

# OPERATOR'S SAFETY AND SERVICE MANUAL



## F36/4 F46/4

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

F36/4 . . . . . 1726142  
F46/4 . . . . . 1725227



## WALK-BEHIND TROWELS

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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.



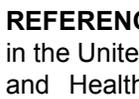
**FOOT PROTECTION:** Wear OSHA specified steel-tipped safety shoes.



**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).


**WARNING** Start engine at idle only!  
 NEVER place foot on guard ring.

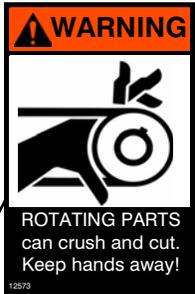
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01260



12267



12573

**M-B-W INC.**

02355

U.S. PATENT 4,027,991

05950



01449



01064

**M-B-W INC.**

02355

U.S. PATENT 4,027,991

05950



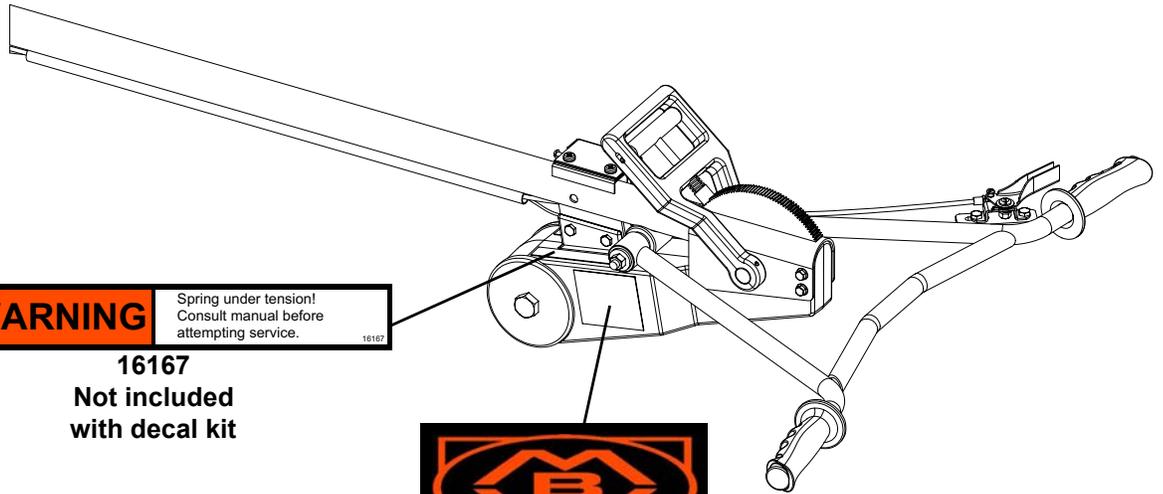
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**OPERATING INSTRUCTIONS**

1. READ OWNER'S MANUAL before attempting to start or operate this machine.
2. Check engine oil and trowel gearbox oil.
3. Open fuel valve; put engine switch to on.
4. Put "SAFETY SWITCH" in "ON" position; set throttle at idle position.
5. Choke engine. A warm engine may not need to be choked.
6. When starting engine place one hand on trowel handle and other hand on engine starter rope. NEVER place foot on guard ring.
7. Pull starter rope.
8. After starting: open choke and allow engine to warm up at idle.
9. Position throttle for various operating conditions.
10. TO STOP: Return throttle to idle position; put "SAFETY SWITCH" in "OFF" position. Close fuel valve.

13485

Safety Decals (Decal Kit #01611)

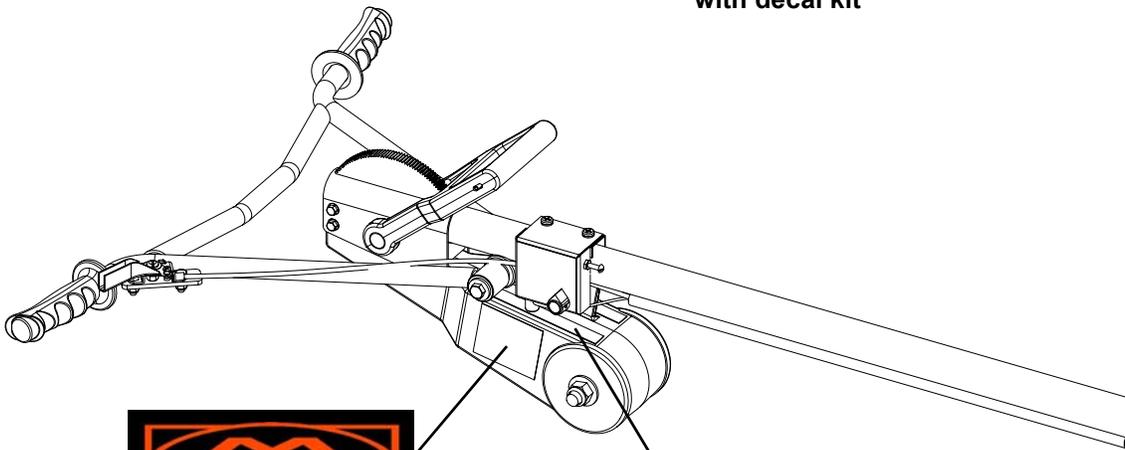


**WARNING** Spring under tension!  
Consult manual before attempting service.

**16167**  
Not included  
with decal kit



**16168**  
Not included  
with decal kit



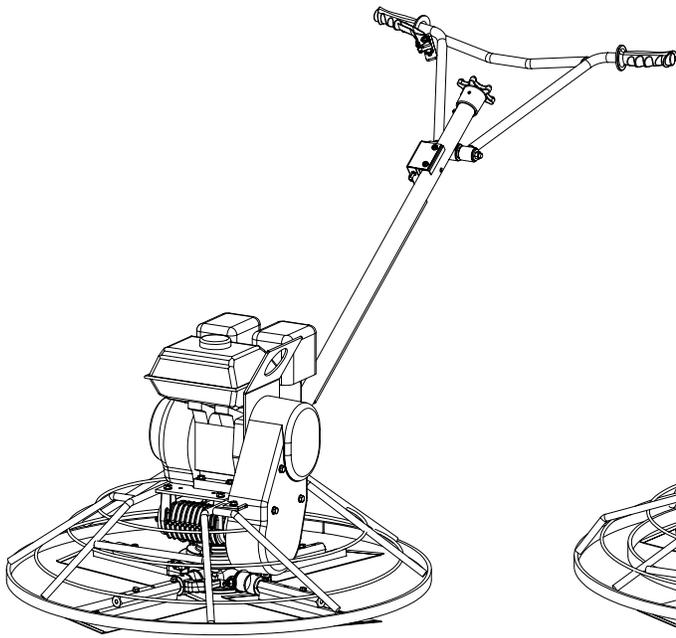
**16168**  
Not included  
with decal kit

**WARNING** Spring under tension!  
Consult manual before attempting service.

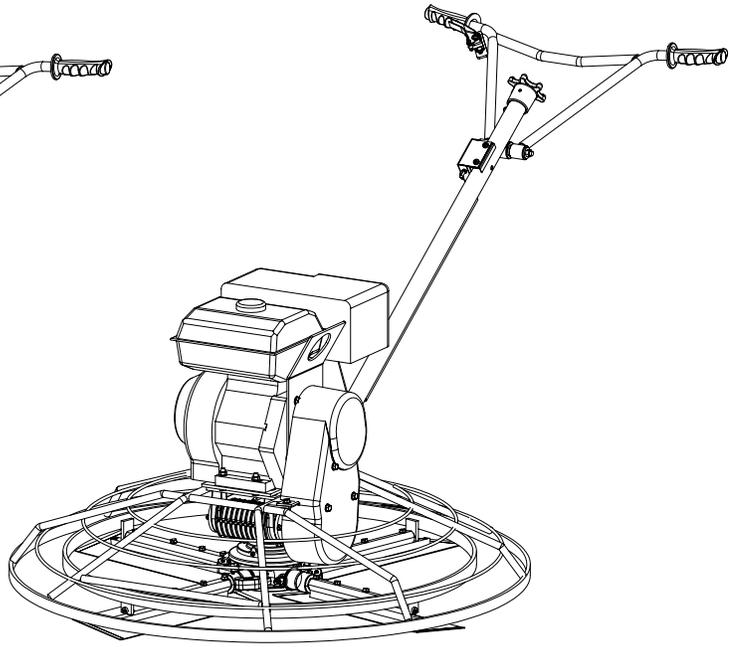
**16167**  
Not included  
with decal kit

