

OPERATOR'S SAFETY AND SERVICE MANUAL



F24/4

For serial numbers 1740249 and above



WALK BEHIND TROWELS

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L 18432/ 03.07.C
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Printed in the USA

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WARNING



CALIFORNIA PROPOSITION 65 WARNING

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

SAFETY INFORMATION

Introduction



This Safety Alert Symbol is used to call attention to items or operations which may be dangerous to those operating or working with this equipment. The symbol can be found throughout this manual and on the unit. Please read these warnings and cautions, along with all decals, carefully before attempting to operate the unit. Make sure every individual who operates or works with this equipment is familiar with all safety precautions.

WARNING

GENERAL WARNING. Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment and/or severe bodily injury or death.

CAUTION

GENERAL CAUTION. Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment.

Safety Precautions



LETHAL EXHAUST GAS: An internal combustion engine discharges carbon monoxide, a poisonous, odorless, invisible gas. Death or serious illness may result if inhaled. Operate only in an area with proper ventilation. **NEVER OPERATE IN A CONFINED AREA!**



DANGEROUS FUELS: Use extreme caution when storing, handling and using fuels, as they are highly volatile and explosive in vapor state. Do not add fuel while engine is running. Stop and cool the engine before adding fuel. **DO NOT SMOKE!**



SAFETY GUARDS: It is the owner's responsibility to ensure that all guards and shields are in place and in working order.



IGNITION SYSTEMS: Breakerless, magneto, and battery ignition systems can cause severe electrical shocks. Avoid contacting these units or their wiring.



SAFE DRESS: Do not wear loose clothing, rings, wristwatches, etc. near machinery.



NOISE PROTECTION: Wear OSHA specified hearing protection devices.



EYE PROTECTION: Wear OSHA specified eye shields, safety glasses, and sweat bands.



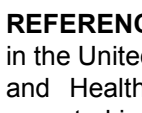
FOOT PROTECTION: Wear OSHA specified steel-tipped safety shoes.



HEAD PROTECTION: Wear OSHA specified safety helmets.



DUST PROTECTION: Wear OSHA specified dust mask or respirator.



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

REFERENCES: For details on safety rules and regulations in the United States, contact your local Occupational Safety and Health Administration (OSHA) office. Equipment operated in other countries must be operated and serviced in accordance and compliance with any and all safety requirements of that country. The publication of these safety precautions is done for your information. MBW does not by the publication of these precautions, imply or in any way represent that these are the sum of all dangers present near MBW equipment. If you are operating MBW equipment, it is your responsibility to insure that such operation is in full accordance with all applicable safety requirements and codes. All requirements of the United States Federal Occupational Safety and Health Administration Act must be met when operated in areas that are under the jurisdiction of that United States Department.

Safety Decals

Carefully read and follow all safety decals. Keep them in good condition. If decals become damaged, replace as required. If repainting the unit, replace all decals. Decals are available from authorized MBW distributors. Order the decal set listed on the following page(s).

