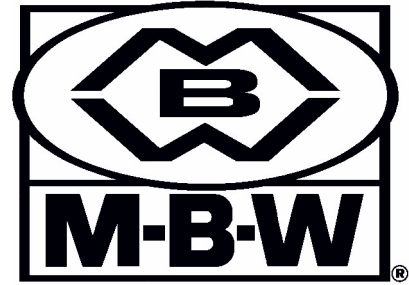


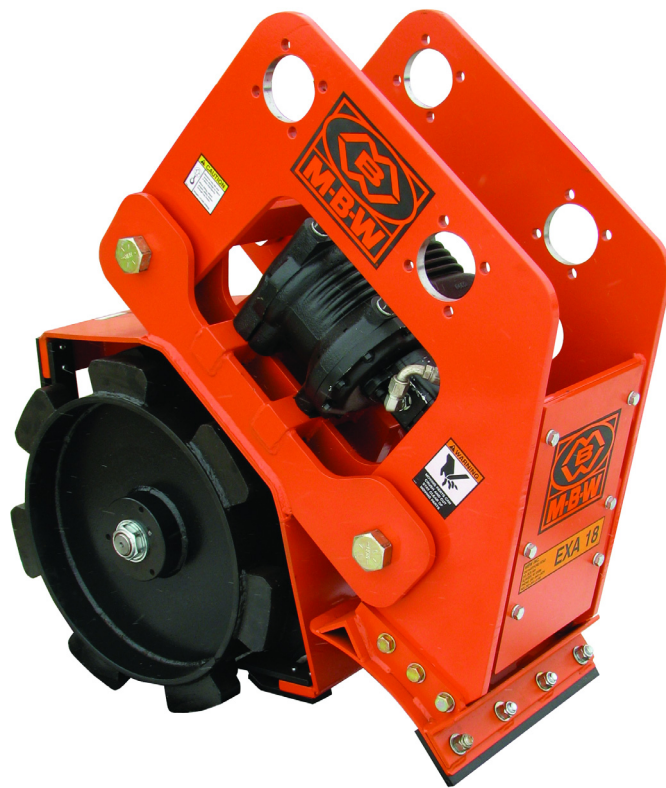
OPERATOR'S SAFETY AND SERVICE MANUAL



EXA ROLLERS

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

EXA18 / EXAL18 4030065



BOOM MOUNTED VIBRATORY WHEELS

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WARNING



CALIFORNIA PROPOSITION 65 WARNING

Engine exhaust and some of its constituents are known in the state of California to cause cancer, birth defects, and other reproductive harm.

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).

OPERATING INSTRUCTIONS

1. Back Pressure in return lines MUST NOT EXCEED 200 PSI.
2. Hydraulic Requirements:
Pressure 1500–3000 psi
Volume 10–40 GPM
3. Check for loose hardware after every 20 hours of operation.
4. Do not run exciter when attachment is not in contact with backfill.
5. Not recommended for use on excavators over 20,000 lbs.

15861

10861

MBW INC.
250 HARTFORD ROAD
P.O. BOX 440
SLINGER, WI 53086
PHONE: 262-644-5234
FAX: 262-644-5169

EXAPTL 18

15860



09867 *

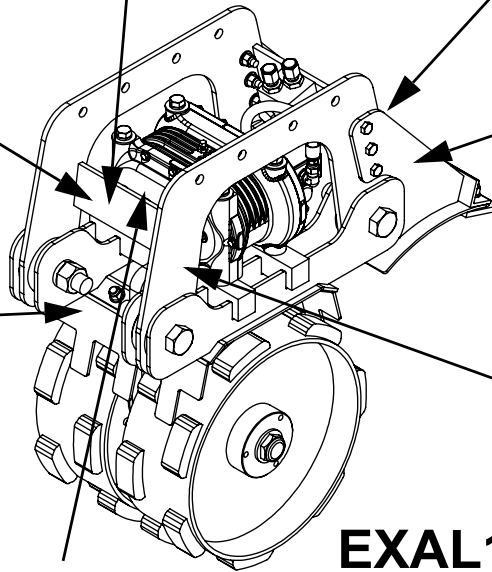


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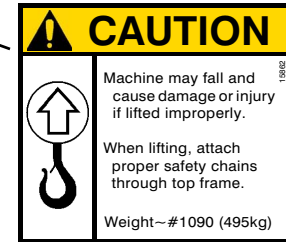
U.S. PATENT 5,244,306
U.S. PATENTS PENDING

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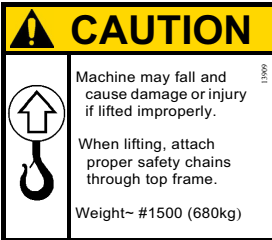
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EXAL18



15862



13909



09311*

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SLINGER, WI 53086
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EXA 18

13718

13718

U.S. PATENT 5,244,306
U.S. PATENTS PENDING

13066

13066



09867*

OPERATING INSTRUCTIONS

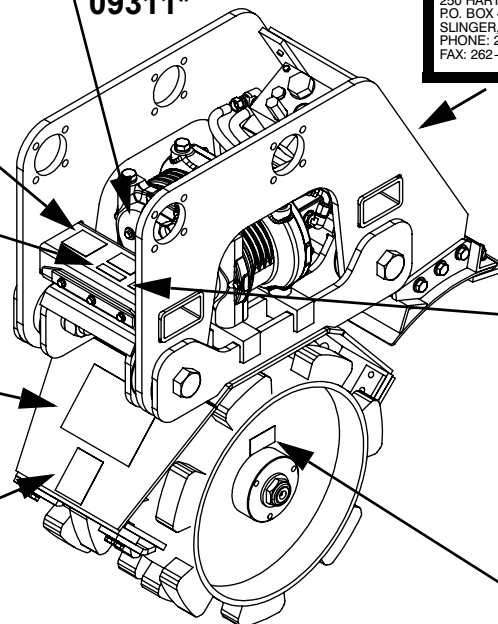
1. Back Pressure in return lines MUST NOT EXCEED 200 PSI.
2. Hydraulic Requirements:
Pressure 1500–3000 psi
Volume 10–40 GPM
3. Check for loose hardware after every 20 hours of operation.
4. Do not run exciter when attachment is not in contact with backfill.
5. Not recommended for use on excavators over 50,000 lbs.