### Safety Decals - Constant Force Pitch Handle

# SPECIFICATIONS



**F36/4**



**F46/4**

	<b>F36/4</b>	<b>F46/4</b>	<b>F46/4HD</b>
<b>Ring Size</b>	36 in	46 in	46 in
<b>Gas Engines</b>	GX160 Honda (9.9 in <sup>3</sup> /163cc) GX270 Honda (16.5 in <sup>3</sup> /270cc) 6 hp Robin 7 hp Robin	GX270 Honda (16.5 in <sup>3</sup> /270cc) GX390 Honda (23.7 in <sup>3</sup> /389cc) 7 hp Robin	GX390 Honda (23.7 in <sup>3</sup> /389cc)
<b>Engine Speed</b>	3400 rpm	3400 rpm	3400 rpm
<b>Trowel Speed</b>	70 - 135 rpm	70 - 135 rpm	70 - 135 rpm
<b>Weight</b>	166 lbs (74 kg) [GX160] 194 lbs (86 kg) [GX270] 165 lbs (77 kg) [6 hp] 167 lbs (84 kg) [7 hp]	230 lbs (102 kg) [GX270] 243 lbs (108 kg) [GX390] 203 lbs (100 kg) [7 hp]	293 lbs (129 kg)
<b>Noise Level<sup>1</sup></b>	85 - 105 dBA	85 - 105 dBA	85 - 105 dBA

Specifications subject to change without notice

1. Noise levels are based on operating conditions and will vary with background noise

# OPERATION

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## 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.
- **NEW TROWELS** - After assembling the handle, inspect the throttle connections and confirm the remote throttle is actuating the engine throttle properly and all controls function properly.
- **FUEL SUPPLY** - The engines on MBW Power Trowels require a good grade of unleaded automotive gasoline. See the engine owner's manual for specific details.
- **ENGINE OIL** - Check the oil level in the engine. Refer to the Lubrication section of the engine owner's manual.
- **GEARBOX OIL** - Check the oil level in the trowel gearbox. Refer to the Maintenance section of this manual.
- **AIR CLEANER** - Check to make sure the element is in good condition and properly installed.
- **FUEL FILTER** - Check to make sure the element is in good condition and properly installed. Replace element if it is clogged or damaged.

## Starting Engine

1. Open fuel valve.
2. Turn engine switch to "ON".
3. Turn trowel safety switch to "ON".

4. Set throttle to idle.
5. Choke engine if necessary (you may not need to choke a warm engine).
6. Place one hand on the trowel handle and the other on the starter rope. Pull starter rope repeatedly until engine starts.



### **WARNING**



**NEVER place foot inside the guard ring when starting.**

7. Move choke lever to open position.
8. Allow engine to warm up for one or two minutes.

## Operating

1. Increase throttle to engage the clutch.
2. Set throttle to desired position to achieve the appropriate trowel blade speed.
3. To move forward, push down on the right handle grip and pull up on the left handle grip.
4. To move backward, pull up on the right handle grip and push down on the left handle grip.
5. To move left, pull up on both handle grips.
6. To move right, push down on both handle grips.

## Blade Pitch Adjustment (Standard)

1. To increase the pitch, rotate the tilt knob clockwise.
2. To decrease the pitch, rotate the tilt knob counterclockwise.

## Blade Pitch Adjustment (Constant Force)

1. To increase the pitch, squeeze the trigger and pull the lever towards you.
2. To decrease the pitch, squeeze the trigger and push the lever away from you.

## Handle Bar Adjustment

1. Loosen bolt securing the handle bar to trowel handle.
2. Move handle bar to desired position.
3. Tighten bolt to lock handle.

## Stopping Engine

1. Move throttle to idle position.
2. Turn trowel safety switch to "OFF".

3. Close the fuel valve.



**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.**

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# 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

MAINTENANCE	10 HOURS OR DAILY	50 HOURS OR WEEKLY	100 HOURS OR MONTHLY	500 HOURS OR YEARLY
Grease yoke plate	X			
Grease spider	X			
Change gearbox oil				X
Check gearbox oil	X			
Inspect drive belt		X		
Check and tighten all hardware <sup>1</sup>			X	

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

## Fluid Levels

SYSTEM	FLUID VOLUME	RECOMMENDED OIL
Gearbox Oil	21 oz. (620 ml)	#680 140wt Sulfer Free (MBW #05700)
Engine	Refer to engine operator/owner manual	

## Engine Maintenance

Refer to the engine owner's manual for maintenance intervals and procedures.

## Engine Oil

Refer to the engine owner's manual for recommended oil change intervals.



## WARNING



Never change the oil when engine is hot. Always wear protective gloves when working with engine oil.

To drain the oil, lift and tip the trowel forward onto the guard ring using the trowel handle. Place a drain pan underneath the engine and remove the drain plug. After the oil has finished draining, reinstall the plug and clean any spilled oil from the trowel.

## Engine Speed

The engine speed is factory preset according to the Specifications section. Do not tamper with the governor settings. The governor establishes safe operating limits. These limits must not be exceeded.

## Cleaning

Always clean the trowel thoroughly after each day's operation. Dried concrete buildup can hinder performance and shorten the life of the trowel.

## Lubrication

- Grease the yoke plate and spider (see Spider Assembly, page 16) every 10 hours or daily with a lithium base, low temperature, general purpose lube.
- Change the gearbox oil once every season or 500 hours, whichever comes first. The drain/fill plug is located on the right-hand side of the gearbox. Fill it with 21 oz. (620 ml) of MBW Worm Gear Oil (MBW

#05700). The oil should be to the bottom of the fill hole when sitting level.

## Lifting

The trowel should be lifted by the lifting bracket attached to the engine. As an alternative, it may be lifted by two people on opposite sides of the guard ring.

## Storage

The trowel should be stored with blocks supporting the outer guard ring. Refer to the engine owner's manual for information regarding storage of the engine.

## Changing Trowel Blades



### WARNING



**Trowel blade edges may be sharp when they are worn. Wear protective gloves when handling the blades.**

1. Set the trowel on a level surface.
2. Remove the bolts securing the blade to the tilt arm.
3. Lift up on the ring guard and slide the blade out from under the tilt arm.
4. Slide the new blade under the tilt arm.
5. Reinstall the bolts and tighten.
6. Check that the carriage bolts are set properly. If they require adjustment refer to the "Setting Tilt Arm Carriage Bolt Height" section.

## Setting Tilt Arm Carriage Bolt Height

1. Remove **ALL** the tilt arms from the spider.
2. Remove the blades from all the arms. Wear protective gloves when removing the blades, the edges may be sharp
3. Inspect the bottom side of the arms (blade mounting surface). Remove any nicks, cement, etc... **THIS SURFACE MUST BE FLAT**
4. Loosen the jam nut and run the carriage bolt in as far as possible.
5. Mount the arm to gage #07277 as shown in figure 4.

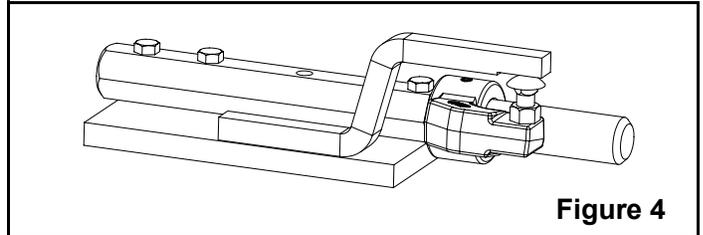


Figure 4

6. Place a .030 feeler gage between the carriage bolt and the underside of the gage arm, and run the carriage bolt up to just contacting the feeler gage. There should be a slight drag felt when the feeler gage is moved between the two surfaces.
7. Place a 3/8" open end wrench on the square shoulder of the carriage bolt and tighten the jam nut. **DO NOT** allow the carriage bolt to turn.
8. Recheck clearance with feeler gage and readjust if necessary.
9. Repeat items 5 through 8 for **ALL** remaining tilt arms.
10. Lubricate the tilt arm prior to fitting it in spider.

# 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
07276	Adjustment Tool, Tilt Arm Parallelism
07277	Adjustment Tool, Tilt Arm Height Gage
07279	Installation Tool, Spider Bushing (#06459)
16421	Bearing Spool Tool

## Gearbox Disassembly

Refer to Gearbox Assembly, page 14.

1. Remove the handle, engine, guard ring and mounting plate (if there is one).
2. Loosen the square head set screw (page 16, #20) until the gearbox housing can be lifted off the spider assembly.
3. Flip the gearbox housing (#8) over and set it on the four guard ring pads.
4. Remove the yoke arm (#11) by removing one of the retaining rings (#7), holding the pivot rod (#14) and sliding the rod out of the holes.
5. Remove the two flange bolts (#25) and the two flat head screws (#26) that hold the cover (#9) to the gearbox housing (#8).
6. Remove the cover and discard the shims (#13) and the o-ring (#6).
7. Pull out the shaft (#18) with the bearings (#3) and the worm gear (#17).
8. Drain oil out of gearbox.
9. Remove the four flange bolts (#24) and the bearing cap (#20). Discard the shim gasket (#12) and the o-ring (#23).
10. Remove the worm shaft (#15) with the spacer (#16) and the bearings (#4).
11. Remove the retaining cap (#10) and discard the shim gasket (#12) and the o-ring (#23).

