

# OPERATOR'S SAFETY AND SERVICE MANUAL



## MM60 MM80 MM90

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

MM60 .....	7011600
MM80 .....	7032000
MM90 .....	7051100



## MORTAR & PLASTER MIXERS



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Part Manufacturers:

Part Assemblers:

Part Fabricators:

Part Finishers:

Part Coaters:

Part Painters:

Part Welders:

Part Machinists:

Part Millwrights:

Part Electricians:

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Part Welding Fabricators:

Part Metal Fabricators:

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Part Welding Shops:

Part Machine Shops:

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Part Metal Fabrication:

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Part Development:

Part Testing:

Part Validation:

Part Deployment:

Part Monitoring:

Part Maintenance:

Part Support:

Part Feedback:

Part Improvement:

Part Innovation:

Part Research:

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# **WARNING**



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## **CALIFORNIA PROPOSITION 65 WARNING**

Engine exhaust and some of its constituents and dust produced during the use of this product contain chemicals known in the state of California to cause cancer, birth defects, and other reproductive harm.

For more information go to **[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

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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.



**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.



**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 a properly ventilated area. **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.



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



**DUST PROTECTION:** Machining, crushing or handling of stone, concrete, masonry, metal and other materials may generate dust, mist and fumes containing chemicals such as silica, known to cause serious or fatal injury or illness, such as respiratory disease, silicosis, cancer, birth defects, or other reproductive harm.

- Control dust, mist and fumes at the source where possible. Water should be used to control dust whenever feasible.
- Use good work practices and follow the recommendations of the manufacture, OSHA/NIOSH and other occupational trade associations.
- When hazards cannot be eliminated the operator and any bystanders should always wear a OSHA specified respirator for materials being handled.

**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).

**CAUTION(PRECAUCIÓN)**

Improper towing can lead to damage or injury.

Before Towing:

1. Check running gear and tow bar.
  2. Lock drum in tow position.
  3. Check tow pin for proper installation and good condition.
  4. USE SAFETY CHAINS when towing.
- MAXIMUM TOW SPEED: 50 mph**  
**Un remolque incorrecto puede provocar daños materiales o lesiones.**

Antes del remolque:

1. Revise el funcionamiento de los engranajes y de la barra de remolque.
2. Bloquee el tambor en la posición de remolque.
3. Verifique que el pasador de remolque esté bien instalado y en buen estado.
4. USE CADENAS DE SEGURIDAD al remolcar la máquina.

**MÁX. VELOCIDAD DE REMOLQUE: 80 KPH**

15072

**MM90**

- 21034 "MM90"
- 21032 "MM80"
- 21031 "MM60"

**CAUTION (PRECAUCIÓN)**

- Read the operating instructions before operating this piece of equipment. Lea las Instrucciones Operativas antes de hacer funcionar esta parte del equipo.
- Keep unauthorized, inexperienced, untrained people away from this equipment. Mantenga a las personas no autorizadas y sin entrenamiento alejadas de este equipo.
- ROTATING AND MOVING PARTS!** Make sure all guards and safety devices are in place. **PIEZAS ROTATIVAS Y MOVILES!** Asegúrese de que todas las guardas y dispositivos de seguridad estén colocados en sus lugares.
- DO NOT RUN** this machine in an enclosed area. The engine produces carbon monoxide, a **POISONOUS** gas. **NO HAGA FUNCIONAR** esta máquina en una zona encerrada. El motor produce monóxido de carbono, un **GAS VENENOSO**.
- Avoid breathing dust produced while operating machine, wear OSHA specified dust mask/respirator. Evite respirar el polvo producido durante el funcionamiento de la máquina, use mascarilla contra el polvo y respirador especificada por OSHA.
- SHUT OFF** the engine before servicing, cleaning or adding fuel to engine or machine.

**Failure to comply could result in serious bodily injury**

El no cumplir con estas instrucciones puede producir como resultado lesiones corporales graves. 15070

15070

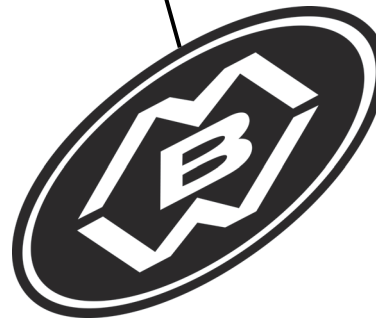
**U.S. PATENT 6,695,467**

17949

17949 - Not included with decal set



17129



21033 - Not included with decal set

**Safety Decals (Decal Set #15074)**

**PUSH TO STOP**  
**PULSE PARA DETENER**

16546

**WARNING**

Operating, servicing and maintaining this equipment can expose you to chemicals, including engine exhaust, phthalates and lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm. Avoid breathing engine exhaust. Do not operate equipment in confined areas. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

21820

**MIXER(MEZCLADORA)**  
**OPERATING INSTRUCTIONS**  
**INSTRUCCIONES DE OPERACION**

1. Check oil in engine compartment.
2. MAKE SURE grid is CLOSED before starting and during operation. Place engage lever in "LOCK" position before starting engine.
3. Open fuel valve.
4. Close throttle on engine. A warm engine may not need to be choked.
5. Open throttle to "FAST" position.
6. Pull starter rope.
7. After starting, turn choke off, let engine warm up at idle.
8. Open throttle to "FAST" position. CLOSE SHROUDD! Place engagement lever in "MIX" position, change mixer.
9. TO STOP: Place engagement lever in "IDLE" position, return throttle to idle, close fuel valve, press stop button.
10. Before towing, check that drum is locked in towing position, and tow pin is properly installed and in good condition.
11. Before towing, check that drum is locked in towing position, and tow pin is properly installed and in good condition.

1. Revisa el aceite en el cárter del motor.  
2. CERRADERA de que la rejilla está CERRADA antes del arranque y durante la operación.  
3. Coloque la palanca de engranaje en la posición de "TRALENTE" antes de arrancar el motor.  
4. Abra la válvula de combustible.  
5. Cierre el estrangulador del motor. Si el motor está tibio, puede que no requiera estrangulamiento.  
6. Abra el acelerador a la posición "RÁPIDA".  
7. Tire de la cuerda de arranque.  
8. Tras el arranque, apague el estrangulador y deje que el motor se caliente en ralentí.  
9. Abra el acelerador y póngalo en la posición "RÁPIDA". CIERRE LA CUBIERTA Coloque la palanca de engranaje en la posición "TRALENTE".  
10. PARA DETENERLA: Coloque la palanca de engranaje en la posición "TRALENTE", vuelva el estrangulador a ralentí, cierre la válvula de combustible y pulse el botón de parada.  
11. Antes del remolque, verifique que el tambor esté bloqueado en la posición de remolque, y que el pino esté correctamente instalado y en buen estado.  
**MAXIMUM TOW SPEED: 50 MPH**  
**MÁX. VELOCIDAD DE REMOLQUE: 80 KPH**

1927

15071

**WARNING**  
**ADVERTENCIA**

**ENGINE EXHAUST IS HAZARDOUS IF INHALED**  
**USE ONLY IN A WELL VENTILATED AREA**  
**EL GAS DEL ESCAPE DEL MOTOR ES PELIGROSO SI SE INHALA**  
**USE LA MAQUINA SOLO EN UNA ZONA BIEN VENTILADA**

15076

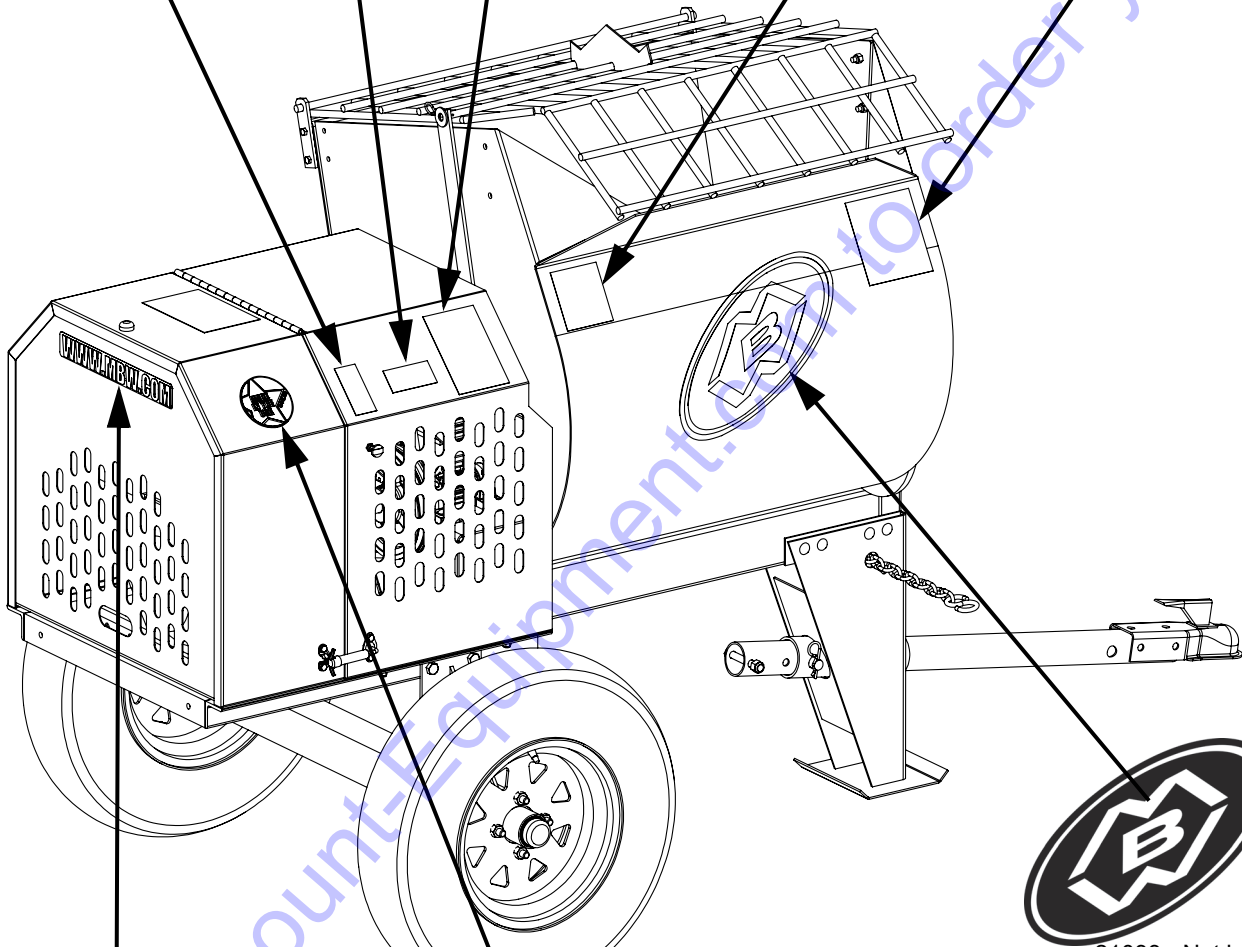
15076

**WARNING**  
**ADVERTENCIA**

**MOVING PARTS CAN CRUSH AND CUT**  
**KEEP HANDS CLEAR!**  
**SHUT OFF ENGINE OR MOTOR BEFORE SERVICING.**  
**LAS PIEZAS MÓVILES PUEDEN IMPACTAR Y CORTAR**  
**¡MANTENGA ALEJADAS SUS MANOS!**  
**APAGUE EL MOTOR ANTES DEL SERVICIO.**

