

OPERATOR'S and Parts MANUAL

Model MCD-WB

Walk-Behind Power Broom



QUALITY YOU CAN SEE, PEOPLE YOU CAN TRUST™



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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 broom head and drive unit.

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

Broom Serial Number:

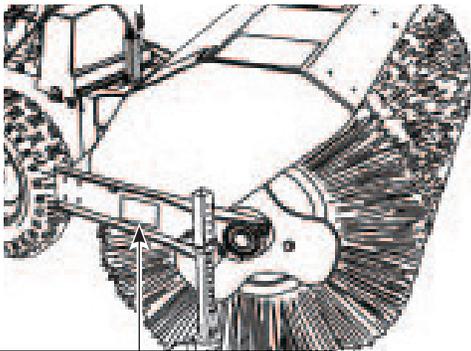


Figure 1

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

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 also 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 your 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.

SAFETY

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).
- 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.
- Disengage all clutches and PTO's before starting engine.
- 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.
- Do not operate on wet surfaces. Reduced traction could cause sliding.
- Do not shift to neutral and coast down hills.
- 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.
- Never allow children to operate the unit.
- Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

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

SAFETY

SLOPE OPERATION

WARNING!



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.

When operating on slopes use additional wheel weights or counterweights. See your dealer to determine which weights are available and appropriate for your unit.

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

Slopes are a major factor related to loss-of-control and tipover accidents, which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not operate on it.

Do

- See your authorized dealer for recommendations counterweights to improve stability.
- Travel up and down slopes, not across.
- Remove obstacles such as large rocks, tree limbs, etc.
- Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Snow can hide obstacles.
- Use slow speed. Tires may lose traction on slopes.
- Choose a low gear so that you will not have to stop or shift while on the slope.
- Keep all movement on the slopes slow and gradual.
- Do not make sudden changes in speed or direction.
- Always keep unit in gear especially when traveling downhill.

Do Not

- Do not start or stop on a slope. If tires lose traction, disengage the broom and proceed slowly straight down the slope.
- Do not turn on slopes unless necessary, and then, turn slowly and gradually downhill, if possible.
- Do not operate near drop-offs, ditches, or embankments. The unit could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- Do not operate power broom on roof tops.

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.

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.
 - a. Never remove gas cap or add fuel with the engine running. Allow engine to cool before refueling.
 - b. Do not smoke.
 - c. 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.

SAFETY

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

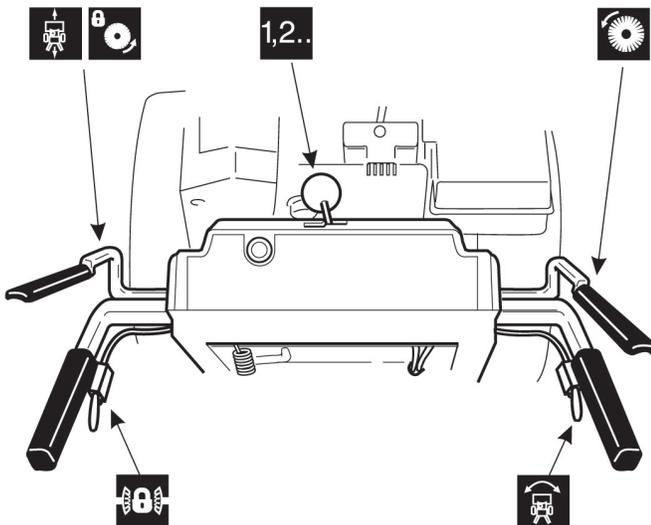
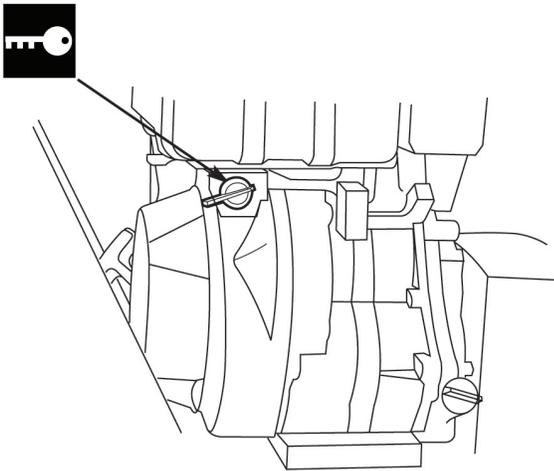
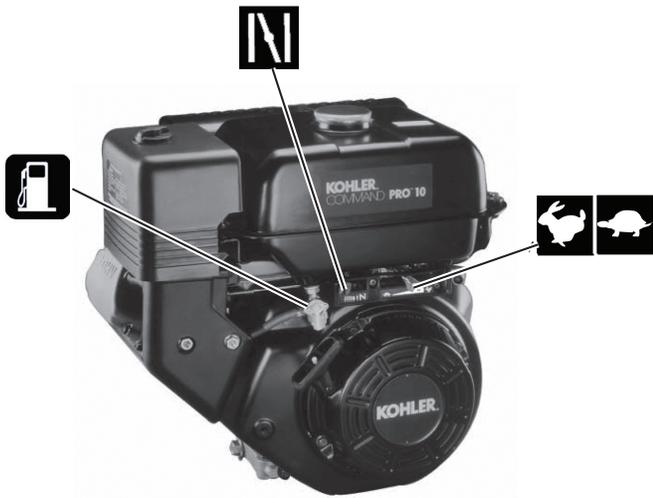
1. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
2. Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
3. After striking a foreign object, stop the engine (motor), 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 devices 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.

CONTROLS AND FEATURES



1,2.. Speed Selector

Selects forward speeds 1-5 and reverse speeds 1-2. No neutral position or gate is required, since the traction drive design automatically provides "neutral" (no forward or reverse movement), whenever the Drive Control is released.