## Gearbox Assembly

Refer to Gearbox Assembly, page 14.

1. Lightly oil the shaft (#18). Install the key (#19) and the retaining ring (#2) onto the shaft.
2. With the retaining ring end of the shaft down, press the worm gear (#17) onto the shaft. Make sure the longer hub of the worm gear is down. The worm gear should be pressed on the shaft until the recess in the worm gear hub is snug against the retaining ring.

3. Press one bearing (#3) on each end of the shaft. Make sure the bearings are butted against the worm gear shoulders.
4. Press one bearing (#4) on each end of the worm shaft (#15). Make sure the bearings are butted against the worm shaft steps.
5. If the bearing races are replaced make sure the new races are properly seated. The bearing races in the bottom of the gearbox housing (#8) and bearing cap (#20) are not replaceable.
6. Install a new seal (#21) into the bearing cap from the outside. Make sure the seal is installed square and flat.
7. Set the worm gear and the shaft assembly into the gearbox housing and put cover(#9) into place.
8. Measure the gap between the cover and the gearbox housing (apply uniform finger pressure to the center of the cover and measure the gap with a feeler gage). See the table below for the measured gap and what shims to use.

Gap Measurement	Shim Gasket
.001 - .008	None
.009 - .012	(1) #05361
.013 - .018	(1) #05401
.019 - .022	(1) #05361 & (1) #05401

9. Remove the cover and install the proper shims (#13).
10. Brush a light coat of oil on the o-ring groove and inside the lip of the cover. Roll the o-ring (#6) over the inside lip and into the groove in the cover. Install the seal (#1) into the cover from the outside and make sure it is installed square and flat.
11. Use a piece of thin plastic over the shaft to protect the seal and install the cover into the gearbox housing and secure it with two flange bolts (#25) and two flat head screws (#26).
12. Rotate the shaft, there should be a little drag. If there is too much drag another shim should be added until a slight drag is felt. If there is sideplay in the shaft a shim must be removed.
13. Measure the main shaft run out. Maximum acceptable total indicator run out is .0035 inches.
14. Install the drain plug (#27) and relief valve (#22) if removed. Use pipe sealant on the threads before installation.
15. Brush a light coat of oil on the o-ring (#23). Roll it over the inside lip and into the groove of the retaining cap (#10).
16. Install two #05360 shims (#12) with the retaining cap on the drain plug side of the gearbox housing with four flange bolts (#24). Torque the bolts to 90in/lbs in an "X" pattern.

17. Install the worm shaft (#15) with the bearings (#4) into the gearbox housing. The gears must be meshed properly.
18. Install the bearing cap (#20) and apply uniform finger pressure to the cap. Measure the gap between the cap and gearbox housing with a feeler gage. See the chart below for the measured gap and the shims to use.

Gap Measurement	Shim Gasket
.001 - .008	None
.009 - .012	(1) #05359
.013 - .018	(1) #05360
.019 - .022	(1) #05359 & (1) #05360

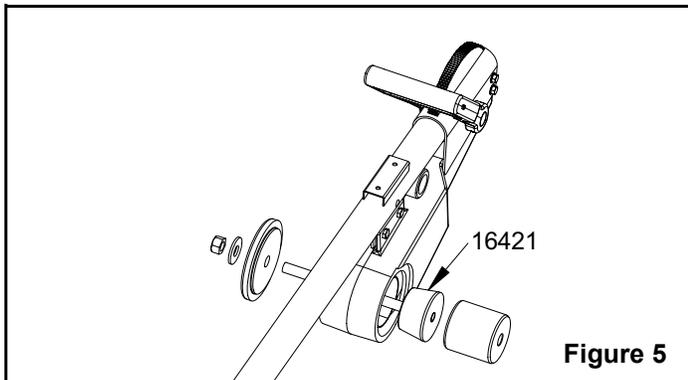
19. Remove the bearing cap and install the proper shims (#12).
20. Brush a light coat of oil on the o-ring groove. Roll the o-ring (#23) over the inside lip and into the groove of the bearing cap.
21. Poor one can (21 oz.) of #05700 oil into the worm shaft bearing cap opening. Install the cap and secure it with four flange bolts (#24).
22. Apply a small amount of loctite #290 to the inside of the spacer (#16) and push it on the worm shaft (#15), through the oil seal (#21), and up against the bearing (#4) on the inside of the gearbox housing.

## CFP Handle Cable/Spring Replacement

Refer to Constant Force Handle Assembly, page 24.

1. Remove handle assembly from machine.
2. Support handle assembly in a vise to secure for disassembly.
3. Loosen handle pivot bolt (#41) and fold handle forward.
4. Remove the four bolts (#32) bolts on the back of the springbox.
5. Carefully rotate lever (#19) arm backwards until you feel the cable tension release. When it releases there will be no spring tension on the lever (#19) in either direction.
6. Remove spring retainer bolt (#45) and end covers (#26).
7. Remove remaining two bolts (#33) to separate spring box (#25) from handle.
8. With a long needle nose pliers, disconnect the cable from the spring.
9. If you are only replacing spring (#28) proceed with step 10. If you are replacing cable and/or clevis refer to step 13.

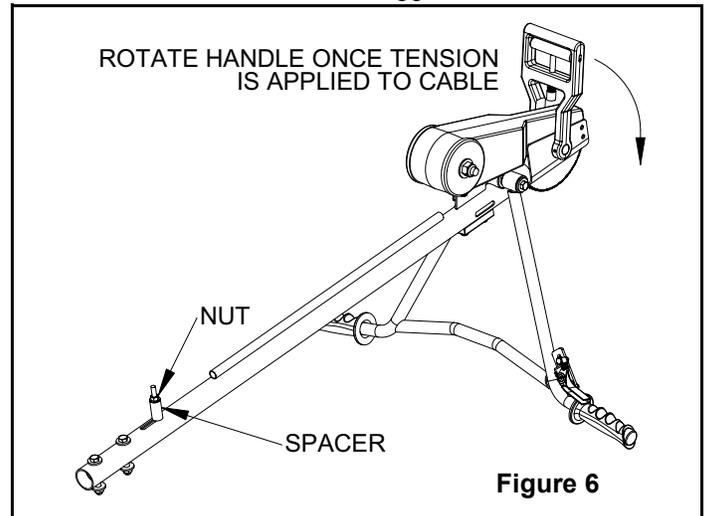
10. Note orientation of spring assembly. Remove bearing spool (# 29) by pushing it out either side.
11. Remove spring assembly by forcing it out either side.
12. Refer to step 18 for assembly.
13. Push threaded portion of cable into tube.
14. Slide clevis assembly out of tube toward the bottom.
15. Remove cable from tube.
16. Route barrel end of new cable into tube.
17. Route threaded portion of the cable over the pulley on clevis and back into the tube. Guide the threaded end through the slot in the handle as you insert clevis into the handle tube. Insert one of the handle bolts through the clevis mounting holes to hold it in place. See figure 7.
18. Install spring (#28) into spring box (#25). Note bearing spool must be removed to get spring into housing.
19. Install bearing spool into spring with #16421 tool. Tighten a nut on the threaded rod of the tool against the cover of the spring box to pull the tapered pin into the spring. Once the spring is spread, the spool can be inserted behind the tapered pin and the tool can be removed.



**Figure 5**

20. Hook cable end to spring (#28) and route cable around activating cam (#18).
21. Install spring box side covers (#64) and secure in place with hardware.
22. Mount spring box onto handle using center mount point only. Align rear mounting holes but do not install bolts. Tighten center mount bolts.
23. To engage cable pin in activating cam slot it will be necessary to apply tension to the threaded portion of the cable. This can be done by tightening a nut against a spacer, such as a deepwell socket, on the threaded end. While applying tension, rotate the lever arm backwards until you feel the cable pin snap into its slot. Once in place you will have constant

tension on the lever arm. Rotate the lever arm forward and release the trigger to lock the lever.



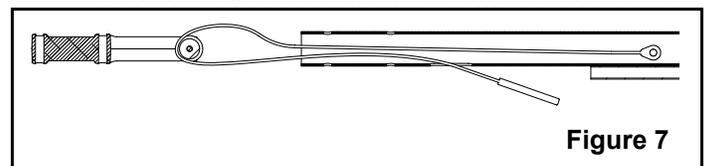
**Figure 6**

24. Install the remaining 4 bolts (#32).
25. Tighten the handle pivot bolt (#41).
26. Install handle on trowel.

## Standard Handle Pitch Cable Replacement

Refer to Handle Assembly, page 22.

