OPERATOR'S and PARTS MANUAL

Model MCD-WBR

Residential Walk-Behind Broom

Important! Tires must be inflated fully (24psi max.) before operating unit.

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INTRODUCTION

OPERATOR'S MANUAL

You must read, understand and comply with all the safety and operating instructions in this manual before attempting to set-up and operate your unit.

Failure to comply with the safety and operating instructions can result in loss of machine control, serious personal injury to you and/or bystanders, and risk of equipment and property damage.

IDENTIFICATION NUMBERS

When contacting your authorized dealer for information, replacement parts or service, you MUST have the model and serial number of your unit.

Record the serial number in the space provided. The serial number plate/decal can be found in the location shown in Figure 1.

Model Name/Number:	
Date Purchased:	Serial #:

Figure 1.

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SAFETY

SAFETY ALERTS

Signal words and alert symbols notify of important safety precautions.

DANGER! **Indicates a hazardous situation which, if not avoided, will result in serious injury or death.**

WARNING! **Indicates a hazardous situation which, if not avoided, could result in serious injury or death.**

CAUTION! **Indicates a hazardous situation or unsafe practice which, if not avoided, could result in minor or moderate injury or property damage.**

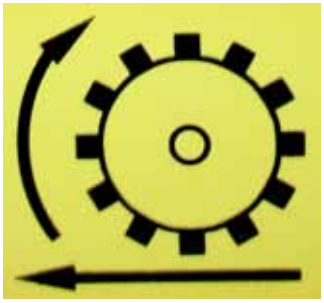
SAFETY DECALS

Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your unit.

All DANGER, WARNING, CAUTION, and instructional messages on your unit should be carefully read and obeyed. Bodily injury can result when these instructions are not followed. The information is for your safety and it is important.

These labels will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.

If any of these labels are lost or damaged, replace them at once. See you local dealer for replacements.



PRE-START GUIDELINES

- Install any covers or guards which may have been removed for shipping purposes.
- Before starting equipment, walk around equipment, making a visual inspection that all safety devices are properly installed and secured.
- Check that all hardware, fasteners, hydraulic fittings, etc. are in good condition and properly fastened. Replace any fatigued or damaged items with proper replacements.
- Personnel who are not required to be in the work area should be kept away. Never start the equipment unless you are absolutely certain that everyone in the area is clear of the machine and aware it is being started.
- Follow the manufacturer's recommended start-up procedure.

OPERATION GUIDELINES

Read, understand and follow all instructions in the manual and on the unit before starting.

- To avoid serious injury or death, do not modify equipment. Any modifications made to equipment can be dangerous and can void equipment warranty.
- Never defeat a safety device to make a task easier.
- Always wear proper apparel when operating equipment; safety glasses, face shield or goggles, ear protection, and dust mask. Tie hair back. Never wear loose clothing or jewelry that could get caught in moving parts.
- Never operate equipment with covers or guards removed. Rotating parts can cause severe injury. Keep hands, feet, hair, jewelry and clothing away from all moving parts.
- Only allow responsible adults who are familiar with the instructions, to operate the unit (local regulations can restrict operator age).

SAFETY

NOTE: All reference to left, right, front, or rear are given from the operator position and facing forward.

- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown.
- Be aware of surroundings. Be sure the area is clear of other people, bystanders or pets. Stop unit if anyone enters the area.
- Always look down and behind before and while traveling in reverse.
- Be aware of discharge direction and do not point discharge at anyone. Do not point the discharge at glass enclosures, automobiles, or windows.
- Always stand clear of the discharge area when operating this unit.
- Never leave a running machine unattended. Always disengage the attachment and traction controls, lower the attachment, set the park brake, stop the engine and remove the ignition key before leaving the machine.
- Operate only in daylight or good artificial light.
- Never carry passengers.
- Do not operate the unit while under the influence of drugs, alcohol or other medication.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the unit into a trailer or truck.
- Keep in mind the operator is responsible for accidents occurring to other people or property.
- Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the unit safely enough to protect themselves and others from injury.
- All operators should seek and obtain professional and practical instruction.
- Protect eyes, face and head from objects that may be thrown from unit. Wear appropriate hearing protection.
- Always wear substantial footwear and appropriate clothing. Wear footwear that improves traction on slippery slopes. DO NOT wear long scarves or loose clothing that could become entangled in moving parts.
- Abnormal Vibrations are a warning of trouble. Striking a foreign object can damage unit. Stop unit and engine. Wait for all moving parts to stop. Inspect unit and make any necessary repairs before restart.
- Never place your hands or any part of your body or clothing inside or near any moving part while unit is running.
- Stop engine before: refueling, cleaning, making adjustments or removing the attachment assembly.
- Follow the drive unit manufacturer's recommendations for wheel weights or counter weights.
- Make any adjustments before operating unit.
- Do not touch parts which may be hot from operation. Allow such parts to cool before attempting to service the unit.
- Before using, always visually check that hardware is present, intact and secure. Replace worn or damaged parts.
- Never operate the machine with damaged guards, or without safety protective devices in place.
- Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.
- The Operator must understand the functions and parameters of all controls and how to operate, as well as how to STOP in an Emergency.

SLOPE OPERATION

WARNING! Travel UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE. Select slow ground speed before driving onto slope.
If it becomes necessary to move across the face of a slope, use caution and do not engage the broom. Be very careful when changing direction on a slope.
Proper footwear is recommended for the operator to help prevent slipping. Never attempt to operate on excessively steep slopes. Never operate on slopes greater than 17.6 percent (10°), which is a rise of 3-1/2 feet (106 cm) vertically in 20 feet (607 cm) horizontally.

CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the operating activity. Never assume that children will remain where you last saw them.

- Keep children out of the area and under the watchful care of another responsible adult.
- Be alert and turn unit off if children enter the area.
- Before and during reverse operation, look behind and down for small children.
- Never allow children to operate the unit.
- Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

EMISSIONS

- Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.
- Look for the relevant Emissions Durability Period and Air Index information on the engine emissions label.

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SAFETY

SERVICE AND MAINTENANCE

- Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
    a. Use only an approved container.
    b. Never remove gas cap or add fuel with the engine running. Allow engine to cool before refueling.
    c. Do not smoke.
    d. Never refuel the unit indoors.
- If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- Replace all fuel tank caps and fuel container caps securely.
- Never fill containers inside a vehicle or on a truck bed with a plastic bed liner. Always place containers on the ground away from your vehicle before filling.
- Remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
- Keep nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.
- Do not use a nozzle lock-open device.
- If fuel is spilled on clothing, change clothing immediately.
- Maintain or replace safety and instruction labels as necessary.
- Never run a unit in an enclosed area.
- Keep nuts and bolts tight and keep equipment in good condition.
- Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
- Keep unit free of debris build-up. Clean up oil or fuel spillage.
- Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
- Never make adjustments or repairs with the engine running unless specified otherwise in the engine manufacturer's manual.
- Components are subject to wear, damage, and deterioration.
- Frequently check components and replace with manufacturer's recommended parts, when necessary.
- Check control operation frequently. Adjust and service as required.
- Use only factory authorized replacement parts when making repairs.
- Always comply with factory specifications on all settings and adjustments.
- Only authorized service locations should be utilized for major service and repair requirements.
- Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.
- Do not change engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
- Disengage broom and traction, stop the engine, and disconnect the spark plug wire(s) before: performing service work or if the unit vibrates abnormally.
- After striking an object, inspect the machine for damage and make repairs before restarting and operating the equipment.

ANSI B71.3-1995 WARNINGS

Training

1. Read the operating and service instruction manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
2. Never allow children to operate the equipment.
3. Never allow adults to operate the equipment without proper instruction.
4. Keep the area of operation clear of all persons, particularly small children and pets.
5. Exercise caution to avoid slipping or falling especially when operating in reverse.

Preparation

1. Thoroughly inspect the area where the equipment is to be used and remove all doormats, sleds, boards, wires, and other foreign objects.
2. Disengage all clutches and shift into neutral before starting engine (motor).
3. Do not operate the equipment without wearing adequate outer garments. Wear footwear that will improve footing on slippery surfaces.
4. Handle fuel with care; it is highly flammable.
    a. Use an approved fuel container.
    b. Never add fuel to a running engine or hot engine.
    c. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
    d. Replace fuel cap securely and wipe up spilled fuel.
5. Never attempt to make any adjustments while the engine (motor) is running (except when specifically recommended by the manufacturer).
6. Let engine (motor) and machine adjust to outdoor temperatures before starting to clear snow.
7. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eye from foreign objects that may be thrown from the machine.

Operation

1. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
2. Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
3. After striking a foreign object, stop the engine (motor), remove the wire from the spark plug, disconnect the cord on electric motors, thoroughly inspect the power broom for any damage, and repair the damage before restarting and operating the power broom.
4. If the unit should start to vibrate abnormally, stop the engine (motor) and check immediately for the cause. Vibration is generally a warning of trouble.
5. Stop the engine (motor) whenever you leave the operating position, before making any repairs, adjustments, or inspections.
6. When cleaning, repairing, or inspecting make certain the broom and all moving parts have stopped. Disconnect the spark plug wire and keep the wire away from the plug to prevent accidental starting.
7. Do not run the engine indoors except for starting the engine or for transporting the power broom in or out of the building. Open the outside doors; exhaust fumes are dangerous.
8. Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.

9. Never operate the power broom without proper guards plates, or other safety protective devises in place.
10. Never operate the power broom near glass enclosures, automobiles, window wells, drop-offs, and the like without proper adjustment of the discharge angle. Keep children and pets away.
11. Do not overload the machine capacity by attempting to clear snow, sand or dirt at too fast a rate.
12. Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when backing.
13. Never direct discharge at bystanders or allow anyone in front of the unit.
14. Disengage power to the broom when power broom is transported or not in use.
15. Use only attachments and accessories approved by the manufacturer of the power broom (such as wheel weights, counterweights, cabs, and the like).
16. Never operate the power broom without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk, never run.

Maintenance and Storage

1. Check shear bolts and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
2. Never store the machine with fuel in the fuel tank inside a building where ignition sources are present such as hot water and spacer heaters, clothes dryers, and the like. Allow the engine to cool before storing in any enclosure.
3. Always refer to the operator's guide instructions for important details if the power broom is to be stored for an extended period.
4. Maintain or replace safety and instruction labels as necessary.
5. Run the machine a few minutes after moving snow to prevent freeze-up of the broom assembly.
6. Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
7. Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
8. Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.

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ASSEMBLY

ENGINE

IMPORTANT! Engine is delivered without oil or fuel.

Check engine oil and fuel levels and fill as necessary. Refer to the engine Operator's Manual for complete information.

ASSEMBLY

The broom is shipped partially disassembled to conserve shipping space and to package securely to reduce the possibility of damage in transit.

NOTE: Right hand (RH) and left hand (LH) designations are referenced from facing forward in the operating position.

1. Remove all components from the shipping crate and place in a secure location.
2. Inflate tires to 20-24 psi (24 psi maximum).
3. Connect steering arm to pivot latch plates with 12mm bolt, flat washer and flanged lock nut. See Figure 1.

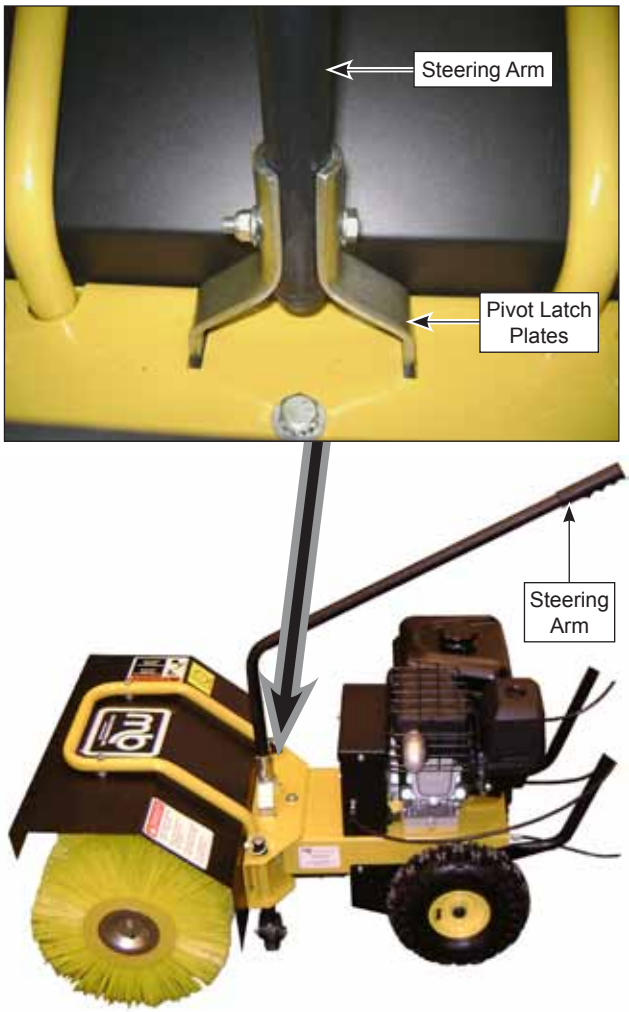

Figure 1

NOTE: Handlebar height is adjusted by changing angle of upper handlebars.

4. Position (2) angle adjustment spacers between upper and lower handlebars. Align spacers over through-holes in handlebars. Tabs on curved side of spacers fit in holes in handlebars. Ensure space teeth interlock. See Figure 2.
5. Place flat washer and end cap on adjustment knob shaft. See Figure 3.

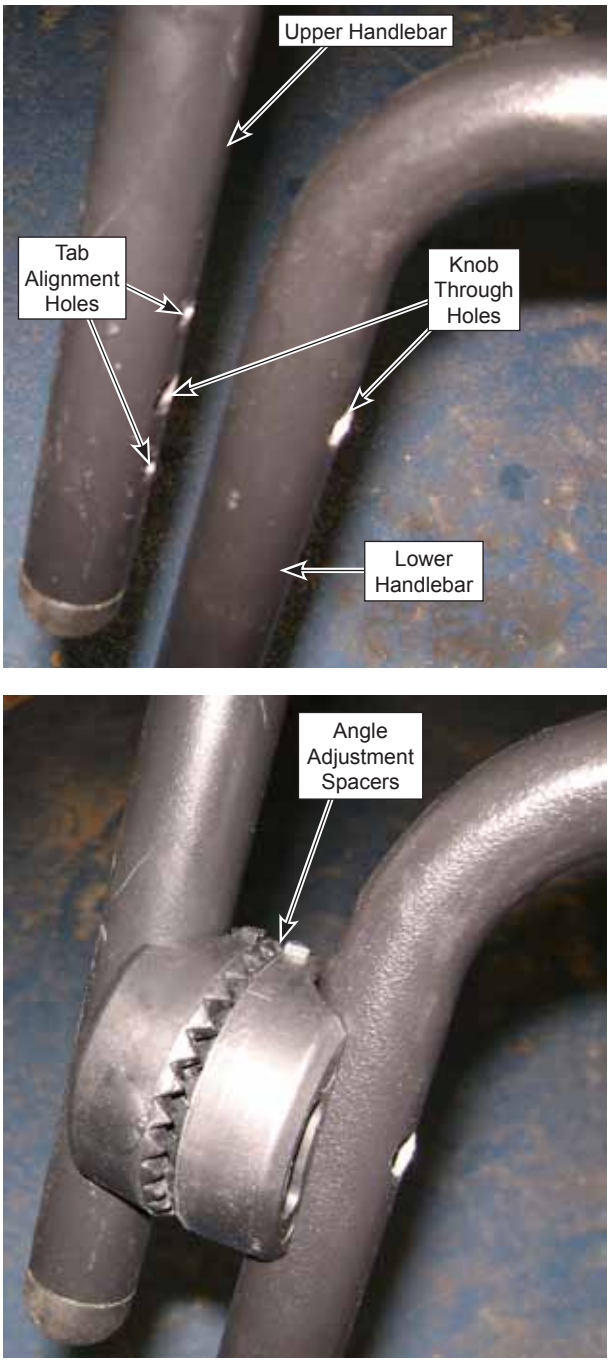

Figure 2

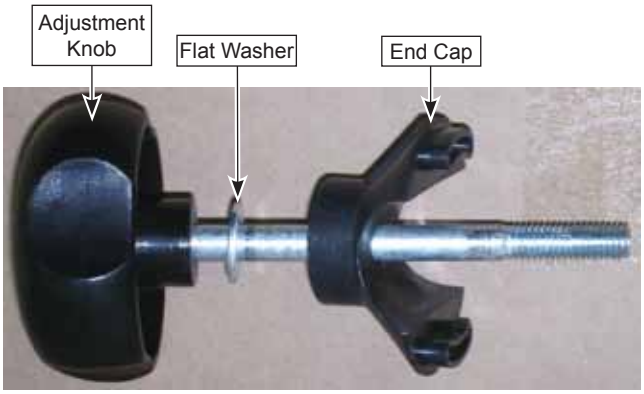

Figure 3

NOTE: Refer to Figure 4 for steps 6 through 9.

6. Insert adjustment knob shaft through outer (upper) handlebar, two spacers and inner (lower) handlebar.
7. Place 13mm hexnut in mating hole in outside of end cap.
8. Position end cap with hex nut against inner side of lower handlebar, over adjustment knob shaft.
9. Turn adjustment knob clockwise (CW), threading into hex nut in opposite side end cap, until angle adjustment spacers are tight.

HANDLEBAR HEIGHT ADJUSTMENT

See Figure 4.

The handlebar height is adjusted by changing the angle of the upper handlebars.

1. Turn both adjustment knobs counterclockwise (CCW) until interlocking teeth of spacers are loose.
2. Tip the upper handlebar forward/back to raise/lower the height.
3. Turn adjustment knobs CW to lock handlebar position.

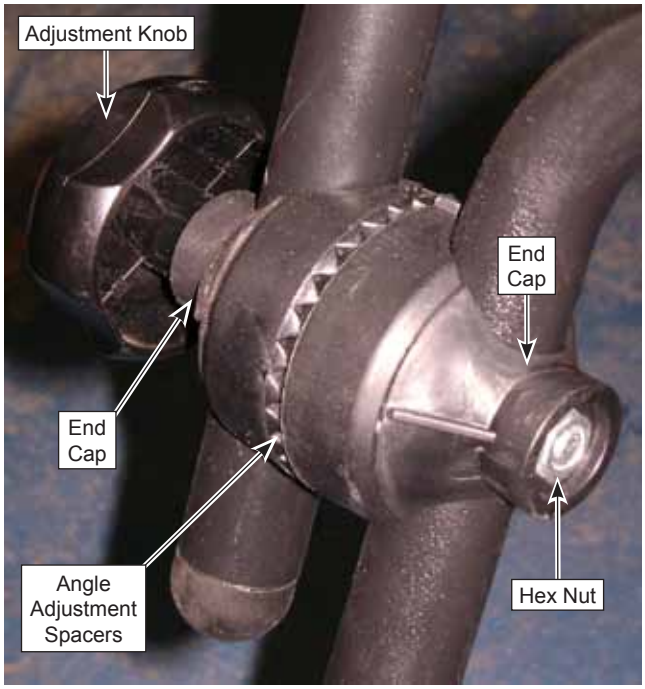

Figure 4

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CONTROLS AND FEATURES

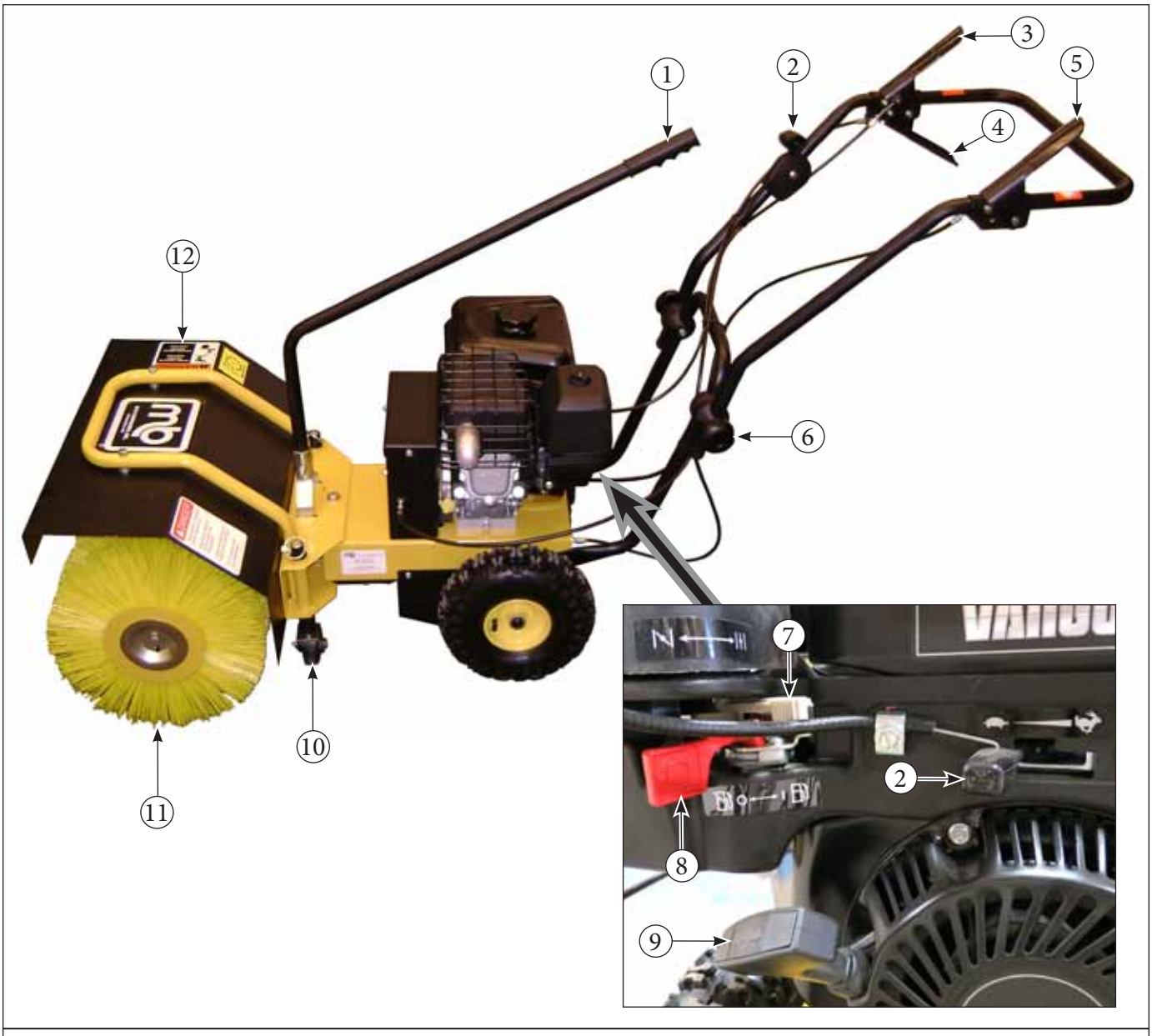

Figure 1

1. Broom Steering Arm [1]
2. Engine Throttle Control [1]
3. Forward Traction Control [1]
4. Reverse Traction Control [1]
5. Brush Rotation Control [1]
6. Handlebars Adjustment Knobs [2]
7. Engine Choke Control [1]
8. Engine Fuel/Ignition Control [1]
9. Recoil Starter Handle [1]
10. Caster Wheels [3]
11. Brush
12. Brush Hood

[1] Refer to the OPERATION section for more information.

[2] Refer to the ASSEMBLY section for more information.

[3] Refer to the SETUP AND ADJUSTMENTS section for more information.

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OPERATION

CONTROLS

See Figure 1.

1. **Forward Traction Drive Control Lever**
   Press lever down to handlebar to apply forward drive, moving broom forward. Release lever to stop forward traction. See Figure 1.
2. **Reverse Traction Drive Control Lever**
   Pull lever up to handlebar to apply reverse drive, moving broom rearward. Release lever to stop reverse traction. See Figure 1.
3. **Brush Rotation Control Lever**
   Press lever down to handlebar to apply brush rotation drive. Release lever to stop brush rotation. See Figure 1.

IMPORTANT! DO NOT operate brush if steering arm is not latched into one of the three preset positions.

4. **Broom Steering Arm**
   Press arm downward and turn brush in the desired direction left or right. Raise arm up fully to latch brush into preset positions of either 20° left or right, or straight ahead (0°).

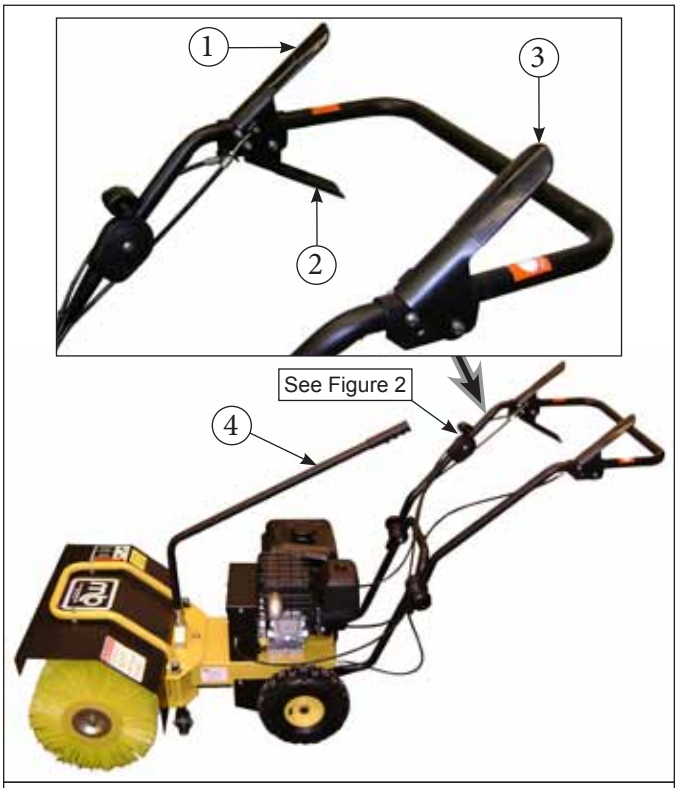

Figure 1

5. **Engine Throttle Control Lever**
   Pull lever back/up to reduce engine speed (SLOW). Press lever forward/down to increase engine speed (FAST). See Figure 2.

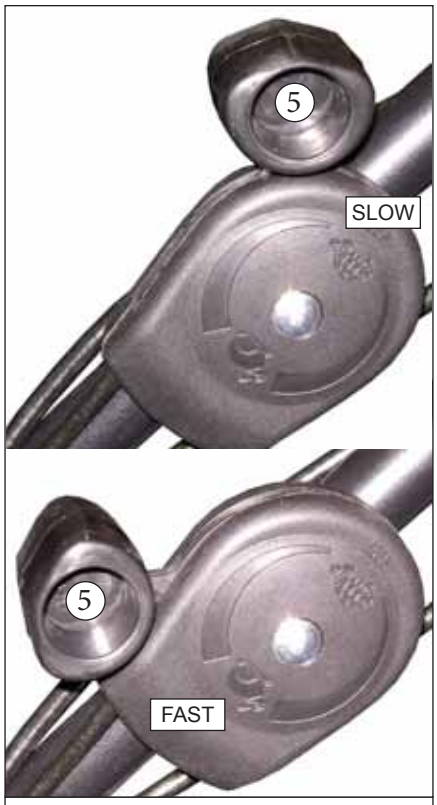

Figure 2

Engine Controls

NOTE: Refer to the engine manufacturer's Operator's Manual for complete information.


Engine Throttle SLOW - FAST


Fuel/Ignition OFF - ON


Choke CLOSED/ON - OPEN/OFF

PRE-START CHECKS

IMPORTANT! You must read, understand and comply with all the safety and operating instructions in this manual before attempting to set-up and operate your power broom.

Failure to comply with the safety and operating instructions can result in loss of machine control, serious personal injury to you and/or bystanders, and risk of equipment and property damage.

1. Visually inspect equipment and hardware to ensure that all parts and hardware are tightened and secure and all guards are in place.

OPERATION

WARNING! Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is hot or running. Always move outdoors to fill the tank. Keep power broom and gasoline away from open flame or spark.

IMPORTANT! Engine is shipped without oil or fuel!

2. Check engine oil and fuel levels. Refer to the engine Operator's Manual for specifications, guidelines and fill procedures.
3. Check for oil and/or fuel leaks.
4. Check traction and brush drive controls for proper operation. Check for loose control cable connections.

CAUTION! If brush height is set too low, brush contact can push machine rearward when brush drive is engaged. Engage brush slowly with brush set at proper height.

5. Inspect the broom adjustments to ensure that the broom is level and that there is proper brush pattern. Refer to the SETUP AND ADJUSTMENT section.
6. Inspect the bristle length to determine if replacement segments are needed.

IMPORTANT! Tires must be fully inflated (24psi max.) before operating unit.

7. Check tire pressure and inflate as necessary.

STARTING ENGINE

NOTE: Refer to the engine manufacturer's Operator's Manual for complete information.

1. Check oil and fuel levels.
2. Place the engine Fuel/Ignition Control in the ON position.
3. Place the engine Throttle Control to the FAST position. Operate the broom with the engine in the FAST position.

NOTE: Choke is usually unnecessary when restarting a warm engine.

4. Position the Choke Control to the CLOSED/ON position.
5. Pull the recoil starter handle slowly until resistance is felt, then pull rapidly.

IMPORTANT! Never allow the starter rope to recoil by itself. Always guide the rope back into the housing.

6. As the engine warms up, move the Choke Control to the OPEN/OFF position.

If numerous attempts have been made to start the engine but it refuses to start, there may be excessive fuel in the cylinder/carburetor, moistening the spark plug. Remove the plug and dry with a cloth.

STOPPING ENGINE

NOTE: Refer to the engine manufacturer's Operator's Manual for complete information.

1. Place the engine Throttle Control to the SLOW position and allow to idle for 10-20 seconds.
2. Place the engine Fuel/Ignition Control in the OFF position to stop engine.

CAUTION! Shutting off engine by setting choke control to CLOSED/ON may result in damage to engine.

STOPPING ENGINE IN AN EMERGENCY

Place Engine Fuel/Ignition Control (red lever) to OFF (**O**) position. Wait for all rotating parts to stop before leaving operator's position.

BROOM OPERATION

WARNING! Travel UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE. Select slow ground speed before driving onto slope.

If it becomes necessary to move across the face of a slope, use caution and do not engage the broom. Be very careful when changing direction on a slope.

Proper footwear is recommended for the operator to help prevent slipping.

Never attempt to operate on excessively steep slopes. Never operate on slopes greater than 17.6 percent (10°), which is a rise of 3-1/2 feet (106 cm) vertically in 20 feet (607 cm) horizontally.

CAUTION! Always engage ground drive (traction control) before engaging broom drive (rotation control).

Always release the broom drive before disengaging ground drive or broom contact may push unit backwards.

NOTE: Before starting or stopping broom rotation, always set Engine Throttle Control (Figure 2) to SLOW.

Brush Head Angling

1. Push the locking handle down.
2. Turn the brush head to the desired angle.
3. Release/lift the locking handle to lock angle in position.

Sweeping

1. Shift the brush head assembly to the desired angle. Refer to the CONTROLS section.
2. Start the engine and set to idle (SLOW). Refer to the STARTING ENGINE section.
3. Engage the brush rotation drive. Refer to the CONTROLS section.
4. Increase engine speed to FAST. Refer to the CONTROLS section.
5. Engage the FORWARD traction drive. Refer to the CONTROLS section.

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OPERATION

Clearing Snow

- Remove snow as soon as possible after snowfall.
- Slow travel speeds and fast brush speeds clear snow most effectively.
- To keep snow from packing inside the brush hood when clearing wet/deep snow, increase to almost full throttle.
- Sweep with the wind to your back to prevent snow from blowing back into swept areas.
- It is sometimes necessary to make multiple passes in deep snow to get to a clean surface.

Dirt and Gravel

- To minimize dust, sweep with the wind to your back. Also, plan to sweep on days when it is overcast, humid, or after rain.
- Low brush speeds and moderate travel speeds are most effective for sweeping hard surfaces. Brush speeds that are too fast increase dust.
- Gravel should be swept using just enough brush speed to “roll” it, not throw it.

Heavy Debris

- Travel slowly. 1-2 mph.
- Clear a path less than the full width of the sweeper.

Controlling Debris Direction

- Prevent excessive wear and tear on the brush by using only a reasonable amount of downward pressure on the brush sections. A 2” - 4” wide pattern should suffice in most circumstances. Check the pattern and adjust if required according to the Pattern Adjustment procedure within the SETUP AND ADJUSTMENTS section.
- It may be necessary to increase broom contact pattern under some conditions. If the surface being swept is uneven and causes the broom to leave upswept patches, increase the pattern size to compensate.
- Clear debris in the preferred direction by angling the brush head in that direction.

NOTE: The terms “swing” and “angle” can be used interchangeably. Start at center of area to be swept and sweep to each side, away from previously swept area.

- When clearing large areas, make a path down the center, then sweep to both sides of the path.
- Sweep with the wind instead of against it. Doing so makes sweeping more effective and carries debris away from the operator.
- Sweep at a speed that is appropriate for the conditions and location.
- For heavy material such as gravel or stones, drive more slowly with a higher broom speed. For lighter material such as snow, drive faster with a lower broom speed.
- If the material being swept is dried-on or difficult to remove, such as mud or ice, it may be necessary to drive extremely slow to allow the broom to “scrub” the surface.

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ACTUATION CABLE ADJUSTMENT

If the operation of the traction drive forward, traction drive reverse or brush rotation function is slow or non-existent, the specific actuation cable may require adjustment.

The primary adjustment of each cable is at the corresponding control lever. Additional adjustment is also available at the opposite end of each cable.

Control Lever

NOTE: All three control levers are adjusted in the same manner.

1. Loosen the adjuster's upper nut away from the control lever flange. See Figure 1.
2. Turn the adjuster counterclockwise (CCW) to rotate it away from the flange, tightening the cable. This will increase sensitivity of the corresponding control lever.
3. Tighten both the upper and lower nuts against the control lever flange to lock the adjuster in position.

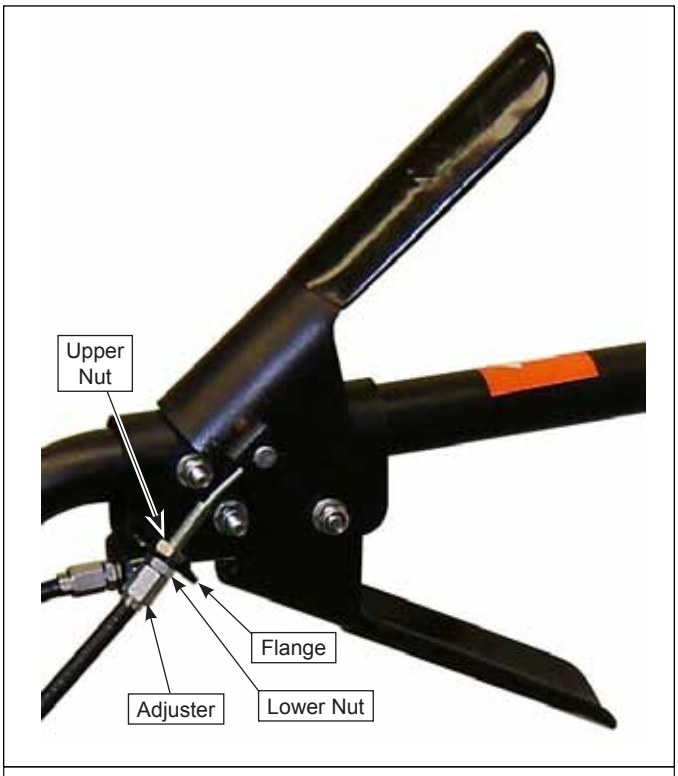

Figure 1

Traction Drive Cables

The Forward drive (left) and Reverse drive (right) cables actuate control levers on the drive transmission. Both actuation cables are adjusted in the same manner.

1. Ensure brush rotation has stopped, close fuel/ignition control on engine, disconnect wire from spark plug and allow unit to cool. Refer to OPERATION section for more information.
2. Remove the snapring and flat washer from the outer end of each axle shaft and remove both wheel/tire assemblies from broom. See Figures 2 and 3.

Figure 2

3. Remove (6) 8mm self-tapping screws and remove cover from bottom of frame. See Figure 3.

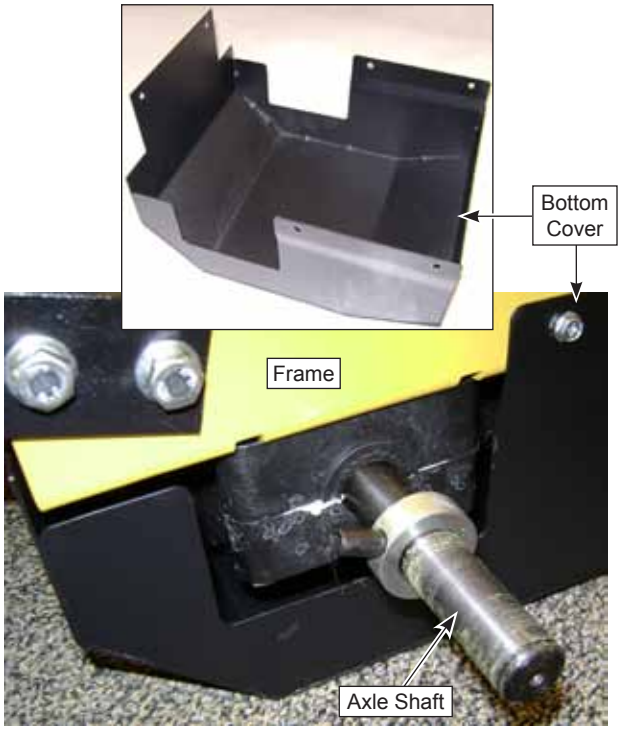

Figure 3

4. Loosen the adjuster's inner nut away from the frame. See Figure 4.
5. Turn the adjuster counterclockwise (CCW) to rotate it away from the frame, tightening the cable. This will increase sensitivity of the corresponding control lever.

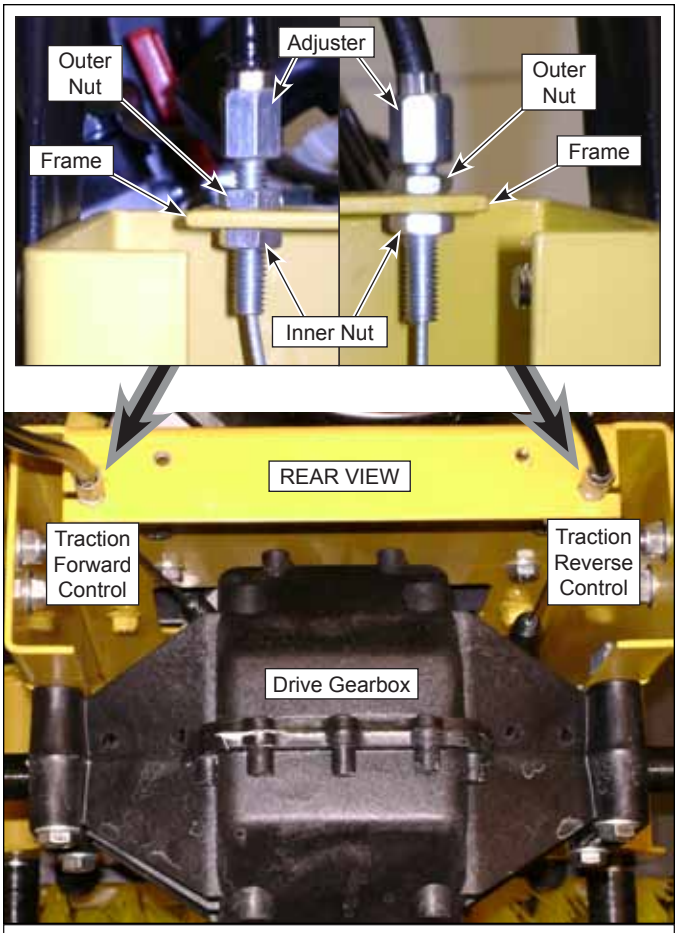

Figure 4

6. Tighten both the inner and outer nuts against the frame to lock the adjuster in position.
7. Install the bottom cover on the frame and secure with (6) self-tapping screws.
8. Install a wheel/tire assembly (valve stem out) on each axle shaft.
9. Install a flat washer and snapring on the outer end of each axle shaft.

Brush Rotation Cable

The brush rotation cable actuates an idler pulley. Forcing the idler pulley against the brush drive belt tightens the belt, increasing brush speed and power.

1. Shut off broom, close fuel supply valve on engine assembly, disconnect wire from spark plug and allow unit to cool.
2. Remove (2) 9mm hex head capscrews, flat washers and lid from top of belt cover. See Figure 5.
3. Loosen the adjuster's inner nut away from the belt cover. See Figure 6.
4. Turn the adjuster counterclockwise (CCW) to tighten the cable, increasing sensitivity of the brush rotation control lever, increasing brush rotation speed.
5. Tighten both the inner and outer nuts against the belt cover to lock the adjuster in position.

NOTE: The belt idler mounting (pivot) point may also be moved away from belt to increase the available adjustment of actuation cable. See Figures 5 and 6.

6. Install the lid on top of belt cover and secure with (2) 9mm hex head capscrews and flat washers.

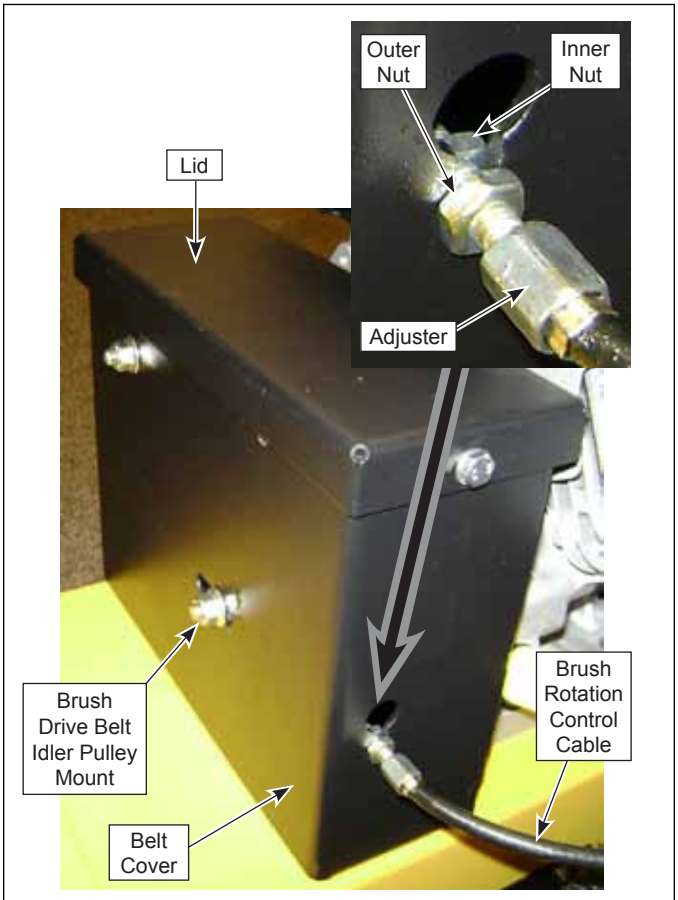

Figure 5

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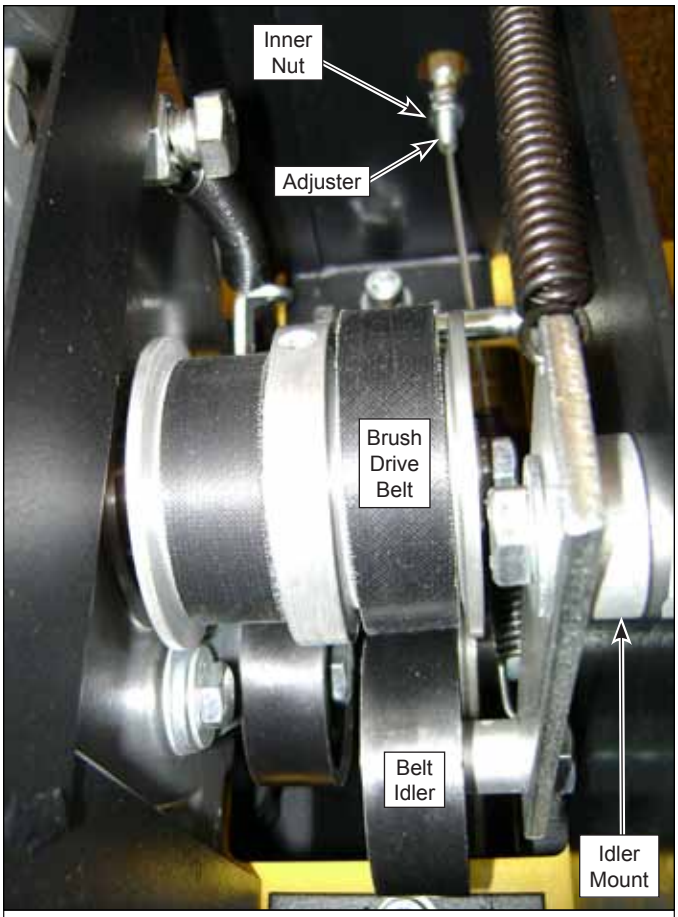

Figure 6

CASTER WHEEL HEIGHT ADJUSTMENT

Proper adjustment of your power broom will increase the life of the brush and produces more efficient movement of material. Visually inspect the adjustments on the broom before each operating session and measure the adjustments once every 10 hours.

The brush pattern will require adjustment as the brush wears from use. The broom must be level to properly set the brush pattern (swept area). Both of these adjustments are made by setting the caster wheel height.

1. Place the unit on a flat level surface.
2. Remove lynch pin and plastic sleeve bushing from top of caster wheel shaft. See Figure 7.
3. Remove caster wheel assembly out through bottom of mount.

NOTE: Removing spacer rings from below the mount raises the caster wheel, lowering the brush closer to the work surface.

4. Remove spacer ring(s) from caster wheel shaft.
5. Install caster wheel assembly up through bottom of mount.

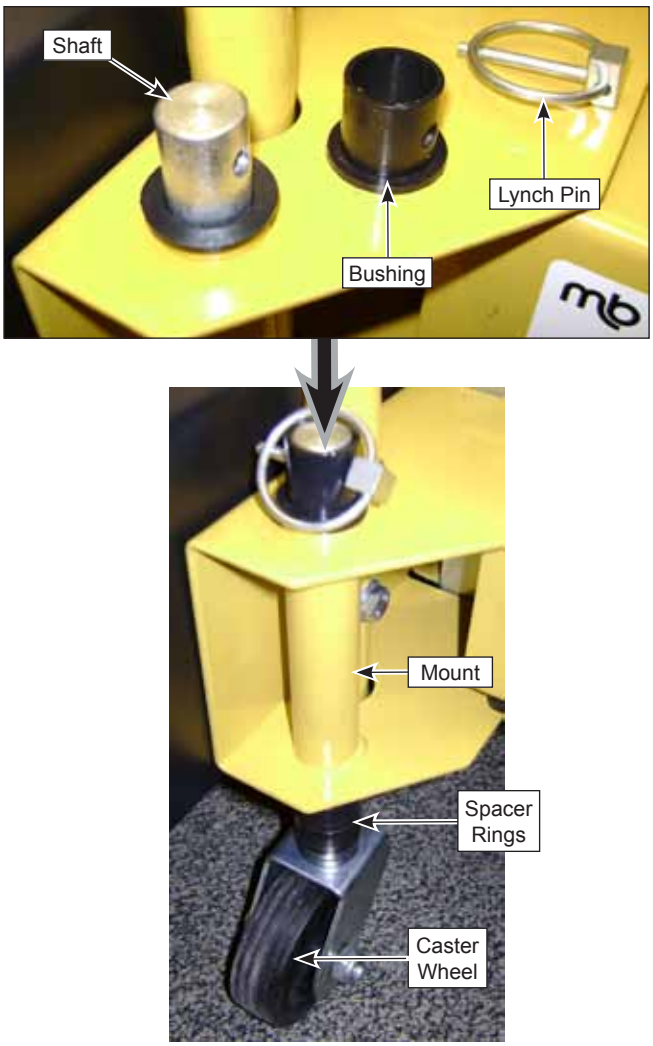

Figure 7

6. Install spacer ring(s), removed in step 4, on top of caster wheel shaft. See Figure 8.

NOTE: Lynch pin passes through holes in bushing.

7. Install bushing and lynch pin on caster wheel shaft.

IMPORTANT! Unequal placement of spacers between the two caster assemblies will cause the broom to be out of level side-to-side (left-right), resulting in uneven brush pattern.

8. Repeat step 2 through 7 for opposite side caster wheel assembly. Ensure spacer placement is identical on both sides of broom.

Figure 8

PATTERN ADJUSTMENT

1. Run the brush for about 30 seconds while stationary.
2. Stop the brush and back the unit away from the swept area. The “cleaned” (contact patch) should be 2"-4" wide (front-to-rear) for the entire length (side-to-side) of the broom. See Figure 9.

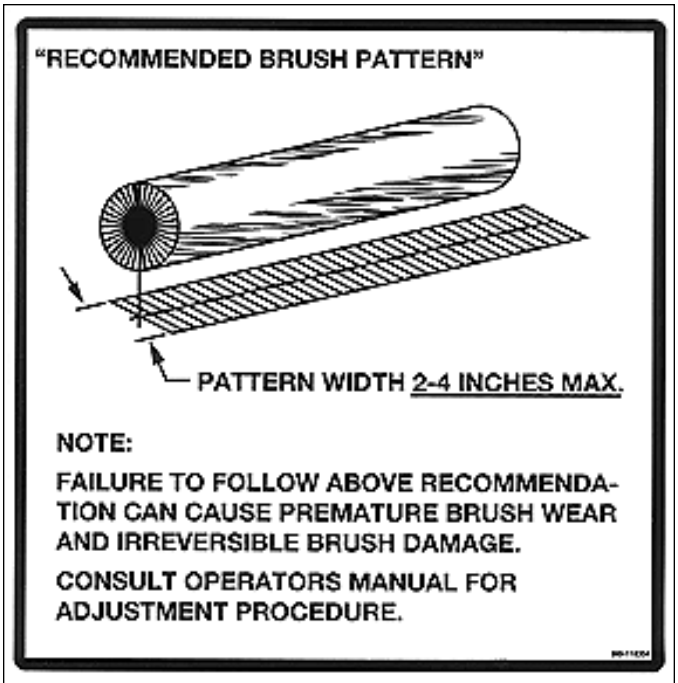

Figure 9

3. Adjust the caster wheel height to produce the correct sized contact patch. Refer to the CASTER WHEEL HEIGHT ADJUSTMENT procedure.

The level of the broom may create too heavy a brush pattern on either the left or right side. (See Figure 10) In order to balance the pattern, the broom must be level. Refer to the CASTER WHEEL HEIGHT ADJUSTMENT procedure to properly level broom.

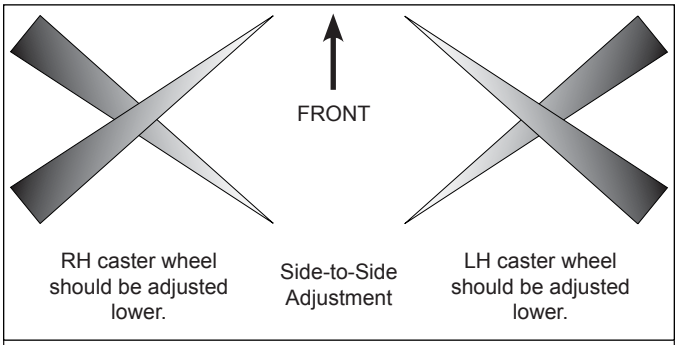

Figure 10

Once the broom has been properly adjusted, a short operation period is recommended for break-in; approximately 15 minutes. After this break-in period, repeat the PATTERN ADJUSTMENT procedure to ensure that it is correct.

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MAINTENANCE

MAINTENANCE SCHEDULE

Maintenance Required	Before Each Use	25 Hours	Monthly	Every 6 Months	After Each Use
Check tire pressure.	X				
Inspect and tighten all hardware.	X				
Check engine fuel level.*	X				
Check engine oil level.*	X				
Clean engine air filter.*		X			
Inspect drive belts for wear and proper tension.			X		
Remove wheels and grease axle shafts.				X	
Grease broom head pivots points.				X	
Remove debris and excess grease and wash unit.					X
* Refer to the engine Operator's Manual for engine-related information.					

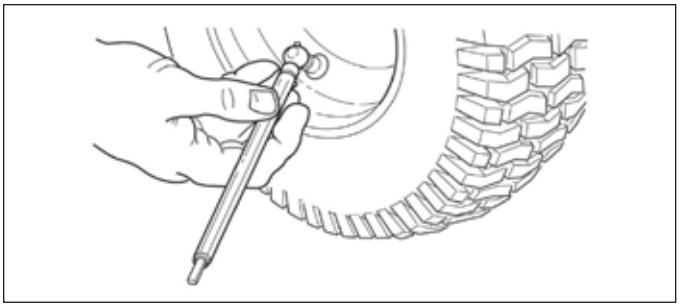
LUBRICATION

Grease bearings and pivot points per the MAINTENANCE SCHEDULE using Chevron Ultra Duty II, Grade 2; or equivalent high-temp grease.

Generally, all moving metal parts should be oiled where contact is made with other parts. Keep oil and grease off belts, pulley grooves, drive disc, and friction disc.

CHECKING TIRE PRESSURE

The air pressure in each tire should be 20-24 psi (138-165 kPa) and should be equal for both tires for best performance. Be sure to keep caps on valves to prevent entry of debris into the valve stem when tires are filled.



BRUSH REPLACEMENT

Wafer replacement is identical on both the right and left sides of the brush assembly.

1. Remove 16mm bolt, lock washer, wafer end plate and ring plate from end of brush core. See Figure 1.

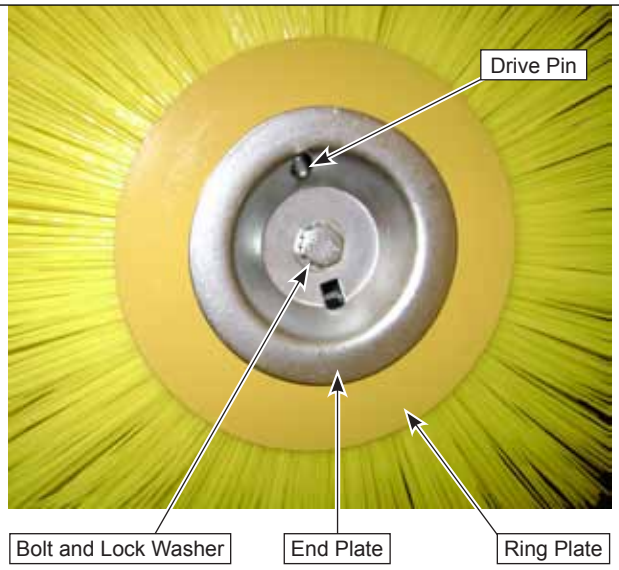


Figure 1

2. Slide brush wafers and spacer rings off brush core. Retain spacer rings. See Figure 2.

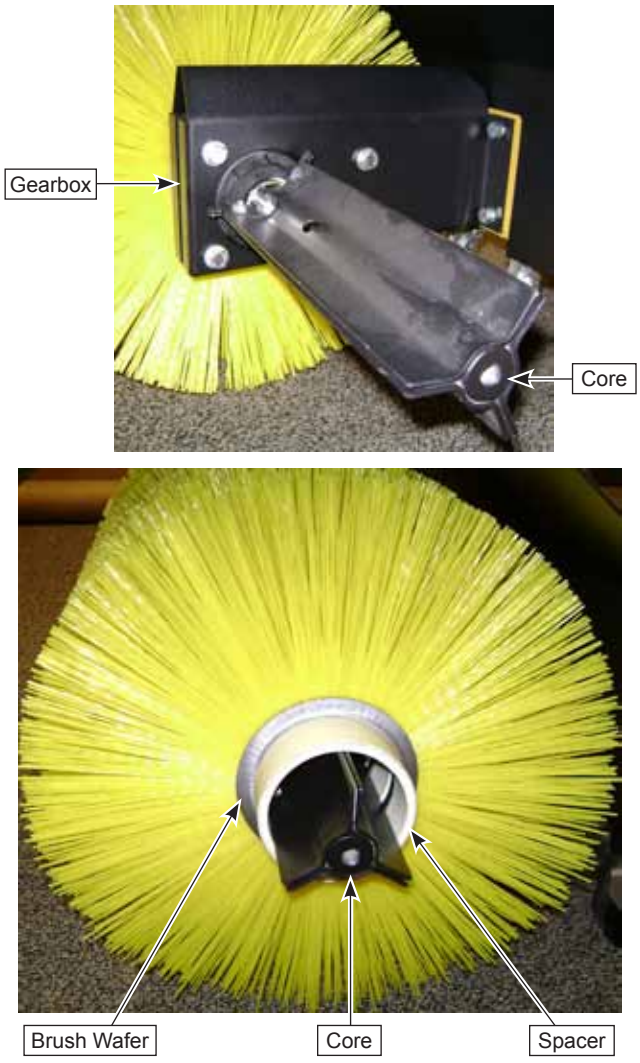


Figure 2

IMPORTANT! Proper wafer and spacer position must be followed to ensure proper balance on the core.

NOTE: Innermost wafers, at center of broom on either side of gearbox, are cone shaped.

3. Slide a new, cone-shaped wafer, with bristles pointing inward toward center of broom, and then a flat wafer onto core. See Figure 3.

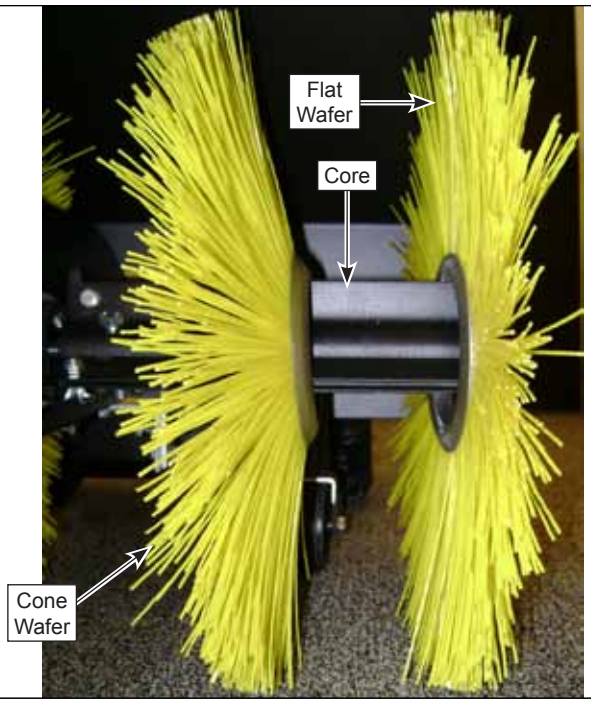


Figure 3

Note the location of drive pin on inside ring of each brush wafer. Position each wafer so its drive pin is positioned between the stop flanges. Rotate each subsequent wafer before installing so the position of its pin is staggered on the core by one stop flange. See Figure 4.

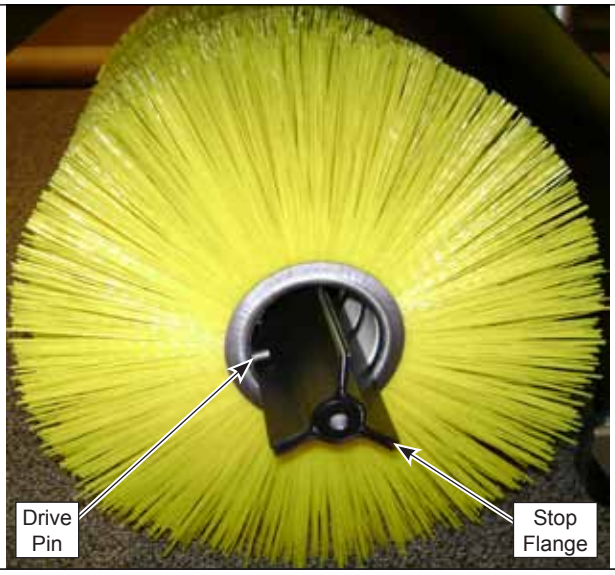


Figure 4

4. Alternately install spacers and remaining straight wafers on core in a wafer-spacer, wafer-spacer configuration until core is full. See Figure 5.

NOTE: Each half of the core starts and ends with a poly wafer. The last wafer may extend beyond the end of the core slightly. The end plate compresses the spacers onto the core when tightened.

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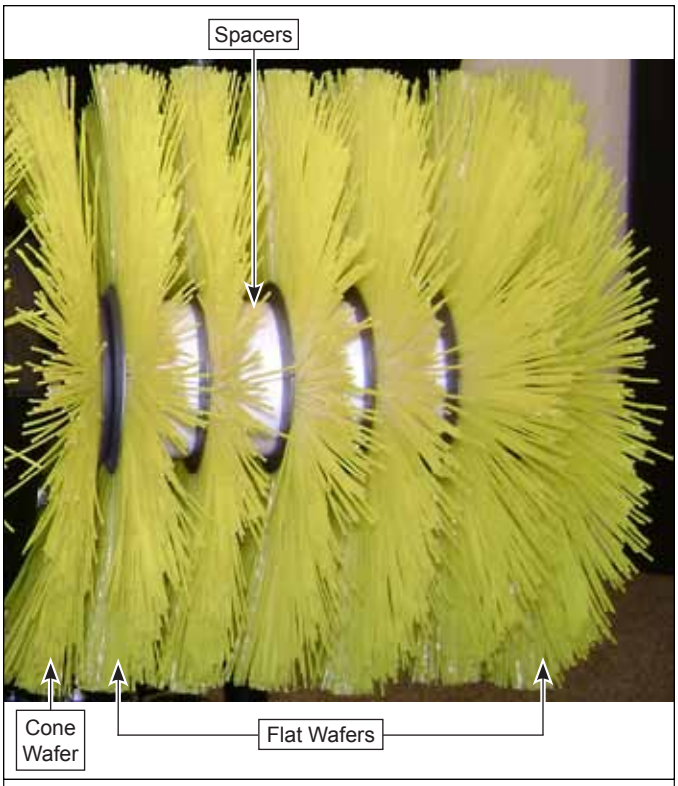

Figure 5

5. Install the ring plate and end plate on the outside of the last wafer with drive pin of wafer inserted in end plate hole. See Figure 6.

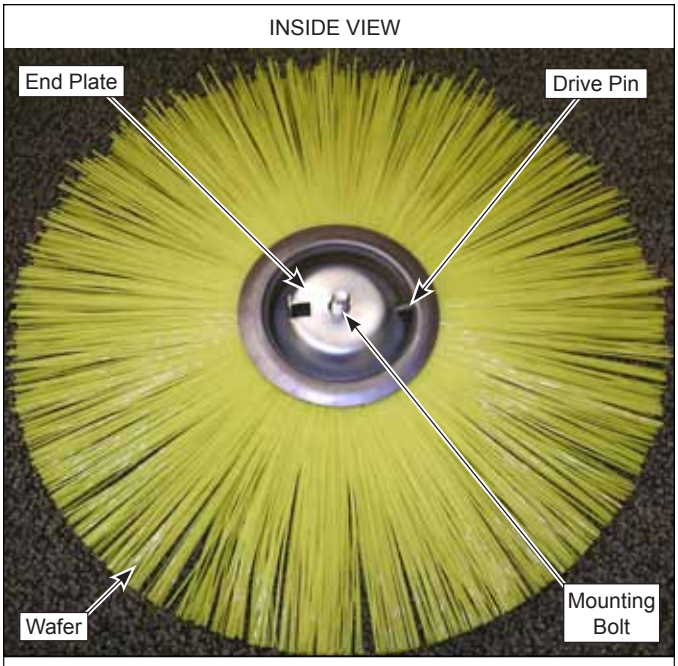

Figure 6

6. Install wafer, ring plate and end plate assembly on end of core and secure with 16mm bolt and lock washer. See Figure 1.

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STORAGE

TEMPORARY STORAGE (30 DAYS OR LESS)

Remember, the fuel tank will still contain some gasoline, so never store the unit indoors or in any other area where fuel vapor could travel to any ignition source. Fuel vapor is also toxic if inhaled, so never store the unit in any structure used for human or animal habitation.

Here is a checklist of things to do when storing your unit temporarily or in between uses:

- Always store the broom in a supported position on the caster wheels, with the brush off the ground. If the bristles are stored in a deformed position for extended periods of time, the broom will become severely out of balance.
- Store the broom in a location out of the sun and weather to prevent premature failure of plastic bristles. Bristles can become brittle when subjected to sunlight or repeated temperature changes.
- Properly clean the unit before storage and remove snow, dirt, debris, salt, etc. to extend paint life.
- If the unit is power-washed, all lubrication points should be greased before storage. Refer to MAINTENANCE section.
- Keep in an area away from where children may come into contact with it. If there's any chance of unauthorized use, remove the spark plug wire.
- If the unit can't be stored on a reasonable level surface, chock the wheels.

NOTE: If storing your unit between winter snow removal jobs in a cold area, we suggest that you fill the fuel tank at the completion of each job to prevent water condensation in the fuel tank. Wait for engine to cool before filling tank.

LONG TERM STORAGE (LONGER THAN 30 DAYS)

Before you store your unit for the off-season, read the Maintenance and Storage instructions in the Safety section, then perform the following steps:

1. Drain crankcase oil and refill with a grade of oil that will be required when unit is used again.
2. Coat all bare metal surfaces with paint or light coat of oil to prevent rusting.
3. Clean external surfaces and engine.
4. Prepare engine for storage. See engine owner's manual.
5. Clean any dirt from the engine housing.
6. Cover air intake and exhaust outlet tightly with plastic or other waterproof material to keep out moisture, dirt and insects.
7. Completely lubricate as outlined in the **MAINTENANCE** section.
8. Drain fuel system completely or add a gasoline stabilizer to the fuel system. If you have chosen to use a fuel stabilizer and have not drained the fuel system, follow all safety instructions and storage precautions in this manual to prevent the possibility of fire from the ignition of gasoline fumes. Remember, gasoline fumes can travel to distant sources of ignition and ignite, causing risk of explosion and fire.

NOTE: Gasoline, if permitted to stand unused for extended periods (30 days or more), may develop gummy deposits which can adversely affect the engine carburetor and cause engine malfunction. To avoid this condition, add a gasoline stabilizer to the fuel tank or drain all fuel from the system before placing unit in storage.

STARTING AFTER LONG TERM STORAGE

Before starting the unit after it has been stored for a long period of time, perform the following steps.

1. Remove any blocks from under the unit.
2. Unplug the exhaust outlet and air cleaner.
3. Fill the fuel tank with fresh gasoline. See engine manual for recommendations.
4. See engine Operator's Manual and follow all instructions for preparing engine after storage.
5. Check crankcase oil level and add proper oil if necessary.
6. Inflate tires to proper pressure.
7. Start the engine and let it run slowly. DO NOT run at high speed immediately after starting. Be sure to run engine only outdoors or in well ventilated area.

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TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Engine fails to start.	1. Fuel/Ignition valve is in OFF position. 2. Out of fuel. 3. Choke OPEN/OFF - cold engine. 4. Engine flooded. 5. No spark. 6. Water in fuel, or old fuel.	1. Move valve to ON position. 2. Fill fuel tank. 3. Turn choke to CLOSED/ON, set throttle to FAST. 4. Turn choke to OPEN/OFF; try starting. 5. Check gap. Gap plug, clean electrode, or replace plug as necessary. 6. Drain tank (Dispose of fuel at an authorized hazardous waste facility). Fill with fresh fuel.
Engine starts hard or runs poorly.	1. Fuel mixture too rich. 2. Carburetor adjusted incorrectly. 3. Spark plug faulty, fouled, or gapped improperly. 4. Fuel Cap Vent is blocked.	1. Move choke to OPEN/OFF position. 2. Refer to engine manufacturer's Operator's Manual. 3. Clean and gap, or replace. 4. Clear vent.
Brush does not rotate.	1. Brush Control not engaged. 2. Brush Control cable out of adjustment. 3. Bush drive belt slipping. 4. Broken belt.	1. Engage Brush Control. 1. Adjust cable. Refer to SETUP AND ADJUSTMENTS section. 2. Check brush drive belt for excessive wear. 3. Replace belt.
Brush rotation does not stop when control lever is released.	1. Control cable out of adjustment.	1. Adjust cable. Refer to SETUP AND ADJUSTMENTS section.
Forward/Reverse traction drive does not engage.	1. Traction Control not engaged. 2. Traction Control cable out of adjustment. 3. Traction drive belt slipping. 4. Broken belt.	1. Engage Traction Control. 1. Adjust cable. Refer to SETUP AND ADJUSTMENTS section. 2. Check traction drive belt for excessive wear. 3. Replace belt.
Forward/Reverse drive does not stop when applicable lever is released.	1. Control cable(s) out of adjustment. 2. Drive belt loose, broken, or stretched.	1. Adjust cable. Refer to SETUP AND ADJUSTMENTS section. 2. Replace drive belt.
Poor traction, veers to one side.	1. Tires slipping due to unequal pressure.	1. Check and adjust tire pressure.
Excessive vibration.	1. Loose parts or damaged brush assembly.	1. Tighten all hardware. Replace brush assembly if necessary. If vibration continues, see your dealer.
Bristles wearing unevenly.	2. Pattern adjustment incorrectly set. 3. Tires at different pressures or of different sizes.	4. Adjust brush pattern. Refer to the SETUP AND ADJUSTMENTS section. 5. Check tire pressure, sizes and rating. Adjust and/or correct as necessary.
Brushes wearing very quickly.	1. Brush pattern too wide.	1. Adjust brush pattern to be 2-4" wide. Refer to the SETUP AND ADJUSTMENTS section.
Bush bounces during sweeping.	1. Travel speed too fast and/or brush speed too slow. 2. Unbalanced brush core assembly.	1. Adjust to find correct travel and brush speed for surface. 2. Inspect brush wafer and spacer placement on core. Refer to MAINTENANCE section.
Brush does not clean hard surface.	1. Brush height incorrect.	1. RAISE casters (this lowers the brush).
Brush sweeping poorly.	1. Material is 'caked-on' or frozen. 2. Uneven sweeping surface. 3. Material is too heavy. 4. Brush rotating too slowly. 5. Travel speed too fast. 6. Pattern adjustment incorrectly set.	1. Slow down and 'scrub' surface. 2. Increase brush pattern to compensate. 3. Slow down travel speed. 4. Increase engine speed. 5. Slow down travel speed. 6. Adjust brush pattern. Refer to the SETUP AND ADJUSTMENTS section.

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SPECIFICATIONS

Model:	MCD-WBR
Overall Width:	30.7" (78 cm)
Sweeping Width:	23.6" (60 cm)
Brush Diameter:	11.8" (30 cm)
Weight	128 lbs. (58 kg)
Engine:	Briggs&Stratton Model 130000, 12.48 ci (205 cc)
Options:	Dust Collection Hopper (P/N 430-97319)
	Snow Blade (P/N 430-97318)

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SERVICE PARTS

Part Number	Description
907-160385	Refill Kit, Brush Wafer
WBR-916003	Spacer, Brush Wafer
WBR-916001	Plate, End
WBR-916107	Belt, Brush Drive
WBR-916108	Belt, Traction Drive
WBR-916095	Cable, Forward
WBR-916098	Cable, Reverse
WBR-916142	Cable, Brush Drive
WBR-916115	Cable, Throttle
431-169264	Kit, Control Levers (3) and Mounting Hardware
WBR-916031	Bushing, Caster
WBR-916029	Spacer, Caster

Part Number	Description
109-131128	Paint, Spray, MB Yellow
249-92003	Paint, Spray, Black
249-92005	Primer, Spray

Please have your serial number (S/N) ready when contacting M-B Co. or an Authorized Dealer for replacement parts or service information.

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New Holstein, WI 53061-0200

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email: sales@m-bco.com
Phone: 800-558-5800 or 920-898-4203
FAX:
Main 920-898-4588
Attachments 920-898-1085
Brush Dept. 920-898-1082

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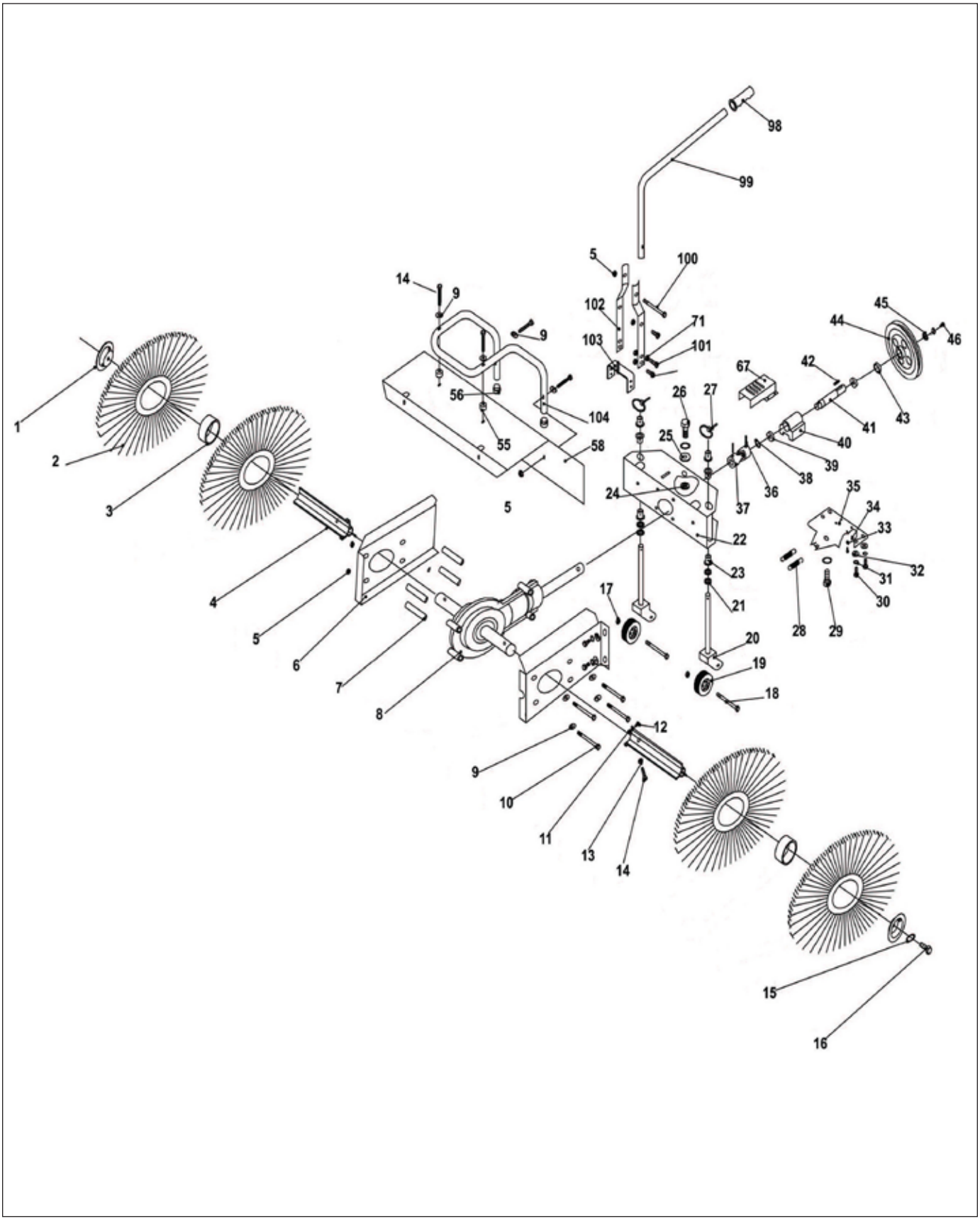
PARTS LIST

Broom Head



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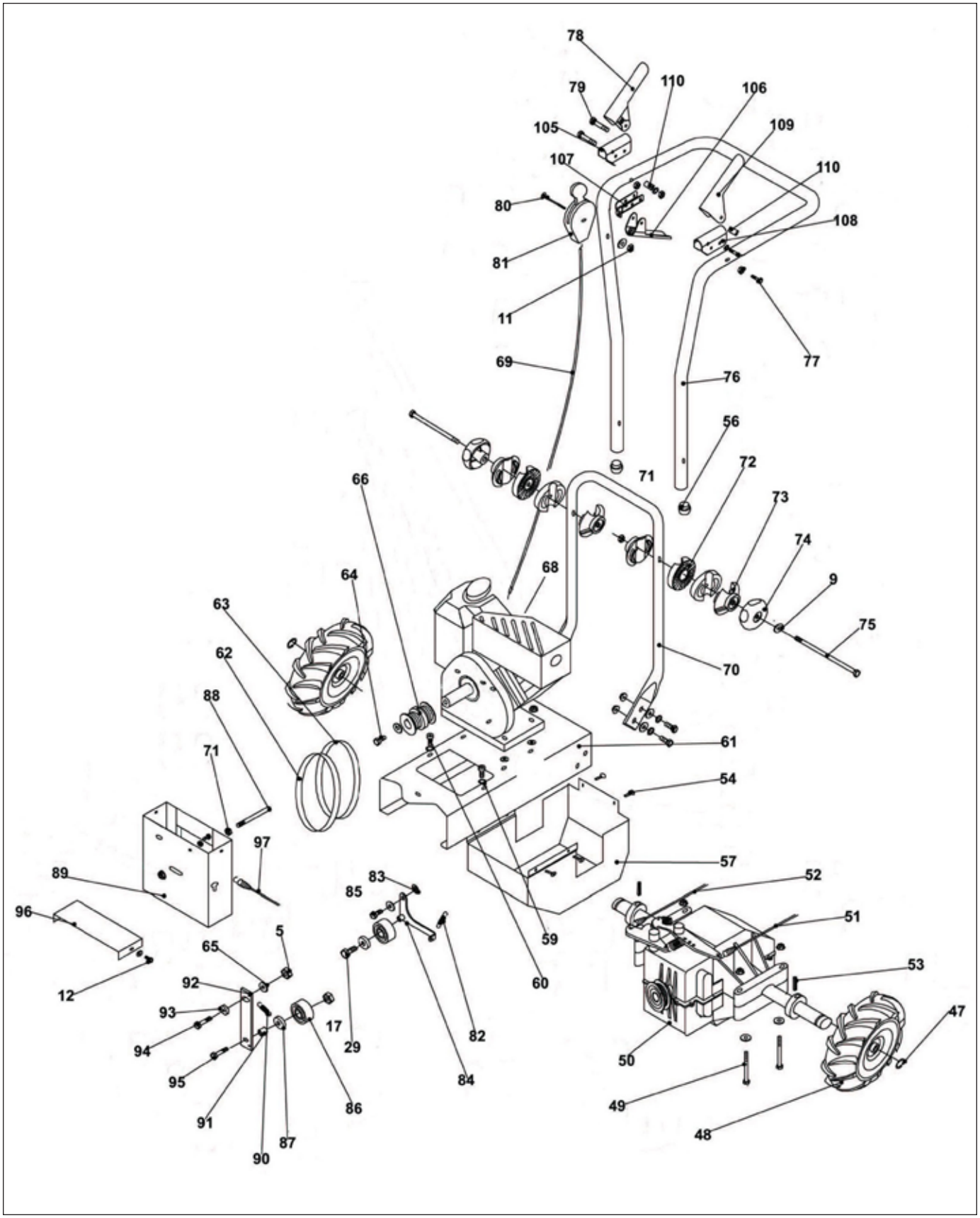
PARTS LIST

ITEM	QTY.	PART NO.	DESCRIPTION
1	2	WBR-916001	PLATE, END
2	1	907-160385	REFILL KIT, WAFER
3	10	WBR-916003	SPACER, BRUSH WAFER
4	2	WBR-916004	CORE, BRUSH
5	23	WBR-916005	NUT, M8
6	2	WBR-916006	SUPPORT, GEARBOX
7	4	WBR-916007	BUSHING
8	1	WBR-916008	GEARBOX
9	34	WBR-916016	WASHER, FLAT, M8
10	4	WBR-916017	SCREW, M8 x 20
11	10	WBR-916018	NUT, M6
12	8	WBR-916019	HEX HEAD CAPSCREW, M6 x 12
13	4	WBR-916020	NUT, M8
14	6	WBR-916021	HEX HEAD CAPSCREW, M8 x 45
15	4	WBR-916022	WASHER, M10
16	2	WBR-916023	HEX HEAD CAPSCREW
17	3	WBR-916025	NUT, M10
18	2	WBR-916026	HEX HEAD CAPSCREW, M10 x 55
19	2	WBR-916027	WHEEL, CASTER
20	2	WBR-916028	FORK and SHAFT, CASTER
21	22	WBR-916029	SPACER, CASTER
22	1	WBR-916030	FRAME, SWING
23	6	WBR-916031	BUSHING, CASTER
24	1	WBR-916032	STEPWASHER, UPPER
25	2	WBR-916033	WASHER, FLAT, M10
26	1	WBR-916034	HEX HEAD CAPSCREW, M10 x 30
27	2	WBR-916035	CIRCLIPS
28	2	WBR-916036	SPRING, SWING
29	2	WBR-916037	HEX HEAD CAPSCREW, M10 x 20
30	8	WBR-916038	HEX HEAD CAPSCREW, M8 x 16
31	17	WBR-916039	WASHER, SPRING, M8
32	3	WBR-916040	HEX HEAD CAPSCREW, M6 x 25
33	4	WBR-916041	NUT, M6
34	8	WBR-916042	HEX HEAD CAPSCREW, M6 x 16
35	1	WBR-916043	BRACKET
36	2	WBR-916044	ROUND PIN, M5 x 40

PARTS LIST

Traction Unit



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PARTS LIST

ITEM	QTY.	PART NO.	DESCRIPTION
37	1	WBR-916045	COUPLING
38	4	WBR-916046	CIRCLIP, SPINDLE
39	4	WBR-916047	BEARING
40	1	WBR-916048	HOUSING, BEARING
41	1	WBR-916049	SHAFT, TRANSMISSION
42	1	WBR-916050	KEY, FLAT, A5 x 20
43	1	WBR-916051	BUSHING
44	1	WBR-916052	PULLEY
45	1	WBR-916053	STEPWASHER
46	6	WBR-916054	HEX HEAD CAPSCREW, M8 x 20
47	2	WBR-916078	CIRCLIP, SPINDLE
48	2	WBR-916079	TIRE
49	4	WBR-916076	HEX HEAD CAPSCREW, M8 x 70
50	1	WBR-916090	TRANSMISSION
51	1	WBR-916098	CABLE, REVERSE
52	1	WBR-916095	CABLE, FORWARD
53		WBR-916091	PIN, ROUND, M8 x 45
54	2	WBR-916099	SCREW, M5 x 8
55	5	WBR-916100	WASHER, FLAT, M6
56	2	WBR-916101	PLUG, PLASTIC
57	1	WBR-916102	COVER, BOTTOM
58	8	WBR-916103	HOOD, BROOM
59	4	WBR-916104	WASHER, M8
60	2	WBR-916105	SCREW, M8 x 20
61	1	WBR-916106	BASE, ENGINE
62	1	WBR-916107	BELT, BRUSH DRIVE
63	1	WBR-916108	BELT, TRACTION DRIVE
64	1	WBR-916109	HEX HEAD CAPSCREW, 5/16"-18
65	3	WBR-916110	BUSHING
66	1	WBR-916111	PULLEY
67	1	WBR-916113	GUARD
68	1	ENGINE	Refer to the engine manufacturer's ID Plate
69	1	WBR-916115	CABLE, THROTTLE
70	4	WBR-916116	HANDLE, LOWER
71	1	WBR-916117	NUT, M8
72	4	WBR-916118	SPACER, ANGLE ADJUSTMENT
73	4	WBR-916119	CAP, ANGLE ADJUSTMENT

PARTS LIST

ITEM	QTY.	PART NO.	DESCRIPTION
74	2	WBR-916120	KNOB, ADJUSTMENT
75	2	WBR-916121	HEX HEAD CAPSCREW, M8 x 100
76	2	WBR-916122	HANDLE, UPPER
77	2	WBR-916123	SCREW, M6 x 40
79	1	WBR-916125	SCREW, M6 x 60
80	1	WBR-916126	HEX HEAD CAPSCREW, M6 x 60
81	1	WBR-916127	CONTROL, THROTTLE
82	1	WBR-916192	SPRING
83	1	WBR-916128	WASHER
84	1	WBR-916129	BRACKET
85	10	WBR-916130	WASHER, FLAT
86	2	WBR-916131	PULLEY, IDLER, BELT
87	2	WBR-916132	BEARING
88	1	WBR-916133	SCREW
89	1	WBR-916134	COVER, BELT
90	1	WBR-916136	SPRING
91	1	WBR-916135	BUSHING
92	1	WBR-916137	BRACKET
93	1	WBR-916138	WASHER
94	7	WBR-916139	HEX HEAD CAPSCREW, M8 x 25
95	1	WBR-916140	HEX HEAD CAPSCREW, M10 x 40
96	1	WBR-916141	LID, BELT COVER
97	1	WBR-916142	CABLE, CLUTCH, BROOM
98	1	WBR-916143	GRIP, ARM, ANGLING
99	1	WBR-916144	ARM, ANGLING
100	1	WBR-916145	HEX HEAD CAPSCREW, M8 x 50
101	2	WBR-916146	HEX HEAD CAPSCREW, M8 x 35
102	2	WBR-916147	BRACKET, ANGLING ARM
103	1	WBR-916148	LATCH, ANGLING ARM
104	1	WBR-916149	SUPPORT, BROOM HOOD
	1	431-169264	KIT, CONTROL LEVERS (3) and MOUNTING HARDWARE
78			• LEVER, CONTROL, FORWARD TRACTION
105			• BRACKET, FORWARD TRACTION LEVER
106			• LEVER, CONTROL, REVERSE TRACTION
107			• BRACKET, REVERSE TRACTION LEVER
108			• BRACKET, BRUSH ROTATION LEVER
109			• LEVER, CONTROL, BRUSH ROTATION
110			• SPACER, CONTROL LEVER

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LIMITED WARRANTY

Limited Warranty: Subject to the limitations set forth herein, M-B Companies, Inc. ("M-B") warrants its products to be free from defects in material and workmanship for a period of twelve (12) months from the date of delivery of the product to its original owner, except that the warranty is twelve (12) months solely for the following products: Truck Mounted Pavement Marking Equipment, Airport Snow Removal Products, Attachment Products, Brushes, MSV Multi-Service Vehicles. Parts shall have a ninety (90) day warranty. This warranty is not transferable without the written consent of M-B.

Notice: M-B's obligations under this Limited Warranty are conditioned on M-B receiving, within the warranty period, written notice from Buyer specifying the nature of any alleged defect and requesting corrective action by Seller.

Remedies: M-B, at its option, will repair or replace, or provide a credit to Buyer for, defective warranted items. If requested by M-B, products or parts for which a warranty claim is made shall be returned, transportation prepaid, to M-B's factory. Buyer shall not return any product for repair, replacement or credit without M-B's advance written consent.

Other Manufacturer's Warranty: On products furnished by M-B, but manufactured by any other manufacturer, the warranty of said manufacturer, if any, will be assigned to Buyer, if the said warranty is assignable. However, M-B does not represent or guarantee that such manufacturer will comply with any of the terms of the warranty of such manufacturer.

Exclusions: Any improper use, operation beyond capacity, or substitution of parts not approved by M-B, or alteration or repair by others in such a manner as in M-B's judgment materially and/or adversely affects the product shall void this warranty. This warranty does not apply to defects caused by damage or unreasonable use while in the possession of the owner, including but not limited to: failure to provide reasonable and necessary maintenance, normal wear, routine tune ups or adjustments, improper handling or accidents, operation at speed or load conditions contrary to published specifications, improper or insufficient lubrication, or improper storage.

Seller manufactures power brooms that mount to many makes and models of equipment. Seller attempts to ensure that the mounting frames fit correctly. However, the large number of tractor models, types and options currently available, compounded by frequent manufacturer design changes, may prevent Seller from supplying a frame that fits every unit correctly. Therefore, unless Buyer supplies drawing which detail the attachment points on the specific unit to which the broom will be mounted, Seller will not be responsible for the fit of the mounting frame.

The batteries, tires, rubber material, brushes and material normally consumed in operation, and major components such as engines, air compressors, and hydraulic pumps and motors are excluded from this warranty but may be covered to the extent of any warranty received by M-B from its supplier if permitted by the terms of such warranty.

Limitations of liability: M-B shall not be liable for any incidental, consequential, punitive or special damages of any kind, including, but not limited to, consequential labor costs or transportation charges in connection with the repair or replacement of defective parts, or lost time profits or expense which may have accrued because of said defect.

M-B disclaims all other warranties, whether express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. This warranty is exclusive remedy of buyer. This warranty cannot be extended, broadened or changed in any respect except in writing by an authorized officer of M-B.

Notwithstanding anything in this warranty is to the contrary, in no event shall M-B's total liability hereunder exceed the purchased price of the particular product.

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CELEBRATING 100 YEARS

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