13719

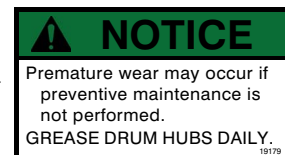
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13019



EXA18

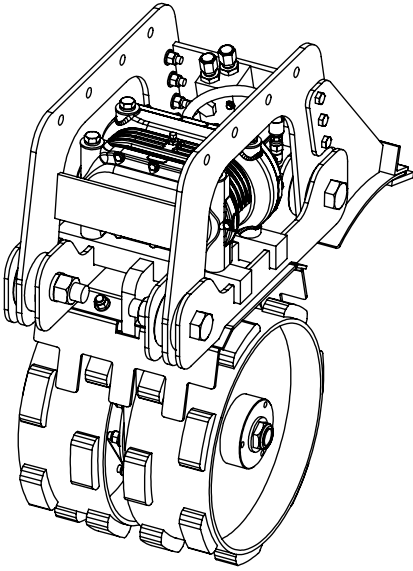


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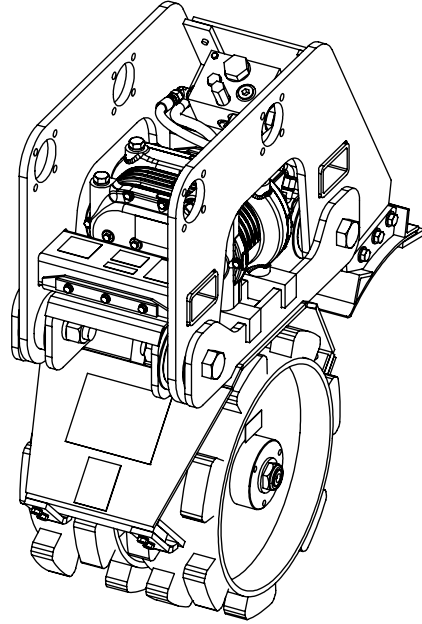
Safety Decals (Decal Set #13047)

*NOT IN DECAL SET

SPECIFICATIONS



EXAL18 FLAT TOP



EXA18 PIN MOUNT

	EXAL18	EXA18
Static Weight	1090 LBS (553 KG)	1515 LBS (687 KG)
Working Width	18" (46 cm)	
Drum Diameter	25" (64 cm)	
Length	41" (104 cm)	43" (110 cm)
Height	47" (119 cm)	48" (122 cm)
Exciter Speed	2600 vpm	2600 vpm
Centrifugal force	5800 lbf(26kN)	
Compaction Depth	24" (610 cm)	
Hydraulic requirements:		
Minimum Pressure:	1500 psi	
Volume:	10-40gpm (38-190 Lpm)	10-70 gpm (38-265 Lpm)

Specifications subject to change without notice

OPERATION

Introduction

MBW equipment is intended for use in very severe applications. They are powered by four cycle engines and are available in different sizes and a selection of engines.

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.
- OIL LEVEL - Check the oil level in the engine. For more information see "Lubrication" under the respective engine's "Owners Manual" or the Maintenance section of this manual.
- AIR CLEANER - Check to ensure element is in good condition and properly installed.
- FUEL SUPPLY - The engines on MBW equipment require an automotive grade of clean, fresh, unleaded gasoline.

- FUEL FILTER - If clogged or damaged, replace.

Operating

1. Do not run exciter when roller attachment is not in contact with the ground.
2. The EXA attachments are not recommended for excavators exceeding 45,000 lbs. (18,000 lbs for EXAL18)
3. See Specifications, page 3, for hydraulic requirements
4. Do not apply excessive down force when compacting soil.
5. Ensure host machine has adequate lifting capacity to handle the weight of the roller. Refer to Specifications, page 3. for attachment weights.



CAUTION



Back pressure in return line must not exceed 200 PSI. Excessive back pressure can damage hydraulic motor.



WARNING



Always stop the engine before:

Adding fuel.

Leaving the equipment unattended for any amount of time.

Before making any repairs or adjustments to the machine.

MAINTENANCE



WARNING



Always exercise the stopping procedure before servicing or lubricating the unit.

After servicing the unit, replace and fasten all guards, shields, and covers to their original positions before resuming operation.



CAUTION



Always verify fluid levels and check for leaks after changing fluids.

Do not drain oil onto ground, into open streams, or down sewage drains.

Maintenance Schedule

SYSTEM	MAINTENANCE	Daily	EVERY 50 HOURS	EVERY 250 HOURS	YEARLY
Drum hubs	Grease	X			
Exciter	Check oil level		X		
	Check for oil leaks	X			
	Change oil			X	X
	Tighten Bolts ¹		X		X
Hardware	Check and tighten as needed ¹		X		X
Shockmounts	Check for cracks or tears		X		X

1. Check all hardware after the first 5 hours of use, then follow the maintenance schedule.

Fluid Levels

SYSTEM	FLUID VOLUME	RECOMMENDED OIL
Exciter	17 oz	MBW Ground Pounder [®] Exciter Oil ¹
Engine	Refer to engine operator/owner manual	

1. MBW #01058---- 6-Pack (8 oz bottles)
MBW #17320---- 1 quart (32 oz)

Changing Exciter Oil

Refer to Exciter, page 14.

- Support the roller over a drain pan and remove the drain plug (#22)
- Reinstall the drain plug with thread sealing compound.
- Clean the area around the vent adapter (#17) and remove it.
- Made sure exciter is level and fill oil specified in Fluid level chart.

