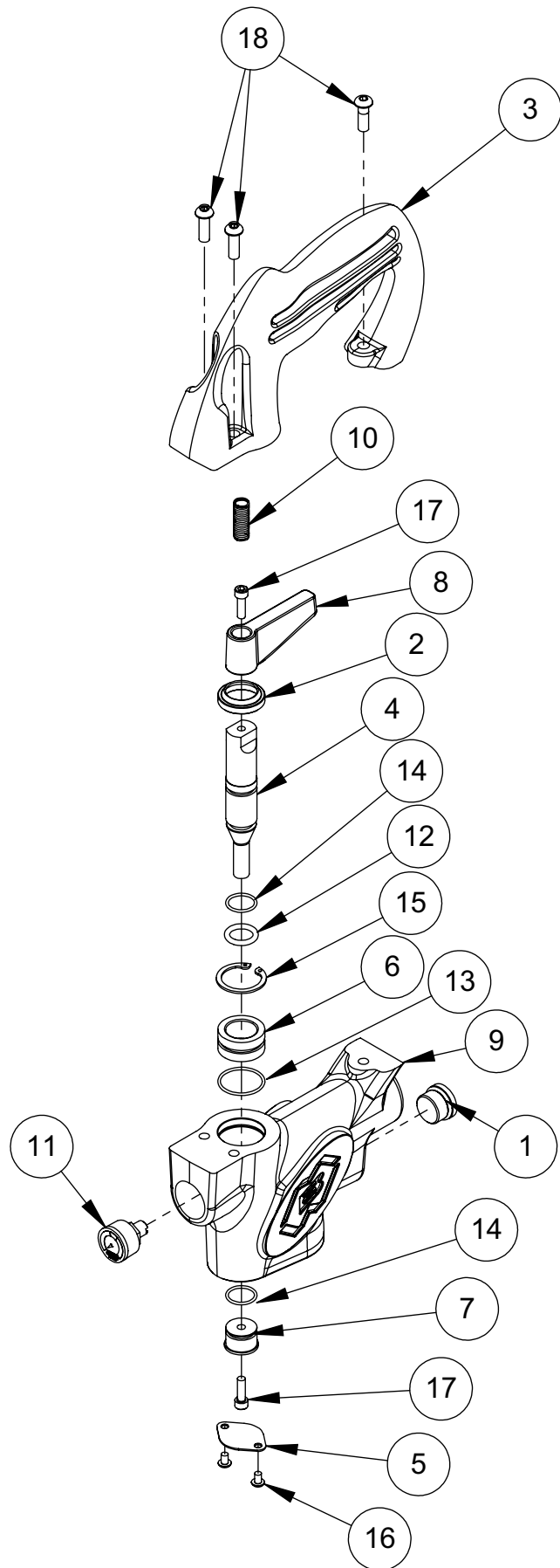
Phone: +33 (0) 3 44 07 15 96
Fax: +33 (0) 3 44 07 41 28



ACCESSORIES



Main Assembly



Handle Assembly

WARRANTY

WHAT DOES THIS WARRANTY COVER? MBW, Incorporated (MBW) warrants each New Machine against defects in material and workmanship for a period of twelve (12) months. "New Machine" means a machine shipped directly from MBW or authorized MBW dealer to the end user. This warranty commences on the first day the machine is sold, assigned to a rental fleet, or otherwise put to first use.

MBW warrants each Demonstration Machine against defects in material and workmanship for a period of six (6) months. "Demonstration Machine" means a machine used by MBW or its agents for promotional purposes. This warranty commences on the first day the machine is sold, assigned to a rental fleet, or otherwise put to first use.

This warranty covers the labor cost for replacement or repair of parts, components, or equipment on New Machines or Demonstration Machines, and MBW shall pay labor costs at MBW's prevailing rate to affect the warranted repair or replacement. MBW reserves the right to adjust labor claims on a claim-by-claim basis.

This warranty covers the shipping cost of replacement parts, components, or equipment via common ground carriers from MBW to an authorized MBW dealer. Air freight is considered only in cases where ground transportation is not practical.

MAY THIS WARRANTY BE TRANSFERRED? This warranty is non-transferable and only applies to the original end user of a new machine or demonstration machine.

WHAT DOES THIS WARRANTY NOT COVER?

1. This warranty does not cover any Used Equipment. "Used Equipment" means any MBW machine or equipment that is not a New Machine or a Demonstration Machine. All Used Equipment is sold **AS IS/WHERE IS WITH ALL FAULTS**.

