BM AP-1400 OPERATION MANUAL

PERFORMANCE • EFFICIENT • RELIABLE

Your Model # : _____

Your Serial # : _____

BOMAX sincerely thanks you for selecting the Walk-Behind compactor. For your safety and proper operation, before you start to operate or carry out any maintenance on this equipment, ***YOU MUST READ*** and ***STUDY*** this manual carefully. Be sure to always keep it ready for reference.

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.

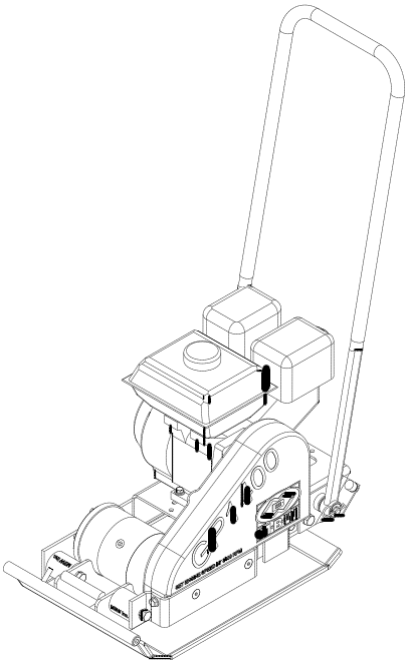
OPERATOR: Keep children and bystanders off and away from the equipment.

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).

SPECIFICATIONS



1400 SERIES

	AP1400	GP1400
EXCITER (VPM)	5240	5240
TRAVEL SPEED	85 ft./min. (26 m/min.)	85 ft./min. (26 m/min.)
COMPACTION DEPTH	10 in. (25 cm)	10 in. (25 cm)
WIDTH & LENGTH	14 x 21 in. (36 x 53 cm)	14 x 21 in. (36 x 53 cm)
OPERATING WEIGHT HONDA/ROBIN	149 lbs (68 kg) 152 lbs (69kg)	129 lbs (59 kg) 132 lbs (60kg)
ENGINE SPEED (RPM)	3400	3400
NOISE LEVEL	85 - 92 dBA	85 - 92 dBA
ENGINE MODEL	Honda GX120	Robin EX130

Specifications subject to change without notice

- No universal method or formula has been accepted for determining “Compaction Force”. All manufactures employ their own method or formula.

OPERATION

Introduction

BOMAX 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.

The BOMAX 1400 compactors are intended to compact various types of soil. Recommended soil types include granular soils and gravel & sand mixtures. These compactors are not intended to be used on cohesive soils such as clay or hard surfaces like concrete.

Before Starting & Operating

- 1400 Series Handle installation. Refer to HANDLE ASSEMBLY, page 16. Install handle on 1400 series plate by removing hairpin form handle mounts. Slide handle over handle mounts and reinstall hairpins.

- 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. Open fuel valve.
2. Turn engine switch to "ON".
3. Set throttle to idle.
4. Choke engine if necessary (you may not need to choke a warm engine).
5. Pull starter rope repeatedly until engine starts.
6. After starting engine, open choke gradually and let engine warm up at idle.

Operating

1. After engine warms up open fully open throttle. The compactor will begin vibrating and moving forward. The number of passes required to reach a desired compaction level will depend on the type and moisture content of soil. Maximum soil compactions has been reached when excessive kickback is noticed in the compactor.
2. When using a compactor on asphalt a water sprinkling system is required to help prevent the bottom plate from adhering to the hot asphalt surface.

Stopping Engine

1. Move throttle to idle position.
2. Let engine idle for one or two minutes.
3. Turn switch on engine to "STOP" position.
4. Turn off fuel valve.

LIFTING/TRANSPORTING

1. The unit can be lifted by the handles in front and back of the unit as shown in figure 2.
2. The unit must be transported in the upright position. DO NOT lay machine on its side or top.
3. Secure or tie down unit using the lifting handles

.

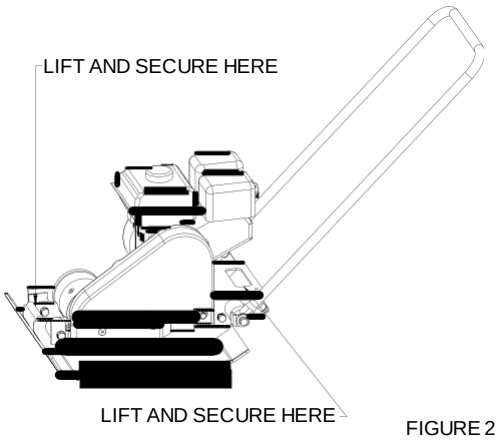


FIGURE 2

⚠ WARNING ⚠

Always stop the engine before:

Adding fuel.

Leaving the equipment unattended for any amount of time.

Before making any repairs or adjustments to the machine.

MAINTENANCE

⚠ WARNING ⚠

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

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

⚠ CAUTION ⚠

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

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

Maintenance Schedule

SYSTEM	MAINTENANCE	EACH USE	EVERY 50 HOURS	EVERY 250 HOURS	YEARLY
Engine	Refer to engine operator/owner manual	X			
Exciter	Check oil level		X		X
	Check for oil leaks	X			
	Change oil			X	X
	Tighten Bolts[1]		X		X
Hardware	Check and tighten as needed[1]		X		X
Shockmounts	Check for cracks or tears		X		X

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

Fluid Levels

SYSTEM	FLUID VOLUME	RECOMMENDED OIL
Exciter	4 oz	SAE10W-30
Engine	Refer to engine operator/owner manual	

Engine Maintenance

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

Engine Speed

1. The engine speed is factory reset according to the specifications section of this manual. Do not tamper with the governor setting. The governor establishes safe operating limits which must not be exceeded.

SERVICE

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

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

Torque Chart

SIZE	GRADE 2	GRADE 5	GRADE 8
1/4-20	49 in•lbs	76 in•lbs	9 ft•lbs
1/4-28	56 in•lbs	87 in•lbs	10 ft•lbs
5/16-18	8 ft•lbs	13 ft•lbs	18 ft•lbs
5/16-24	9 ft•lbs	14 ft•lbs	20 ft•lbs
3/8-16	15 ft•lbs	23 ft•lbs	33 ft•lbs
3/8-24	17 ft•lbs	26 ft•lbs	37 ft•lbs
7/16-14	24 ft•lbs	37 ft•lbs	52 ft•lbs
7/16-20	27 ft•lbs	41 ft•lbs	58 ft•lbs
1/2-13	37 ft•lbs	57 ft•lbs	80 ft•lbs
1/2-20	41 ft•lbs	64 ft•lbs	90 ft•lbs
9/16-12	53 ft•lbs	82 ft•lbs	115 ft•lbs
5/8-11	73 ft•lbs	112 ft•lbs	159 ft•lbs
5/8-18	83 ft•lbs	112 ft•lbs	180 ft•lbs
M 6	3 ft•lbs	4 ft•lbs	7 ft•lbs
M 8	6 ft•lbs	10 ft•lbs	18 ft•lbs
M 10	10 ft•lbs	20 ft•lbs	30 ft•lbs

CONVERSIONS

in•lbs x 0.083 = ft•lbs

ft•lbs x 12 = in•lbs

ft•lbs x 0.1383 = kg•m

ft•lbs x 1.3558 = N•m

Service Tools

Part No.	Description
01058	Excite Oil
01629	Test Mat
12100	Decal Set

Engine Maintenance

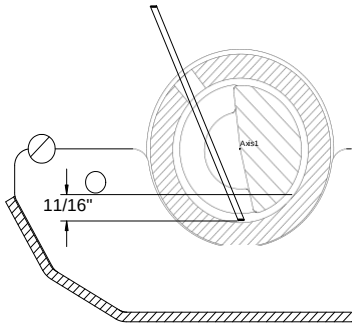
1. Refer to engine Owner's Manual for maintenance shcedule.

Engine RPM

1. Refer to the engine Owner's Manual for procedure to set the operating and idle speed.
2. The engine operating speed should be set to 3400 RPM.
3. The engine idle speed should not exceed 1800 RPM. If the idle speed is greater than 1800 RPM the clutch may not disengage.

Checking Exciter Oil Level

1. Clean all dirt and debris from exciter.
2. Place the plate on a level surface.
3. Remove plug from top of exciter housing.
4. Place a clean metal rod or screwdriver (less than 1/4" diameter and at least 6" long) into the exciter housing Use the rod to rotate the exciter shaft into the position shown in Figure 2.



5. The exciter should have approximately 11/16" of oil in the bottom of the housing. If the oil level is low add MBW Inc. Ground Pounder® exciter oil to bring the oil up to the proper level. Drain any excess oil (see Changing Exciter Oil section).
6. Apply pipe sealant to the plug and reinstall.

Changing Exciter Oil

Refer to EXCITER ASSEMBLY, page 12.

1. Allow machine to completely cool down before performing any service or maintenance.
2. Clean debris from exciter, engine deck and base plate.
3. Drain all gasoline from fuel tank.
4. Drain oil from engine or remove engine from engine deck before proceeding to next step. Failure to do this could result in damage to the engine.
5. Tilt plate forward so the oil drains from the exciter housing into a pan as shown in Figure 3.
6. After the oil is drained, tilt the plate to it's normal upright position and wipe any excess oil from the plate. Do not get debris in the exciter drain hole.
7. Fill the exciter housing with 4 oz. (120 ml) of exciter oil. DO NOT OVERFILL - over filling can result in excessive temperatures in the exciter.
8. Apply pipe sealant to the plug and reinstall.
9. Discard the used oil and any contaminated debris in a proper container.
10. Refill engine with oil or reinstall engine.