1. Remove handle assembly from trowel.
2. Remove switch assembly (#11). It is not necessary to disconnect the wire.
3. Turn pitch control knob all the way counterclockwise.
4. Spiral pin (#29) should be aligned with hole on left and slot on right.
5. Drive pin out toward the slot just far enough to unhook cable.
6. Slide clevis (#5) out of the tube and remove cable.
7. Since it is not possible to thread the cable while the clevis is in the tube, it must be put through the pulley with the clevis removed.
8. Route both ends of the cable into the bottom of the tube. The threaded end must come out of the slot.

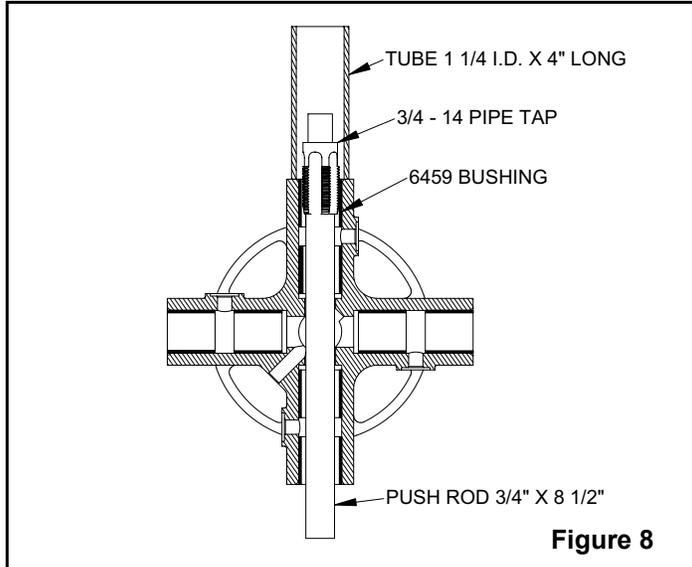


**Figure 7**

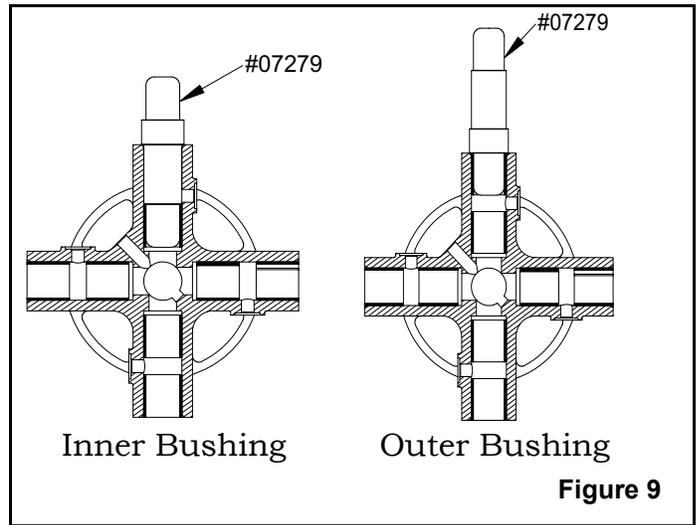
9. Insert clevis with cable into tube. Use a handle bolt to hold clevis in place.
10. Push cable up align eyelet with spiral pin hole.
11. Press spiral pin in flush with outside of slot on handle.
12. Install switch on handle.
13. Install handle on trowel.

## Spider Bushing Replacement

1. Screw a 3/4-14 pipe tap about half way into the worn outer bushing.
2. Insert a 3/4" x 8 1/2" push rod into the opposite side of the spider.
3. Use a 1 1/4" x 4" tube on upper end to press old bushing out.
4. Repeat with inner bushing.



5. Use #07279 tool to ensure proper depth of bushings as shown.



## Parts Replacement Cycles and Tolerances

<b>Air Cleaner Element</b>	Replace after 100 hours if the engine is operating under good clean air conditions. Service and replace more frequently if under more severe conditions.
<b>Bearings</b>	Replace anytime a bearing is rough, binding, discolored or removed from housing or shaft.
<b>Blades</b>	Replace when the edges become sharp or uneven. (Finish blades can be reversed)
<b>Bushings, Trowel Arm</b>	Replace if the trowel arm can be moved up and down more than 3/4 inch (19 mm) at the end of the arm.
<b>Carriage Bolts</b>	Reset the height after trowel arm teardown or if the trowel develops chatter or windmilling. Use height gage kit #07277 when setting.
<b>Clutch</b>	Replace clutch if it does not disengage below 2000 rpm.
<b>Gaskets and Seals</b>	Replace at every overhaul and teardown. Use MBW gasket and seal kit #05470.
<b>Gearbox Oil</b>	Replace after the first 50 hours of operation, then every 500 operating hours or yearly thereafter.
<b>Spark Plug</b>	Change after 75 hours of operation.
<b>Torque Bolts</b>	Re-torque all the bolts after the first eight hours of operation and check every 25 hours thereafter.
<b>Worm Gear</b>	Replace if the teeth show wear marks or become sharp.
<b>Worm Shaft</b>	Replace if the teeth show wear marks or become sharp.

# REPLACEMENT PARTS

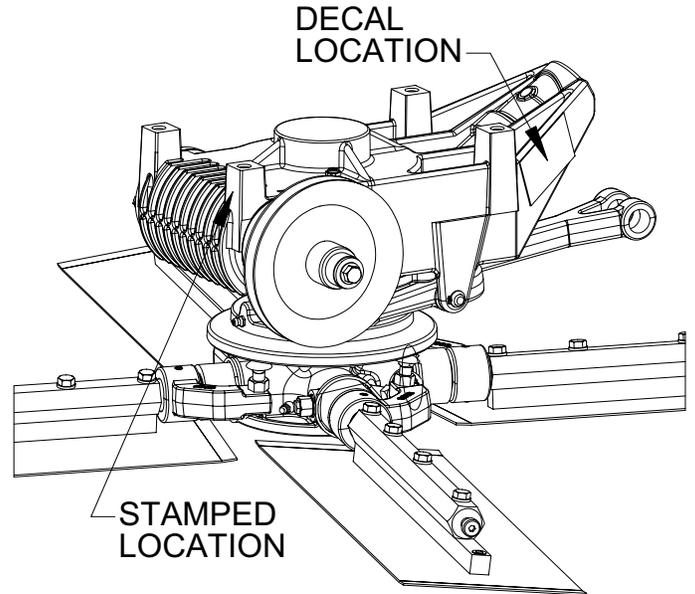
The warranty is stated in this book on page 28. Failure to return the Warranty Registration Card renders the warranty null and void.

MBW, Inc. has established a network of reputable distributors 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 M-B-W distributor in your area, contact MBW, Inc. 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 M-B-W 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 M-B-W parts purchased from authorized M-B-W distributors.**



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

- The model/serial number decal is located on the rear side of the gearbox, next to the engine and beltguard.
- The serial number is stamped on the front of the gearbox.

Write Model Number here

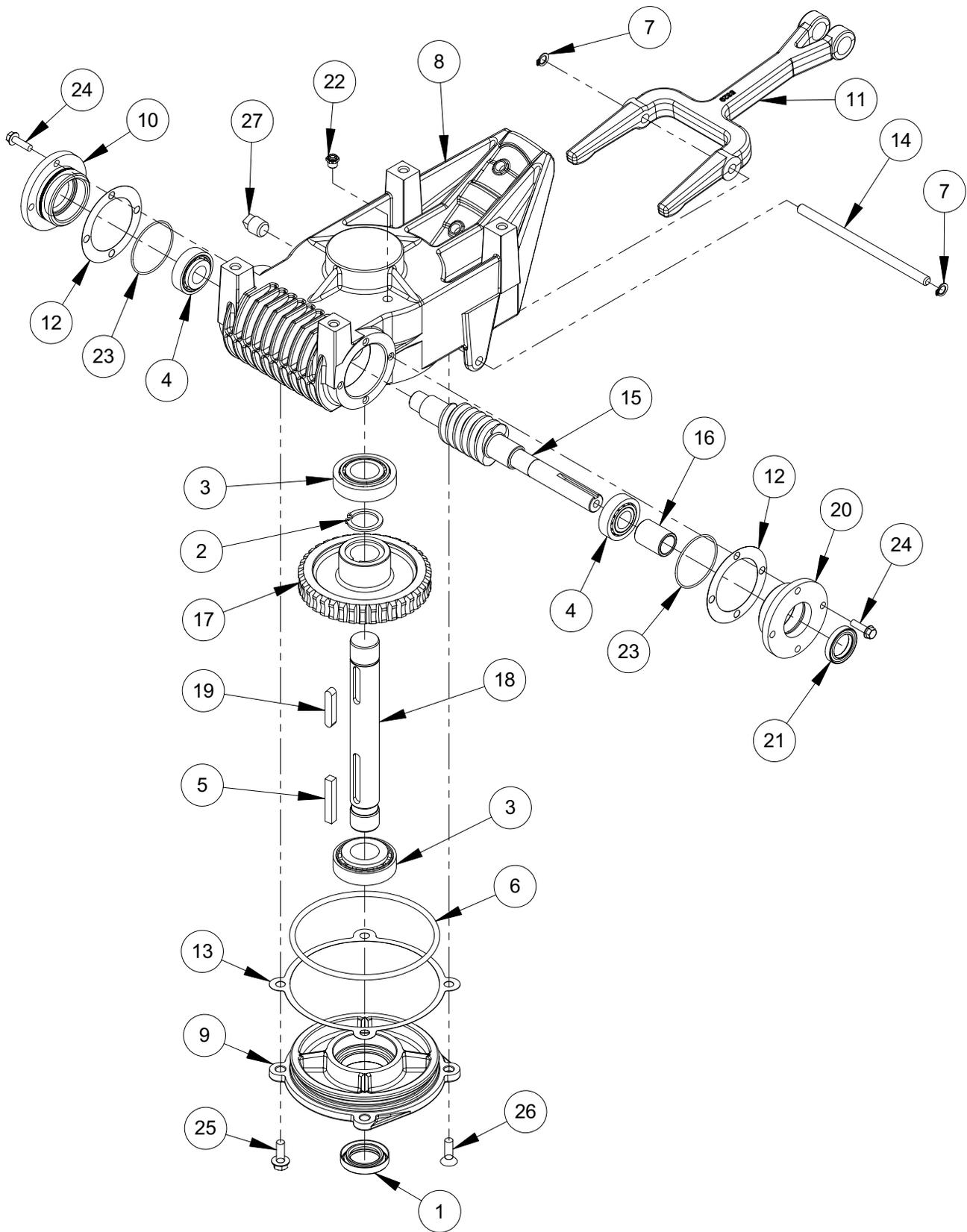
Write Serial Number here

## Contact Information

**MBW, Inc.**  
250 Hartford Rd • PO Box 440  
Slinger, WI 53086-0440  
Phone: (262) 644-5234  
Fax: (262) 644-5169  
Email: [mbw@mbw.com](mailto:mbw@mbw.com)  
Website: [www.mbw.com](http://www.mbw.com)

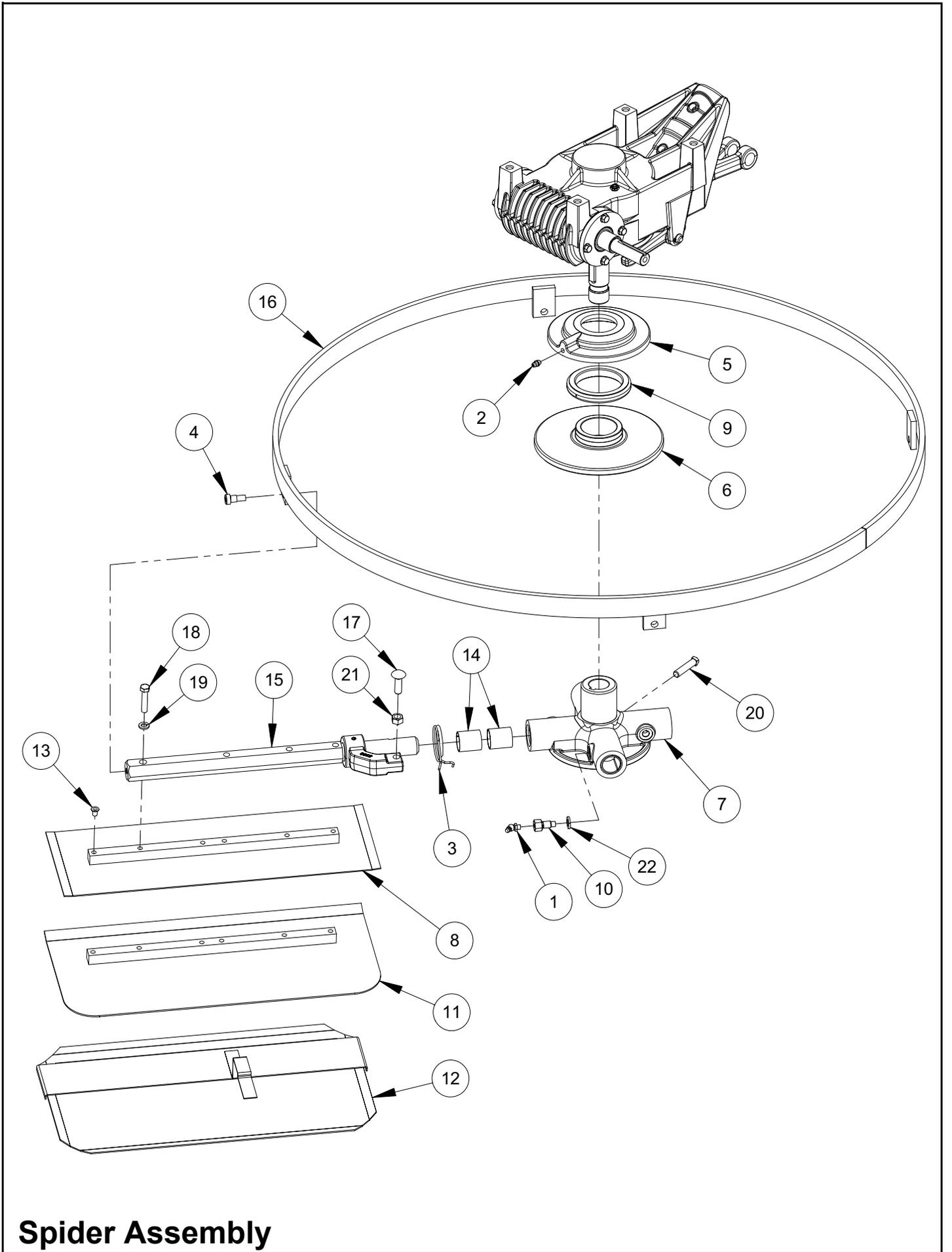
**MBW (UK) Ltd.**  
Units 2 & 3  
Cochrane Street  
Bolton BL3 6BN, England  
Phone: 01204 387784  
Fax: 01204 387797

**MBW France S.A.R.L**  
Z.A. d'Outreville  
11 rue Jean Baptiste Néron,  
60540 BORNEL  
France  
Phone: +33 (0) 3 44 07 15 96  
Fax: +33 (0) 3 44 07 41 28



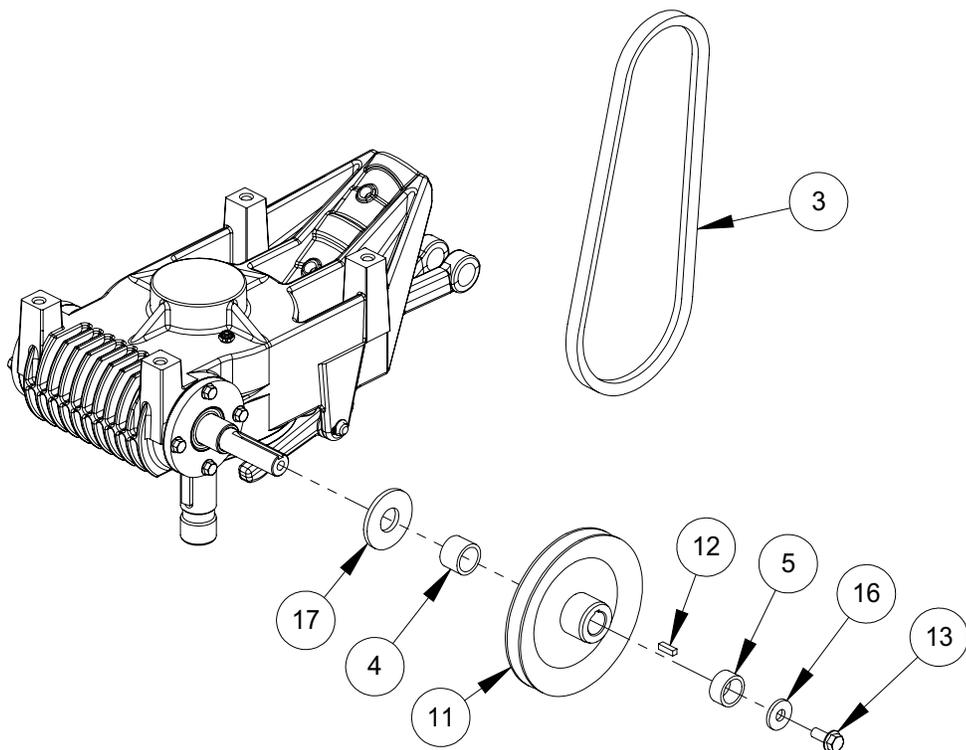
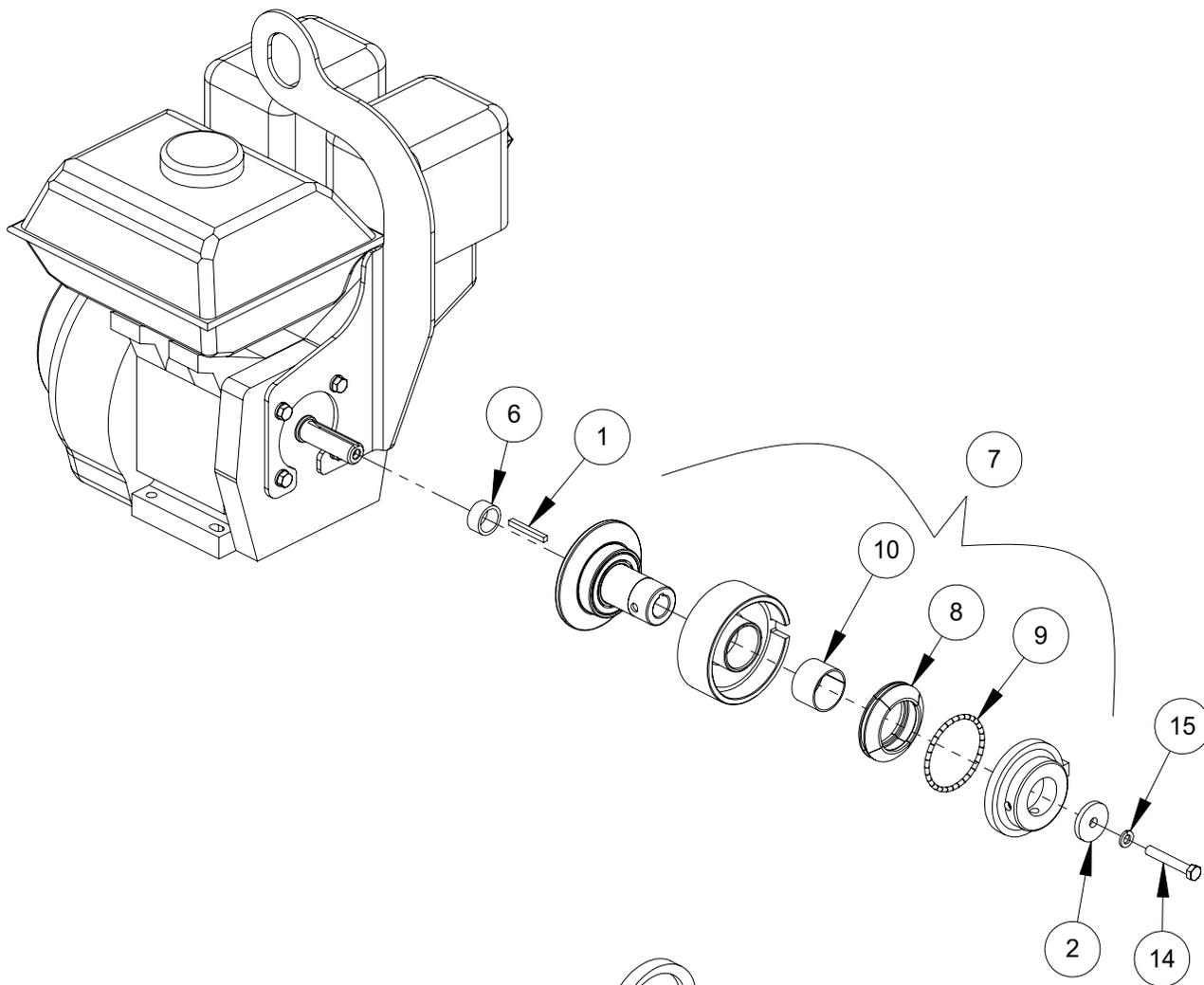
# Gearbox Assembly





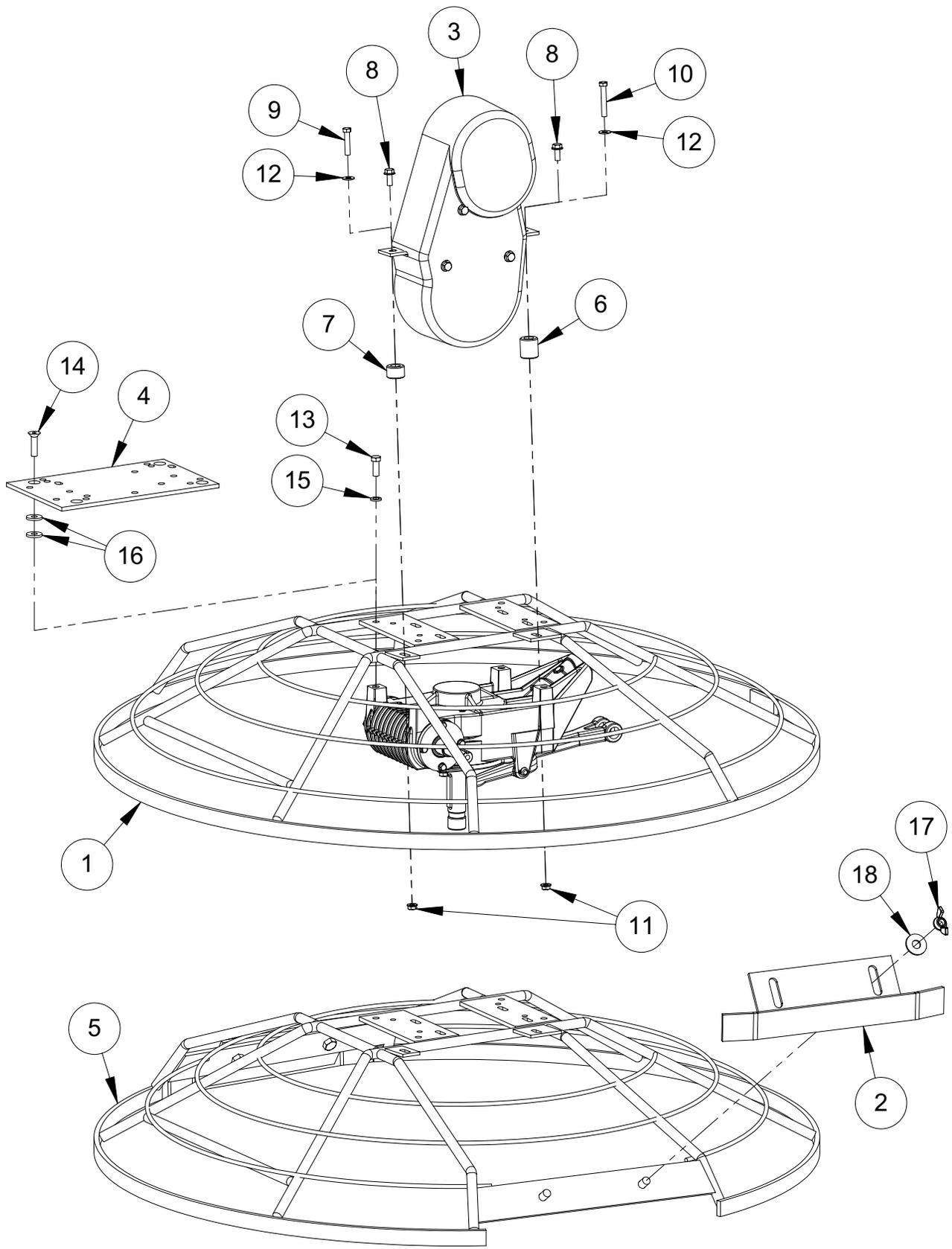
**Spider Assembly**

ITEM	PART NO.	DESCRIPTION	F36/4	F46/4
1.	01169	GREASE FITTING, 45	4	4
2.	01177	GREASE FITTING, STRAIGHT	1	1
3.	01258	SPRING	4	4
4.	01280	SOCKET HEAD SHOULDER SCREW, 3/8" x 3/8"		4
5.	05324	YOKE PLATE	1	1
6.	05330	PRESSURE PLATE, 4-ARM*	1	1
7.	05331	SPIDER, 4-ARM (includes 14)*	1	1
8.	05347	FINISH BLADE, 6" x 14"	4	
	05383	FINISH BLADE, 6" x 18"		4
9.	05356	BEARING	1	1
10.	05397	BOLT, HOLLOW	4	4
11.	05402	COMBINATION BLADE, 8" x 14"	4	
	05412	COMBINATION BLADE, 8" x 18"		4
12.	05403	FLOAT BLADE, 10" x 14"	4	
	07935	FLOAT BLADE, 10" x 18"		4
13.	05968	CAPLUG (set of 12)	4	4
14.	06459	BUSHING, SPLIT	8	8
15.	06755	TILT ARM, 36" (includes 17 & 21)	4	
	07850	TILT ARM, 46" (includes 17 & 21)		4
16.	07870	STABILIZER, 4-ARM*		1
17.	17190	CARRIAGE BOLT (SPECIAL), 3/8-16 x 1-1/4"	4	4
18.	F051812HCS	HEX HEAD CAP SCREW, 5/16-18 x 1-1/2"	8	16
19.	F05LW	LOCKWASHER, 5/16"	8	16
20.	F061614SHS	SQUARE HEAD SET SCREW, 3/8-16 x 1-3/4"	1	1
21.	F0616HN	HEX NUT, 3/8-16	4	4
22.	F06LW	LOCKWASHER, 3/8"	4	4
		<b>REPLACEMENT KITS</b>		
	01427	GREASE FITTING CAPS (sold in sets of 12)	5	5
	06199	SPIDER & ARM ASSEMBLY, 4-ARM (includes 1, 3, 7, 10, 15, 20 & 22)	1	
	07898	SPIDER & ARM ASSEMBLY, 4-ARM (includes 1, 3, 7, 10, 15, 20 & 22)		1
	07524	PRESSURE PLATE ASSEMBLY, 4-ARM (includes 5, 6 & 9)	1	1
		*3-arm parts are no longer available, order 4-arm parts		



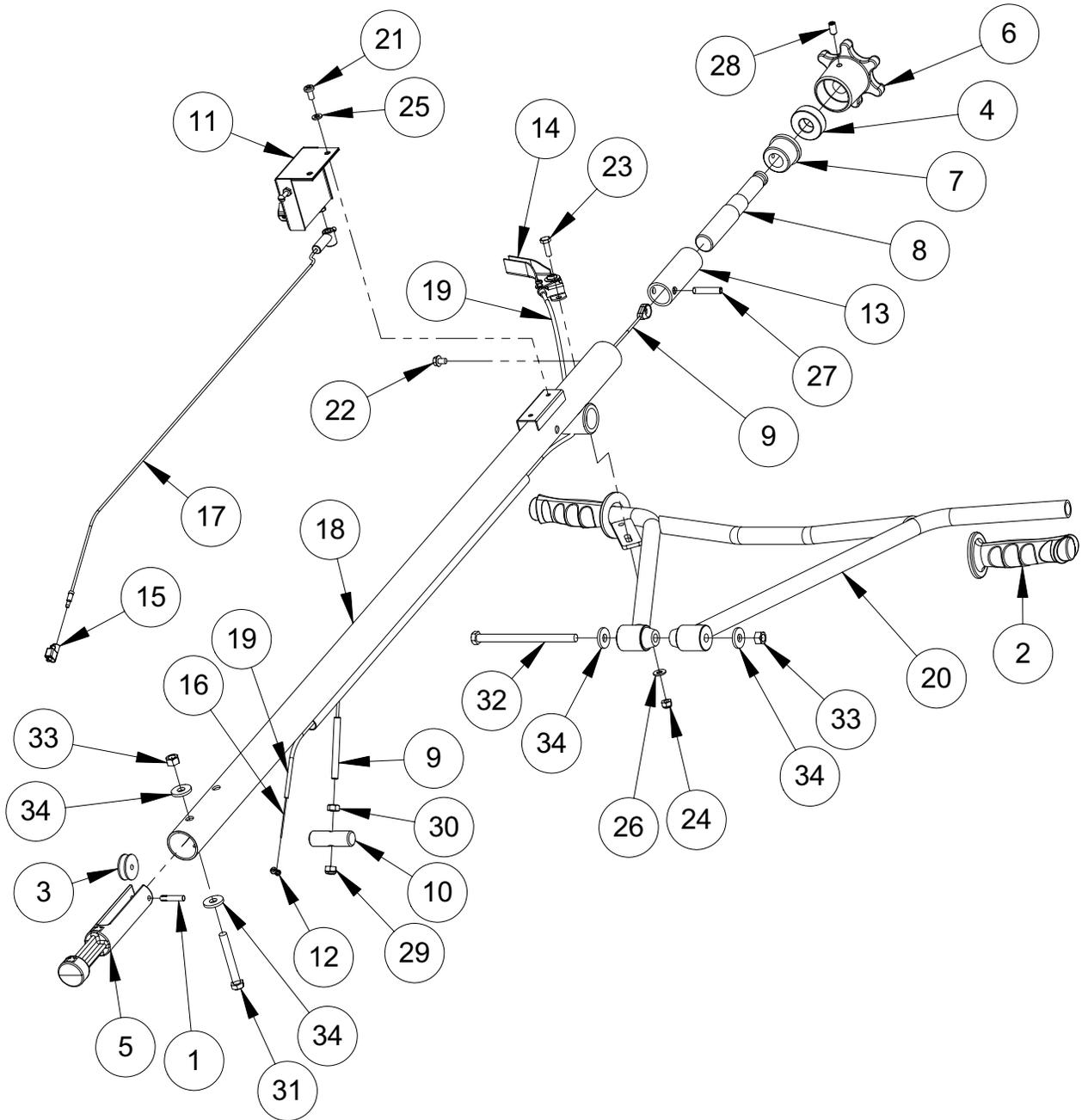
## Centrifugal Clutch Drive Assembly





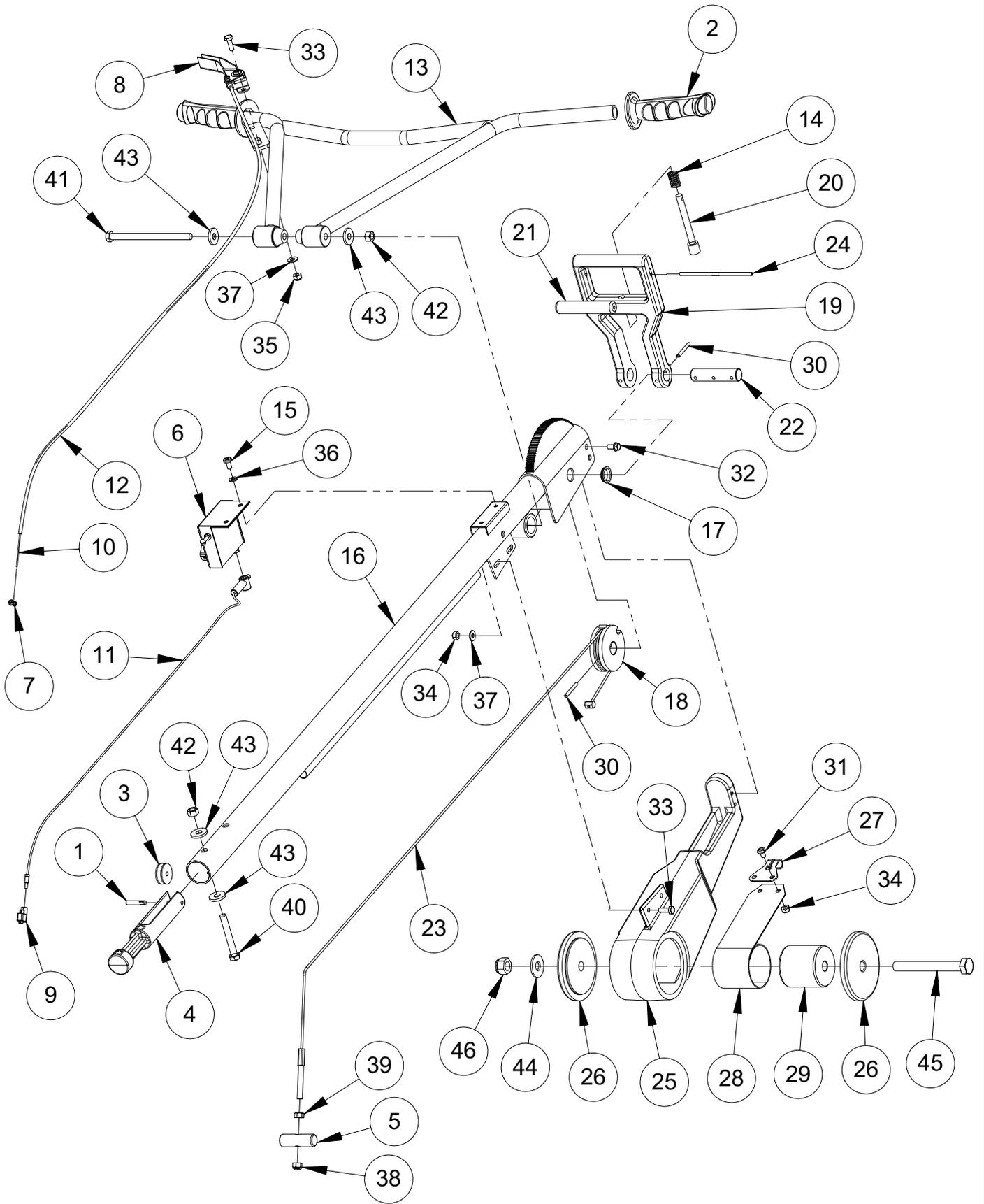
**Guard Assembly**





**Handle Assembly**

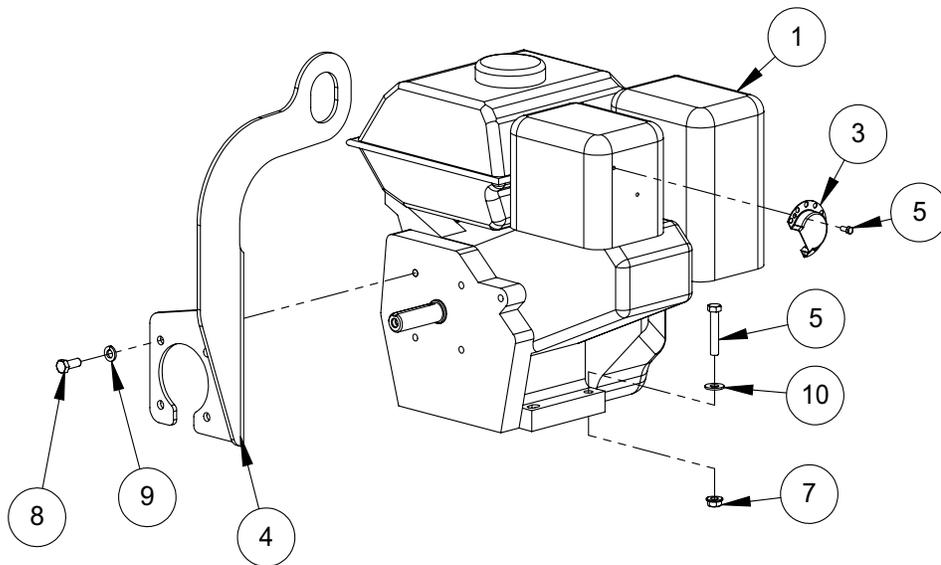
ITEM	PART NO.	DESCRIPTION	QTY
1.	01250	GROOVE PIN	1
2.	01253	GRIP	2
3.	01278	PULLEY	1
4.	01302	THRUST BEARING	1
5.	05357	CLEVIS	1
6.	05358	KNOB	1
7.	05363	BEARING	1
8.	05365	SHAFT	1
9.	05381	CABLE	1
10.	05395	PIVOT PIN	1
11.	05398	SAFETY SWITCH ASSEMBLY	1
12.	05477	SWIVEL	1
13.	05556	ADAPTER NUT	1
14.	06888	THROTTLE ASM (includes 23, 24 & 26)	1
15.	07592	SPLICE TERMINAL	1
16.	07662	WIRE	1
17.	07774	WIRE, SHORTING (63" long)	1
18.	07868	HANDLE	1
19.	07877	CASING	1
20.	11742	HANDLE BAR	1
21.	16047	SELF TAP SCREW, 1/4-20 x 1/2	2
22.	F042003FWS	FWLS, 1/4-20 x 3/8 ZP	1
23.	F042006HCS	HHCS, 1/4-20 x 3/4 ZP	2
24.	F0420ELN	ELASTIC LOCKNUT, 1/4-20	2
25.	F04LW	LOCKWASHER, 1/4	2
26.	F04PW	WASHER, 1/4	2
27.	F0512SP	SPIROL PIN, 5/16 x 1-1/2	1
28.	F051805SSS	SHSS, 5/16-18 x 5/8	1
29.	F0518ELN	ELASTIC LOCKNUT, 5/16-18	1
30.	F0518HN	HEX NUT, 5/16-18	1
31.	F061622HCS	HHCS, 3/8-16 x 2-3/4 ZP	2
32.	F061644HCS	HHCS, 3/8-16 x 5-1/2 ZP	1
33.	F0616DLN	DEFORMED LOCKNUT, 3/8	3
34.	F06SW	WASHER, 3/8	6
		<b>REPLACEMENT PARTS</b>	
	07876	HANDLE ASSEMBLY (includes all above items)	1



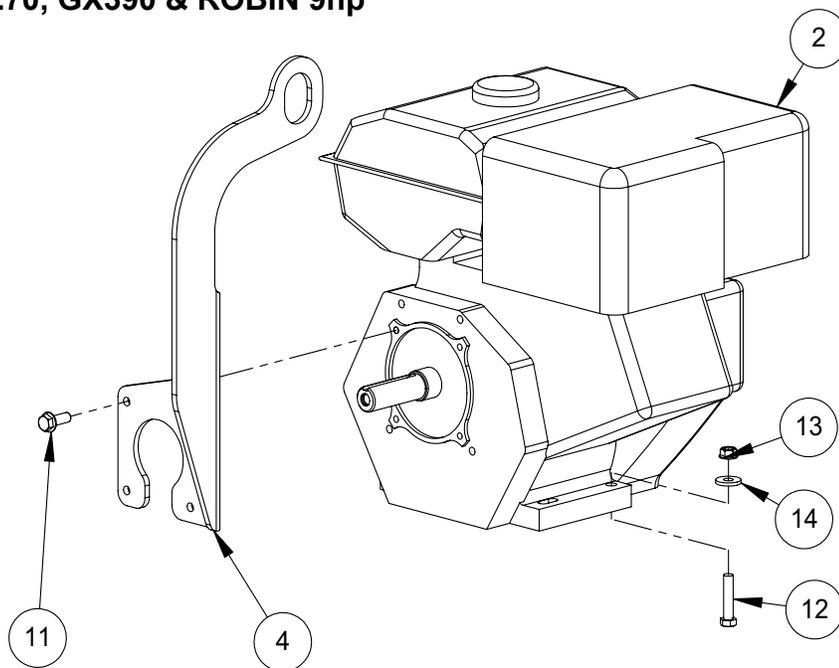
**Constant Force Handle Assembly**

ITEM	PART NO.	DESCRIPTION	QTY
1.	01250	GROOVE PIN	1
2.	01253	GRIP	2
3.	01278	PULLEY	1
4.	05357	CLEVIS	1
5.	05395	PIVOT PIN	1
6.	05398	SAFETY SWITCH ASSEMBLY	1
7.	05477	SWIVEL	1
8.	06888	THROTTLE ASM (includes 33, 35 & 37)	1
9.	07592	SPLICE TERMINAL	1
10.	07662	THROTTLE WIRE	1
11.	07774	SHORTING WIRE ASM	1
12.	07877	CASING	1
13.	11742	HANDLE BAR	1
14.	16040	COMPRESSING SPRING	1
15.	16047	SELF TAP SCREW, 1/4-20 x 1/2	2
16.	16075	HANDLE	1
17.	16078	CLIP BEARING	2
18.	16079	CAM, ACTIVATING	1
19.	16081	LEVER ARM	1
20.	16083	LOCK DOG	1
21.	16084	TRIGGER PULL	1
22.	16086	SHAFT, ACTIVATING	1
23.	16087	CABLE	1
24.	16099	DOWEL PIN, 3/16 x 5	1
25.	16370	SPRINGBOX	1
26.	16372	COVER	2
27.	16373	CABLE CLEVIS	1
28.	16374	CONSTANT FORCE SPRING	1
29.	16375	BEARING SPOOL	1
30.	F0312SP	SPIROL PIN, 3/6 x 1-1/2	3
31.	F042003PMS	PHMS, 1/4-20 x 3/8 ZP	2
32.	F042004FWS	FWLS, 1/4-20 x 1/2	4
33.	F042006HCS	HHCS, 1/4-20 x 3/4 GR5 ZP	4
34.	F0420DLN	DEFORMED LOCKNUT, 1/4-20	4
35.	F0420ELN	ELASTIC LOCKNUT, 1/4-20	2
36.	F04LW	LOCKWASHER, 1/4	2
37.	F04PW	WASHER, 1/4	4
38.	F0518ELN	ELASTIC LOCKNUT, 5/16-18	1
39.	F0518HN	HEX NUT, 5/16-18	1
40.	F061622HCS	HHCS, 3/8-16 x 2-3/4 GR5 ZP	2
41.	F061644HCS	HHCS, 3/8-16 x 5-1/2 GR5 ZP	1
42.	F0616DLN	DEFORMED LOCKNUT, 3/8	3
43.	F06SW	WASHER, 3/8	6
44.	F08SW	WASHER	2
45.	F091238HCS	HHCS, 9/16-12 x 4-3/4 GR5 ZP	1
46.	F0912ELN	ELASTIC LOCKNUT, 9/16-12	1
		<b>REPLACEMENT PARTS</b>	
	16080	LEVER ARM ASSEMBLY (includes 14, 19-21 & 24)	1
	16092	HANDLE ASSEMBLY (includes all above items)	1
	16367	SPRING SPOOL ASSEMBLY (includes 27-29, 31 & 34)	1

## HONDA GX160, ROBIN 6hp & ROBIN 7hp



## HONDA GX270, GX390 & ROBIN 9hp



## Engine 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.**



# NOTES