Traction Control / Free Hand™ Lock

Engages traction drive to wheels when depressed. Also locks broom control when depressed simultaneously. Releasing the traction control lever releases the Free Hand™ broom control lock and stops the drive wheels.

Broom Control

Engages the broom when depressed. Releasing the control stops the broom.

Easy Turn™ Control

Easy Turn Control: Engaging the Easy Turn™ lever releases the right wheel to allow easy turning in tight areas. Releasing the control automatically engages both drive wheels for full traction.

Traction Lock Pins: The right traction wheel can be completely released using the locking pin (see Figure 7). This allows the unit to be easily moved with the engine off.

N Engine Choke Control

Close choke to start a cold engine. Open choke once engine fires.

Fuel On/Off Valve

When transporting or for long-term storage, close the valve. Open valve before starting engine.

Throttle Lever

Controls engine speed. Move toward the hare icon for faster engine speed, move toward the turtle icon for slower engine speed. Set throttle to FULL/FAST (hare icon) for operation. Move throttle past FAST to engage choke. Once engine is running smoothly, move throttle to FAST run position.

Engine Power Switch

The Engine Power Switch prevents the engine from being started. Rotate switch to ON position to start engine, OFF on shut engine off.

Broom Swivel Lock

Broom Swivel Lock: Pull upwards to release the broom swivel lock pin. The broom can be angled to either the right, left or straight by rotating the broom frame with the broom assembly resting on the ground. Release the broom swivel lock to lock the broom in the selected position.

OPERATION

CHECKS BEFORE EACH START-UP

1. Make sure all safety guards are in place and all nuts, bolts and clips are secure.
2. Check the engine oil level. See your engine Owner's Manual for procedure and specifications.
3. Check to make sure spark plug wire is attached and spark plug is tightened securely. If necessary, torque spark plug to 15 ft. lbs.
4. Check the fuel supply. Fill the tank no closer than 1/4 to 1/2 inch of top of tank to provide space for expansion. See your engine Owner's Manual for fuel recommendations.
5. Check the casters to make sure they are set at the desired height.
6. Check the Drive Control (B, Figure 3 Controls), and Broom Control (C) for proper operation. If adjustment is required, see the Service section for procedures.
7. Make sure that the broom is angled in the proper direction. See the Service section for adjustment procedures and troubleshooting.
8. Check the Speed Selector (A, Figure 3 Controls) for smooth operation. The control must move freely into each speed position gate and remain in position when released. If the Speed Selector does not move freely into all forward and reverse speed positions, contact your local authorized dealer for assistance.

STARTING THE ENGINE

See Figure 2 Engine Controls.

1. Turn the fuel valve (D) to the ON position.
2. Set Engine Power switch (C) to the ON position.
3. Move the Throttle Lever (B) fully to the FAST position.
4. Close the Choke Control (E) fully. (Do not choke a warm engine.)
5. Pull Starter Handle (A) rapidly to start the engine. Do not allow the Starter Handle to snap back—let the starter rope rewind slowly—while keeping a firm grip on the Starter Handle.
6. As the engine starts, slowly open Choke Control (E) and slide Throttle Lever (B) towards the idle position. Allow engine to run for a few minutes until it runs smoothly.

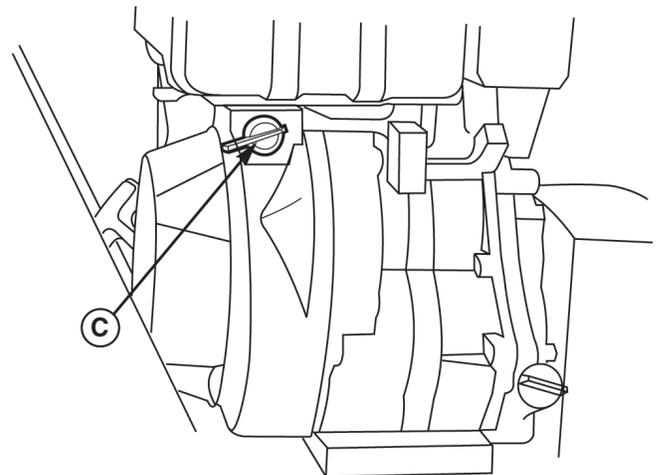
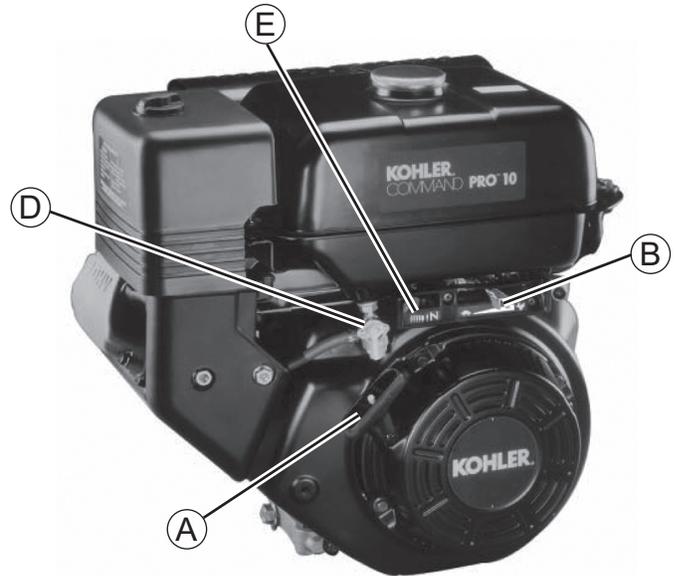
NOTE: Allow the engine to warm up at SLOW throttle for a few minutes before operating the power broom at full speed. The engine will not develop full power until it reaches operating temperature. After warming up, always operate at full throttle.

WARNING!



For your safety, operation on slopes should be in an up and down direction only. 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. The maximum slope for any operation is 17.7% (10°).