Cleanup

1. Remove dirt and debris from plate daily.
2. If repainting plate, be sure that all decals are masked.
3. Replace any decals that are damaged.

Belt Adjustment

Refer to MAIN ASSEMBLY, page 14.

1. Remove all hardware securing belt guard to engine deck and remove belt guard.
2. Apply moderate thumb pressure to belt about half way between pulleys. When properly adjusted the belt should deflect approximately 3/8" (9mm). If the belt is adjusted correctly reinstall belt guard and hardware.
3. To adjust belt tension loosen (4) hex head cap screws securing engine to engine deck.
4. Push engine towards the back of the plate. While holding pressure on the engine retighten (4) hex head cap screws securing engine to engine deck.
5. Recheck belt tension as described in step 2 and readjust if necessary until the proper tension is reached.

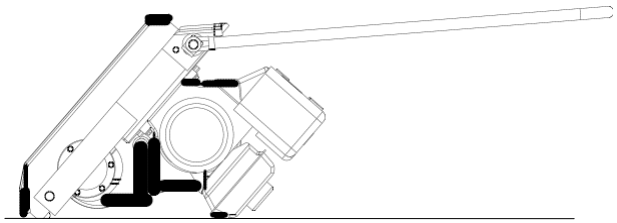


Figure 3.

6. Reinstall beltguard using hardware from step 1.

Engine Removal

Refer to MAIN ASSEMBLY, page 14.

1. Remove hardware and beltguard as described in earlier section.
2. Remove (4) bolts securing engine to engine deck.
3. Slide engine forward and remove belt and engine.

Exciter Disassembly

Refer to MAIN ASSEMBLY, page 14.

1. Remove engine and belt guard as described in earlier section.
2. Remove (4) hex head cap screws securing engine deck to shock mounts/base plate and remove engine deck.
3. Clean the entire base plate to remove all dirt and debris.
4. Drain exciter oil as described in Changing Exciter Oil section of this manual.
5. Remove screw and washer securing pulley to exciter shaft. Remove pulley and shaft key.

Refer to EXCITER ASSEMBLY, page 12.

6. Remove hex head flange screws securing exciter covers to exciter housing. Remove exciter covers and gaskets.
7. Remove exciter shaft by pressing the pulley end of the exciter shaft towards the opposite side of the housing. This will push the exciter shaft and the bearing opposite the pulley side out of the exciter housing. Press the bearing off of the exciter shaft.
8. Press the remaining bearing out of the exciter housing.
9. Check bearings for wear and replace if necessary as described in Parts Replacement Cycles and Tolerances section of this manual.

Exciter Assembly

1. Prior to assembly, clean all parts in a suitable solvent cleaning solution.
2. Inspect all part for wear or failure and replace if necessary as described in Parts Replacement Cycles and Tolerances section of this manual.
3. Replace all seals and gaskets at every overhaul or disassembly.
4. All shafts and housings should be oiled prior to pressing in bearings. Ensure that all bearings and seals are pressed squarely and properly seated.
5. For proper hardware torque setting refer to Torque Chart table in this section of the manual.
6. Press one of the bearings into the exciter housing opposite of the pulley side.
7. Press the second bearing onto the pulley side of the exciter shaft
8. Support the bearing in the exciter housing while pressing the exciter shaft into the housing. Press the exciter shaft into the housing until the bearing on the pulley side of the shaft is properly seated in the housing.
9. Place a washer seal onto the exciter shaft.
10. Install a new seal into the pulley side exciter cover. Lubricate lip of seal with fresh exciter oil.
11. Assemble a new gasket and pulley side exciter cover to the exciter housing. Apply medium strength thread locking liquid to the hex head flange screws securing the cover to the housing and torque to proper setting.
12. Assemble opposite side exciter cover and new gasket to exciter housing. Install hex head flange screws, applying medium strength thread locking liquid and torque to proper setting.
13. Install shaft key and slide pulley onto exciter shaft. Replace washer and screw securing pulley to shaft and torque to proper setting.
14. Fill exciter housing with oil as described in Changing Exciter Oil section of this manual.

Parts Replacement Cycles and Tolerances

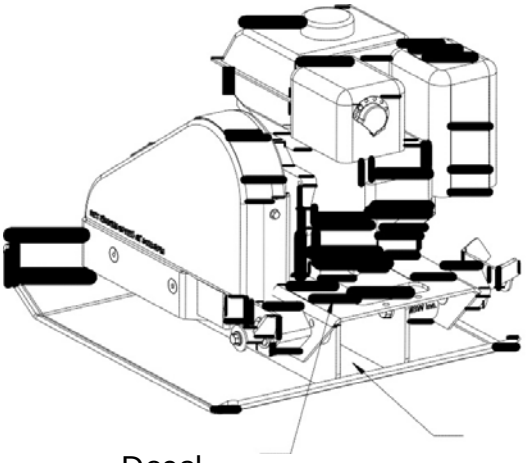
Bearings	Replace anytime a bearing is rough, binding, discolored or removed from housing or shaft.
Clutch	Replace clutch if it does not disengage below 1800 rpm.
Engine Components	Refer to your engine manufacturer's Owner's Manual.
Hardware	Replace any worn or damaged hardware as needed. Replacement 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.
V-Belts	Replace if cracked, torn, or stretched to the point the belt won't tension properly.
Exciter Oil	Replace once every season or every 250 hours. Use 4 ounces of oil

REPLACEMENT PARTS

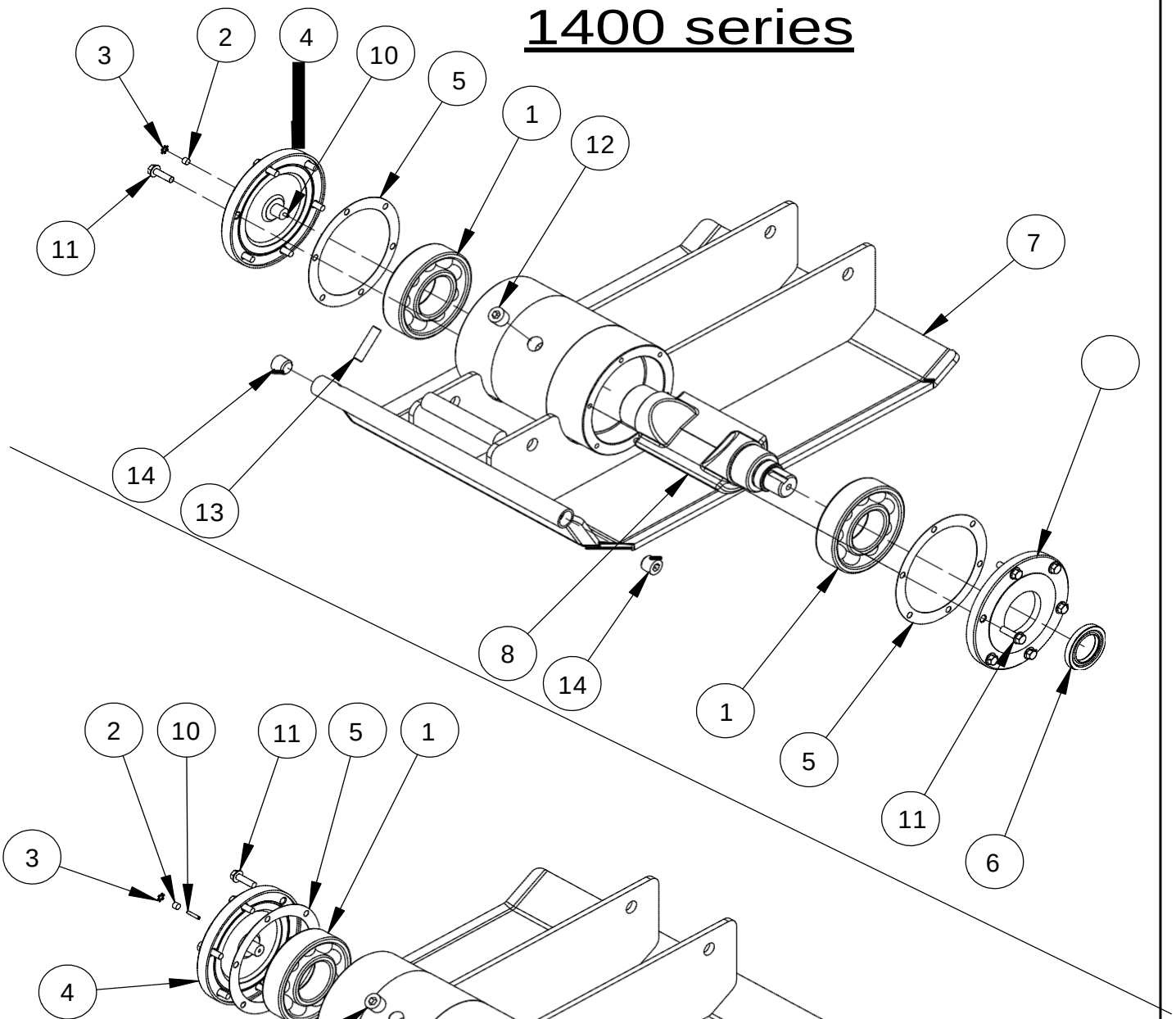
The warranty is stated in this book on page 18. Failure to return the Warranty Registration Card renders the warranty null and void.

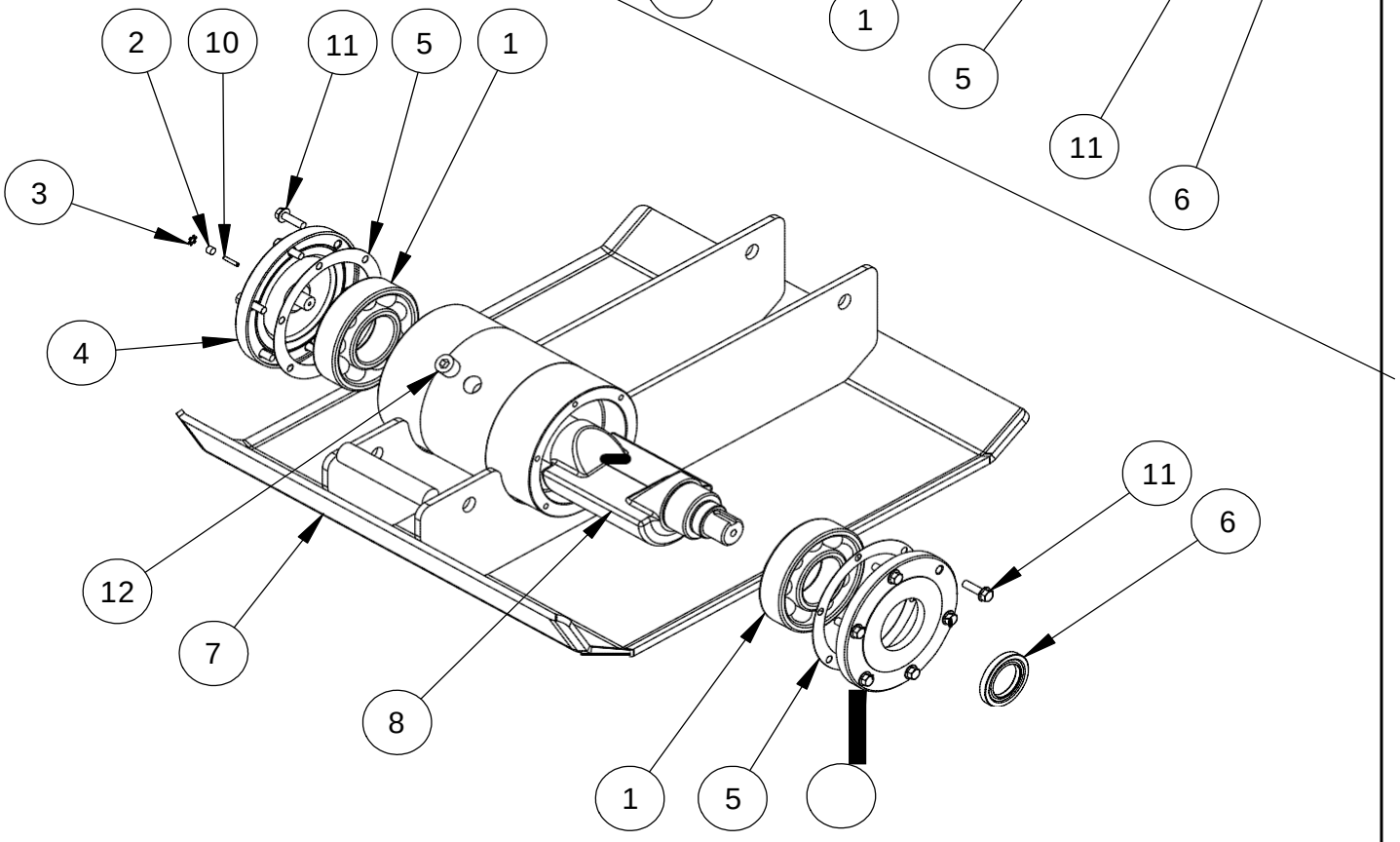
When ordering replacement parts, be sure to have the following information available:

- 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



1400 series

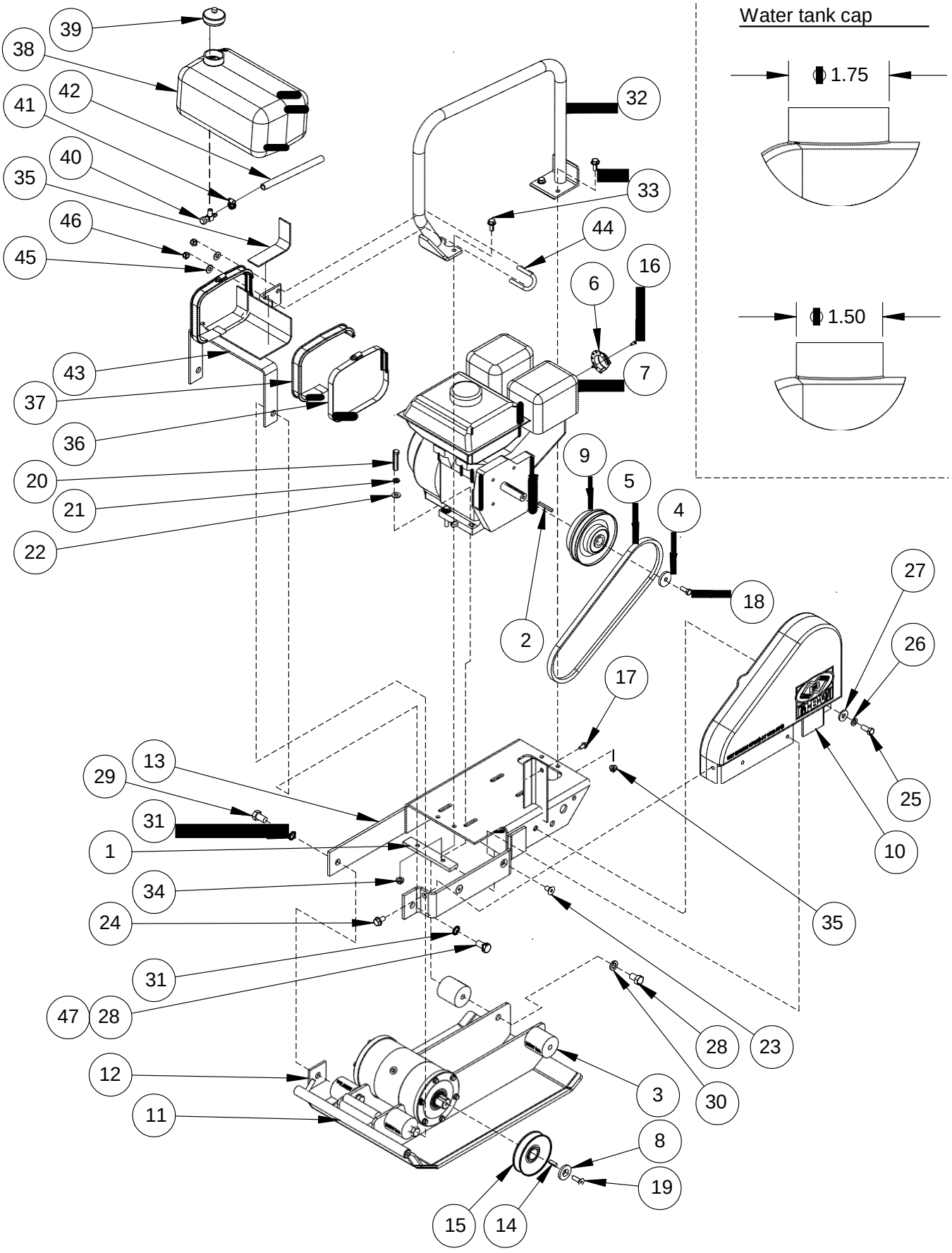




1800 series

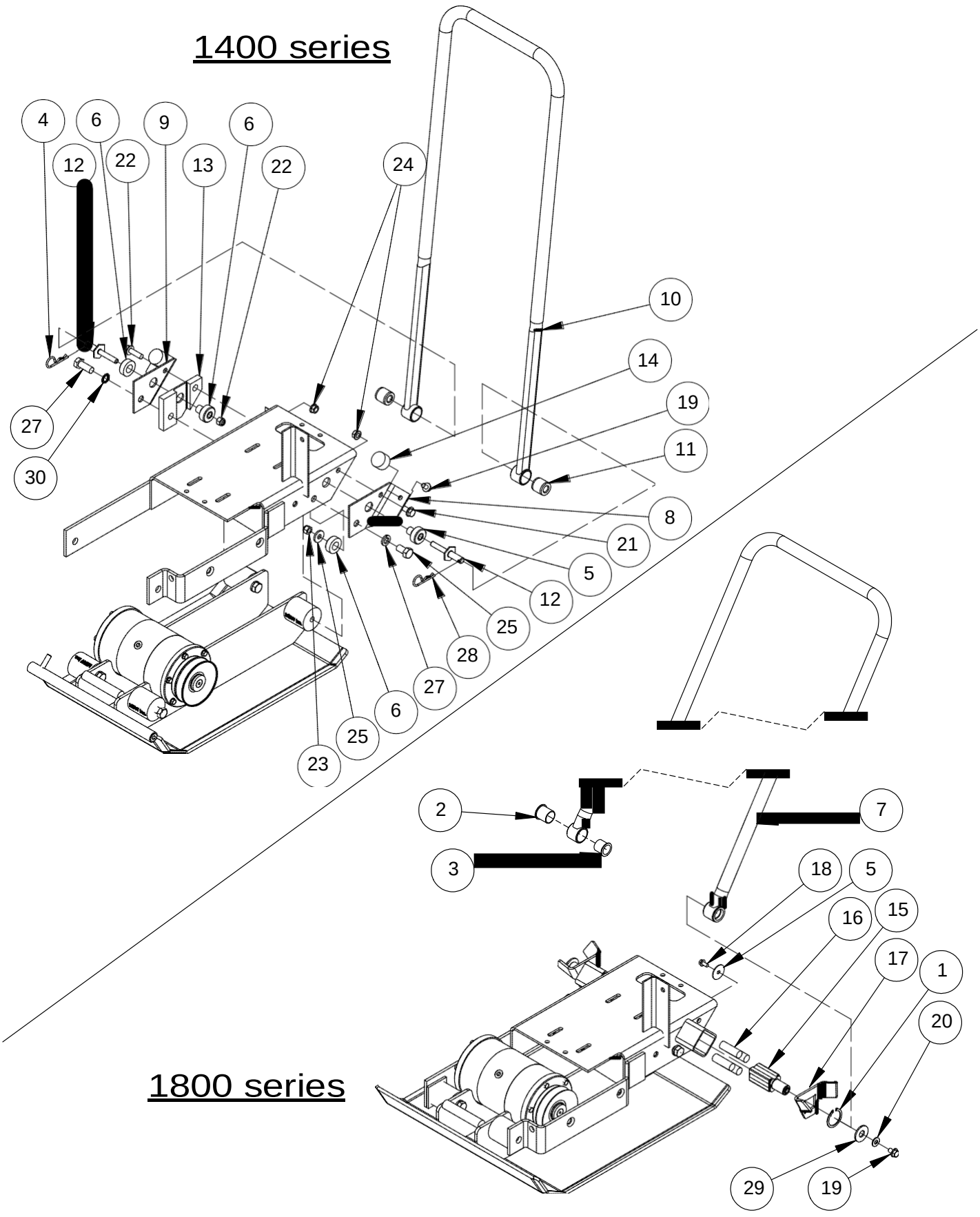
EXCITER ASSEMBLY

ITEM	PART NO.	DESCRIPTION	1400	1800
1.	01070	BEARING, BALL	2	2
2.	01072	FILTER, FELT	1	1
3.	01191	RETAINING RING, INTERNAL	1	1
4.	15946	EXCITER COVER, SEALED	1	1
5.	15956	GASKET	2	2
6.	17179	SEAL, OIL	1	
7.	18629	BOTTOM PLATE	1	
	16912	BOTTOM PLATE		1
8.	19832	EXCITER SHAFT	1	
	19834	EXCITER SHAFT, 1800		1
9.	19833	EXCITER COVER, PULLEY		
10.	F0205SP	PIN, SPIROL, 1/8 X 5/8 RD	1	1
11.	F042007FWS	HEX HAED FLANGE SCREW, 1/4-20 X 1” LG.	12	12
12.	F0618SPP	SOCKET HEAD PIPE PLUG, 3/8-18	1	1
		OPTIONAL WATER KIT		
13.	F0618SPP	PIPE PLUG	2	
14.	F0612SP	PIN, SPIROL	1	
		PAVER		
	18655	PAVER PAD KIT, 1800 SERIES PLATE		1
	18681	PAVER PAD KIT, 1400 SERIES PLATE	1	



MAIN ASSEMBLY

ITEM	PART NO.	DESCRIPTION	1400H	1400R	1800H	1800R
1.	00031	ENGINE MOUNTING BAR	2	2	2	2
2.	00032	KEY, 3/16" SQ. x 1-5/8" LG.	1	1	1	1
3.	01011	SHOCK MOUNT	4	4	4	4
4.	01099	WASHER	1	1	1	1
5.	6931	V-BELT (31)	1	1	1	1
6.	07636	EXHAUST DEFLECTOR	1	1	1	1
7.	12860	ENGINE, HONDA, 4HP	1		1	
	17210	ENGINE, ROBIN, 4.5HP		1		1
8.	14993	WASHER, COUNTERSUNK	1	1	1	1
9.	16105	CLUTCH, CENTRIFUGAL, 3/4" DIA. BORE	1	1	1	1
10.	18633	BELTGUARD, 1400	1	1		
	16902	BELTGUARD, 1800			1	1
11.	18628	BASEPLATE, 1400	1	1		
	16913	BASEPLATE, 1800			1	1
12.	15994	SPACER (NOT USED ON 1400 WITH WATER KIT)	1	1	1	1
13.	16953	ENGINE DECK (1400)	1	1		
	19848	ENGINE DECK (1800)			1	1
14.	19135	KEY, 1/4 SQ. x 3/4" LG.	1	1	1	1
15.	19630	PULLEY, EXCITER	1	1	1	1
16.	F0203HTB	THREAD CUTTING SCREW, #8-32 X 3/16	2	2	2	2
17.	F042004FWS	HEX HEAD FLANGE SCREW, 1/4-20 X 1/2 LG.	1	1	1	1
18.	F052406HCS	HEX HEAD CAP SCREW, 5/16-24 X 3/4 LG.	1	1	1	1
19.	F051808FSS	FLAT SOCKET HEAD SCREW, 5/16-18 X 1" LG	1	1	1	1
20.	F051814HCS	HEX HEAD CAP SCREW, 5/16-18 X 1-3/4 LG.	4	4	4	4
21.	F05LW	LOCKWASHER, 5/16	4	4	4	4
22.	F05SW	PLAIN WASHER, 5/16	4	4	4	4
23.	F061605FSS	FLAT SOCKET HEAD SCREW, 3/8-16 X 5/8 LG	2	2	2	2
24.	F061605FWS	HEX HEAD FLANGE SCREW, 3/8-16 X 5/8 LG.	1	1	1	1
25.	F061607HCS	HEX HEAD CAP SCREW, 3/8-16 X 7/8 LG.	1	1	1	1
26.	F06LW	LOCKWASHER, 3/8	1	1	1	1
27.	F06SW	PLAIN WASHER, 3/8	1	1	1	1
28.	F081306HCS	HEX HEAD CAP SCREW, 1/2-13 X 3/4 LG.	5	5	5	5
29.	F081307HCS	HEX HEAD CAP SCREW, 1/2-13 X 7/8 LG.	1	1	1	1
30.	F08LW	LOCKWASHER, 1/2	4	4	4	4
31.	M12ETLW	LOCKWASHER, M12, EXTERNAL TOOTH	2	2	2	2
		OPTIONS:				
32.	18667	ROLLCAGE, OPTIONAL	1	1	1	1
33.	F051806FWS	HEX HEAD FLANGE SCREW, 5/16-18 X 3/4 LG	4	4	4	4
34.	F0518FN	FLANGE NUT, 5/16-18	4	4	4	4
		WATER TANK:				
35.	00044	RUBBER PAD	2	2		
36.	01026	CLAMP, WORM DRIVE (LARGE)	2	2		
37.	01028	RUBBER PROFILE	2	2		
38.	00330	WATER TANK ASM. (INCLUDES TANK, CAP & VALVE)	1	1		
39.	19495	TANK CAP - USE WITH 1.75" OD TANK	1	1		
	00196	TANK CAP - USE WITH 1.50" OD TANK				
40.	05578	VALVE	1	1		
41.	08442	CLAMP, WORM DRIVE (SMALL)	1	1		
42.	19607	HOSE, 5/16 X 6.5	1	1		
43.	18639	MOUNTING BRACKET, WATER TANK	1	1		
44.	18642	U-BOLT, 5/16-16, FOR 1.0" ROUND	1	1		
45.	F05SW	PLAIN WASHER, 5/16	2	2		
46.	F0518ELN	LOCKNUT, 5/16-18 NYLOC	2	2		
47.	F081307HCS	HEX HEAD CAP SCREW, 1/2-13 X 7/8 LG.	1	1		
	Q17120E0505	AIR FILTER, HONDA				



HANDLE ASSEMBLY

ITEM	PART NO.	DESCRIPTION	1400	1800
1.	01001	RETAINING RING		2
2.	01018	NYLON BUSHING, OUTER		2
3.	01019	NYLON BUSHING, INNER		2
4.	01056	HAIR PIN, 1/8 DIA. X 2-3/8 LG.	2	
5.	06075	FENDER WASHER, 1/4”		2
6.	16759	RUBBER MOUNT	2	
7.	16932	HANDLE, 1800, INCLUDES (2) EACH, #01018 & #010198		1
8.	16954	HANDLE STOP, LEFT (1400)	1	
9.	16955	HANDLE STOP, RIGHT (1400)	1	
10.	18634	HANDLE, REMOVABLE, INCLUDES (2) #16959 BUSHINGS	1	
11.	16959	HANDLE BUSHING	2	
12.	16963	HANDLE MOUNT, PLATED	2	
13.	18638	HANDLE SPACER, (1400)	1	
14.	19755	BUMPER, 1-1/4 X 3/4, 5/16-18	2	
15.	19851	HANDLE SHAFT, PLATED		2
16.	19854	RUBBER ROD, 5/8” DIA.		8
17.	19856	HANDLE BRACKET		2
18.	F042004FWS	HEX HEAD FLANGE SCREW, 1/4-20 X 1/2 LG.		2
19.	F051804FWS	HEX HEAD FLANGE SCREW, 5/16-18 X 1/2 LG.	2	2
20.	F05SW	WASHER, 1/2”		2
21.	F061606FWS	HEX HEAD FLANGE SCREW, 3/8-16 X 3/4 LG.	1	
22.	F061610FWS	HEX HEAD FLANGE SCREW, 3/8-16 X 1-1/4 LG.	1	
23.	F0616ELN	LOCKNUT, 3/8-16, NYLOC	2	
24.	F0616FN	FLANGE LOCKNUT, 3/8-16	2	
25.	F06SW	WASHER, 3/8	1	
26.	F081307HCS	HEX HEAD CAP SCREW, 1/2-13 X 7/8 LG.	1	
27.	F081310HCS	HEX HEAD CAP SCREW, 1/2-13 X 1-1/4 LG.	1	
28.	F08LW	LOCKWASHER, 1/2	1	
29.	F08SW	WASHER, 1/2”		2
30.	M12ETLW	LOCKWASHER, M12, EXTERNAL TOOTH	1	