- Reinstall vent adapter and vent plug with thread sealing compound.

Replacing Shockmounts

- Remove the unit from the excavator, support blade with blocks, and chock the wheel so the attachment is secure, stable, and upright.
- Remove the four 1-1/2" bolts securing the upper and lower weldments of the machine.
- Separate the halves of the Machine with a suitable lifting device, taking care not to overstrain the hydraulic hoses.

4. Remove the old shock mounts by pressing them out. A small hydraulic jack works best.

5. Lubricate the new mount and inner surface of frame. Be sure to completely cover both surfaces.

Note: Lubricate with a liquid soap or rubber lubricant. Use of grease or oil may damage the rubber.

6. Assemble the components of the tool, shock mount, and EXA frame as shown in figure 1.
7. Tighten the nut against the shockmount until it is fully seated against the step on the back plate.

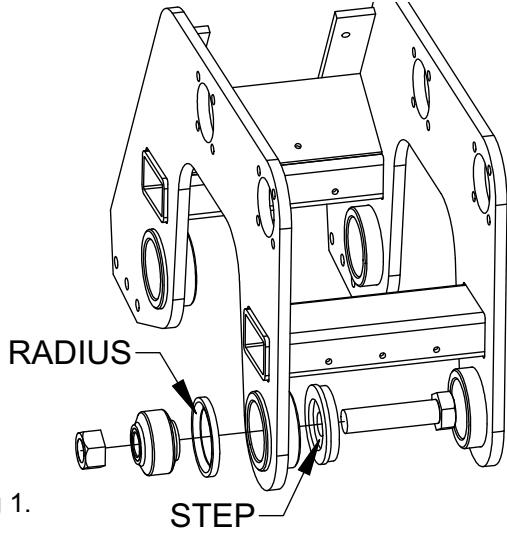


Fig 1.

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
16163	Torsion mount install tool
16184	Rubber lubricant (included with 16163)
00709	Exciter shim, .005"
09379	Drum Puller

Exciter Disassembly

Refer to Exciter, page 14.

1. Drain exciter oil by removing both plugs (#22) and slightly tipping exciter assembly towards the plugs.
2. Remove both socket head cap screws (#24) securing hydraulic motor (#18). Remove motor.
3. Remove 14 bolts (#25) securing cover (#9) to exciter housing and remove cover.
4. Remove both snap rings (#19) and slide gears (#12 & #10) off.
5. Remove 8 bolts (#25) securing cover (#8) to exciter housing, Remove cover.

Note: If removing bearings from shaft assemblies or housing, bearings MUST be replaced.

6. Press both exciter shafts (#20) out of housing (#7), use care not to damage shaft splines.
7. Remove snap rings (#1) and press both bearings (#6) from housing (#7).
8. (A puller will be required to do this step) Remove snap rings (#6) from both exciter shafts (#20) and remove inner races.
9. Remove both snap ring (#1) securing bearings (#4) in cover (#8). Remove 4 bolts and washers (#23).
10. Support cover (#8) and use a brass punch to tap out bearings (#4) alternate from side to side of each bearing to eliminate binding of the bearing.

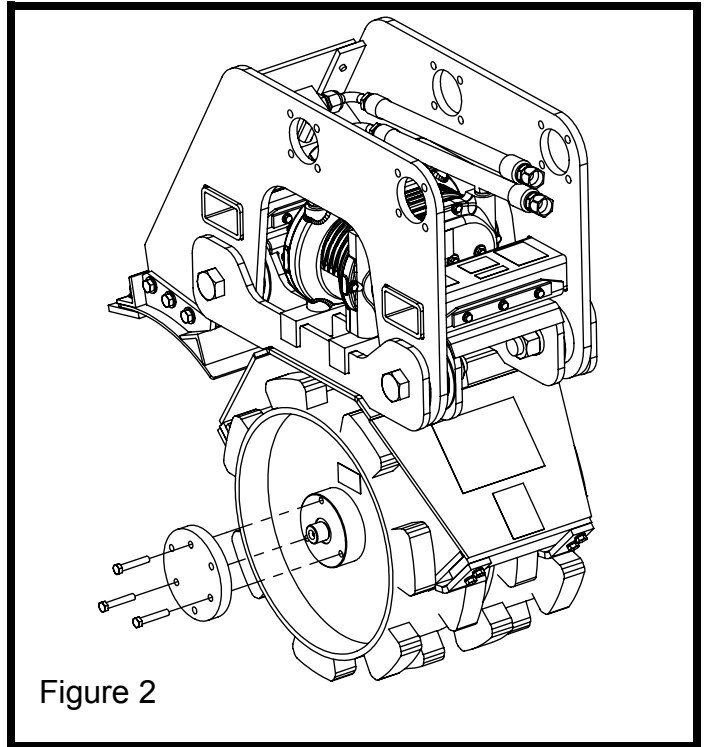
Exciter Assembly

Refer to Exciter Assembly, page 12.

1. Press inner race of bearing (#4) onto exciter shaft (#20) and install snap ring (#6). Repeat procedure on second exciter shaft.
2. Press remaining portion of bearing (#4) into cover (#8) and install snap ring (#1). Repeat procedure on second bearing.
3. Press both bearings (#5) into housing (#7) and install snap rings (#1).