15069

15069



21033 - Not included with decal set

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21035



21038

**Safety Decals**

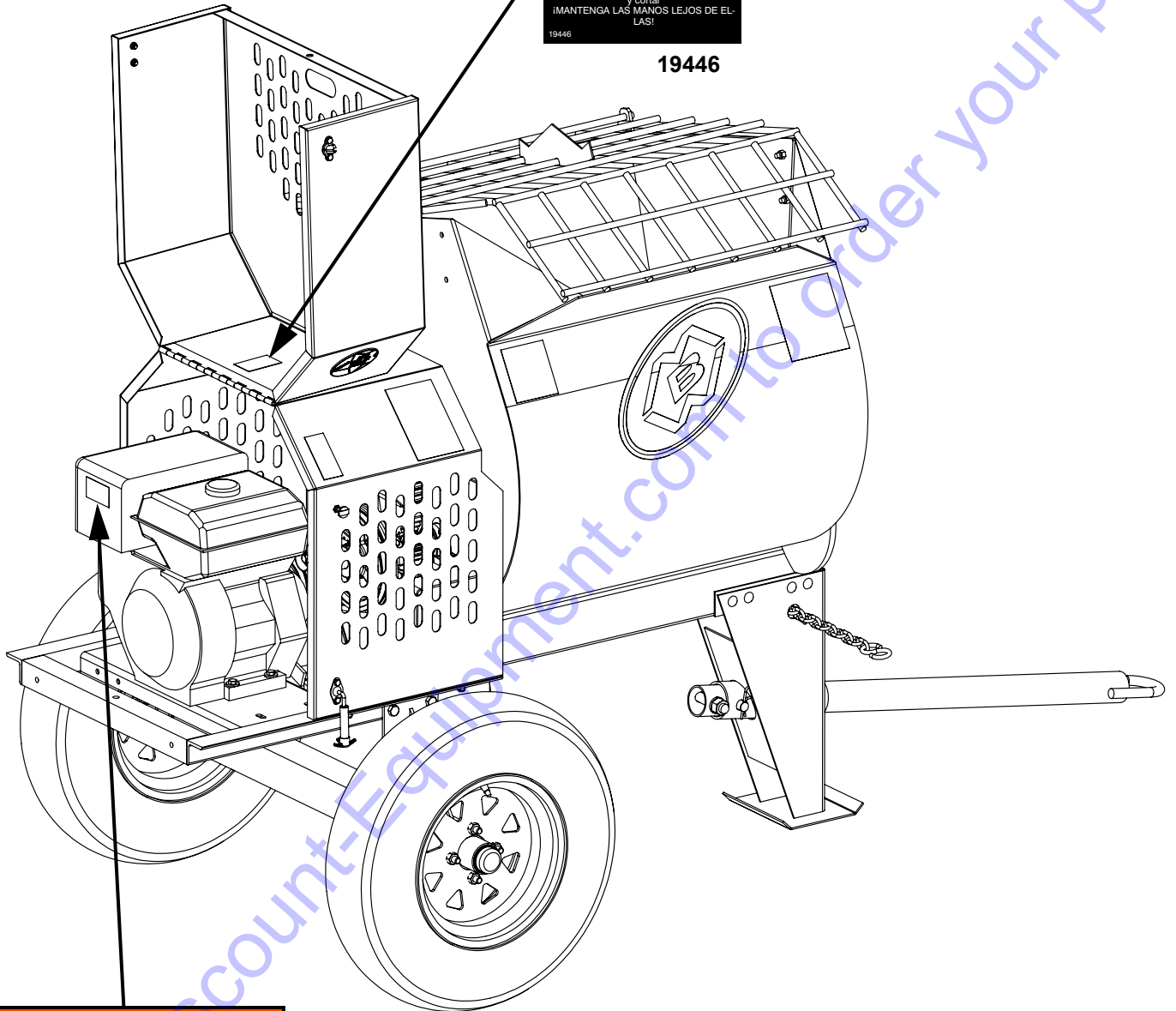
**WARNING**  
ADVERTENCIA



ROTATING PARTS can crush and cut.  
Keep hands away!  
Las PIEZAS GIRATORIAS pueden aplastar y cortar.  
¡MANTENGA LAS MANOS LEJOS DE ELAS!

19446

19446



**WARNING**

OPERATION OF THIS EQUIPMENT MAY CREATE SPARKS THAT CAN START FIRES AROUND DRY VEGETATION. A SPARK ARRESTER MAY BE REQUIRED. THE OPERATOR SHOULD CONTACT LOCAL FIRE AGENCIES FOR LAWS OR REGULATIONS RELATING TO FIRE PREVENTION

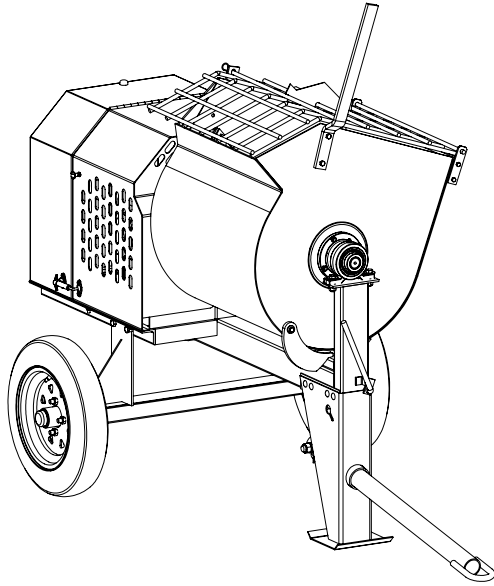
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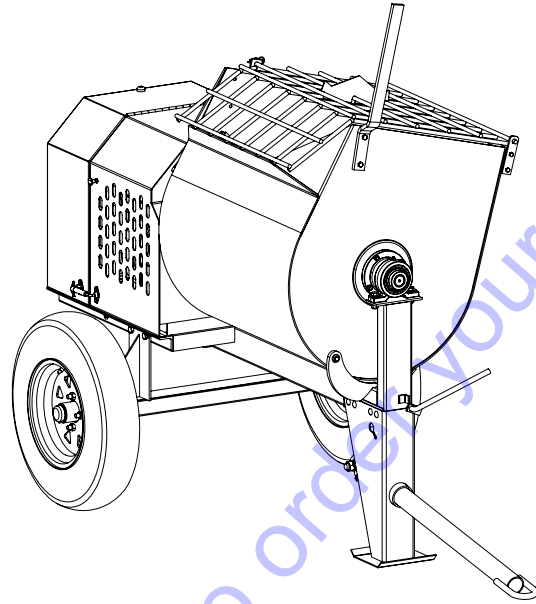
Safety Decals (Decal Set #15074)



# SPECIFICATIONS



**MM60**



**MM90**

	<b>MM60</b>	<b>MM80</b>	<b>MM90</b>
<b>Batch Capacity</b>	6 cu. ft (.17 cu. m)	8 cu. ft (0.23 cu. m)	9 cu. ft (0.26 cu. m)
<b>Batch Size</b>	2 bags	2.5 - 3 bags	3 - 3.5 bags
<b>Gas Engines</b>	Honda GX160 Kohler CH255 Honda GX240 Kohler CH395	Honda GX240 Kohler CH395	Honda GX240 Kohler CH395
<b>Engine Speed</b>	3500 rpm	3300 rpm	3300 rpm
<b>Drivetrain</b>	V-belts to Gears	V-belts to Gears	V-belts to Gears
<b>Electric Motors</b>	Baldor 1.5 hp (1-phase)	Baldor 2 hp (1-phase)	Baldor 3 hp (1-phase)
<b>Motor Draw</b>	115V - 18A 230V - 9A	230V - 14A	230V - 15.5A
<b>Motor Speed</b>	1725 rpm	1725 rpm	1725 rpm
<b>Drivetrain</b>	Chain to V-belts to Gears	Chain to V-belts to Gears	Chain to V-belts to Gears
<b>Axle</b>	46" Solid Axle	46" Solid Axle	46" Solid Axle
<b>Wheels</b>	4.80 x 12 High-Speed	ST175/80D13 High-Speed	ST175/80D13 High-Speed
<b>Size - W x L x H</b>	46 x 64 x 56 in (117 x 163 x 142 cm)	46 x 67 x 57 in (117 x 170 x 145 cm)	46 x 71 x 57 in (117 x 180 x 145 cm)
<b>Weight</b>	650 lbs (295 kg)	715 lbs (324 kg)	730 lbs (331 kg)
<b>Charging Height</b>	47 in (119 cm)	49 in (124 cm)	49 in (124 cm)

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.

## Wiring Electric Motor

All electric motors come with a 12" pigtail which must be wired with a plug for your application.



### **WARNING**



**Wiring must be done by certified electrician.**

## Starting Gas Engine

1. Move mixer engagement lever to "IDLE" position.
2. Open the fuel valve.

3. Pull out the stop switch on the engine shroud.
4. Move the engine throttle lever to the "FAST" position.
5. Choke the engine if necessary. (You may not need to choke a warm engine).
6. Pull the starter rope repeatedly until engine starts.
7. Move choke lever to open position and throttle lever to the "IDLE" position
8. Allow engine to warm up for one or two minutes.

## Starting Electric Motor

1. Move mixer engagement lever to "IDLE" position.
2. Plug the motor into a suitable power source.
3. Move the switch on the motor to the "ON" position.

## Operating

1. Close the engine shroud.



### **WARNING**



**Do not operate the mixer with the shroud open.**

2. Move engagement lever to the "MIX" position.
3. Add half of the required amount of sand and water for the batch to be mixed.
4. Add the total required amount of mortar mix.
5. Add the remaining amounts of sand and water and allow time to mix properly.
6. Unlock the drum by rotating the locking bar out of engagement with the frame.
7. Tip the drum forward to discharge the batch.
8. Return drum to mixing position and check that it is locked in place.
9. If another batch is to be mixed, add water for the next batch.



### **CAUTION**



**Always clean the drum after each day's operation. See Cleaning, page 8.**

## Stopping Gas Engine

1. Move mixer engagement lever to the "IDLE" position.
2. Whenever possible it is recommended to let the engine idle before stopping.
3. Push in the engine stop switch on the engine shroud.

4. Close the fuel valve.

## Stopping Electric Motor

1. Move mixer engagement lever to the "IDLE" position.
2. Move the switch on the motor to the "OFF" position.



### **WARNING**



Always STOP the engine before adding fuel.

Always STOP the engine or motor before leaving the equipment unattended for any amount of time.

Always STOP the engine or motor and disconnect spark plug wire or power cord before making any repairs or adjustments to the machine.

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## Towing

1. Stop the engine or electric motor.
2. Close and latch the engine shroud.

3. Rotate the drum into the locked position, and check that it is locked in place.
4. Secure the mixer hitch and safety chains to the vehicle.



### **WARNING**



Always check that axle, front leg, and tow bar hardware is tight before towing.

Make sure safety bolt is in place.

Check the condition of the pin on the tow bar and make sure it is secure.

Remove any loose debris from the mixer before towing on roads.

Check that safety chains cross each other when attached.

**MAXIMUM TOW SPEED: 50 mph**

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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

SYSTEM	MAINTENANCE	EACH USE	EVERY 40 HOURS	EVERY 100 HOURS	YEARLY
Axle	Check tire pressure		X		
	Grease wheel bearings				X
Drivetrain	Inspect drive belts for excessive wear		X		
	Oil electric motor drive chain		X		
	Grease bull gear teeth			X	
Drum	Grease trunnions & pillow blocks	X			
Engine	Refer to engine operator/owner manual	X			
Hardware	Check and tighten all hardware <sup>1,2</sup>				X

1. Check all hardware after the first 5 hours of use, then follow the maintenance schedule.
2. Retorque lug nuts, front leg, and axle hardware after the first 25 miles traveled, then follow the maintenance schedule.

## Engine Maintenance

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

## Engine Speed

Engine speed is factory set according to the speeds listed in the Specifications section of this manual. Refer to the engine owner's manual for procedure on setting operating speed if necessary.

## Cleaning

Always clean the mixer thoroughly after each day's operation. Dried mortar inside the drum can damage the paddles and shorten the life of the mixer. Additionally, future batches of mortar can be contaminated if the drum is not clean.



## CAUTION



Do not beat on the drum to clean dried mortar; this will cause damage to the drum.



## WARNING

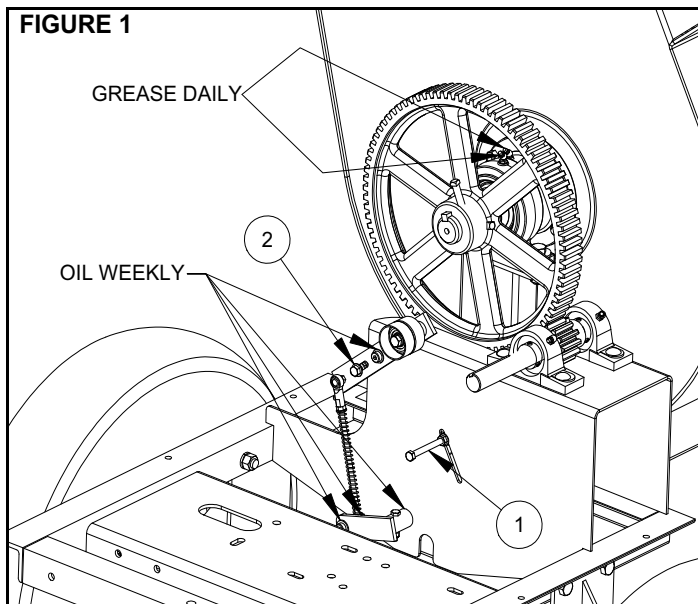


Always stop engine or motor and disconnect spark plug wire or power cord before placing hands or objects inside drum.

Always reconnect safety grid opener to grid after cleaning drum.

## Lubrication

1. Grease both trunnions and pillow blocks daily. There are two grease fittings on each end of the drum.
2. Apply a light coat of grease to the gear teeth once a month.
3. Oil all pivot points on the idler assembly once a week.
4. Electric mixers: Oil the drive chain once a week.



### Belt Guides

Belt driven models are equipped with guides to ensure proper operation. If the paddles do not stop when in the "IDLE" position, follow these steps to adjust them.

1. With engine stopped, move the engagement lever to the "MIX" position.
2. Loosen the nuts on the 3-1/4" long bolt (Figure 1, #1) below the drive belts. Move the bolt to within 1/16" of the belts and retighten the nuts.
3. Loosen nut on the 3/4" long bolt (Figure 1, #2) located in the slot on the idler arm.
4. Move engagement handle to "IDLE" position and start engine.
5. Move engagement handle towards "MIX" position until belts stop moving.
6. Slide 3/4" bolt and nut until they contact the edge of the frame and tighten.

### Greasing Wheel Bearings

1. Jack the rear end of the mixer and support by side rails so that mixer is stable.
2. Remove the wheel.
3. Remove the dust cover.
4. Remove the cotter pin from the spindle nut.
5. Unscrew the spindle nut.
6. Remove the hub from the spindle, being careful not to allow the outer bearing cone to fall out. The inner bearing cone will be retained by the seal.
7. Remove the grease seal.
8. Wash all grease and oil from the bearing cones and inspect each roller. If any pitting, spalling, or corrosion is present, then the bearing cup and cone must be replaced.
9. Pack the entire bearing with grease, apply a light coat of grease to the bearing cup, and install.
10. Tap a new grease seal into place with a clean block.
11. Slide the hub onto the spindle.
12. While rotating the hub slowly, tighten the spindle nut to approximately 50 lb-ft.
13. Loosen the spindle nut, but DO NOT rotate the hub.
14. Finger tighten the spindle nut until snug.
15. Back the spindle nut out slightly until the first castellation lines up with the cotter pin hole and insert the cotter pin.
16. Bend over the cotter pin legs to secure the nut.
17. Tap the dust cover into the hub.
18. Install wheel and torque lug nuts to 90 lb-ft.

# 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 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

## Engine Shroud Removal

Refer to Drivetrain Assembly, page 16.

1. Disconnect wiring harness (#18) from engine by unscrewing ring terminal from engine and unplugging bullet connector.
2. Remove automatic safety grid lifter from safety grid.
3. Remove four bolts (#25), washers (#27), and locknuts (#26) securing shroud to frame.
4. Carefully lift shroud straight up to avoiding damaging engine or drive components. Approximate weight is 85 pounds.

## Engine Shroud Installation

Refer to Drivetrain Assembly, page 16.

1. Lift shroud over engine and drive components and lower it straight down onto frame. Hold grid opener out of the way while lowering.
2. Align shroud with edges of frame and tighten bolts (#25), washers (#27), and locknuts (#26) in place.
3. Lift grid opener into position and pin to safety grid.
4. Connect wiring harness (#18) to engine by grounding the ring terminal to the engine and inserting the bullet connector into the splice terminal.

## Drum Removal

Refer to Drum Assembly, page 14.

1. Remove engine shroud before attempting to remove mixing drum.
2. Mark the front and rear pillow block (#5) locations on the frame to aid in the alignment during installation.
3. Remove all four bolts (#25), washers (#28 & #10), lock washers (#27), and locknuts (#26) holding drum pillow blocks to frame.
4. If lifting drum by hoist, wrap chain around main shaft and pass chain through paddles to stabilize. If lifting drum by forklift, place blocks on forks to prevent drum from rolling. Approximate weight is 250 to 300 pounds, depending on model.

## Drum Installation

Refer to Drum Assembly, page 14.

1. Lower drum onto frame supports. Pillow blocks (#5) should be snug to trunnions (#8) to eliminate excessive end-play.

2. Check alignment between bull gear and pinion. Gears must be parallel and in-line. Adjust drum location if necessary.
3. Bolt pillow blocks to frame using four bolts (#25), washers (#28 & #10), lock washers (#27), and locknuts (#26).
4. Dump drum to check for binding. If binding is noticed, loosen bolts and realign pillow blocks.
5. Loosen intermediate shaft bolts and fine tune gear alignment if necessary. Set backlash in gears to 0.010" before tightening. NOTE: It may be necessary to re-adjust alignment of drum or engine so that both sheaves line up properly.
6. Reinstall the engine shroud.

## Drum Bearing & Seals Replacement

Refer to Drum Assembly, page 14.