2. This warranty does not cover any New Machine, Demonstration Machine, or their equipment, parts, or components altered or modified in any way without MBW's prior written consent. This warranty does not cover the use of parts not specifically approved by MBW for use on MBW products. This warranty does not cover misuse, neglect, shipping damage, accidents, acts of God, the operation of any New Machine or Demonstration Machine in any way other than recommended by MBW in accordance with its specifications, or any other circumstances beyond MBW's control. This warranty does not cover any New Machine or Demonstration Machine repaired by anyone other than MBW factory branches or authorized MBW distributors.

3. This warranty does not cover, and MBW affirmatively disclaims, liability for any damage or injury resulting directly or indirectly from design, materials, or operation of a New Machine or Demonstration Machine or any other MBW product. MBW's liability with respect to any breach of warranty shall be limited to the provisions of this document and in no event shall exceed an amount equal to the purchase price of the New Machine or Demonstration Machine purchased from MBW.

4. This warranty does not cover engines, motors, and other assemblies or components produced by other manufacturers and used on a New Machine or Demonstration Machine, as said engines, motors, and other assemblies or components may have warranties provided by the manufacturer thereof. This warranty does not apply to consumable items, such as v-belts, filters, trowel and screed blades, seals, shock mounts, batteries, and the like, all of which are sold **AS IS/WHERE IS WITH ALL FAULTS**.

5. This warranty does not cover the cost of transportation and other expenses which may be connected with warranty service but not specifically mentioned herein.

6. This warranty does not cover any updates to any New Machine, Demonstration Machine, or any other MBW product. MBW reserves the right to improve or make product changes without incurring any obligation to update, refit, or install the same on New Machines or Demonstration Machines previously sold.

WHAT MUST YOU DO TO OBTAIN WARRANTY COVERAGE? Each New Machine or Demonstration Machine is accompanied by a Warranty Registration Card. You must sign, date, and return the Warranty Registration Card to the place of origin of the New Machine or Demonstration Machine, either to MBW, Inc. at P.O. Box 440, Slinger, Wisconsin 53086, MBW (UK), Ltd. at Units 2 & 3 Cochrane Street, Bolton BL3 6BN, United Kingdom or MBW FRANCE SARL at ZA D'Outreville, 5 Rue Jean Baptiste Neron, Bornel 60540 France, within ten (10) days after purchase, assignment to a rental fleet, or first use. This signed warranty card is the buyer's affirmation that he has read, understood, and accepted the warranty at the time of purchase. Failure to return the warranty card as specified herein renders the warranty null and void. In order to receive warranty coverage consideration, warranty claims must be submitted within thirty (30) days after the New Machine or Demonstration Machine fails. Warranty claims must be submitted to MBW, Inc., MBW (UK), Ltd. or MBW FRANCE SARL, and written authorization for the return of merchandise or parts under the warranty must be obtained before shipment to MBW.

WHAT WILL MBW DO? MBW's obligation under this warranty is limited to the replacement or repair of parts for a New Machine or Demonstration Machine at MBW factory branches or at authorized MBW distributors, and such replacement or repair is the exclusive remedy provided hereunder. Labor must be performed at an authorized MBW distributor. MBW reserves the right to inspect and render a final decision on each warranty case, and MBW's repair or replacement is solely within the discretion of MBW.

IT IS EXPRESSLY AGREED THAT THIS SHALL BE THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY. UNDER NO CIRCUMSTANCES SHALL MBW BE LIABLE FOR ANY COSTS, LOSS, EXPENSE, DAMAGES, SPECIAL DAMAGES, INCIDENTAL DAMAGES, OR PUNITIVE DAMAGES ARISING DIRECTLY OR INDIRECTLY FROM THE USE OF THE NEW MACHINE OR DEMONSTRATION MACHINE WHETHER BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR ANY OTHER LEGAL THEORY.

THE FOREGOING WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR USE, AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER OBLIGATIONS OR LIABILITY ON MBW'S PART. MBW NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME ON BEHALF OF MBW ANY OTHER LIABILITY OR WARRANTY IN CONNECTION WITH THE SALE OR SERVICE OF ANY NEW MACHINE, DEMONSTRATION MACHINE, OR ANY OTHER MBW PRODUCT.

EXTENDED RAMMER WARRANTY - MODELS R422, R442, R482 & R483.

This extended warranty commences on the last day of MBW's standard, one year, "limited warranty" and runs for an additional four years (48 months). This extended warranty is limited to part replacement and shipping costs of rammer **bellows and non-metallic slide bearings only**. This extended warranty does not cover labor, down time, or any other cost beyond that of component replacement and freight. This extended warranty is subject to all limitations set fourth in MBW's "limited warranty", above.