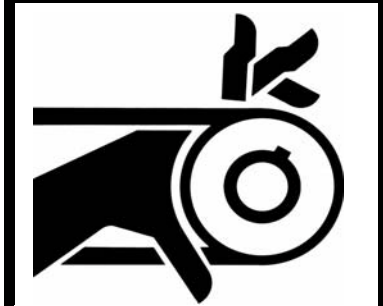


WARNING

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

16267

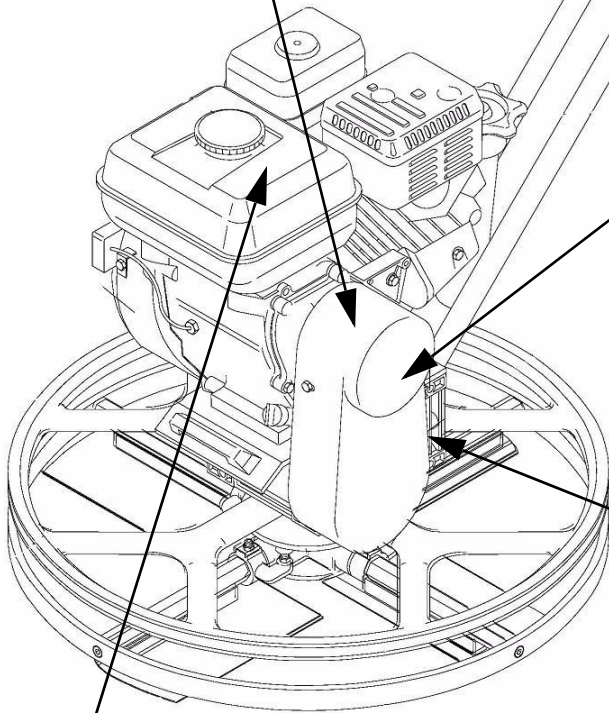
WARNING



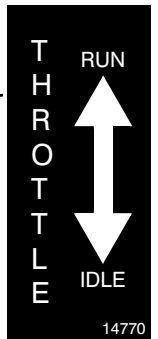
ROTATING PARTS
can crush and cut.
Keep hands away!

12573

12573



16267



14770

14770



01064

01064 (Two Places)



CAUTION



Read the Operating Instructions before operating this piece of equipment.



Keep unauthorized and untrained people away from this equipment.



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



Wear approved hearing protection, foot protection, eye protection and head protection.



SHUT OFF the motor before servicing or cleaning.



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

Failure to comply could result in serious bodily injury.

13483

13483



WARNING

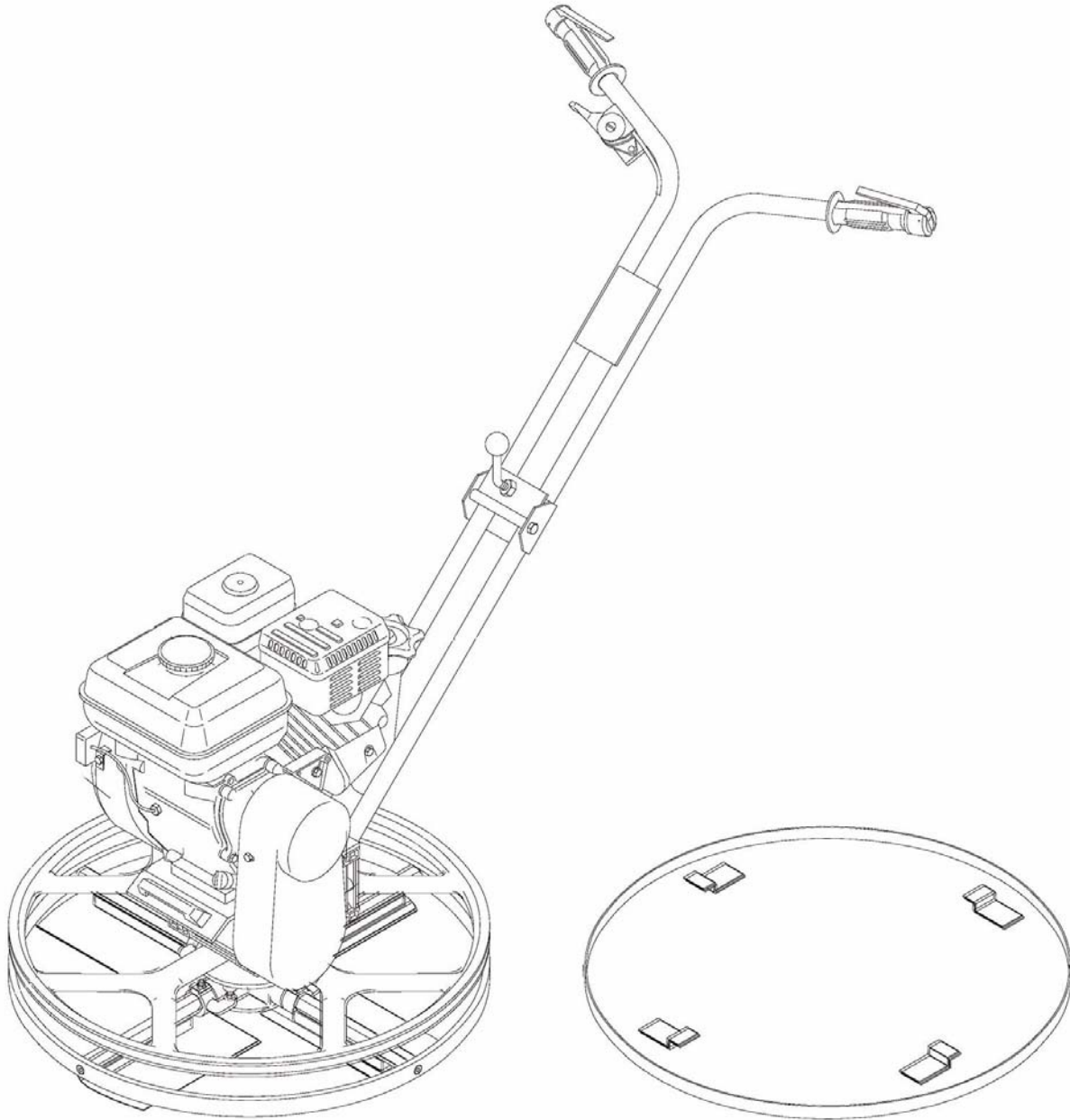
Correct starting position!

12267

12267

Safety Decals (Decal Set 16268)

SPECIFICATIONS



	F24/4
Ring Size	24" (61cm)
Engine	Honda GX120 4hp (3kw)
Engine Speed	3400 rpm
Trowel Speed	50-135 rpm
Weight	125 lbs (57kg)
Noise Level	85-105 dBA

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

Starting Engine

1. Open fuel valve.
2. Turn engine switch to "ON".
3. Set throttle to idle.
4. Choke engine if necessary (you may not need to choke a warm engine).

5. Place left hand on the handlebar safety interlock switch and the other on the starter rope. Pull starter rope repeatedly until engine starts.



WARNING



NEVER place foot on or near the guard ring when starting.

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

Operating

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

Blade Pitch Adjustment

1. To increase the pitch, rotate the tilt knob clockwise.
2. To decrease the pitch, rotate the tilt knob counterclockwise.
3. Blades must be flat when using floating pan.

Stopping Engine

1. Move throttle to idle position.
2. Release the handlebar safety interlock switch.
3. Close the fuel valve.



WARNING



Always stop the engine before:

Adding fuel.

Leaving the equipment unattended for any amount of time.

Before making any repairs or adjustments to the machine.

MAINTENANCE



WARNING



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

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



CAUTION



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

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

Maintenance Schedule

MAINTENANCE	10 HOURS OR DAILY	50 HOURS OR WEEKLY	100 HOURS OR MONTHLY	500 HOURS OR YEARLY
Inspect drive belt		X		
Check and tighten all hardware ¹			X	

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

Fluid Levels

SYSTEM	FLUID VOLUME	RECOMMENDED OIL
Engine	Refer to engine operator/owner manual	

Engine Maintenance

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

Engine Oil

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



WARNING



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

To drain the oil place a drain pan underneath the engine and remove the drain plug. After the oil has finished draining, reinstall the plug and clean any spilled oil from the trowel.

Engine Speed

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

Cleaning

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

Lifting

The trowel should be lifted by two people. A secondary handle for lifting is provided at the front of the trowel.

Storage

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

Changing Trowel Blades



WARNING



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

1. Set the trowel on a level surface.
2. Remove the bolts securing the blade to the tilt arm.

3. Lift up on the ring guard and slide the blade out from under the tilt arm.
4. Slide the new blade under the tilt arm.
5. Reinstall the bolts and tighten.
6. Check that the carriage bolts are set properly.

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.

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

SIZE	GRADE 2	GRADE 5	GRADE 8
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

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.
Spider	Replace the spider and trowel arms if more than 3/4" is evident at the end of the arm

REPLACEMENT PARTS

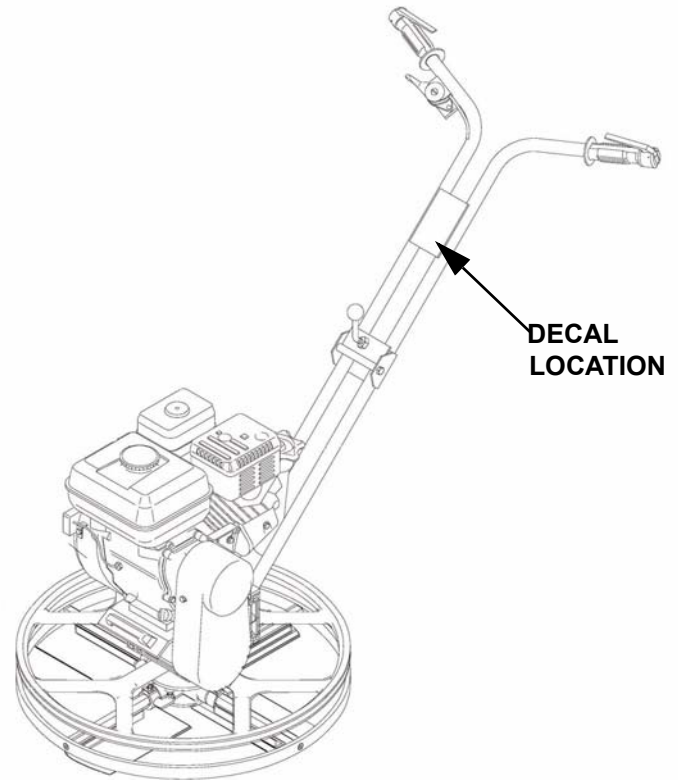
The warranty is stated in this book on page 34. Failure to return the Warranty Registration Card renders the warranty null and void.

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 location:

- Serial number decal is located on the upper portion of the handle directly above the MBW logo decal.

Write Model Number here

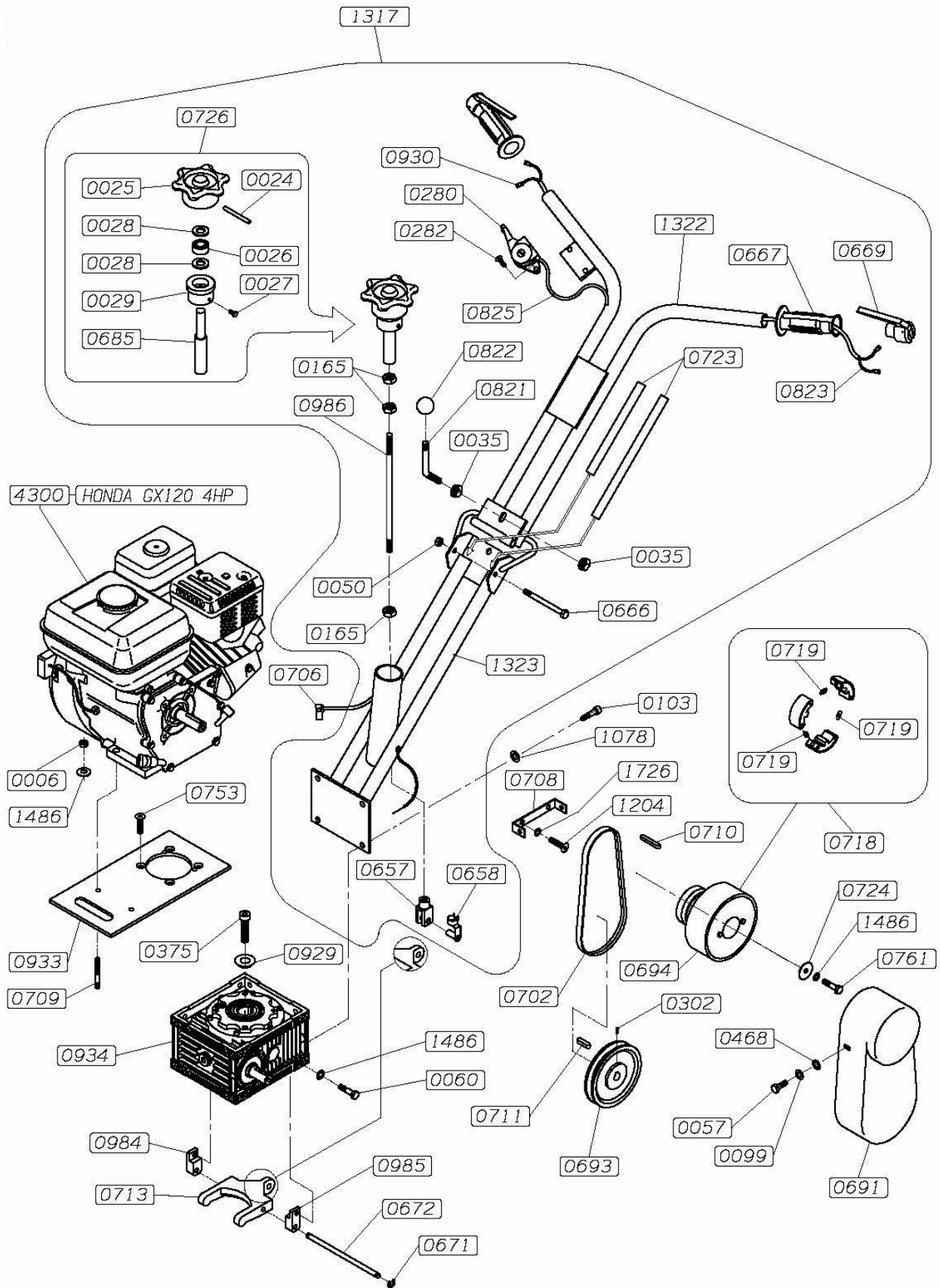
Write Serial Number here

Contact Information

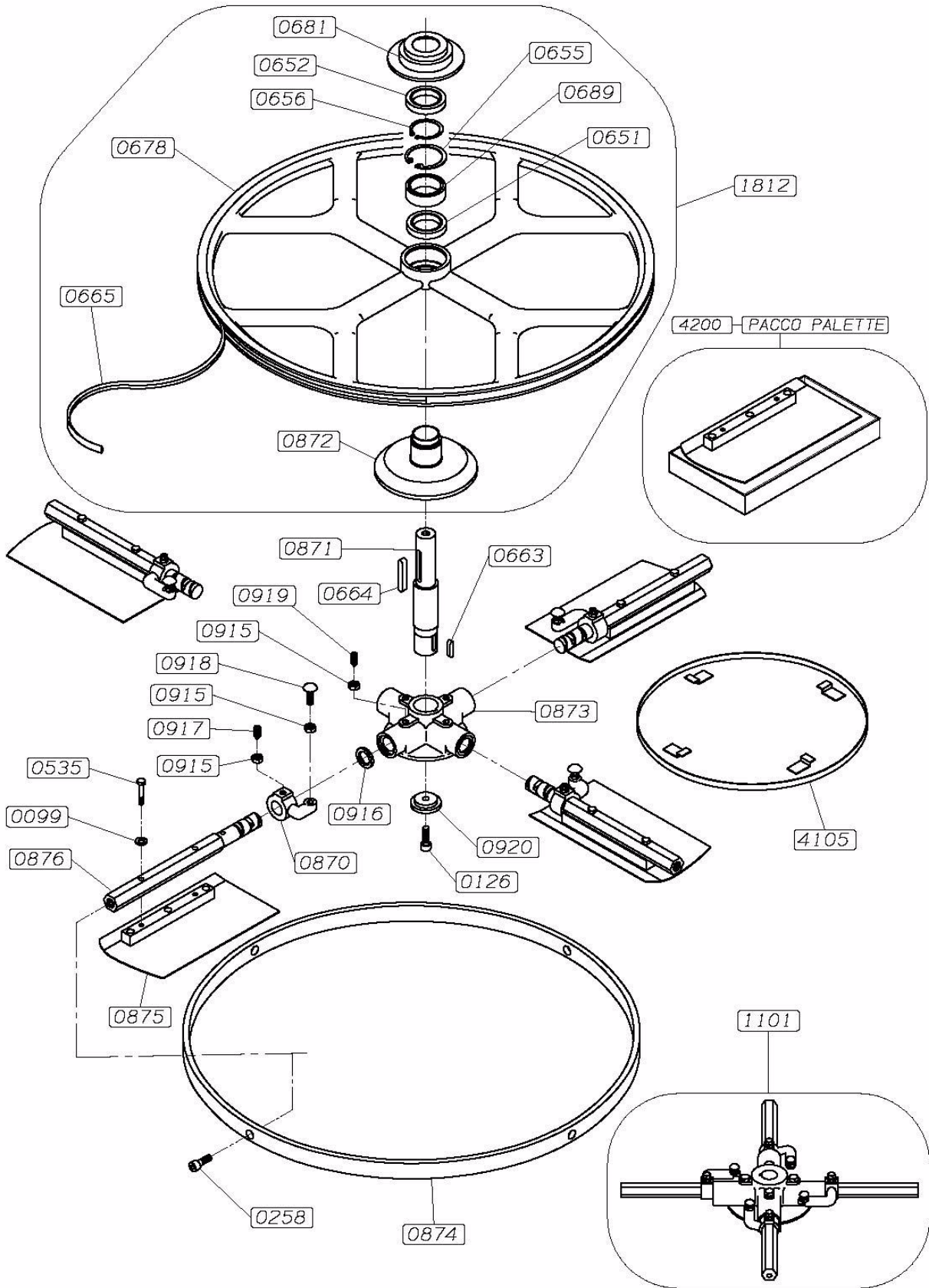
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Handle and Drive Assembly



Spider Assembly

WARRANTY

WHAT DOES THIS WARRANTY COVER? MBW, Incorporated (MBW) warrants each New Machine against defects in material and workmanship for a period of twelve (12) months. "New Machine" means a machine shipped directly from MBW or authorized MBW dealer to the end user. This warranty commences on the first day the machine is sold, assigned to a rental fleet, or otherwise put to first use.

MBW warrants each Demonstration Machine against defects in material and workmanship for a period of six (6) months. "Demonstration Machine" means a machine used by MBW or its agents for promotional purposes. This warranty commences on the first day the machine is sold, assigned to a rental fleet, or otherwise put to first use.

This warranty covers the labor cost for replacement or repair of parts, components, or equipment on New Machines or Demonstration Machines, and MBW shall pay labor costs at MBW's prevailing rate to affect the warranted repair or replacement. MBW reserves the right to adjust labor claims on a claim-by-claim basis.

This warranty covers the shipping cost of replacement parts, components, or equipment via common ground carriers from MBW to an authorized MBW dealer. Air freight is considered only in cases where ground transportation is not practical.

MAY THIS WARRANTY BE TRANSFERRED? This warranty is non-transferable and only applies to the original end user of a new machine or demonstration machine.

WHAT DOES THIS WARRANTY NOT COVER?

1. This warranty does not cover any Used Equipment. "Used Equipment" means any MBW machine or equipment that is not a New Machine or a Demonstration Machine. All Used Equipment is sold **AS IS/WHERE IS WITH ALL FAULTS**.

2. This warranty does not cover any New Machine, Demonstration Machine, or their equipment, parts, or components altered or modified in any way without MBW's prior written consent. This warranty does not cover the use of parts not specifically approved by MBW for use on MBW products. This warranty does not cover misuse, neglect, shipping damage, accidents, acts of God, the operation of any New Machine or Demonstration Machine in any way other than recommended by MBW in accordance with its specifications, or any other circumstances beyond MBW's control. This warranty does not cover any New Machine or Demonstration Machine repaired by anyone other than MBW factory branches or authorized MBW distributors.

3. This warranty does not cover, and MBW affirmatively disclaims, liability for any damage or injury resulting directly or indirectly from design, materials, or operation of a New Machine or Demonstration Machine or any other MBW product. MBW's liability with respect to any breach of warranty shall be limited to the provisions of this document and in no event shall exceed an amount equal to the purchase price of the New Machine or Demonstration Machine purchased from MBW.

4. This warranty does not cover engines, motors, and other assemblies or components produced by other manufacturers and used on a New Machine or Demonstration Machine, as said engines, motors, and other assemblies or components may have warranties provided by the manufacturer thereof. This warranty does not apply to consumable items, such as v-belts, filters, trowel and screed blades, seals, shock mounts,

batteries, and the like, all of which are sold AS IS/WHERE IS WITH ALL FAULTS.

5. This warranty does not cover the cost of transportation and other expenses which may be connected with warranty service but not specifically mentioned herein.

6. This warranty does not cover any updates to any New Machine, Demonstration Machine, or any other MBW product. MBW reserves the right to improve or make product changes without incurring any obligation to update, refit, or install the same on New Machines or Demonstration Machines previously sold.

WHAT MUST YOU DO TO OBTAIN WARRANTY COVERAGE? Each New Machine or Demonstration Machine is accompanied by a Warranty Registration Card. You must sign, date, and return the Warranty Registration Card to the place of origin of the New Machine or Demonstration Machine, either to MBW, Inc. at P.O. Box 440, Slinger, Wisconsin 53086, MBW (UK), Ltd. at Units 2 & 3 Cochrane Street, Bolton BL3 6BN, United Kingdom or MBW FRANCE SARL at ZA D'Outreville, 5 Rue Jean Baptiste Neron, Bornel 60540 France, within ten (10) days after purchase, assignment to a rental fleet, or first use. This signed warranty card is the buyer's affirmation that he has read, understood, and accepted the warranty at the time of purchase. Failure to return the warranty card as specified herein renders the warranty null and void. In order to receive warranty coverage consideration, warranty claims must be submitted within thirty (30) days after the New Machine or Demonstration Machine fails. Warranty claims must be submitted to MBW, Inc., MBW (UK), Ltd. or MBW FRANCE SARL, and written authorization for the return of merchandise or parts under the warranty must be obtained before shipment to MBW.

WHAT WILL MBW DO? MBW's obligation under this warranty is limited to the replacement or repair of parts for a New Machine or Demonstration Machine at MBW factory branches or at authorized MBW distributors, and such replacement or repair is the exclusive remedy provided hereunder. Labor must be performed at an authorized MBW distributor. MBW reserves the right to inspect and render a final decision on each warranty case, and MBW's repair or replacement is solely within the discretion of MBW.

IT IS EXPRESSLY AGREED THAT THIS SHALL BE THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY. UNDER NO CIRCUMSTANCES SHALL MBW BE LIABLE FOR ANY COSTS, LOSS, EXPENSE, DAMAGES, SPECIAL DAMAGES, INCIDENTAL DAMAGES, OR PUNITIVE DAMAGES ARISING DIRECTLY OR INDIRECTLY FROM THE USE OF THE NEW MACHINE OR DEMONSTRATION MACHINE WHETHER BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR ANY OTHER LEGAL THEORY.

THE FOREGOING WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR USE, AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER OBLIGATIONS OR LIABILITY ON MBW'S PART. MBW NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME ON BEHALF OF MBW ANY OTHER LIABILITY OR WARRANTY IN CONNECTION WITH THE SALE OR SERVICE OF ANY NEW MACHINE, DEMONSTRATION MACHINE, OR ANY OTHER MBW PRODUCT.