A. Starter Handle

B. Throttle Lever

C. Engine Power Switch

D. Fuel Valve

E. Choke Control

Figure 2 Engine Controls

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.

OPERATION

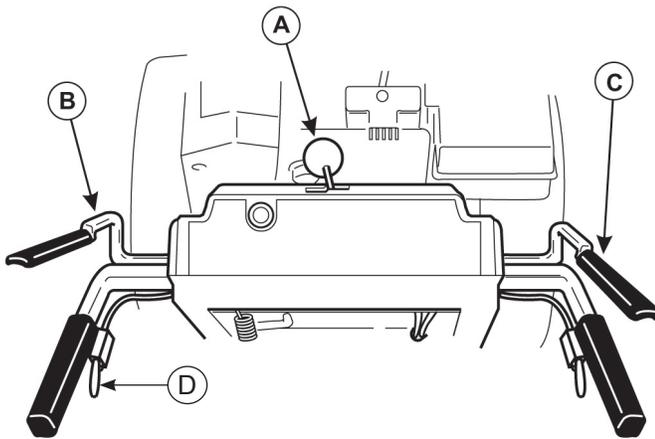
OPERATING THE POWER BROOM

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



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

1. Set the Speed Selector to the desired forward speed.
2. Fully press and hold the Traction & Free-Hand™ Control lever (B, Figure 3 Controls) on the left-hand grip to engage the traction drive and begin moving the power broom. To disengage the traction drive, completely release the lever.
3. Fully press and hold the Broom Engage Control (C, Figure 3 Controls) on the right-hand grip to begin broom rotation. Releasing the Broom Engage Control will disengage the broom — unless the Free-Hand™ Control has been activated (See step 4 below).



- A. Speed Selector
- B. Traction and Free-Hand™ Control
- C. Broom Engage Control
- D. Easy Turn Lever

Figure 3 Controls

4. When BOTH levers are depressed, the Free-Hand™ Control is activated. This allows Broom Engage Control to be released — BROOM ROTATION WILL CONTINUE — until the Free-Hand™ Control is released.
5. Select forward or reverse speeds as needed using the Speed Selector (A, Figure 3 Controls). Release both control levers before changing drive speeds.

GROUND SPEED SELECTOR

Use the Speed Selector (A, Figure 3 Controls) to control the drive speed of the broom. There are five forward speeds and two reverse speeds.

To change speeds, release both control levers (B, Figure 3 Controls), then move the Speed Selector to the desired setting. Fully depress the control levers to resume.

WARNING! When BOTH levers are depressed, the FreeHand™ Control is activated. This allows Broom Engage Control to be released — THE BRUSH ROTATION WILL CONTINUE — until the FreeHand™ Control is released.



ENGINE SPEED

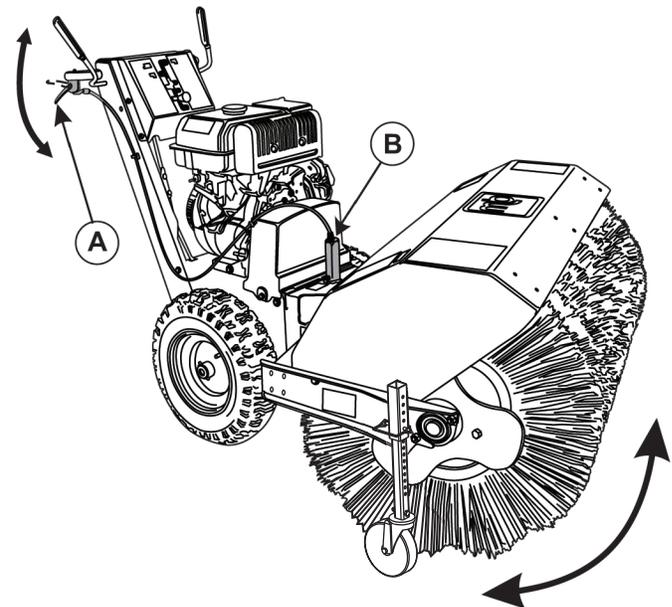
Broom speed is adjusted by engine rpm. Adjust broom speed as needed.

BRUSH ANGLE ADJUSTMENT

To change the angle of the brush:

1. Pull upwards on the Brush Swivel Lock handle (A, Figure 4 Brush Swivel Controls) and hold. This will release the brush swivel lock pin (B).
2. With the brush assembly resting on the ground, rotate the brush frame to the right or left.
3. When the brush is in the proper position, release the brush lock swivel lock handle. The brush assembly will be locked in the selected position.

NOTE: The brush can be positioned to either 30° to the right or left or straight ahead.



- A. Brush Swivel Lock Handle
- B. Swivel Lock Pin

Figure 4 Brush Swivel Controls

OPERATION

BRUSH HEIGHT ADJUSTMENT

CAUTION!



If brush height is set too low, brush can drive machine rearward when attachment clutch is engaged. Engage brush slowly with brush set at proper height.

For hard surfaces, adjust the caster wheels so that the brush just touches surface. The brush works best with the brush properly leveled. To adjust the brush height:

1. Move the brush to a dusty, flat surface. Leave the engine running.
2. Start the brush at a slow speed. Run the brush in a stationary position for 30 seconds.
3. Lift the brush head assembly off the ground and reverse the unit to move it away from the swept area.
4. Stop engine and allow all moving parts to stop.
5. Check the width of the swept area. The brush pattern should be 2-3 inches wide, running the length of the brush. (See Figure 5 Brush Sweeping Pattern)

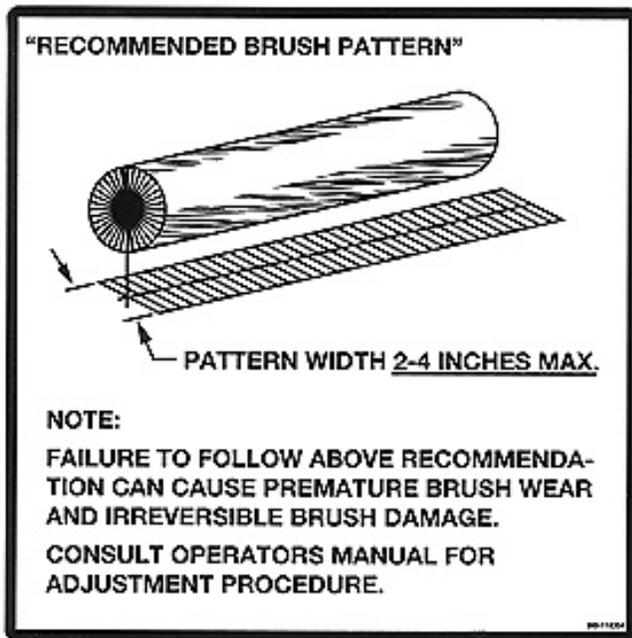
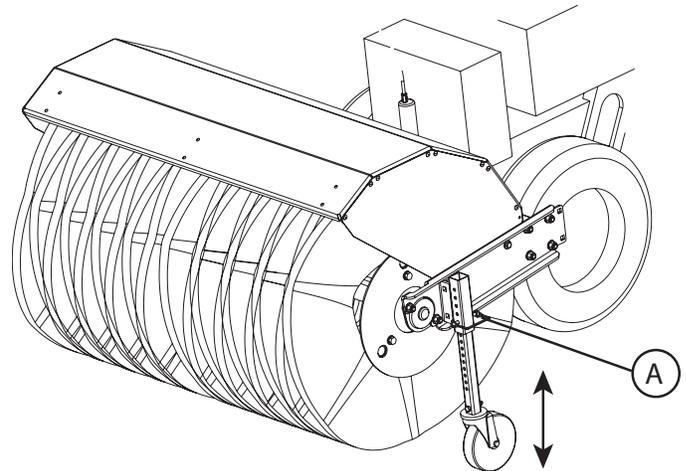


Figure 5 Brush Sweeping Pattern

6. To adjust:
 - a. Remove the caster wheel lock pin. (See A, Figure 6 Pattern Adjustment)
 - b. Raise or lower the caster wheel as needed.
 - c. Insert the caster wheel lock pin into the hole in the caster bracket and through the caster tube. Use the attached spring clip to secure the pin.

NOTE: If using the power broom for turf applications, less ground contact is required.



A. Caster Wheel Lock Pin

Figure 6 Pattern Adjustment

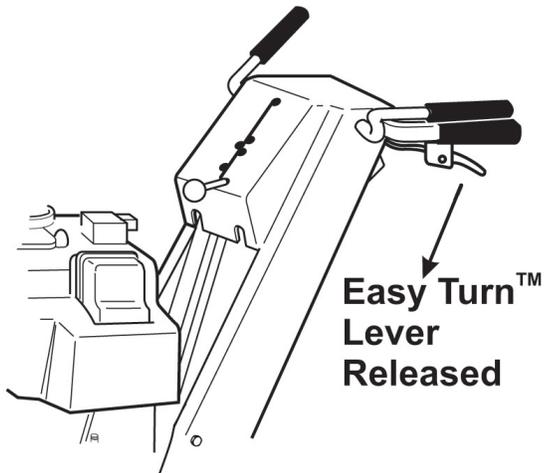
EASY TURN™ FREEWHEELING AND TRACTION DRIVE LOCK

Normal Operation

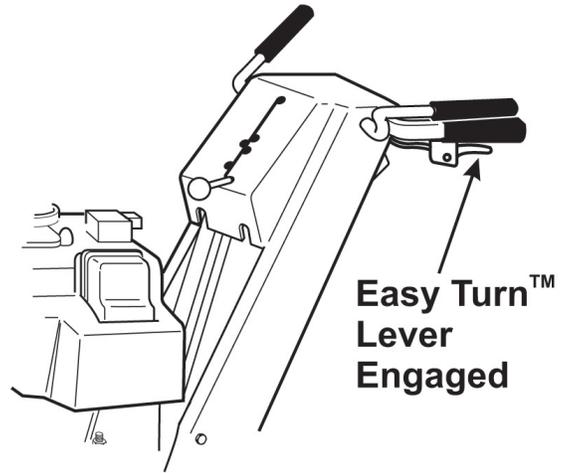
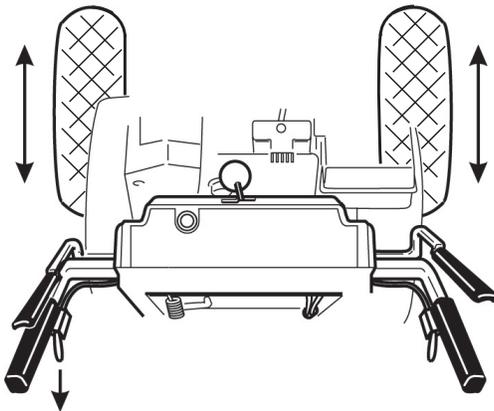
For easy turning when using the power broom, squeeze the Easy Turn™ lever (Figure 7 Traction Drive Lock). Engaging the Easy Turn™ lever releases the right traction wheel but allows the left wheel to continue driving. Releasing the Easy Turn™ lever automatically engages both drive wheels for full traction.

NOTE: The Easy Turn™ lever will be more difficult to activate under a heavy load. Activate the lever before beginning a turn.