1. Remove mixing drum from mixer. See Drum Removal, page 10.
2. Loosen set screws and remove bull gear from main shaft. Use a puller if necessary.
3. Slide pillow blocks (#5) off of trunnions (#8).
4. Loosen set screw and remove locking collars from trunnion bearings (#4) by rotating the collars against the mixing direction of the paddles.
5. Remove four bolts (#19) and nuts (#22) holding each trunnion to the drum.
6. While supporting the main shaft, slide the trunnion off of each end.
7. Pull the triple seal kit (#9) out of the back side of each trunnion and discard.
8. Remove the retaining ring (#7) from each trunnion.
9. Remove the ball bearing and grease shield (steel washer) from the front side of each trunnion.
10. Inspect the bearings, and replace both if needed.
11. Thoroughly clean all grease from the trunnions.
12. Apply a medium strength thread locking compound to each outer bearing surface and reinstall the bearings and grease shields into the trunnions.
13. Reinstall the retaining rings.
14. Install new seal kits into the back side of each trunnion in the following order: Steel Washer, Soft Black Seal, Steel Washer, Soft Black Seal, Steel Washer, Hard Red Seal.
15. Slide trunnions onto each shaft end and bolt in place.

16. Slide bearing locking collar onto front shaft end and align shaft flush with collar.
17. Lock collar in place by driving in the mixing direction.
18. Tighten set screw using a medium strength thread locking compound and torque to 20 ft. lbs.
19. Repeat process for rear bearing.
20. Begin pumping grease into trunnion cavity while rotating main shaft back and forth. NOTE: If grease comes out through ball bearing seals, check that grease shield (steel washer) is installed and that bearing is fully seated in trunnion and cannot move.
21. Continue pumping grease until drum seals "pop out" into drum. Clean any excess grease from inside drum.
22. Slide pillow blocks onto trunnions and grease until a film of grease is seen all around the trunnion.
23. Reinstall the bull gear. Tighten set screws using a medium strength thread locking compound.
24. Reinstall mixing drum onto frame. See Drum Installation, page 10.

## Engine Removal

Refer to Drivetrain Assembly, page 16.

1. Disengage mixer by moving engagement handle to "IDLE" position.
2. Disconnect wiring harness (#18) from engine by unscrewing ring terminal from engine and unplugging bullet connector.
3. Remove four bolts, washers, lock washers, and nuts holding engine to frame.
4. Tilt engine and remove drive belts.
5. Lift engine off of frame.

## Engine Installation

Refer to Drivetrain Assembly, page 16.

1. Set engine onto frame and line up with holes.
2. Disengage idler by moving engagement handle to "IDLE" position and install both drive belts.
3. Install four bolts, washers, lock washers, and nuts to secure engine. Check for proper alignment between both sheaves (#4 & #5) with a straightedge before tightening hardware.
4. Connect wiring harness (#18) to engine by grounding the ring terminal to the engine and inserting the bullet connector into the splice terminal.

## Parts Replacement Cycles and Tolerances

<b>Bearings</b>	Replace anytime a bearing is rough, binding, discolored or removed from housing or shaft.
<b>Clutch</b>	Replace clutch if it does not disengage below 1800 rpm.
<b>Engine Components</b>	Refer to your engine manufacturer's Owner's Manual.
<b>Hardware</b>	Replace any worn or damaged hardware as needed. Replacement hardware should be grade 5 and zinc plated unless otherwise specified.
<b>Safety Decals</b>	Replace if they become damaged or illegible.
<b>Seals &amp; Gaskets</b>	Replace if a leak is detected and at every overhaul or teardown.
<b>V-Belts</b>	Replace if cracked, torn, or stretched to the point the belt won't tension properly.

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# 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.

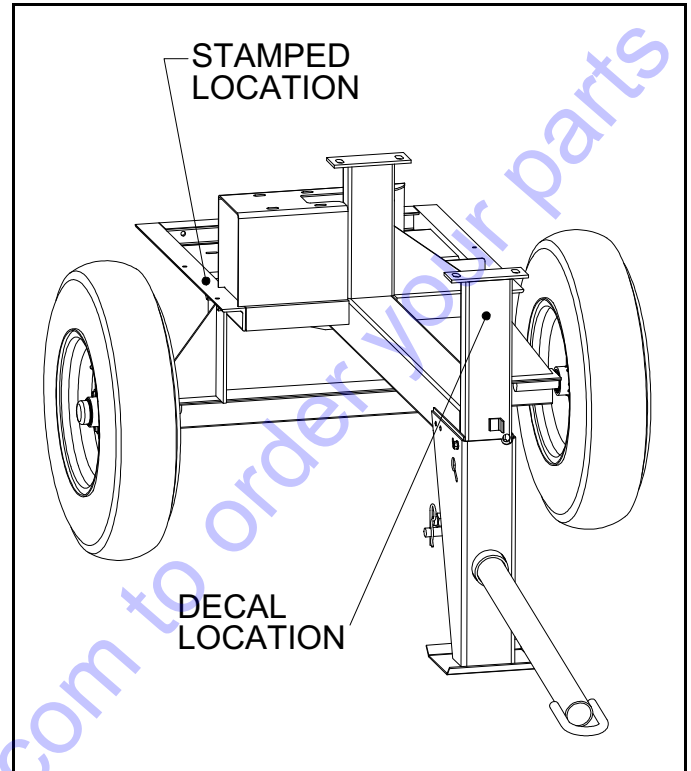
When ordering replacement parts, be sure to have the following information available:

- 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.**

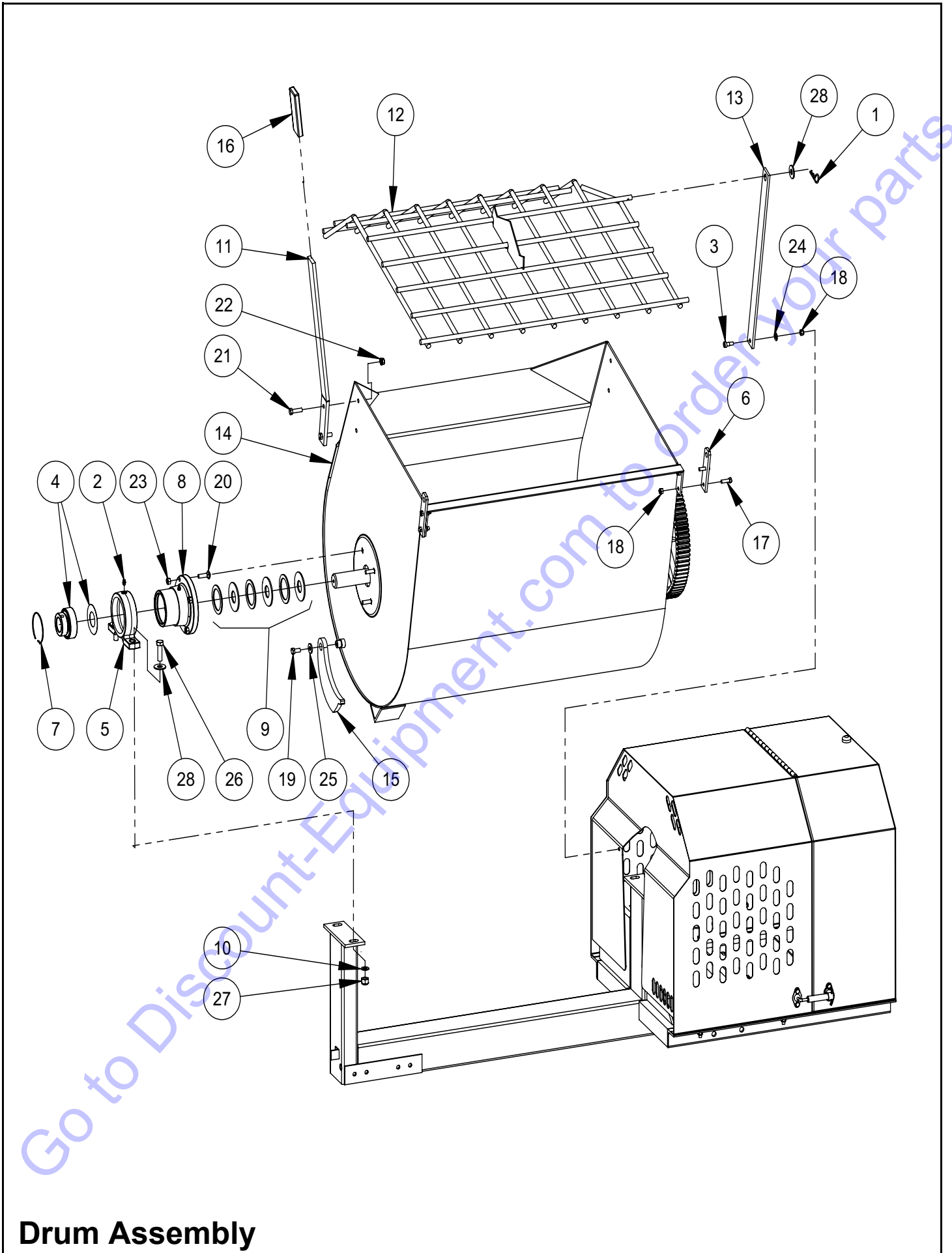
Write Model Number here

Write Serial Number here



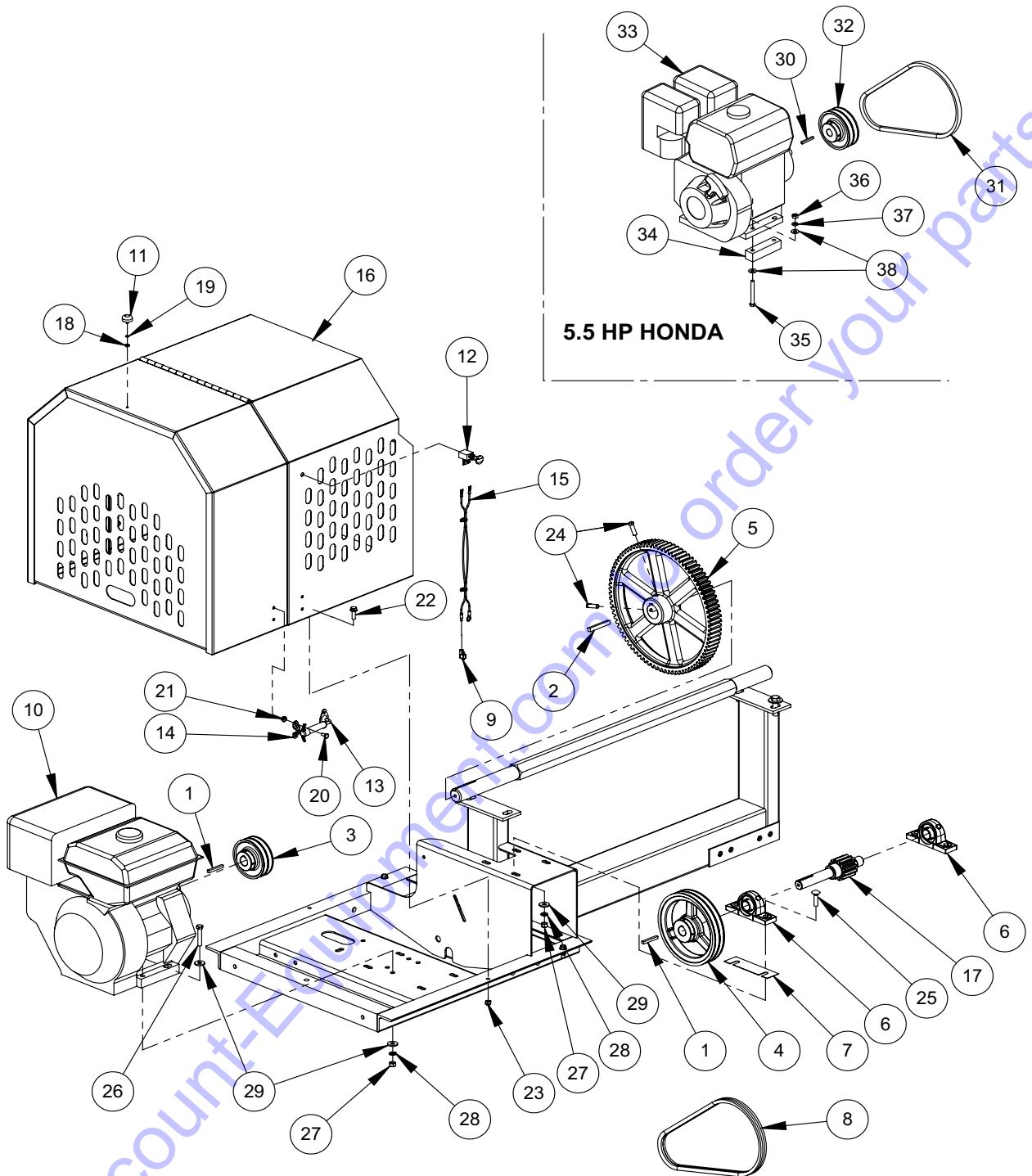
The unit's serial number can be found in the following locations:

- The model/serial number decal is located on the front drum support, below the pillow block.
- The serial number is stamped on the mixer frame between the shroud mounting holes.



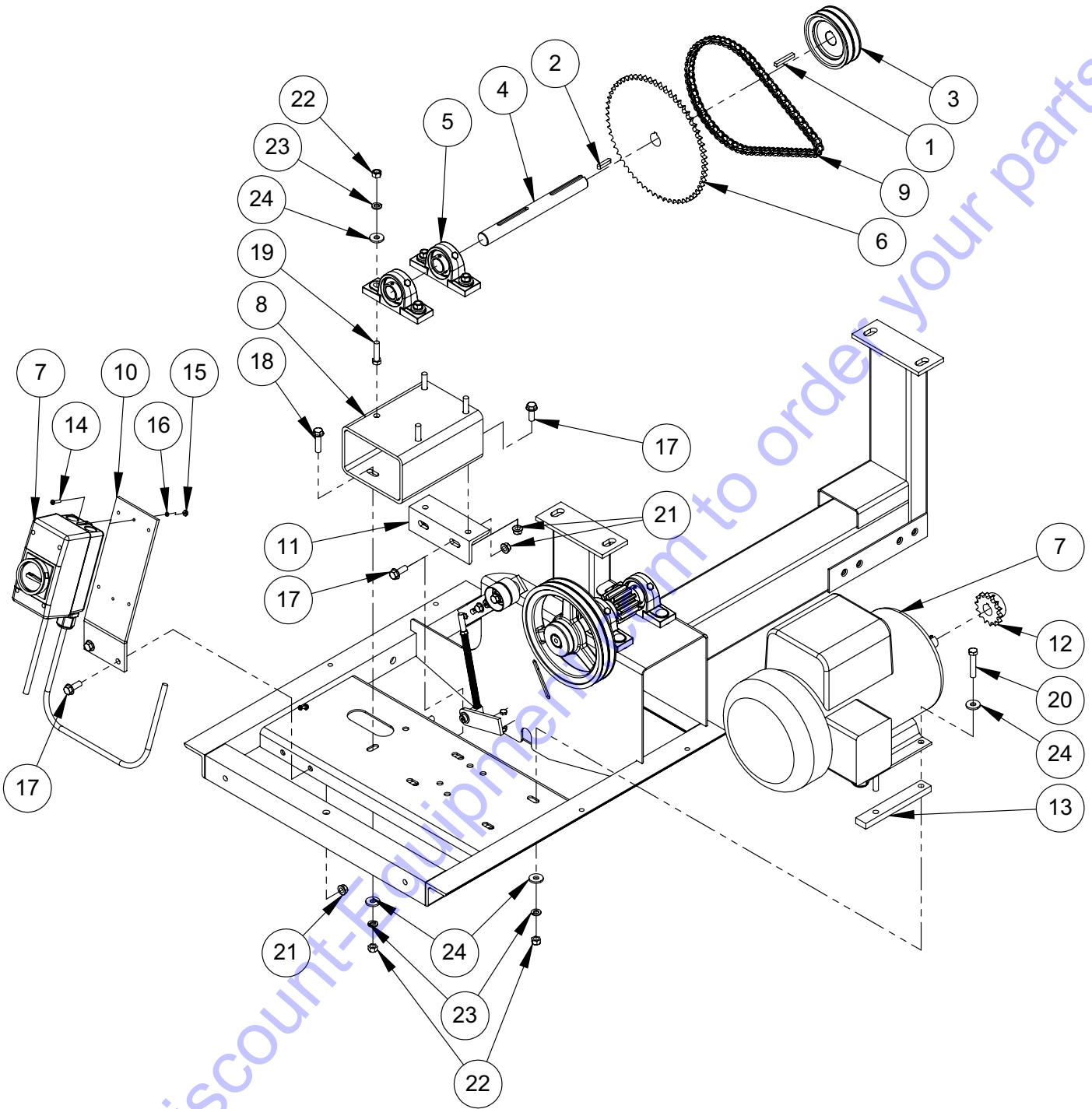
**Drum Assembly**

ITEM	PART NO.	DESCRIPTION	MM60	MM80	MM90
1.	01056	HAIRPIN, 1/8" x 2-3/8" LONG	1	1	1
2.	01177	GREASE FITTING, 45	4	4	4
3.	01280	SOCKET HEAD SHOULDER SCREW, 3/8" x 3/8"	1	1	1
4.	01550	BALL BEARING (Includes seal & locking collar)	2	2	2
5.	05002	PILLOW BLOCK	2	2	2
6.	05082	BRACKET, GRID SUPPORT	2	2	2
7.	05475	RING, RETAINING	2	2	2
8.	05665	TRUNNION	2	2	2
9.	05918	SEAL KIT	2	2	2
10.	06327	WASHER	4	4	4
11.	16737	HANDLE, DUMP	1	1	1
12.	16806	GRID, MM60	1		
	16807	GRID, MM80		1	
	16781	GRID, MM90			1
13.	16832	OPENER, GRID, MM60	1		
	16782	OPENER, GRID		1	1
14.	17076	DRUM, MM60	1		
	17077	DRUM, MM80		1	
	17078	DRUM, MM90			1
15.	17079	LOCKING BAR	1	1	1
16.	18903	GRIP, DUMP HANDLE	1	1	1
17.	F051808HCS	HEX HEAD CAP SCREW, 5/16-18 x 1"	4	4	4
18.	F0518ELN	ELASTIC LOCKNUT, 5/16-18	5	5	5
19.	F061606HCS	HEX HEAD CAP SCREW, 3/8-16 x 3/4"	1	1	1
20.	F061610CB	CARRIAGE BOLT, 3/8-16 x 1-1/4"	8	8	8
21.	F061610HCS	HEX HEAD CAP SCREW, 3/8-16 x 1-1/4"	2	2	2
22.	F0616ELN	ELASTIC LOCKNUT, 3/8-16	2	2	2
23.	F0616FN	FLANGE WHIZ-LOCK NUT, 3/8-16	8	8	8
24.	F06PW	WASHER, 3/8" SAE	1	1	1
25.	F06SW	WASHER, 3/8"	1	1	1
26.	F081314HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-3/4"	4	4	4
27.	F0813ELN	LOCKNUT, 1/2-13 NYLOC ZP	4	4	4
28.	F08SW	WASHER, 1/2"	5	5	5
		<b>REPLACEMENT KITS</b>			
	01427	GREASE FITTING CAPS (Set of 12)	1	1	1
	06090	TRUNNION ASSEMBLY (Includes 2,4,7-9)	2	2	2
	17230*	DRUM ASSEMBLY, MM60	1		
	17231*	DRUM ASSEMBLY, MM80		1	
	17232*	DRUM ASSEMBLY, MM90			1
		* Includes trunnions, pillow blocks, shaft, paddles, & grid			



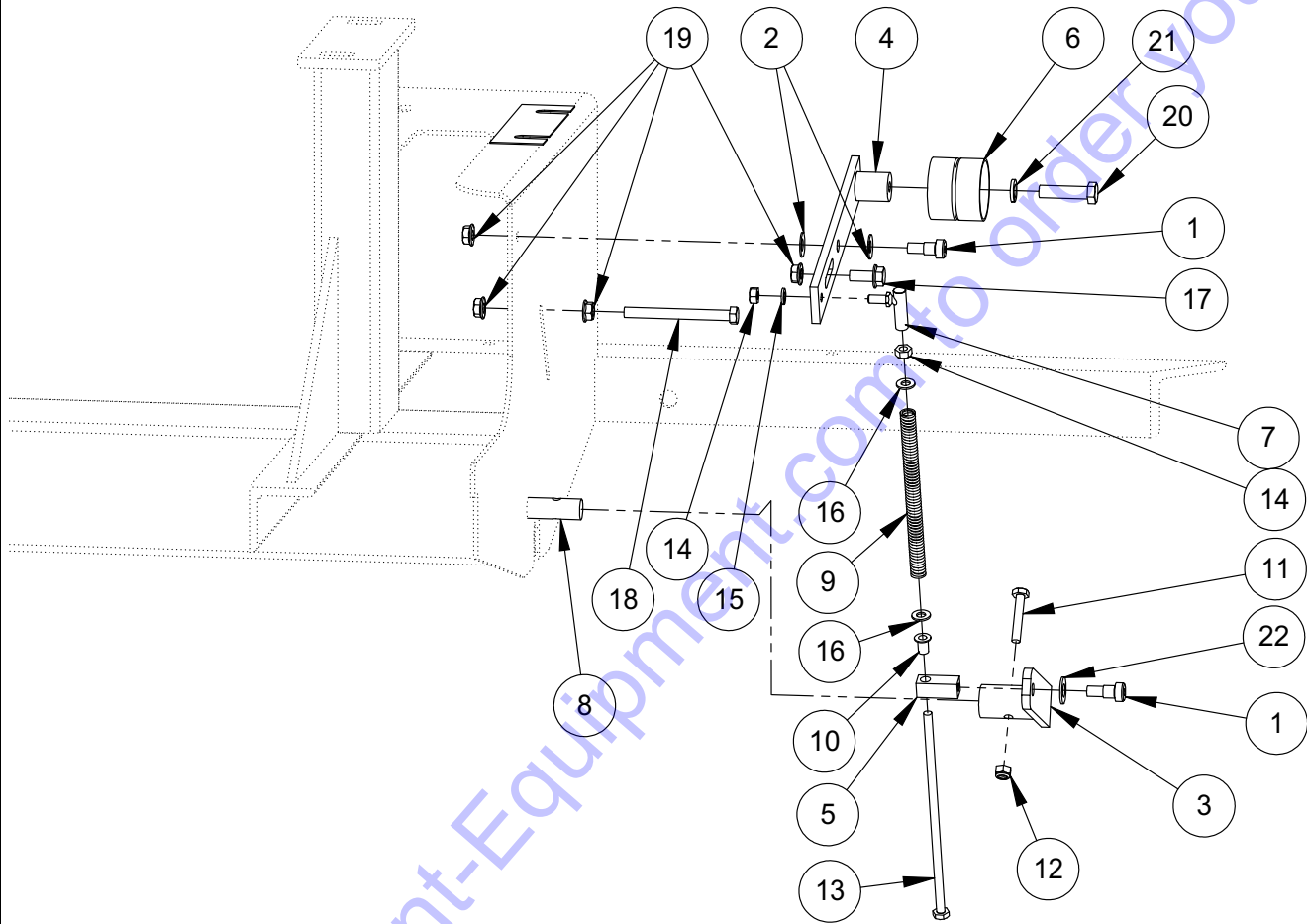
**Drivetrain Assembly**

ITEM	PART NO.	DESCRIPTION	MM60	MM80	MM90
1.	00808	KEY, 1/4" SQUARE x 1-3/4" LONG	2	2	2
2.	01159	KEY, 3/8" SQUARE x 2-3/4" LONG	1	1	1
3.	01561	SHEAVE, 2A - 4" (8 hp Honda)	1	1	1
4.	01562	SHEAVE, 2A - 8"	1	1	1
5.	01563	SPUR GEAR, 84 TOOTH	1	1	1
6.	05586	BEARING, PILLOW BLOCK	2	2	2
7.	05692	SHIM, MIXER ( <b>AS REQUIRED</b> )	1	1	1
8.	05741	V-BELT, AX-38	2	2	2
9.	07592	TERMINAL, SPLICE	1	1	1
10.	07755	ENGINE, HONDA 8 HP	1	1	1
11.	21675	ENGINE, KOHLER CH395	1	1	1
	16750	BUMPER, RUBBER	1	1	1
12.	16783	SWITCH	1	1	1
13.	16813	LATCH, METAL	2	2	2
14.	16816	CATCH PLATE, METAL LATCH	2	2	2
15.	16820	HARNESS, WIRING	1	1	1
16.	17135	SHROUD ASSEMBLY (Includes 11,13,14 & 18-21)	1	1	1
17.	17404	PINION GEAR SHAFT, 12 TOOTH	1	1	1
18.	F0324HN	HEX NUT, #10-24	1	1	1
19.	F03LW	LOCKWASHER, #10	1	1	1
20.	F042004HCS	HEX HEAD CAP SCREW, 1/4-20 x 1/2"	8	8	8
21.	F0420FN	FLANGE NUT, 1/4-20	8	8	8
22.	F051808FWS	FLANGE BOLT, 5/16-18 x 1"	4	4	4
23.	F0518ELN	HEX HEAD CAP SCREW, 5/16-18	4	4	4
24.	F061610SHS	SQUARE HEAD SET SCREW, 3/8-16 x 1-1/4"	2	2	2
25.	F061612CB	CARRIAGE BOLT, 3/8-16 x 1-1/2"	4	4	4
26.	F061616HCS	HEX HEAD CAP SCREW, 3/8-16 x 2"	4	4	4
27.	F0616HN	HEX NUT, 3/8-16	8	8	8
28.	F06LW	LOCKWASHER, 3/8"	8	8	8
29.	F06SW	WASHER, 3/8"	12	12	12
		<b>5.5 HP HONDA ENGINE OPTION</b>			
30.	00032	KEY, 3/16" SQUARE x 1-5/8" LONG	1		
31.	05606	V-BELT, COGGED (AX-37) - S/N 7010432 and above	2		
	05741	V-BELT, COGGED (AX-38) - S/N 7010431 and below	2		
32.	15223	SHEAVE, 2A - 4"	1		
33.	15224	ENGINE, HONDA 5.5 HP	1		
34.	17703	SPACER, 5.5 HP ENGINE - S/N 7010432 and above	2		
35.	F051822HCS	HEX HEAD CAP SCREW, 5/16-18 x 2-3/4"	4		
36.	F0518HN	HEX NUT, 5/16-18	4		
37.	F05LW	LOCKWASHER, 5/16"	4		
38.	F05SW	WASHER, 5/16"	8		
		<b>SERVICE PARTS</b>			
	06028	SHAFT ASSEMBLY, INTERMEDIATE (Includes 6 & 17)			



**Electric Motor Drivetrain Assembly**

ITEM	PART NO.	DESCRIPTION	1.5HP	2HP	3 HP
1.	00808	KEY, 1/4" SQUARE x 1-3/4" LONG	2	2	2
2.	01283	KEY, 1/4" SQUARE x 1-1/4" LONG	1	1	1
3.	01561	SHEAVE, 2A - 4"	1	1	1
4.	19876	SHAFT, INTERMEDIATE	1	1	1
5.	05586	BEARING, PILLOW BLOCK	2	2	2
6.	16585	SPROCKET, 60 TOOTH	1	1	1
7.	06067	MOTOR, ELECTRIC 1.5 HP, 1-PHASE, 230 VOLT	1		
	19918	MOTOR, ELECTRIC 1.5 HP, 1-PHASE, 115 VOLT			
	06025	MOTOR, ELECTRIC 2 HP, 1-PHASE, 230 VOLT		1	
	16729	MOTOR, ELECTRIC 3 HP, 1-PHASE, 230 VOLT			1
8.	16936	STAND, PILLOW BLOCK	1	1	1
9.	16939	CHAIN, #40 ROLLER, 35"	1	1	1
10.	16940	BRACKET, MOUNTING			1
11.	16941	ANGLE	1	1	1
12.	16942	SPROCKET, 14 TOOTH	1	1	1
13.	16943	BAR	2	2	2
14.	F023206PMS	PAN HEAD MACHINE SCREW, #8-32 x 3/4"	2	2	2
15.	F0232HN	HEX NUT, #8-32			4
16.	F02LW	LOCK WASHER, #10			4
17.	F061608FWS	FLANGE LOCKING SCREW, 3/8-16 x 1"	6	6	8
18.	F061610HCS	HEX HEAD CAP SCREW, 3/8-16 x 1-1/4"	1	1	1
19.	F061612HCS	HEX HEAD CAP SCREW, 3/8-16 x 1-1/2"	4	4	4
20.	F061616HCS	HEX HEAD CAP SCREW, 3/8-16 x 2"	4	4	4
21.	F0616FN	FLANGE LOCK NUT, 3/8-16	6	6	8
22.	F0616HN	HEX NUT, 3/8-16	7	7	7
23.	F06LW	LOCK WASHER, 3/8"	9	9	9
24.	F06SW	WASHER, 3/8"	12	12	12
		<b>REPLACEMENT KITS</b>			
	06068	ADAPTER, 145T TO 182-184T FRAME (Included with 1.5hp motor)			
	19916	MOTOR CONTROLLER, 115V 20 AMP (ENCLOSURE & STARTER)			
	19917	MOTOR CONTROLLER, 230V 16 AMP (ENCLOSURE & STARTER)			
	19919	SWITCH ENCLOSURE			
	19920	MOTOR STARTER, 115V 20 AMP			
	19921	MOTOR STARTER, 230V 16 AMP			

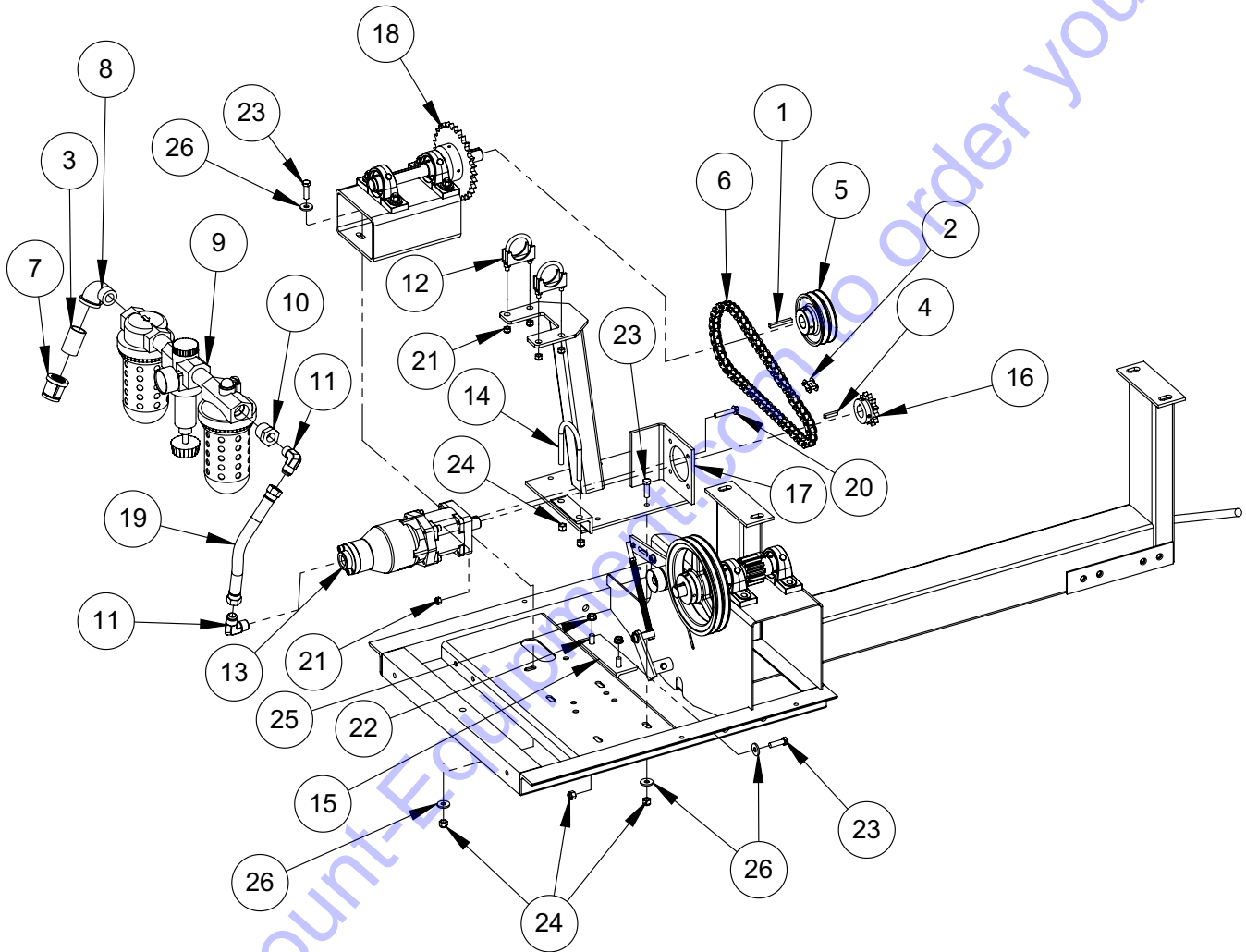


**Idler Assembly**



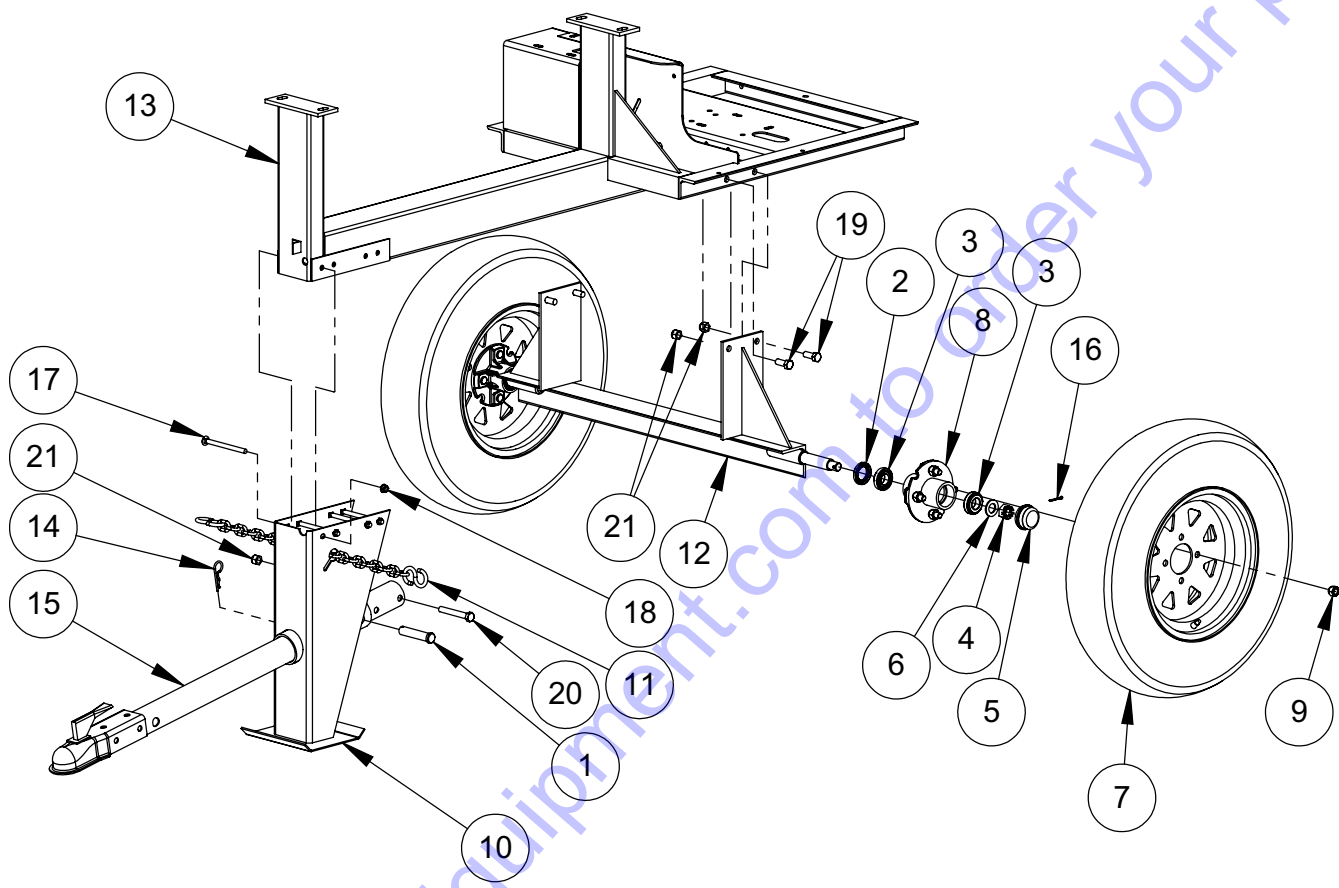
ITEM	PART NO.	DESCRIPTION	MM60	MM80	MM90
1.	01280	SOCKET HEAD SHOULDER SCREW, 3/8" x 3/8"	2	2	2
2.	12422	SPRING WASHER, 3/8" x 3/4"	2	2	2
3.	16733	ACTUATOR	1	1	1
4.	16736	ARM, IDLER	1	1	1
5.	16887	SWIVEL ASSEMBLY ( Includes item #10)	1	1	1
6.	16784	PULLEY, FLAT IDLER	1	1	1
7.	16786	JOINT, BALL	1	1	1
8.	16828	ENGAGEMENT HANDLE, MM60	1		
	16829	ENGAGEMENT HANDLE, MM80		1	
	16752	ENGAGEMENT HANDLE, MM90			1
9.	16933	SPRING, COMPRESSION	1	1	1
10.	17600	BUSHING	1	1	1
11.	F042012HCS	HEX HEAD CAP SCREW, 1/4-20 x 1-1/2"	1	1	1
12.	F0420ELN	ELASTIC LOCKNUT, 1/4-20	1	1	1
13.	F042856HCS	HEX HEAD CAP SCREW, 1/4-28 x 7"	1	1	1
14.	F0428HN	HEX NUT, 1/4-28	2	2	2
15.	F04LW	LOCKWASHER, 1/4"	1	1	1
16.	F04SW	WASHER, 1/4"	2	2	2
17.	F051806FWS	FLANGE BOLT, 5/16-18 x 3/4"	1	1	1
18.	F051826HCS	HEX HEAD CAP SCREW, 5/16-18 x 3-1/4"	1	1	1
19.	F0518FN	FLANGE NUT, 5/16-18	4	4	4
20.	F061612HCS	HEX HEAD CAP SCREW, 3/8-16 x 1-1/2"	1	1	1
21.	F06LW	LOCKWASHER, 3/8"	1	1	1
22.	F06PW	WASHER, 3/8" SAE	1	1	1
		<b>REPLACEMENT KITS</b>			
	17609	ROD ASSEMBLY (INCLUDES 1, 5, 7, 9, 10, 13, 14, 16, 22)			

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**Air Mixer Assembly**

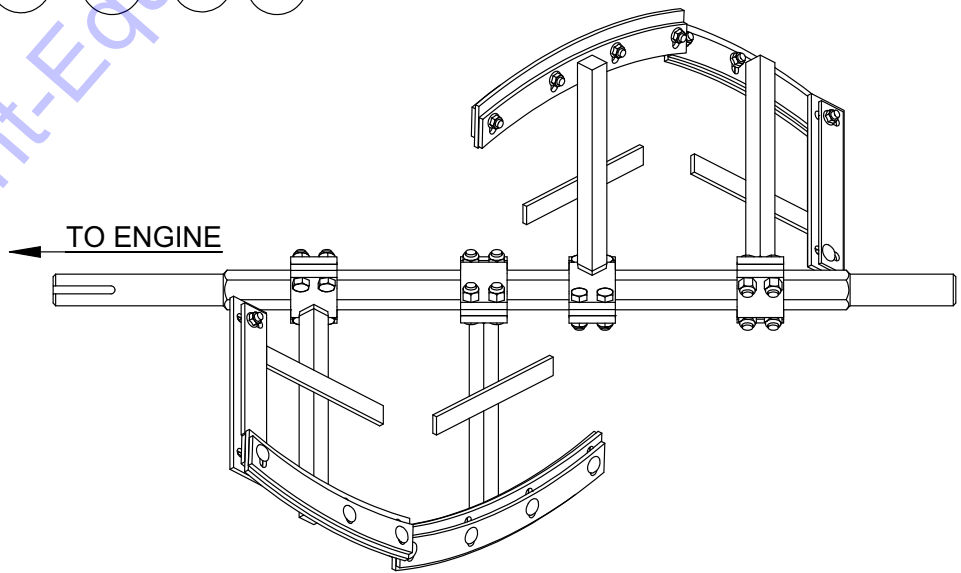
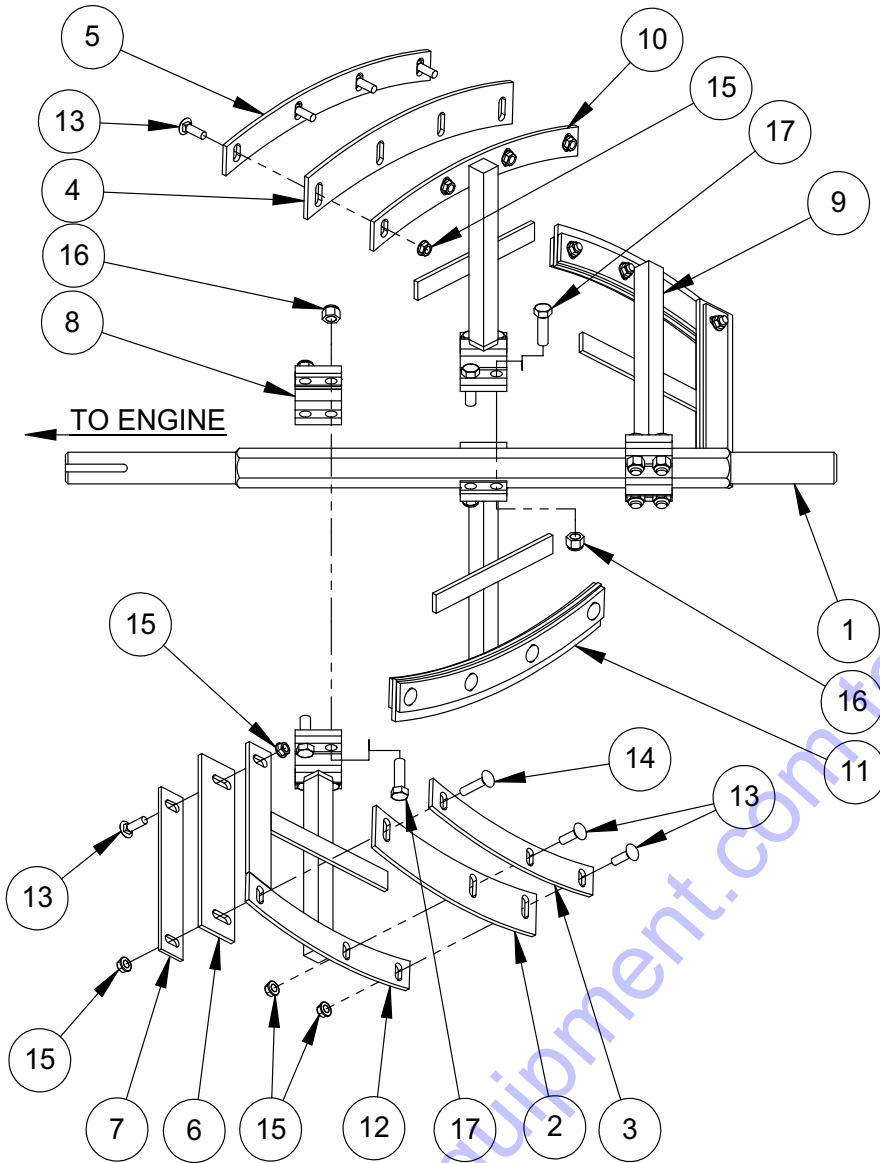
ITEM	PART NO.	DESCRIPTION	QTY
1.	01160	KEY, 1/4 SQ X 2	1
2.	01204	CHAIN, CONNECTING LINK #50	1
3.	01239	NIPPLE	1
4.	01283	KEY, 1/4 SQ X 1-1/4 RD ENDS	1
5.	01561	SHEAVE, TWO GROOVE 2AK44 X 1	1
6.	06065	CHAIN, ROLLER #50 X 35-1/2	1
7.	06116	FITTING, PIPE REDUCER 1 X 3/4	1
8.	08280	FITTING, PIPE 90 DEG STREET X 1	1
9.	08910	REGULATOR UNIT, COMBINATION	1
10.	11379	REDUCER	1
11.	12199	FITTING, ELBOW PARKER 10-CTX-S	2
12.	14731	CLAMP, MUFFLER (1-5/8)	2
13.	15081	AIR MOTOR	1
14.	15085	2-1/2 MUFFLER CLAMP	1
15.	16941	ANGLE	1
16.	18029	SPROCKET, H5012, 1" BORE	1
17.	18039	SUPPORT, AIR MOTOR, MIXER	1
18.	18045	JACKSHAFT, AIR MIXER	1
19.	18046	HOSE, HYDRAULIC, 5/8 X 12 LP	1
20.	F051814FWS	FWLS, 5/16-18 X 1-3/4 GR5 ZP	4
21.	F0518ELN	LOCKNUT, 5/16-18 NYLOC ZP	8
22.	F061608FWS	FWLS, 3/8-16 X 1 ZP	2
23.	F061610HCS	HHCS, 3/8-16 X 1-1/4 GR5 ZP	7
24.	F0616ELN	LOCKNUT, 3/8-16 NYLOC ZP	9
25.	F0616FN	FLANGE WHIZ-LOCK NUT, 3/8-16	2
26.	F06SW	WASHER, 25/64 X 1 X 1/8 ZP	8



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**Frame & Axle Assembly**

ITEM	PART NO.	DESCRIPTION	MM60	MM80	MM90
1.	01150	PIN, CLEVIS	1	1	1
2.	01170	SEAL, GREASE	2	2	2
3.	01171	BEARING, 1" (Cup & cone)	4	4	4
4.	01174	CASTLE NUT, 3/4-16	2	2	2
5.	01175	COVER, DUST	2	2	2
6.	01235	WASHER	2	2	2
7.	01557	WHEEL, 4.80" x 12"	2		
	06442	WHEEL, ST175/80D13		2	2
8.	01558	HUB ASSEMBLY 4-BOLT, 1" (Includes 2-6, 9,16)	2	2	2
9.	05844	WHEEL NUT, 1/2-20	8	8	8
10.	16743	LEG, FRONT	1	1	1
11.	16771	CHAIN, SAFETY (10 ft.)	1	1	1
12.	16817	AXLE, 12" WHEELS (Includes hubs)	1		
	16818	AXLE, 13" WHEELS (Includes hubs)		1	1
13.	17073	FRAME, MM60	1		
	17074	FRAME, MM80		1	
	17075	FRAME, MM90			1
14.	17158	HAIRPIN, 5/32" x 2-11/16" LONG	1	1	1
15.	21400	TOW POLE, BALL HITCH (Includes items #1, 14, 20 & 21)	1	1	1
16.	F0210CP	COTTER PIN, 1/8" x 1-1/4"	2	2	2
17.	F061640CB	CARRIAGE BOLT, 3/8-16 x 5"	4	4	4
18.	F0616FN	FLANGE NUT, 3/8-16	4	4	4
19.	F081310HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-1/4"	4	4	4
20.	F081328HCS	HEX HEAD CAP SCREW, 1/2-13 x 3-1/2" LG.	1	1	1
21.	F0813ELN	HEX NYLOC NUT, 1/2-13	5	5	5
		<b>REPLACEMENT KITS</b>			
	07334	WHEEL STUD (Round serrated shank - Cast iron hub)	8	8	8
		<b>ACCESSORIES</b>			
	17957	3" MIXER LIFT KIT			
	19866	KIT, TORSION AXLE			



**MM90 PADDLE ORIENTATION**

**Paddle Assembly**

ITEM	PART NO.	DESCRIPTION	MM60	MM80	MM90
1.	05821 05006	MAIN SHAFT, MM60 MAIN SHAFT, MM80	1	1	
2.	05648 17574	MAIN SHAFT, MM90 RUBBER BLADE, END*	2	2	1
3.	18540	STEEL BLADE, END	2	2	2
4.	17576	RUBBER BLADE, CENTER*	2	2	2
5.	18543	STEEL BLADE, CENTER	2	2	2
6.	17578	RUBBER BLADE, WIPER*	2	2	2
7.	18544	STEEL BLADE, WIPER	2	2	2
8.	17585	PADDLE CLAMP	2	2	4
9.	17620 17570	PADDLE ASM, END RIGHT (Includes 2,3,6,7, 13-17) PADDLE ASM, END RIGHT (Includes 2,3,6,7, 13-17)	1	1	1
10.	17621 17571	PADDLE ASM, CENTER RIGHT (Includes 4,5, 13-17) PADDLE ASM, CENTER RIGHT (Includes 4-5, 13-17)	1	1	1
11.	17622 17572	PADDLE ASM, CENTER LEFT (Includes 4-5, 13-17) PADDLE ASM, CENTER LEFT (Includes 4,5, 13-17)	1	1	1
12.	17623 17573	PADDLE ASM, END LEFT (Includes 2-3,6,7, 13-17) PADDLE ASM, END LEFT (Includes 2,3,6,7, 13-17)	1	1	1
13.	F061610CB	CARRIAGE BOLT, 3/8-16 x 1-1/4"	14	14	14
14.	F061614CB	CARRIAGE BOLT, 3/8-16 x 1-3/4"	2	2	2
15.	F0616FN	FLANGE LOCK NUT, 3/8-16	16	16	16
16.	F0813ELN	ELASTIC LOCKNUT, 1/2-13	12	12	16
17.	F081313HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-5/8"	12	12	16
		<b>REPLACEMENT KITS</b>			
	*17597	RUBBER BLADE KIT (Includes 2, 4, 6)	1	1	1
	*19613	KIT, MIXER SCRAPER HARDWARE (Includes 13, 14, 15)			

# 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.



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