4. Supporting inner race of bearing (#5) that is already in housing (#7), press exciter shaft (#20) into the bearing, repeat procedure on second exciter shaft. If the inner race of the bearing (#5) is not supported properly, the bearing can be damaged.
5. Apply GasketMaker type sealant onto gearbox housing (#7). Make sure all 4 dowel pins (#15) are in place and install cover (#8). Secure cover with bolts (#25) and torque to 23 ft/lbs. Check and see that both shafts rotate freely.
6. With the exciter housing sitting as shown, both exciters shafts should be in a position with the heavy side down. Install gears over the shafts without rotating the shafts and install snap rings (#19).
7. Install gasket (#14) and cover (#9) onto housing (#7). Ensure dowel pins (#3) are in place, secure cover with bolts (#25), and torque to 23 ft/lbs.
8. Apply GasketMaker type sealant and install motor (#18). Secure with socket head cap screws and lock washer (#21, #24).
9. Install plugs (#22) and fill with 17oz of exciter oil, install fill plug (#17)

2. Remove the elastic lock nut, washer, and scraper bars from the machine.
3. Clean the threaded holes in the drum and assemble the tool as shown in Figure 2.
4. Tighten the bolts in sequence until the drum is unseated from the axle.



Drum Removal

1. Support unit from upper frame assembly a small distance off the ground.

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.

REPLACEMENT PARTS

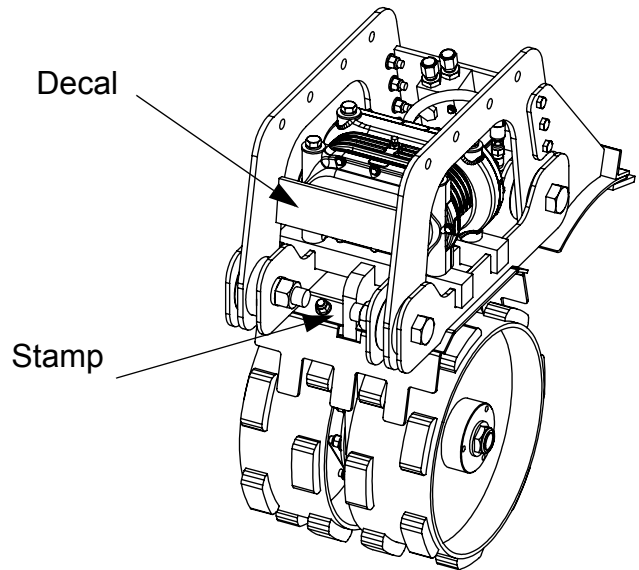
The warranty is stated in this book on page 18. Failure to return the Warranty Registration Card renders the warranty null and void.

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:

- Stamped into center web of bottom frame
- Decal on upper frame.

Write Model Number here

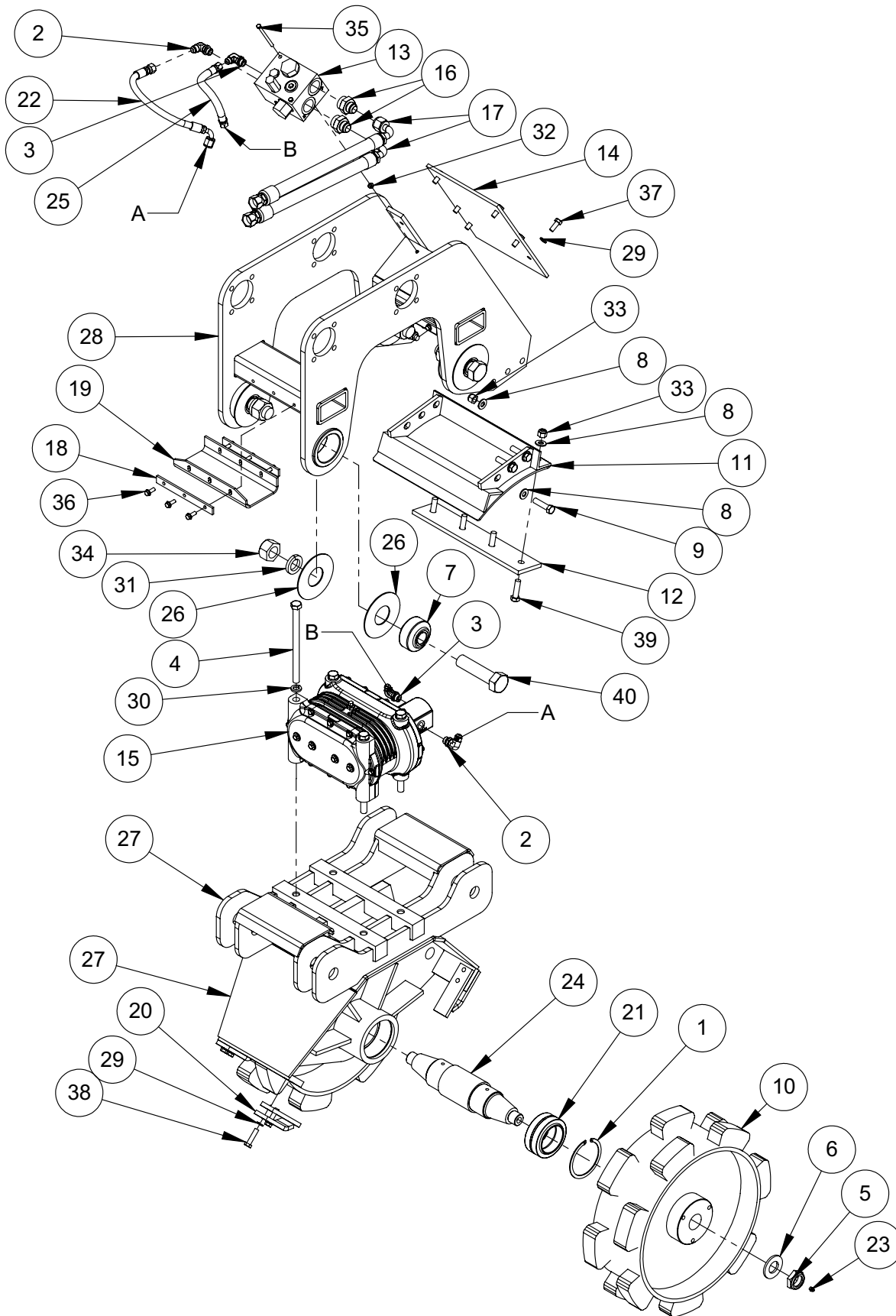
Write Serial Number here

Contact Information

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Fax: (262) 644-5169
Email: mbw@mbw.com
Website: www.mbw.com

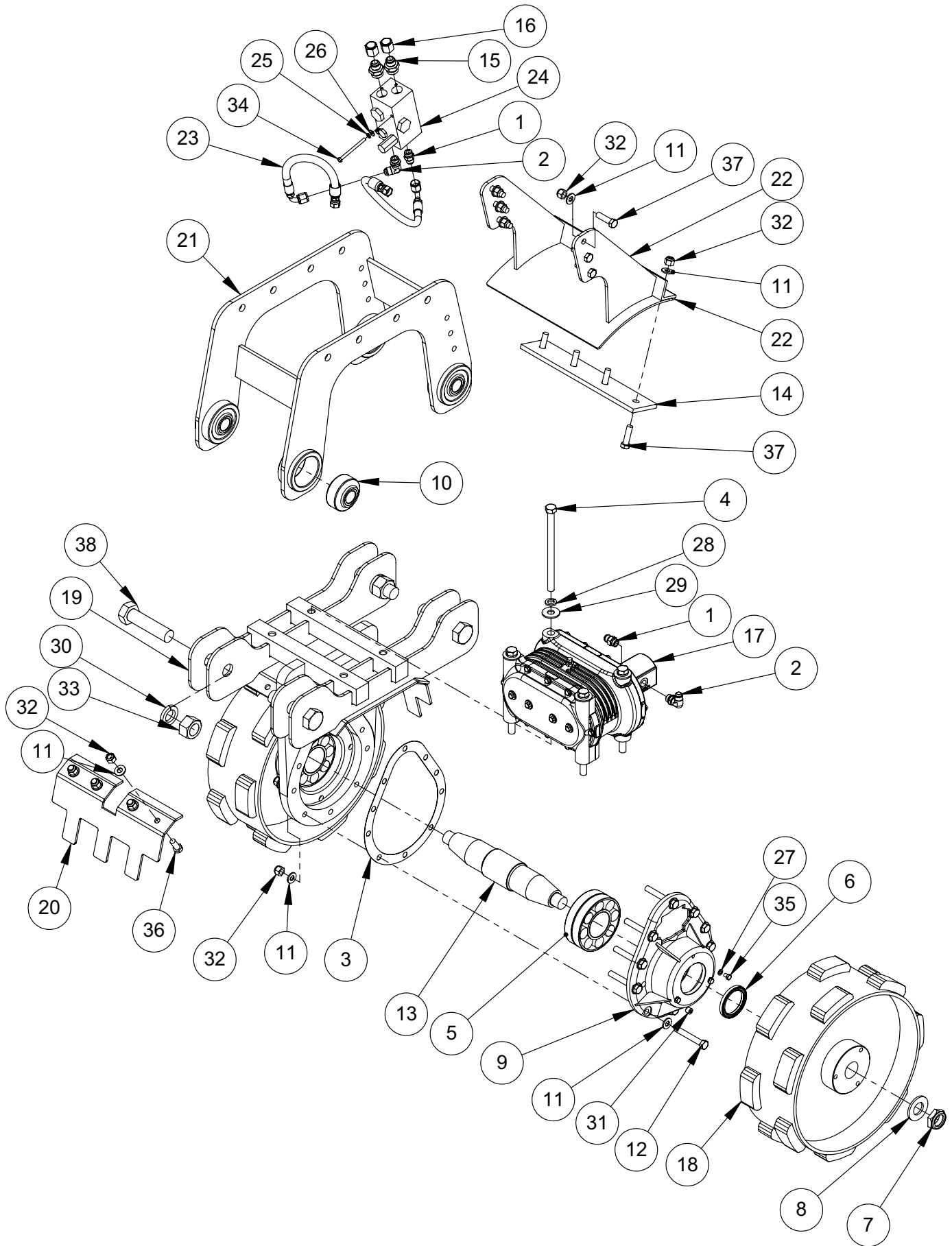
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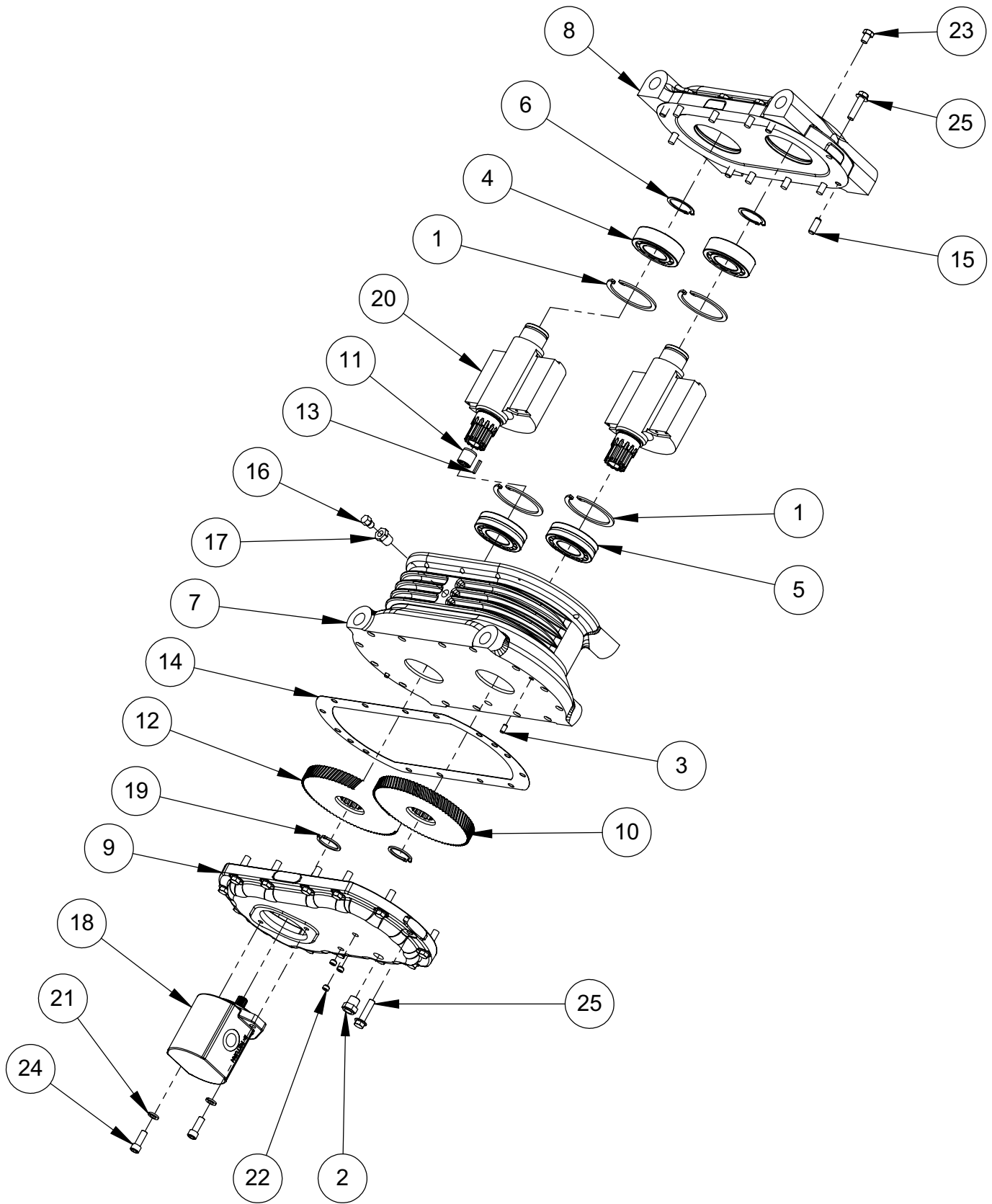
EXA18 Main Assembly

ITEM	PART NO.	DESCRIPTION	QTY
1.	08025	RETAINING RING, INT N5000-500	2
2.	08226	FITTING, ELBOW	2
3.	08730	FITTING, ELBOW	2
4.	09750	HHCS, 3/4-16 X 11	4
5.	09935	NUT, STOP ELASTIC, THIN 1-1/2-12	2
6.	09936	WASHER	2
7.	12681	MOUNT, TORSION	4
8.	13451	WASHER, 5/8 STRUCTUAL	16
9.	13454	HHCS, 5/8-18 X 2-1/2	6
10.	13633	DRUM, 18" PADDED	2
11.	13638	BLADE, 18" EXA	1
12.	13644	BLADE, SCRAPER, 18"	1
13.	20446	VALVE, FLOW REG, EXA18	1
14.	13901	COVER, FRONT EXA	1
15.	13911	EXCITER, EXA18	1
16.	14817	FITTING,	2
17.	18845	HOSE, 1 x 18, SHORT ELBOW	2
18.	18812	STRIP, CLAMPING	4
19.	18817	MAT, RUBBER	2
20.	18837	SCRAPER TOOTH, WELDED, 2.0	4
21.	19290	BEARING, SPHERICAL PLAIN	2
22.	20807	HOSE, HYDRAULIC	1
23.	20809	GREASE FITTING, 1/8 NPT	2
24.	20810	AXLE, EXA18	1
25.	20811	HOSE, HYDRUALIC RETURN	1
26.	20812	WEAR SHIM	8
27.	20813	LOWER FRAME, EXA18	1
28.	20820	FRAME, UPPER EXA (PIN MOUNT)	1
29.	20445 F08LW	FRAME, UPPER EXA (FLAT TOP) LOCKWASHER, 1/2	1 14
30.	F12LW	LOCKWASHER, 3/4	4
31.	F24LW	LOCKWASHER, 1-1/2	4
32.	F0518FN	NUT, FLANGE WHIZ-LOCK 5/16-18	2
33.	F1018ELN	LOCKNUT, 5/8-18 NYLOC	10
34.	F2406HN	NUT, HEX 1-1/2-6	4
35.	F051836HCS	HHCS, 5/16-18 X 4-1/2	2
36.	F061608FWS	FWLS, 3/8-16 X 1	12
37.	F081310HCS	HHCS, 1/2-13 X 1-1/4	6
38.	F081316	HHCS, 1/2-13 X 2	8
39.	F101818	HHCS, 5/8-18 X 2-1/4	4
40.	F240648HCS	HHCS, 1-1/2-6 X 6	4



EXAL18 Main Assembly

ITEM	PART NO.	DESCRIPTION	QTY FLAT TOP	QTY PIN MOUNT
1.	08209	FITTING, ST PARKER	2	2
2.	08226	FITTING, ELBOW 1/2"	2	2
3.	08764	GASKET, GEARCASE	2	2
4.	09750	HHCS, 3/4-16 X 11 GR8	4	4
5.	09928	BEARING, SPH ROLLER	2	2
6.	09929	SEAL	2	2
7.	09935	NUT, STOP ELASTIC THIN 1 1/2-12	2	2
8.	09936	WASHER	2	2
9.	09994	HOUSING, LEFT GEAR	2	2
10.	12681	MOUNT, TORSION	4	4
11.	13451	WASHER, 5/8, A325	38	38
12.	13455	HHCS, 5/8-18 X 4-1/4 GR8	10	10
13.	13632	SHAFT, MAIN	1	1
14.	13644	BLADE, SCRAPER, 18"	1	1
15.	14747	FITTING, STRAIGHT	2	2
16.	14748	FITTING, CAP	2	2
17.	15708	EXCITER, EXA18L	1	1
18.	15709	DRUM, WELDMENT, 18"	2	2
19.	15713	FRAME, LOWER EXAL18	1	1
20.	15716	SCRAPER BAR, EXAL18	2	2
21.	15720	FRAME, UPPER EXAL18 (FLAT TOP)	1	
	16131	FRAME, UPPER EXAL18 (BUSHING)		1
22.	15989	WELDMENT, BLADE 18" EXAL18	1	1
23.	16017	HOSE, HYDRUALIC 1/2 X 13.5	2	2
24.	18107	VALVE, COMBINATION	1	1
25.	F05LW	LOCKWASHER, 5/16 ZP	2	2
26.	F05SW	WASHER, 5/16 X 3/4 X 15GA	2	2
27.	F06LW	LOCKWASHER, 3/8	6	6
28.	F12LW	LOCKWASHER, 3/4	4	4
29.	F12SW	WASHER, 13/16 X 2 X 9GA	4	4
30.	F24LW	LOCKWASHER1 1/2	4	4
31.	F0618SPP	PLUG, PIPE 3/8-16	4	4
32.	F1018ELN	LOCKNUT, 5/8-18	28	28
33.	F2406HN	NUT, HEX 1 1/2 -6	4	4
34.	F051832HCS	HHCS, 5/16-18 X 4	2	2
35.	F061604HCS	HHCS, 3/8-16 X 1/2	6	6
36.	F101812HCS	HHCS, 5/8-18 X 1-1/2	8	8
37.	F101818HCS	HHCS, 5/8-18 X 2-1/4	10	10
38.	F240648HCS	HHCS, 1 1/2-6 X 6	4	4



Exciter

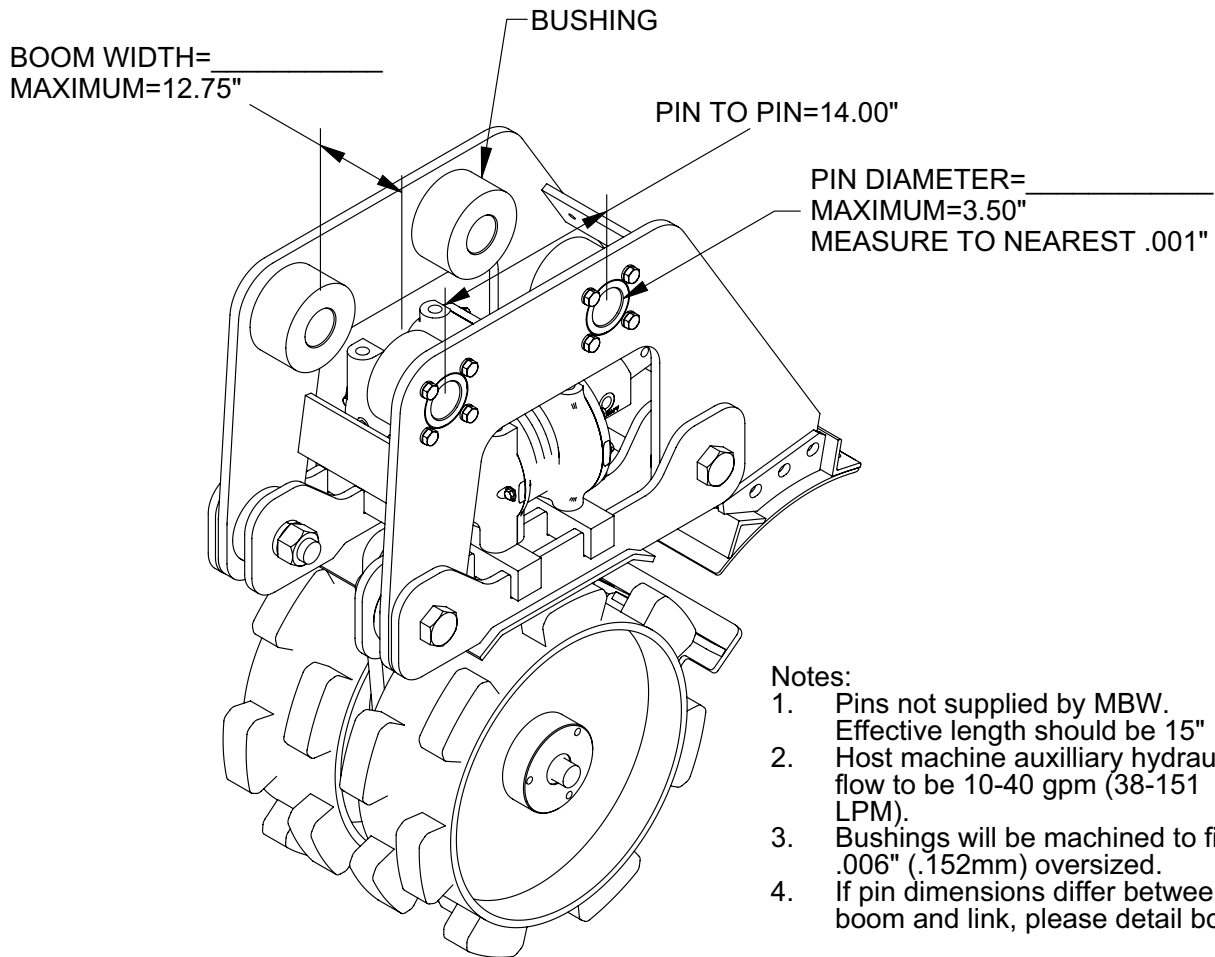
ITEM	PART NO.	DESCRIPTION	EXA18	EXA18L
1.	01000	RETAINING RING, INT. 5000-315	4	4
2.	06457	GAGE, VIEW	1	1
3.	07203	PIN, DOWEL 1/4 X 1/2	2	2
4.	07456	BEARING, ROLLER 80 X 40	2	2
5.	07458	BEARING, SPHERICAL ROLLER	2	2
6.	07469	RETAINING RING, EXT. 5108-156	2	2
7.	09451	COVER, MACHINED, EXCITER	1	0
	15704	COVER, MAIN EXCITER, REAR (ALUM)	0	1
8.	09453	COVER, MACHINED, REAR	1	0
	15706	COVER, EXCITER, REAR (ALUM)	0	1
9.	09455	COVER, FRONT	1	1
10.	09457	GEAR, DRIVE, LEFT	1	1
11.	09463	SPLINE, EXICTER SHAFT	1	1
12.	09485	GEAR, DRIVE, RIGHT	1	1
13.	09739	KEY, 1/8 SQ X .875	1	1
14.	09741	GASKET, COVER FRONT	1	1
15.	09745	PIN, DOWEL 3/8 X 1	4	4
16.	09749	PLUG, BREATHER	1	1
17.	14152	REDUCER	1	1
18.	14267	MOTOR, HYD. CASSAPPA HIGH PRESSURE	1	1
19.	19930	RETAINING RING, EXT. 1.375	2	2
20.	19942	SHAFT, EXCITER	2	2
21.	F06LW	LOCKWASHER, 3/8	2	2
22.	F0227SPP	SOCKET PIPE PLUG	3	3
23.	F061604HCS	HHCS, 3/8-16 X 1	4	4
24.	F061608SCS	SCS, 3/8-16 X 1	2	2
25.	F061612FWS	FWLS, 3/8-16 X 1-1/2	22	22
	13911	EXCITER ASM, EXA18	1	
	15708	EXCITER ASM, EXA18L		1



EXA 18 PIN MOUNT

The MBW bushing system will adapt to the majority of excavators. Variations in pin diameter and boom width are accommodated with special bushings shown below. Center to Center distances are always set to 14" (14 1/4" for EXA18L).

Applications that fall outside of any of the limitations shown below may necessitate the use of a 'flat-top' unit with custom hammer-type adaptor.



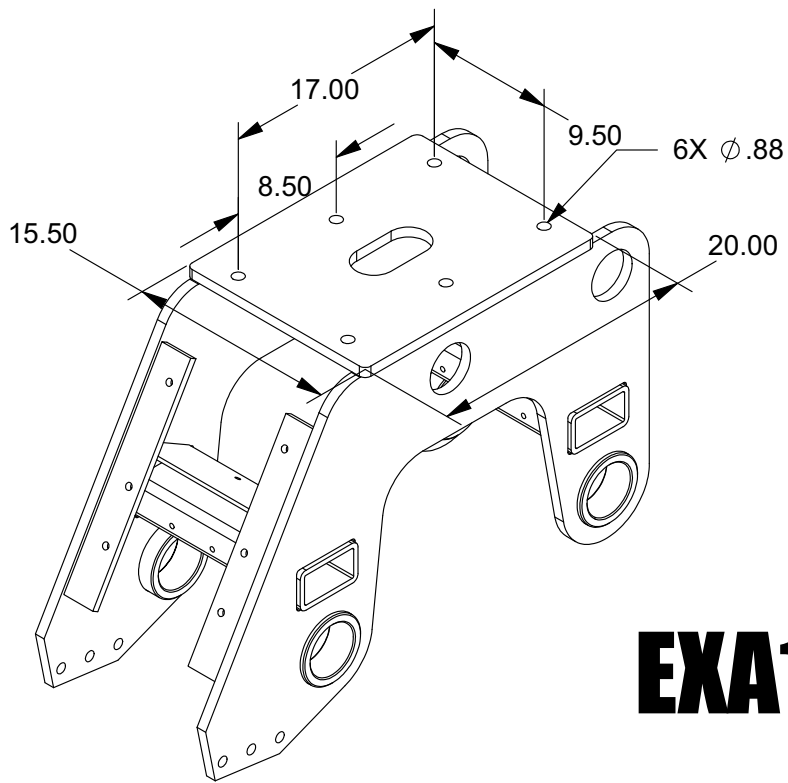
Company: _____

Contact name: _____

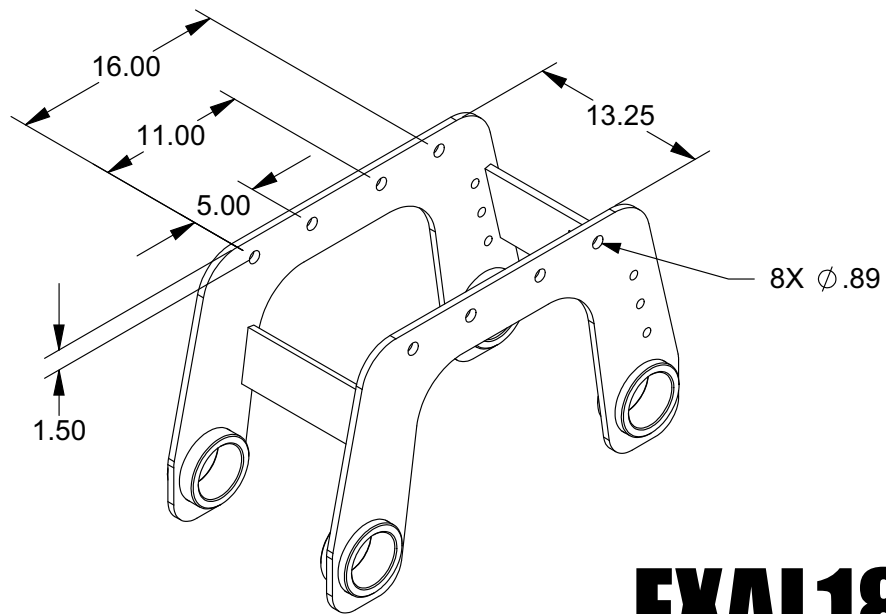
Phone: _____

Email: _____

EXA Pin Mount Order Form



EXA18



EXAL18

Flat Top Dimensions

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 forth in MBW's "limited warranty", above.