OPERATION



Both Wheels Drive



**Right Wheel Freewheels,
Left Wheel Drives**

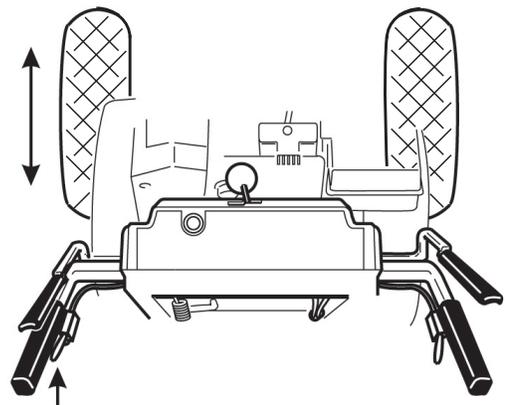


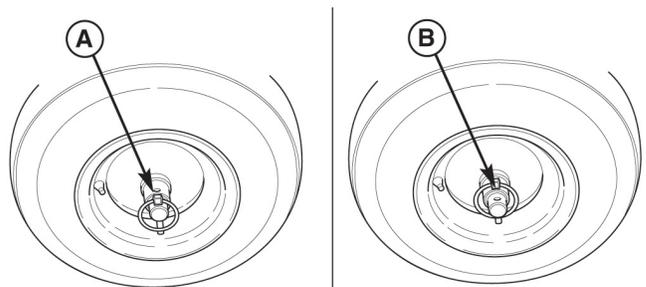
Figure 7 Traction Drive Lock

When Pushing the Broom

For easy turning when pushing the power broom, disengage the right wheel using the traction lock pin (See Figure 8 Traction Lock Pin - RH Wheel).

1. Turn the unit off, remove the engine key, and disconnect the spark plug wire.
2. To **DISENGAGE** the traction drive lock, insert the Traction Lock Pin through the outer hole in the right axle. The unit can now be pushed with minimal resistance.
3. To **ENGAGE** the traction drive lock, align the hole in the hub with the inner hole in the axle, and install the Traction Lock Pin.

NOTE: Be sure both wheels are locked (locking pin in inner hole) when clearing snow.



A. Pin in Outer Hole (Freewheel)

B. Pin in Inner Hole (Drive)

Figure 8 Traction Lock Pin - RH Wheel

OPTIONAL EQUIPMENT

TURF CASTER INSTALLATION

The optional turf casters replace the standard broom caster wheels. These casters provide greater flotation when using the broom in turf grooming applications.

See Figure 9 Turf Caster Assembly.

1. Raise and support the broom head assembly about 2" off the ground.
2. Remove the standard caster assembly by removing the locking pin.
3. Remove the original caster wheel and caster mounting tube.
4. Attach the turf caster wheel (1) to the caster fork swivel plate (4) using bolt (3), bushing (2) and nut.

NOTE: Make sure to install the bushing into caster wheel before attaching caster wheel to the caster fork swivel plate.

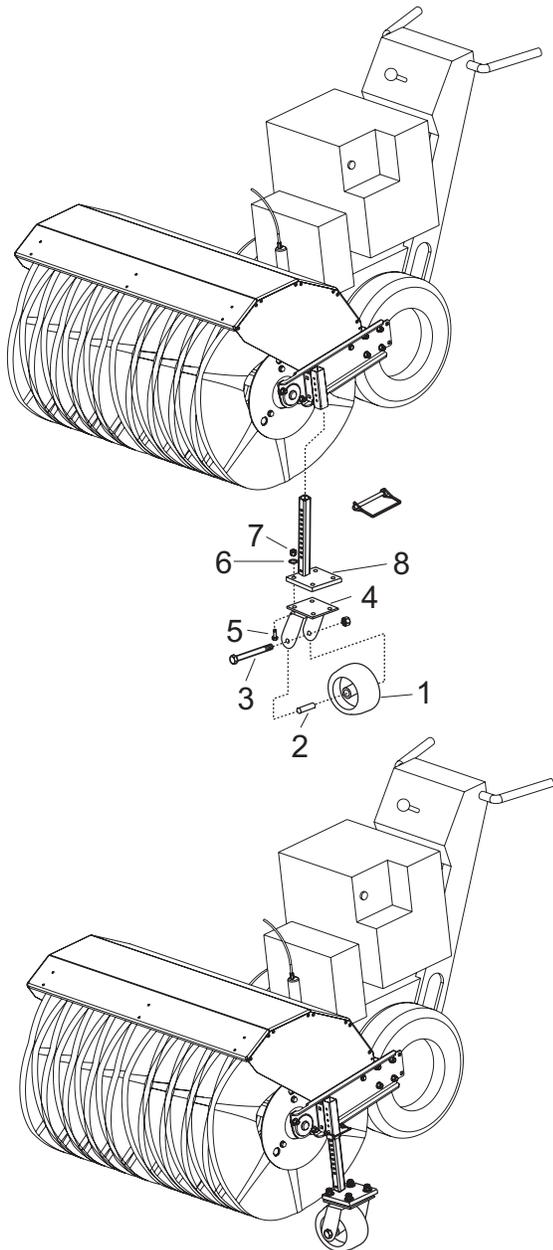


Figure 9 Turf Caster Assembly

5. Attach the caster forks (4) onto the caster mounting bracket (8) using the carriage bolts (5), washer (6) and nuts (7).
6. Slide the turf caster wheel assembly into the mounting bracket from underneath and secure in place with the locking pin.
7. Repeat Steps 2 - 6 for the other side of the broom.

DIRT DEFLECTOR INSTALLATION

See Figure 10 Dirt Deflector Installation.

1. Position deflector straps (2) over broom hood (1) and secure each strap with one bolt (3) washer (4) and nut (5) in the top hole of the strap and broom hood.
2. Attach strap support (6) to each deflector strap. Position the support strap at the lower edge of the deflector strap and secure with one bolt (3) and nut (5) in each support strap.
3. Position the deflector (7) and upper support strap (8) over the broom hood and deflector strap assembly. Secure the deflector through the second hole at the top of the deflector strap and broom hood using one bolt (9), washer (4) and nut (5).

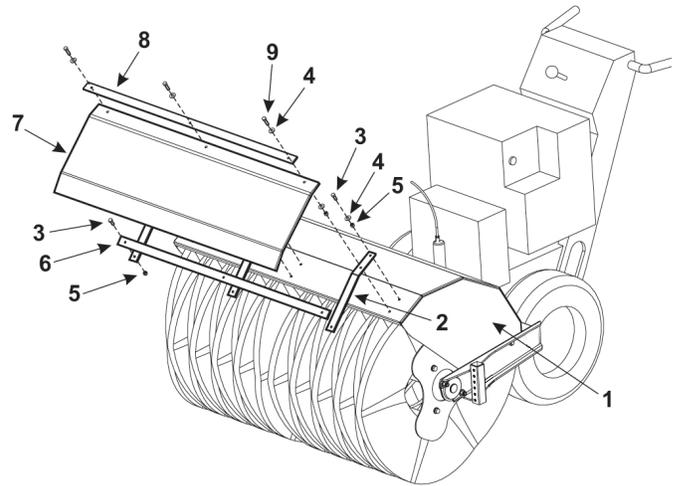


Figure 10 Dirt Deflector Installation

OPTIONAL EQUIPMENT

DEBRIS BOX INSTALLATION

See Figure 11 Debris Box Installation.

1. Install optional Dirt Deflector.
2. Raise and support the broom head assembly about 2" off the ground. Loosen the standard caster assembly by removing the locking pin (2) and remove the caster assemblies.

NOTE: Save the standard casters for future use.

3. Position the debris box assembly (6) in-front of the power broom.
4. Remove hitch pin (5), releasing debris box mounting tubes (3).
5. Raise the power broom upwards and insert the mounting tubes (3) through the mounting brackets (1) on the broom frame.
6. Position the debris box assembly under the broom assembly and lower the broom assembly onto the debris box mounting brackets.
7. Insert hitch pin (5) to secure the broom assembly to the debris box. Install hairpin cotter pin (4) to secure the hitch pin.

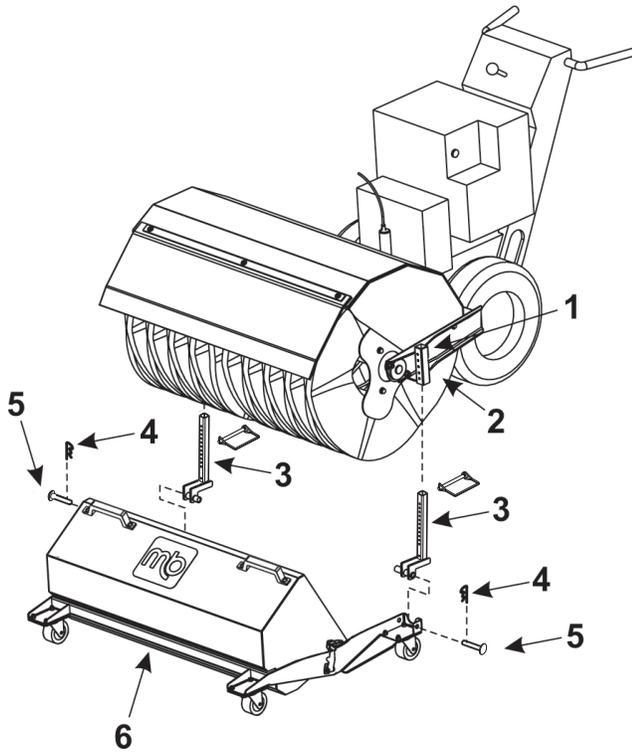


Figure 11 Debris Box Installation

8. The final assembly is shown in Figure 12 Debris Box Installed.
9. Adjust the broom height to according to the Brush Height Adjustment procedure described in the OPERATION section.

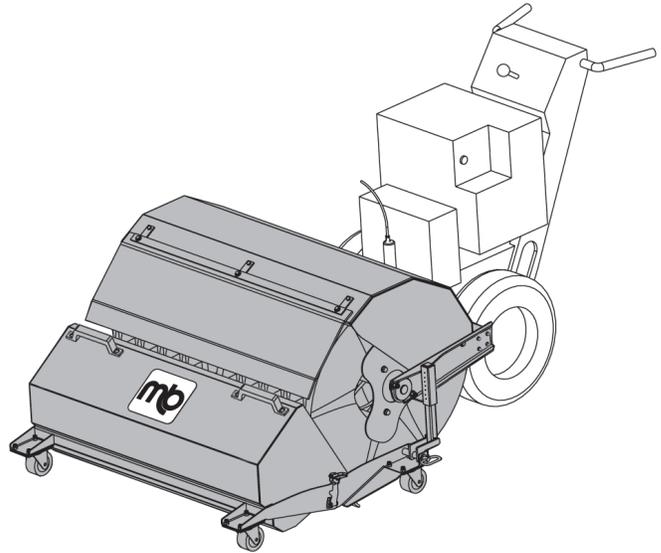


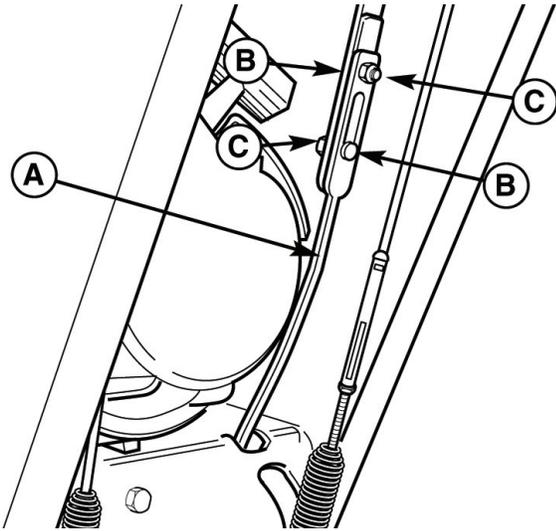
Figure 12 Debris Box Installed

ADJUSTMENT AND SERVICE

SPEED SELECTOR ADJUSTMENT

See Figure 13 Speed Selector Linkage.

1. Loosen the two nuts (C).
2. Place the shift lever in 5th gear.
3. Push the lower rod (A) into the housing and tighten the two nuts (C). Do not lift up or down on rods while tightening. Make sure the shoulders of the carriage bolts (B) are in the slots.
4. Always check traction drive tension and broom drive tension after adjusting speed selector.



A. Lower Rod B. Carriage Bolts C. Nuts

Figure 13 Speed Selector Linkage

BROOM DRIVE TENSION

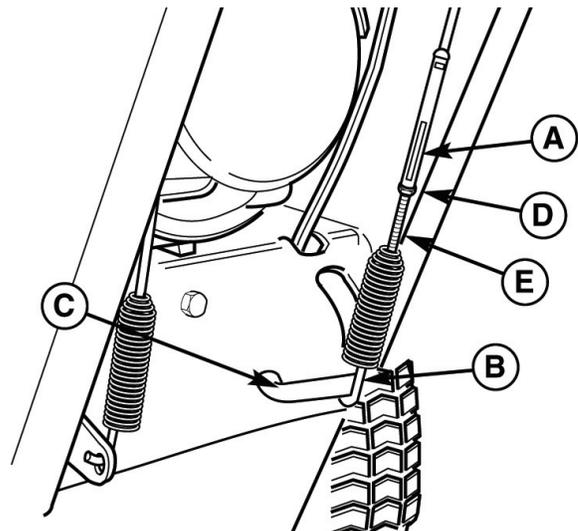
WARNING! Do not over-tighten, as this may lift the lever and cause broom drive to be engaged without depressing the Broom Control.



See Figure 14 Broom Drive Adjustment.

1. With the drive lever released, the hook (B) should barely touch the lever (C) without raising it. There can be a maximum 1/32" clearance as shown.

- NOTE: The adjustment screw is a phillips screw and the head can be held or turned by inserting a screwdriver through the spring.
2. To adjust, loosen nut (D) by holding the adjusting flats (A) and turning nut (D). Turn adjustment flats and hold screw.
 3. Hold adjusting flats (A) and tighten nut (D).
 4. Start unit and check broom. Broom must not be engaged unless Broom Control is depressed.
 5. With engine running, fully depress Broom Control, the broom should engage and run normally.
 6. Release Broom Control. Broom must stop within 5 seconds.
 7. If broom does not operate properly, stop engine and recheck drive linkage adjustments.
 8. If drive linkage is properly adjusted, broom drive belt tension may require adjustment. See "Belt Adjustment" in this section of the manual.



A. Adjusting Flats D. Nut
B. Spring Hook E. Adjustment Screw
C. Lever

Figure 14 Broom Drive Adjustment

ADJUSTMENT AND SERVICE

TRACTION DRIVE TENSION

Initial Adjustment

See Figure 15 Traction Drive Adjustment.

1. Lift the bellcrank arm (C) up as far as it will go.
2. While holding the bell crank arm (C) up, adjust the cable until all the slack is removed.
3. Back the adjustment screw (E) out 7-8 turns. Tighten nut (D) against nut (A) to lock.
4. Start engine and check that the system disengages when the control is released.

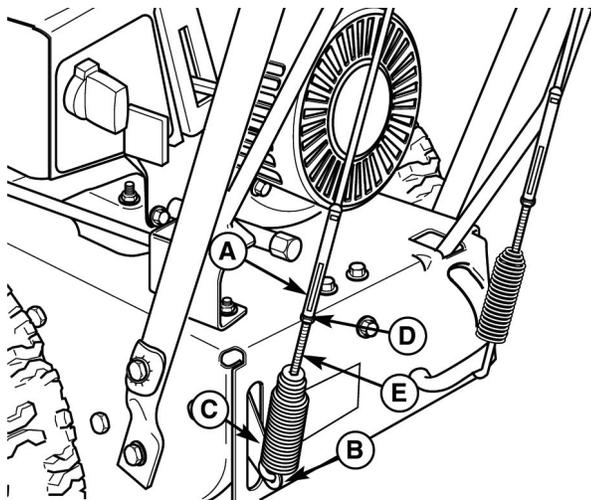
WARNING!



Be certain to back out the adjustment screw or the traction drive may engage without depressing the traction drive control (bellcrank arm must remain in down position).

Verify that the cables are not over-tightened: With speed selector in position 1 and traction drive control fully released, push broom forward. The unit should move forward freely.

If unit does not move forward freely, the cable has been over-tightened. To remedy, loosen the adjustment screw on clutch cable slightly, and recheck.



- | | |
|-------------------------|----------------------------|
| A. Adjusting Nut | D. Nut |
| B. Spring Hook | E. Adjustment Screw |
| C. Bellcrank Arm | |

Figure 15 Traction Drive Adjustment

Run-In Adjustment

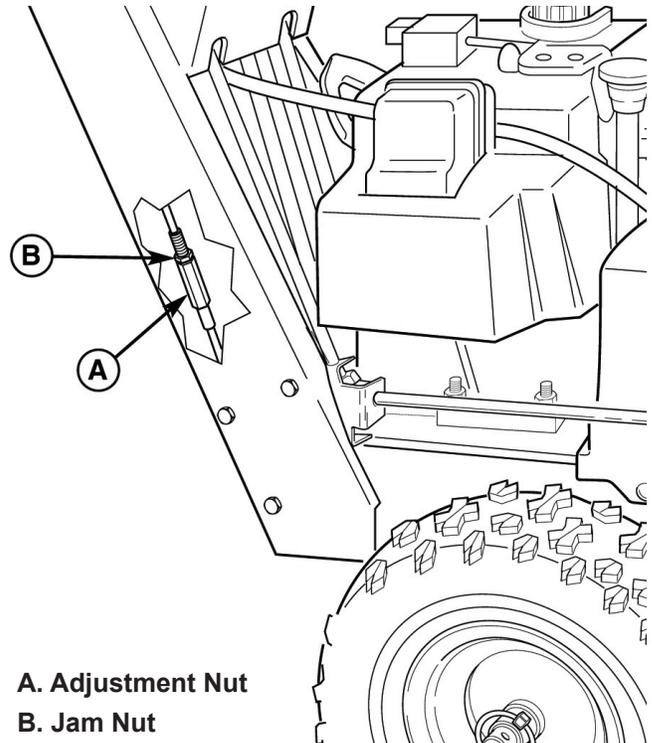
1. After 5 hours of use, check for proper adjustment. Readjust clutch cable if necessary by increasing tension on cable. A small amount of bellcrank arm movement is permissible if unit passes operating checks described in the WARNING above.

EASY TURN™ CABLE ADJUSTMENT

See Figure 16 Easy Turn Cable Adjustment.

If the Easy Turn™ cable has stretched, the gears (clutches) will not disengage when the control lever is activated. Adjust the cable using the following procedure.

1. Turn the engine off and disconnect the spark plug wire.
2. Loosen the jam nut (B).
3. Turn the adjustment nut (A) to lengthen or shorten the cable. The cable should be tightened just until all slack is removed from the lever, however it must not engage the Easy Turn™ release without depressing the control lever.
4. Tighten the jam nut against the adjustment nut.



- | |
|--------------------------|
| A. Adjustment Nut |
| B. Jam Nut |

Figure 16 Easy Turn Cable Adjustment

SHEAR PIN REPLACEMENT

DANGER! Do not go near the broom when the engine is running. Do not run the engine with any cover or guard removed.

Under most circumstances, if the broom strikes an object which could cause damage to the unit, the shear pin(s) will break. This protects the gear box and other parts from damage. The shear pins are located on the broom shaft.

See Figure 17 Shear Pin Replacement.

To replace the shear pins:

1. Tap out the broken pin(s) with a pin punch.

IMPORTANT!

Do NOT replace shear pins with anything other than the correct grade replacement shear pin. Use of bolts, screws or a harder shear pin will lead to damaged equipment.

2. Install new shear pin(s) and secure with nut.

ADJUSTMENT AND SERVICE

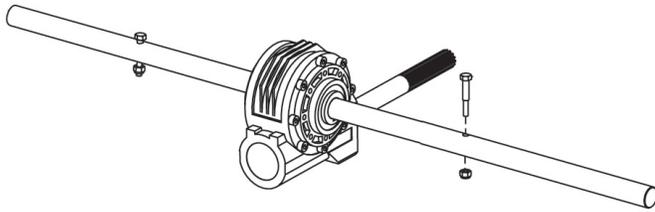


Figure 17 Shear Pin Replacement

BELT REPLACEMENT

1. Turn off the engine, remove the spark plug wire, and wait for all moving parts to stop. Loosen the two screws (B, Figure 18 Belt Cover) securing the belt cover.

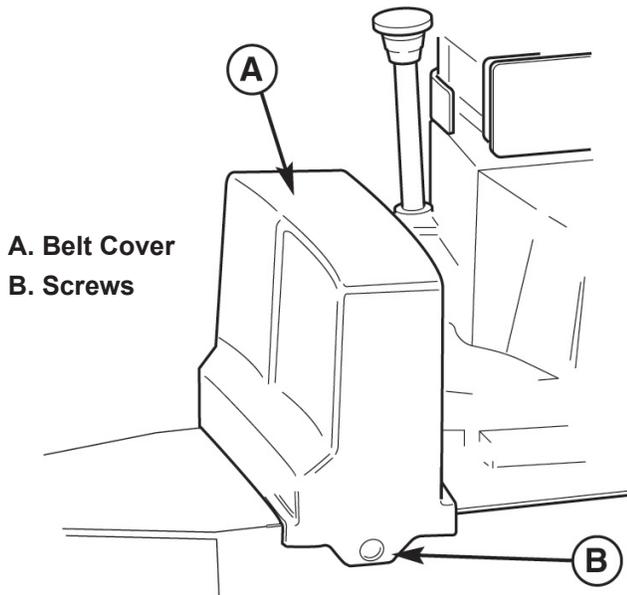
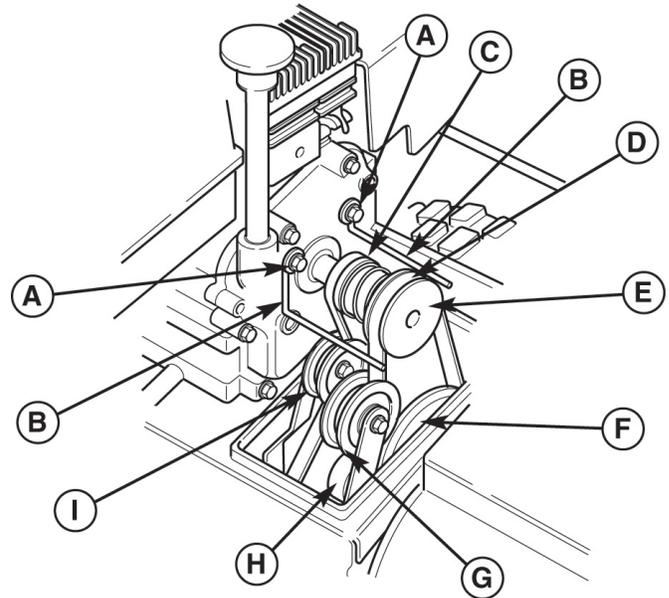


Figure 18 Belt Cover

2. Tilt the cover forward and work it off the power broom.
 3. Move the belt guides (B, