Operator's Safety and Service Manual

MM91 & MM121

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

MM121 7090001

MM91.....7150001



Mortar & Plaster Mixers

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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.

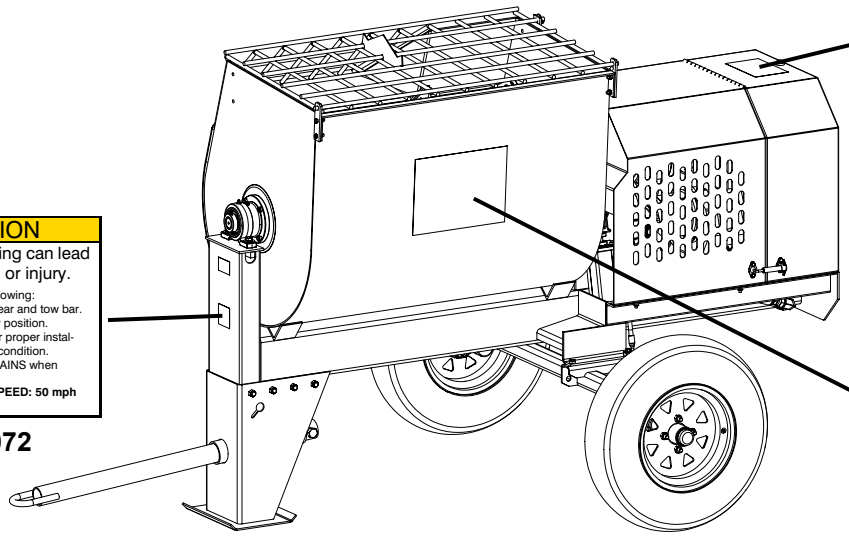


OPERATOR: Keep children and bystanders off and away from the equipment.

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).



CAUTION

Read the operating instructions before operating this piece of equipment.

Keep unauthorized, inexperienced, untrained people away from this equipment.

ROTATING & MOVING PARTS! Make sure all guards and safety devices are in place.

DO NOT RUN this machine in an enclosed area. The engine produces carbon monoxide, a **POISONOUS** gas.

SHUT OFF the engine before servicing, cleaning or adding fuel to engine or machine.

Failure to comply could result in serious bodily injury

15070

15070

CAUTION

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

15072

15072

01554
Not included with decal set

MIXER
OPERATING INSTRUCTIONS

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

MAXIMUM TOW SPEED: 50 MPH

15071

15071

WARNING

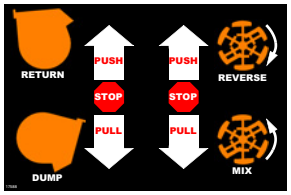


ENGINE EXHAUST IS HAZARDOUS IF INHALED

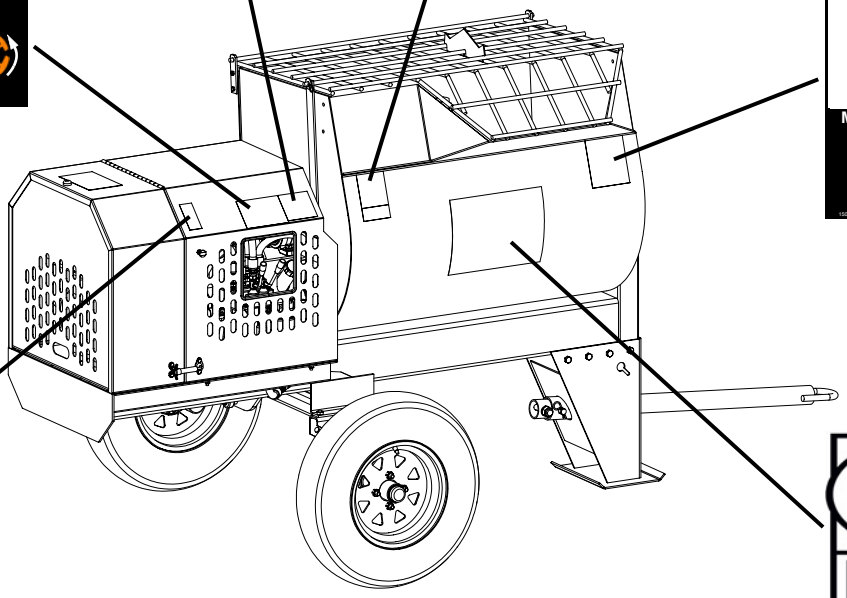
USE ONLY IN A WELL VENTILATED AREA

15076

15076



17588
Not included with decal set



WARNING



MOVING PARTS CAN CRUSH AND CUT

KEEP HANDS CLEAR!

SHUT OFF ENGINE OR MOTOR BEFORE SERVICING.

15069

15069

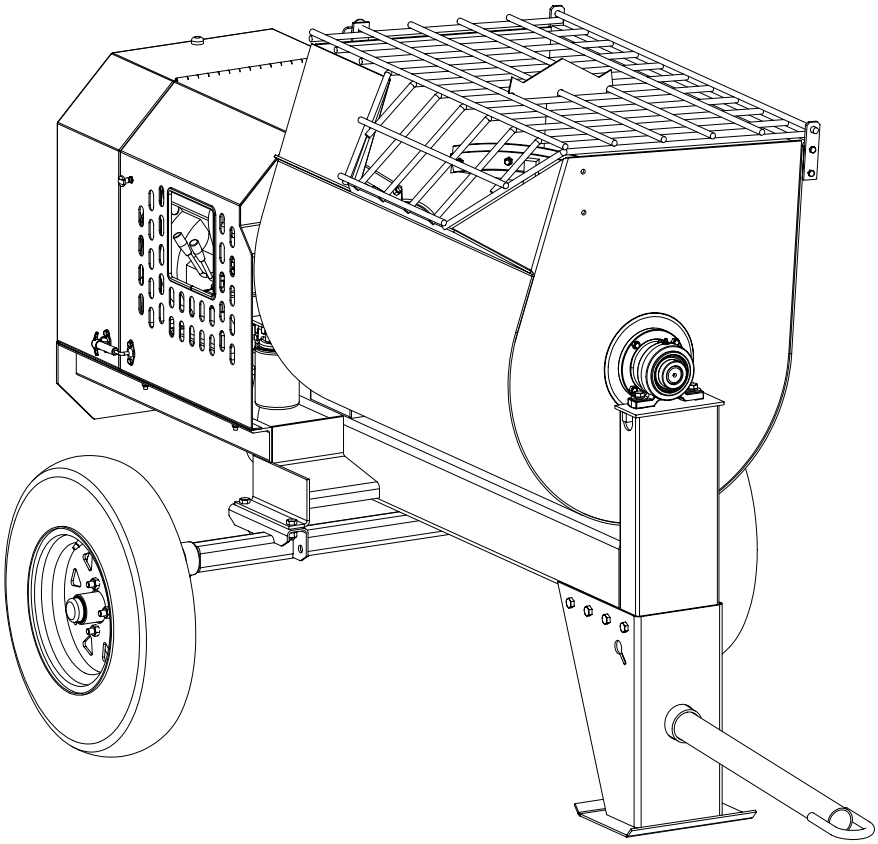
PUSH TO STOP

16546

01554
Not included with decal set

Safety Decals (Decal Set #15074)

SPECIFICATIONS



MM121

	MM91			MM121		
Batch Capacity	9 cu. ft. (0.26 cu. m.)			12 cu. ft. (0.34 cu. m.)		
Batch Size	3 - 3.5 bags			3.5 - 4.5 bags		
Engine / Motor	Honda 13 hp	Baldor 5 hp (1-phase) 230 V - 23 A	Baldor 5 hp (3-phase) 230 V - 13.4 A 460 V - 6.7 A	Honda 13 hp	Baldor 5 hp (1-phase) 230 V - 23 A	Baldor 5 hp (3-phase) 230 V - 13.4 A 460 V - 6.7 A
Engine / Motor Speed	3300 rpm	1725 rpm	1750 rpm	3300 rpm	1725 rpm	1750 rpm
Drivetrain	Hydraulic Pump to Hydraulic Motor			Hydraulic Pump to Hydraulic Motor		
Axle	46” Solid axle			61” Torsion Axle		
Wheels	ST175/80D13 high-speed			ST175/80D13 high-speed		
Size - W x L x H	46 x 70 x 58 in (117 x 178 x 147 cm)			61 x 88 x 60 in (155 x 224 x 152 cm)		
Weight	1072 lbs (486 kg)			1230 lbs (558 kg)		
Charging Height	56 in (142 cm)			56 in (142 cm)		

Specifications subject to change without notice

OPERATION

Introduction

MBW equipment is intended for use in very severe applications. They are powered by reliable four cycle 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.

Starting Engine

1. Check that both operating levers are in the STOP, or center, position.
2. Open fuel valve.
3. Pull out the stop switch on engine shroud, turn engine switch to "ON" position.
4. Set throttle to idle.
5. Choke engine if necessary (you may not need to choke a warm engine).
6. Pull starter rope repeatedly until engine starts.
7. Move choke lever to open position.
8. Allow engine to warm up for one or two minutes.

Starting Motor

1. Check that both operating levers are in the STOP, or center, position.

⚠ WARNING ⚠

Always have a certified electrician wire the motor for your application.

2. Push "START" button on switch box.

Operating

1. Open throttle fully.
2. Close the engine shroud.

⚠ WARNING ⚠

Never operate mixer with the shroud open.

3. Pull motor lever to "MIX" position.
4. Add half of the required amount of sand and water for the batch to be mixed.
5. Add the total required amount of mortar mix.
6. Add the remaining amounts of sand and water and allow time to mix properly.
7. Pull drum lever to "DUMP" position to discharge batch.
8. Push drum lever to "RETURN" position until drum has returned to the mixing position.
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 6.

Stopping Engine

1. Push motor lever to "STOP", or center, position.
2. Let engine idle for one or two minutes.
3. Push in the stop switch on engine shroud.
4. Close fuel valve.

⚠ WARNING ⚠

Always stop engine before adding fuel.

Stop engine before leaving mixer unattended for any amount of time.

Stopping Motor

1. Push motor lever to “STOP”, or center, position.
2. Let motor cool for one or two minutes if warm.
3. Push “STOP” button on switch box.

⚠ WARNING ⚠

Stop motor before leaving mixer unattended for any amount of time.

Towing

1. Stop the engine or motor.
2. Close and latch the engine shroud.
3. Secure the tow pole and safety chains to the vehicle.

⚠ WARNING ⚠

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

Make sure safety bolt is in place.

Check the condition of the hitch pin 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

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
Drum	Grease trunnions & pillow blocks	X			
Engine	Refer to engine operator/owner manual	X			
Hardware	Check and tighten as needed[1,2]				X
Hydraulics	Check oil level		X		
	Check for oil leaks	X			
	Change oil				X
	Clean suction strainer				X
	Change filter[3]				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 travelled, the follow the maintenance schedule.
3. **Change filter after the first 10 hours of use, then follow the maintenance schedule**.

Fluid Levels

SYSTEM	FLUID VOLUME		RECOMMENDED OIL
Model	MM91	MM121	Chevron Rykon AW ISO 32 Hydraulic Oil
Hydraulics	13.5 gallons	15 gallons	
Engine	Refer to engine operator/owner manual		

Engine Maintenance

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

Engine Speed

Engine speed is factory set according to the speed 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 pound 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.

Checking Hydraulic Oil

1. Remove cap from fill neck located above the filter.
2. Insert a metal dip stick (18” long) into fill neck and push into far corner of tank (see Figure 1).

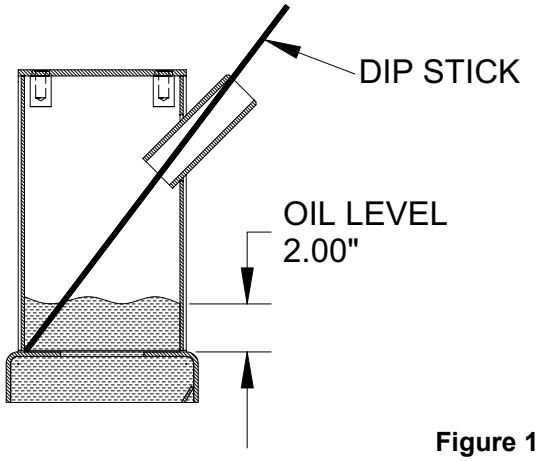


Figure 1

3. Oil level should be approximately 2” when cold.
4. Add ISO32 Hydraulic Oil if necessary.
5. Reinstall cap.

Changing Hydraulic Filter

1. Remove hydraulic filter which is accessible from the front opening of the engine shroud, or from underneath the frame.
2. Apply clean oil to filter gasket, and install new filter (MBW #08164).

Changing Hydraulic Oil & Suction Strainer

Refer to Hydraulic Components, page 18.

1. Remove cap (#6) from fill neck located above the filter (#1).
2. Drain hydraulic tank (15 gallons) by removing drain plug along back edge of frame. Draining can be sped up by removing suction strainer, but this may be much messier.
3. Remove hydraulic filter which is accessible from the front opening of the engine shroud, or from underneath the frame.
4. Apply clean oil to filter gasket, and install new filter (MBW #08164).
5. Disconnect 3/4” hose (#26) from fitting (#18).
6. Remove strainer (#10) and fitting (#18) from tank.
7. Clean strainer thoroughly, replace if damaged.
8. Reinstall strainer and fitting into tank. Use hydraulic loctite to prevent leaks.
9. Reconnect hose to fitting.
10. Install drain plug using pipe sealant.
11. Fill hydraulic tank with 15 gallons of Chevron ISO32 Hydraulic Oil.
12. Reinstall cap.
13. Start engine and allow hydraulic system to charge for at least 5 minutes.

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.

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 Shroud & Chassis Assembly, page 12.

1. Disconnect wiring harness (#11) from engine by unscrewing ring terminal from engine and unplugging bullet connector from splice terminal (#5).
2. Disconnect automatic grid opener from grid.
3. Remove four bolts (#26), washers (#28), and lock nuts (#27) securing engine shroud to frame.
4. Carefully lift shroud straight up and tilt to get around valve block handles. Approximate weight is 85 pounds.

Engine Shroud Installation

Refer to Shroud & Chassis Assembly, page 12.

1. Lift shroud over engine and drive components and lower it down and around valve block handles. Hold grid opener out of the way when lowering.
2. Align engine shroud with edges of frame and tighten four bolts (#26), washers (#28), and lock nuts (#27) in place.
3. Lift grid opener into position and pin to grid.
4. Connect wiring harness (#11) to engine by grounding the ring terminal to the engine and inserting the bullet connector into the splice terminal (#5).

Drum Removal

Refer to Drum Assembly, page 14.

1. Remove engine shroud before attempting to remove the mixing drum.
2. Disassemble the connecting link on the chain coupler and remove the chain.
3. Remove spring pin from the hydraulic cylinder's top clevis pin, and pull clevis pin halfway out.
4. Rotate cylinder out of engagement with drum and reinstall clevis pin and spring pin.
5. Mark the front and rear pillow block (#5) locations on the frame to aid in the alignment during installation.
6. Remove four bolts (#19), lock washers (#20), and washers (#21) holding drum pillow blocks to frame.
7. Slide mounting bar (#13) out of front support tube.
8. 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 400 pounds.

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 endplay.
2. Check alignment between the two coupler sprockets. Sprockets must be parallel and in-line. Adjust drum location if necessary.
3. Slide mounting bar (#13) into front support tube.
4. Install four bolts (#19), lock washers (#20), and washers (#21) and tighten.
5. Dump drum to check for binding. If binding is noticed, loosen bolts and realign pillow blocks.
6. Remove spring pin from the hydraulic cylinder's top clevis pin, and pull clevis pin halfway out.
7. Rotate cylinder into engagement with drum and reinstall clevis pin and spring pin. Check to ensure that spacer is in place.
8. Reassemble the coupling chain and install the connecting link.
9. Reinstall the engine shroud.

Drum Bearing & Seals Replacement

Refer to Drum Assembly, page 14.

1. Remove mixing drum from mixer. See Drum Removal, page 8.
2. Loosen set screws and remove coupling sprocket 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 (#16) and nuts (#17) 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 collar set screw using medium strength thread locking compound, 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 chain coupler sprocket. Tighten set screws using a medium strength thread locking compound.
24. Reinstall mixing drum onto frame. SeeDrum Installation, page 9.

Valve Handle Replacement

1. To replace motor (right) handle, pull motor handle forward to lock into detent. To replace cylinder (left) handle, push motor handle back and hold in place with rope or bungee.
2. Loosen jam nut, and unthread handle from valve block.
3. Install new handle and tighten jam nut.

Pump Coupler Replacement

Refer to Engine Assembly, page 20.

1. Remove engine shroud.
2. Pry the inspection cover off of the pump-to-engine adapter (#7 or 12). Visually inspect the coupler insert (#10) to determine if replacement is needed.
3. Remove four bolts, washers, lock washers, and nuts securing engine to frame, and slide engine back.
4. Remove two screws (#17) and lock washers (#18) holding pump (#6 or 14) to adapter.
5. Pull pump off of adapter far enough to remove coupler insert, and install new one.
6. Insert pump into adapter and bolt in place.
7. Bolt engine to frame in original position.

8. Reinstall inspection cover.
9. Reinstall the engine shroud.

Hydraulic Relief Valve Adjustment

1. Remove the engine shroud.
2. Install a pressure gage using the side port on the left side of the valve block (pressure port, P). The pressure gage must read to 2,000 psi.
3. Start engine and check that all hydraulic controls are operating properly.
4. With the motor in neutral, push the cylinder lever to "dead-head" the cylinder. Allow the pressure to stabilize. If pressure reads below 1,750 psi or above 1,850 psi, the relief valve needs adjustment. NOTE: If pressure climbs over 1,850 psi, the engine may stall.
5. Loosen the jam nut on the relief cartridge located on the left side of the valve block.
6. Turn the set screw in to increase the pressure setting and turn the set screw out to decrease the pressure setting.
7. When the pressure is set within the acceptable range, tighten the jam nut.
8. Stop engine and remove pressure gage from valve block.
9. Reinstall the engine shroud.

Hydraulic Troubleshooting

Problem	Test & Solution
Mixing Speed too Slow (< 32 rpm)	1. If speed is normal (38 - 40 rpm) in reverse, motor needs servicing. 2. If speed is slow in both directions, but cylinder functions normally, motor needs servicing. 3. If speed is slow in both directions, and cylinder is slow, see "Pump Not Working" section.
Drum Won't Dump	1. If motor functions are normal, cylinder needs servicing. 2. If motor does not spin, see "Pump Not Working" section.
Pump Not Working	1. Check engine speed. Set to 3300 rpm if necessary. 2. Check oil temperature. If over 180 °F, see "Hydraulic Oil too Hot" section. 3. Check relief valve and adjust if necessary. 4. Check pump coupler and adjust or replace if needed. 5. Remove pressure line from valve block and fill with clean oil to charge pump. Reconnect line and check pump operation. 6. Pump needs servicing.
Hydraulic Oil too Hot	1. Check relief valve and adjust if necessary. 2. Change oil according to maintenance schedule. 3. Allow oil to cool if possible to prevent damaging hydraulic components.

Parts Replacement Cycles and Tolerances

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

Replacement Parts

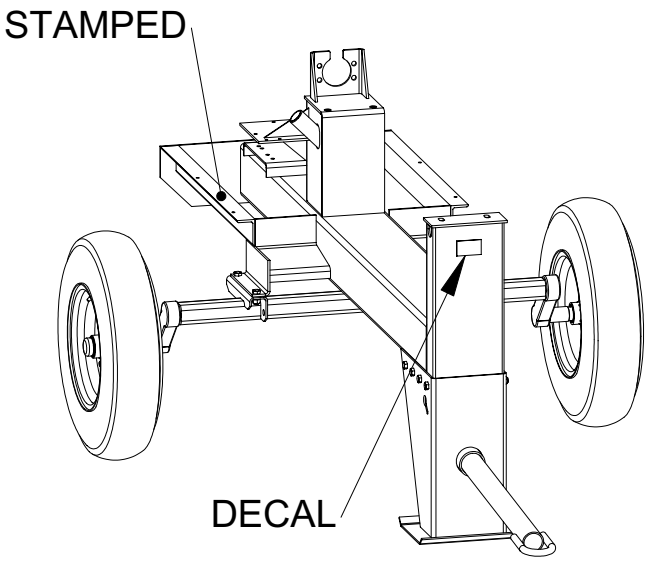
The warranty is stated in this book on page 34. Failure to return the Warranty Registration Card renders the warranty null and void.

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

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

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

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



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

- The 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.

Write Model Number here

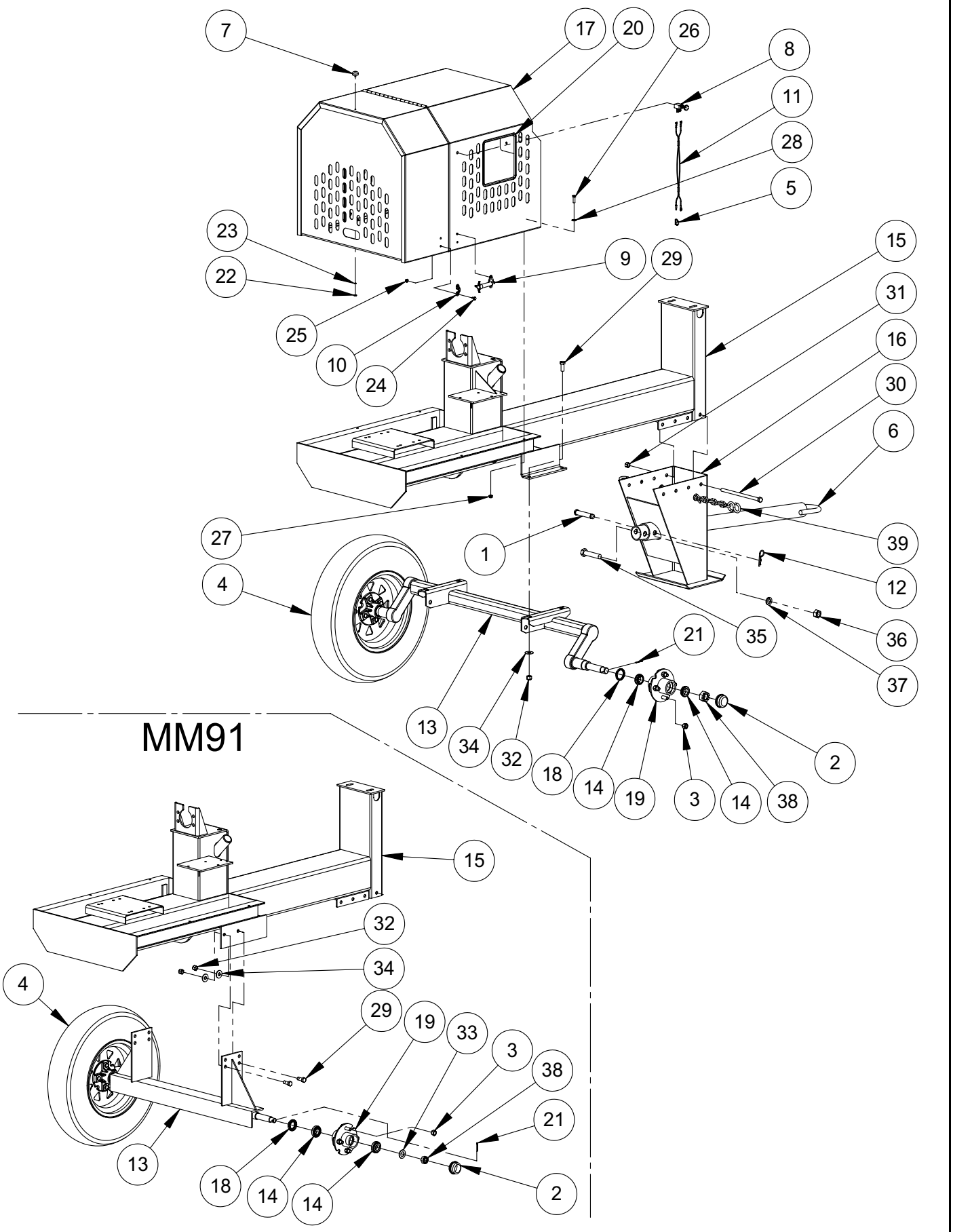
Write Serial Number here

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
Website: www.mbw.com

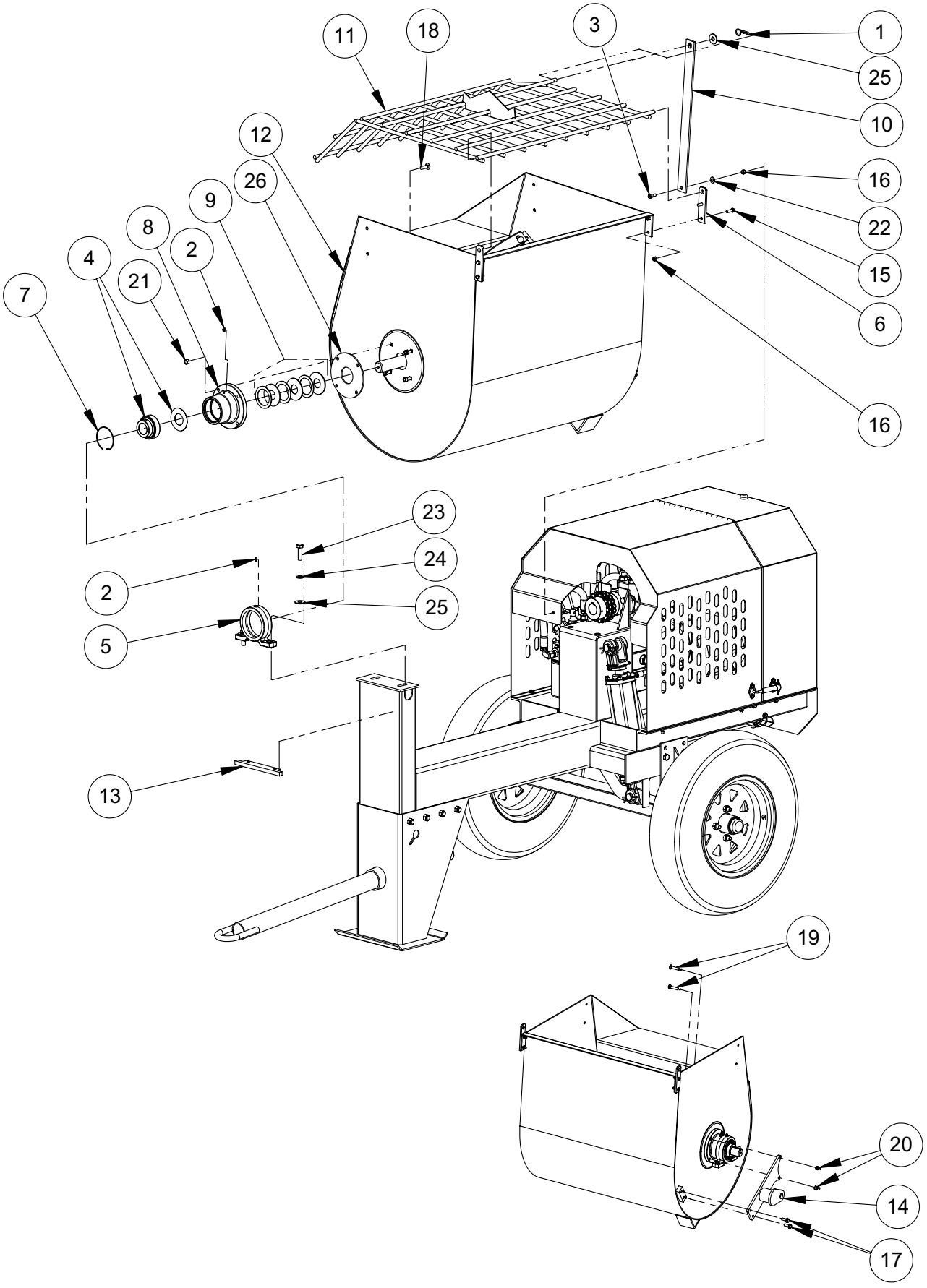
MBW (UK) Ltd.
Units 2 & 3 Crochrane Street
Bolton BL3 6BN
Phone: 01204 387784
Fax: 01204 387797

MBW FRANCE S.A.R.L.
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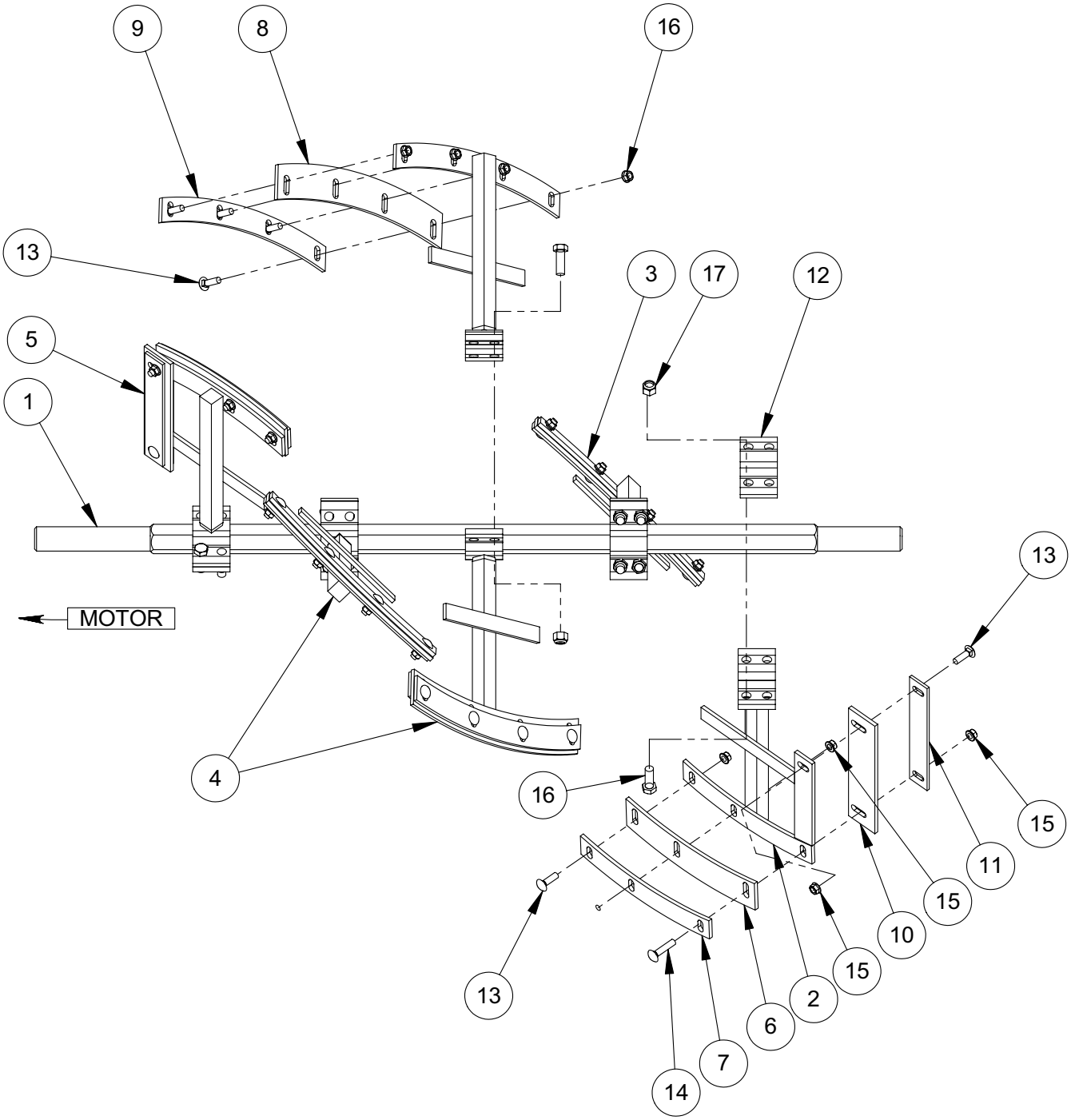
Shroud & Chassis Assembly

ITEM	PART NO.	DESCRIPTION	MM91	MM121
1.	01158	HITCH PIN	1	1
2.	01175	DUST COVER	2	2
3.	05844	WHEEL NUT, 1/2-20	8	8
4.	06442	WHEEL, ST175/80D13	2	2
5.	07592	SPLICE TERMINAL	1	1
6.	16564	TOW POLE, BALL HITCH (Includes 35-37)	1	1
	16773	TOW POLE, PINTLE HITCH (Includes 35-37)	1	1
7.	16750	RUBBER BUMPER	1	1
8.	16783	SWITCH	1	1
9.	16813	METAL LATCH	2	2
10.	16816	CATCH PLATE, LATCH	2	2
11.	16820	WIRING HARNESS	1	1
12.	17158	HAIRPIN, 5/32” x 2-11/16” LONG	1	1
13.	17195	TORSION AXLE (Includes hubs)		1
	18603	AXLE ASSEMBLY (Includes hubs)	1	
14.	17305	BEARING, 1-1/16” (Cup & cone)		4
	01171	BEARING, 1.00”	4	
15.	17400	FRAME, MM121		1
	18588	FRAME, MM91	1	
16.	17488	FRONT LEG, MM121	1	1
17.	18606	ENGINE SHROUD, MM121 (Includes 7,9,10,20,22-25)	1	1
18.	17522	GREASE SEAL		2
	01170	GREASE SEAL	2	
19.	17523	HUB ASSEMBLY (Includes 2,3,14,18,21,38)		2
	01558	HUB ASSEMBLY (Includes 2,3,14,18,21,33,38)	2	
20.	17539	PLASTIC EDGING	1	1
21.	F0212CP	COTTER PIN, 1/8” x 1-1/2” LONG		2
	F0210CP	COTTER PIN, 1/8” x 1-1/4” LONG	2	
22.	F0324HN	HEX NUT, #10-24	1	1
23.	F03LW	LOCK WASHER, #10	1	1
24.	F042004HCS	HEX HEAD CAP SCREW, 1/4-20 x 1/2” LONG	8	8
25.	F0420FN	FLANGE LOCK NUT, 1/4-20	8	8
26.	F051808HCS	HEX HEAD CAP SCREW, 5/16-18 x 1” LONG	4	4
27.	F0518ELN	ELASTIC LOCK NUT, 5/16-18	4	4
28.	F05SW	WASHER, 5/16”	4	4
29.	F081310HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-1/4” LONG	4	4
30.	F081372HCS	HEX HEAD CAP SCREW, 1/2-13 x 9” LONG	4	4
31.	F0813DLN	DEFORMED LOCK NUT, 1/2-13	4	4
32.	F0813ELN	LOCKNUT, 1/2-13, NYLOC	4	4
33.	01235	WASHER, 57/64 X 1-1/2	2	
34.	F08SW	WASHER, 1/2”	4	4
35.	F121628HCS	HEX HEAD CAP SCREW, 3/4-16 x 3-1/2” LONG	1	1
36.	F1216HN	HEX NUT, 3/4-16	1	1
37.	F12LW	LOCK WASHER, 3/4”	1	1
38.	F1614SCN	SLOTTED HEX NUT, 1-14		2
	01174	SLOTTED HEX NUT, 3/4-16	2	
		REPLACEMENT KITS		
39	16771	SAFETY CHAIN	1	1



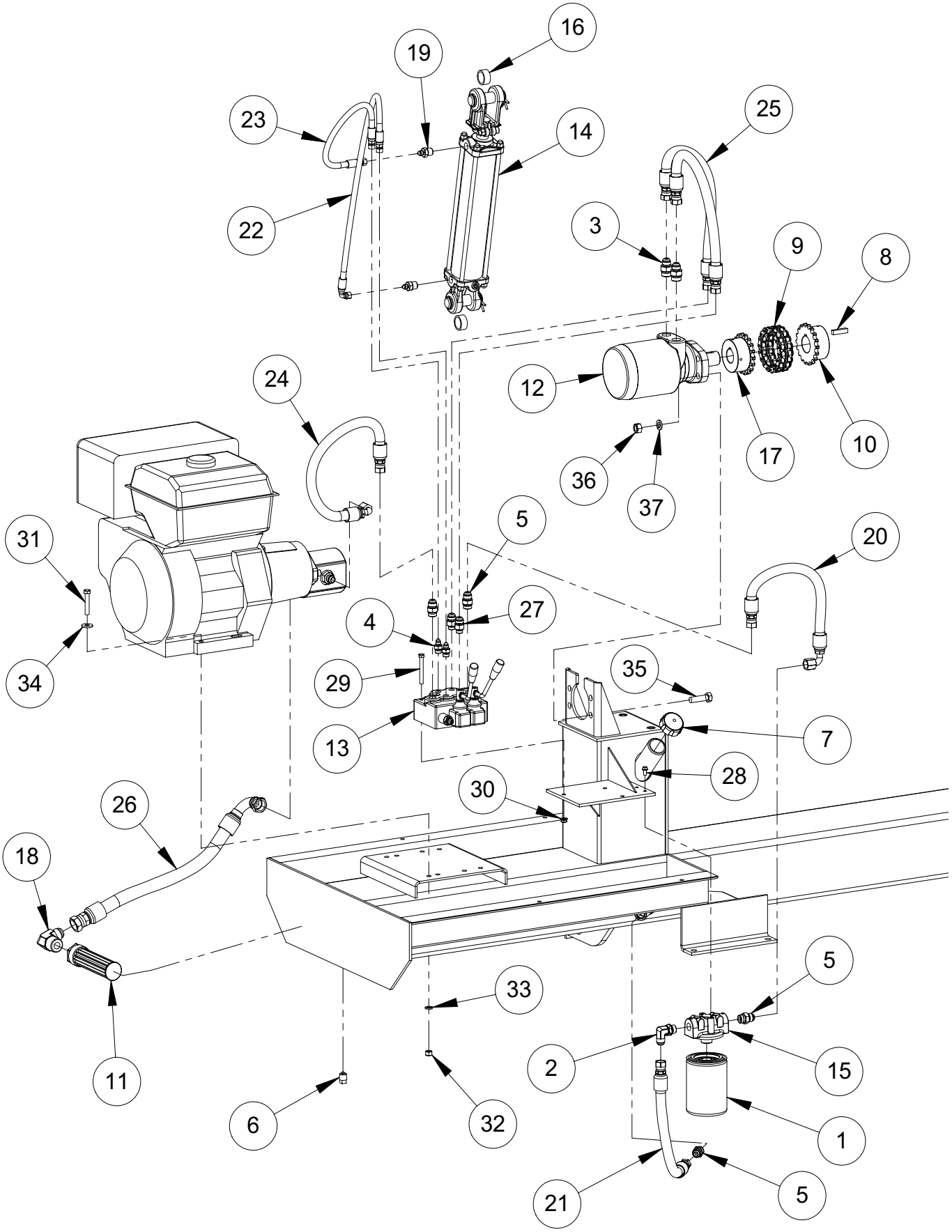
Drum Assembly

ITEM	PART NO.	DESCRIPTION	MM91	MM121
1.	01056	HAIRPIN, 1/8” x 2-3/8” LONG	1	1
2.	01177	GREASE FITTING	4	4
3.	01280	SOCKET HEAD SHOULDER SCREW, 3/8” x 3/8”	1	1
4.	01550	BALL BEARING (Includes seal & locking collar)	2	2
5.	05002	PILLOW BLOCK	2	2
6.	05082	GRID SUPPORT BRACKET	2	2
7.	05475	RETAINING RING	2	2
8.	05665	TRUNNION	2	2
9.	05918	SEAL KIT	2	2
10.	16782	GRID OPENER	1	1
11.	17109	GRID, MM121		1
	16781	GRID, MM91	1	
12.	17411	DRUM, MM121		1
	18596	DRUM, MM91	1	
13.	17511	MOUNTING BAR	1	1
14.	18598	DRUM DUMP ARM	1	1
15.	F051808HCS	HEX HEAD CAP SCREW, 5/16-18 x 1” LG	4	4
16.	F0518ELN	LOCK NUT, 5/16-18, NYLOC	5	5
17.	F061608FWS	FWLS, 3/8-16 x 1.0 LONG	2	2
18.	F061610CB	CARRIAGE BOLT, 3/8-16 x 1-1/4” LG	6	6
	F061612CB	CARRIAGE BOLT, 3/8-16 x 1-1/2” LG (USE ONLY WITH #26 TRUNNION SPACER)	6	6
19.	F061614CB	CARRIAGE BOLT, 3/8-16 x 1-3/4” LG	2	2
20.	F0616ELN	LOCK NUT, 3/8-16, NYLOC	2	2
21.	F0616HN	HEX NUT, 3/8-16	6	6
22.	F06PW	WASHER, 3/8” SAE	1	1
23.	F081314HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-3/4” LG	4	4
24.	F08LW	LOCK WASHER, 1/2”	4	4
25.	F08SW	WASHER, 1/2”	5	5
26.	18687	TRUNNION SPACER, AS REQUIRED, NOT ON ALL MACHINES.	2	2
		REPLACEMENT KITS		
	01427	GREASE FITTING CAPS (Set of 12)	1	1
	06090	TRUNNION ASSEMBLY (Includes 2,4,7-9)	2	2
	17500	DRUM ASSEMBLY (Includes trunnions, pillow blocks, shaft, paddles,dump arm & grid)		1
	18595	DRUM ASSEMBLY (Includes trunnions, pillow blocks, shaft, paddles,dump arm & grid)	1	



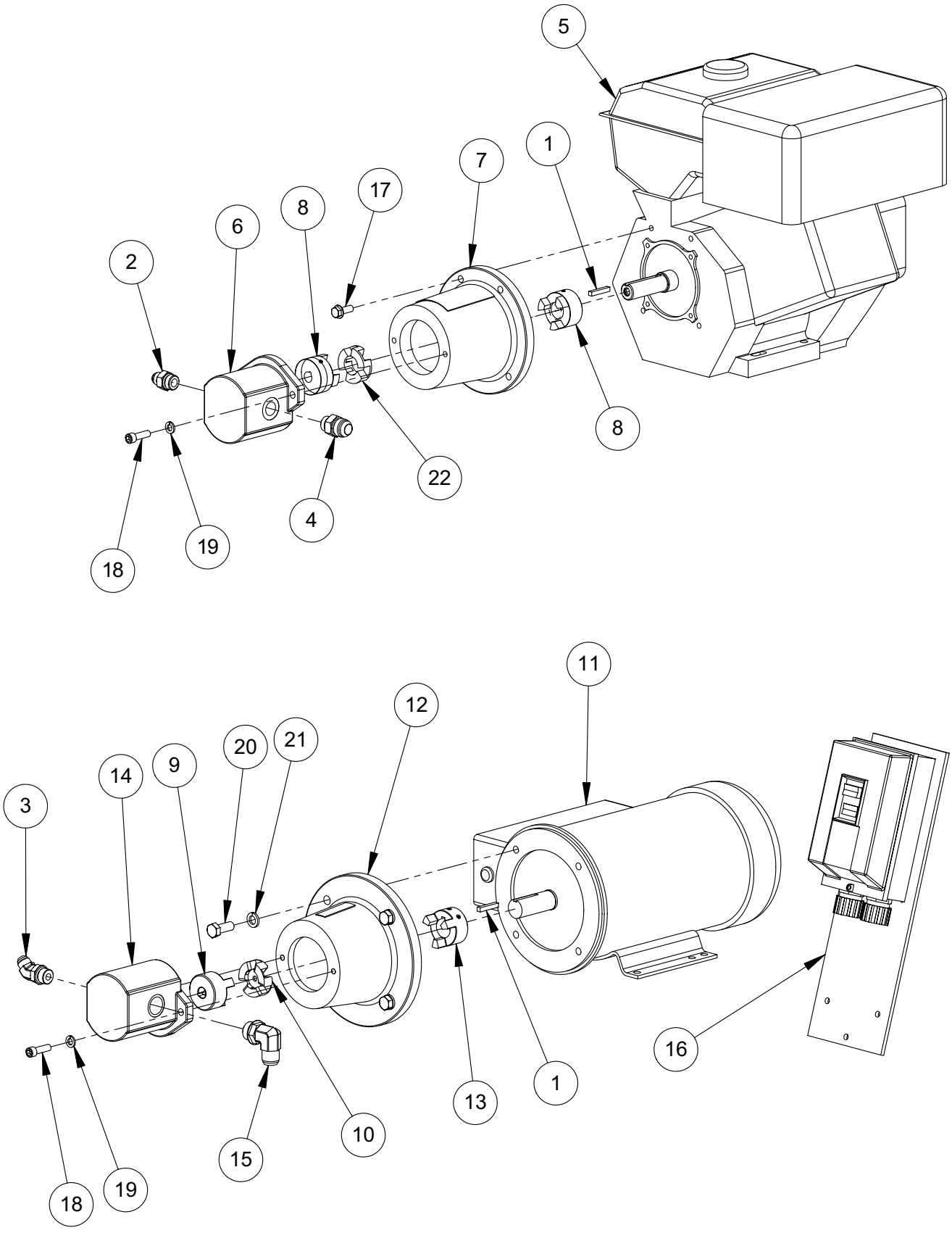
Paddle Assembly

ITEM	PART NO.	DESCRIPTION	MM91	MM121
1.	17108	MAIN SHAFT, MM121		1
	18601	MAIN SHAFT, MM91	1	
2.	17570	PADDLE ASM, END RIGHT (Includes 6-7,10-11,13-17)	1	1
3.	17571	PADDLE ASM, CENTER RIGHT (Includes 8-9,13,17)	1	2
4.	17572	PADDLE ASM, CENTER LEFT (Includes 8-9,13,17)	1	2
5.	17573	PADDLE ASM, END LEFT (Includes 6-7,10-11,13-17)	1	1
6.	17574	RUBBER BLADE, END*	2	2
7.	18540	STEEL BLADE, END	2	2
8.	17576	RUBBER BLADE, CENTER*	2	4
9.	18543	STEEL BLADE, CENTER	2	4
10.	17578	RUBBER BLADE, WIPER*	2	2
11.	18544	STEEL BLADE, WIPER	2	2
12.	17585	PADDLE CLAMP	4	4
13.	F061610CB	CARRIAGE BOLT, 3/8-16 x 1-1/4” LONG	14	22
14.	F061614CB	CARRIAGE BOLT, 3/8-16 x 1-3/4” LONG	2	2
15.	F0616FN	FLANGE LOCK NUT, 3/8-16	16	24
16.	F081313HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-5/8” LONG	16	20
17.	F0813ELN	LOCK NUT, 1/2-13, NYLOC	16	20
		REPLACEMENT KITS		
	*17597	RUBBER BLADE KIT (Includes 6,8,10)	1	1



Hydraulic Components

ITEM	PART NO.	DESCRIPTION	QTY
1.	08164	FILTER ELEMENT	1
2.	08168	HYDRAULIC FITTING, SAE-JIC ELBOW	1
3.	08213	HYDRAULIC FITTING, SAE-JIC STRAIGHT	2
4.	08218	HYDRAULIC FITTING, SAE-JIC STRAIGHT	2
5.	08519	HYDRAULIC FITTING, SAE-JIC STRAIGHT	4
6.	16166	DRAIN PLUG, MAGNETIC	1
7.	16666	CAP	1
8.	17126	KEY, 3/8” SQUARE x 1-5/8” LONG	1
9.	17142	CHAIN, COUPLER (Includes connecting link*)	1
10.	17148	SPROCKET, COUPLER	1
11.	17389	SUCTION STRAINER	1
12.	17492	HYDRAULIC MOTOR	1
13.	17510	VALVE BLOCK (Includes handles**)	1
14.	17516	CYLINDER	1
15.	17518	FILTER HEAD	1
16.	17519	SPACER	2
17.	17531	SPROCKET, COUPLER	1
18.	17532	HYDRAULIC FITTING, PIPE-JIC ELBOW	1
19.	17533	HYDRAULIC FITTING, PIPE-JIC STRAIGHT	2
20.	17556	HYDRAULIC HOSE, 1/2” x 23.00”	1
21.	17557	HYDRAULIC HOSE, 1/2” x 16.00”	1
22.	17558	HYDRAULIC HOSE, 1/4” x 34.50”	1
23.	17559	HYDRAULIC HOSE, 1/4” x 24.50”	1
24.	17560	HYDRAULIC HOSE, 1/2” x 27.00”	1
25.	17561	HYDRAULIC HOSE, 1/2” x 22.00”	2
26.	17562	HYDRAULIC HOSE, 3/4” x 20.00”	1
27.	17587	HYDRAULIC FITTING, SAE-JIC STRAIGHT	2
28.	F042004FWS	FLANGE LOCKING SCREW, 1/4-20 x 1/2” LONG	2
29.	F051820HCS	HEX HEAD CAP SCREW, 5/16-18 x 2-1/2” LONG	3
30.	F0518FN	FLANGE LOCK NUT, 5/16-18	3
31.	F061616HCS	HEX HEAD CAP SCREW, 3/8-16 x 2” LONG	4
32.	F0616HN	HEX NUT, 3/8-16	4
33.	F06LW	LOCK WASHER, 3/8”	4
34.	F06SW	WASHER, 3/8”	4
35.	F081314HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-3/4” LONG	4
36.	F0813HN	HEX NUT, 1/2-13	4
37.	F08LW	LOCK WASHER, 1/2”	4
		REPLACEMENT KITS	
	*17350	CONNECTING LINK, CHAIN COUPLER	1
	**17582	HANDLE, VALVE BLOCK	2



Engine Assembly

ITEM	PART NO.	DESCRIPTION	MM91	MM121
1.	01161	KEY, 1/4” SQUARE x 1-1/2” LONG	1	1
2.	08213	HYDRAULIC FITTING, SAE STRAIGHT	1	1
3.	09746	HYDRAULIC FITTING, SAE ELBOW	1	1
4.	09822	HYDRAULIC FITTING, SAE STRAIGHT	1	1
5.	12887	ENGINE, HONDA 13hp	1	1
	07767	ENGINE, HONDA 11hp		
6.	17491	HYDRAULIC PUMP	1	1
7.	18610	PUMP-TO-ENGINE ADAPTER	1	1
8.	18649	FLEX COUPLING (INCLUDES ITEM #22)	1	1
9.	17495	COUPLING, 5/8” x 5/32” KEY	1	1
10.	17496	COUPLING INSERT	1	1
11.	17753	MOTOR, BALDOR 5hp 1-phase (Includes switch & mounting plate)	1	1
	17760	MOTOR, BALDOR 5hp 3-phase (Includes switch & mounting plate)	1	1
12.	17754	PUMP-TO-MOTOR ADAPTER	1	1
13.	17755	COUPLING, 1-1/8” x 1/4” KEY	1	1
14.	17756	HYDRAULIC PUMP	1	1
15.	09821	HYDRAULIC FITTING, SAE ELBOW	1	1
16.	17757	SWITCH MOUNTING PLATE	1	1
17.	F061608FWS	FLANGE LOCKING SCREW, 3/8-16 x 1” LONG	4	4
18.	F061610SCS	SOCKET HEAD CAP SCREW, 3/8-16 x 1-1/4” LONG	2	2
19.	F06LW	LOCK WASHER, 3/8”	2	2
20.	F081310HCS	HEX HEAD CAP SCREW, 1/2-13 x 1-1/4” LONG	4	4
21.	F08LW	LOCK WASHER, 1/2”	4	4
22	18650	SPIDER, FLEX COUPLING	1	1
		REPLACEMENT KITS		
	17524	ENGINE ASSEMBLY (Includes 1-2, 4-8, 17-19 & 22)	1	1
	18602	ENGINE ASSEMBLY (Includes 1-2, 4-8, 17-19 & 22)		
	17752	MOTOR ASSEMBLY (Includes 1,3,9-15,17-20)	1	1
	17759	MOTOR ASSEMBLY (Includes 1,3,9-15,17-20)	1	1
	Q2893907	AIR FILTER, 11 & 13hp HONDA ENGINE	1	1

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.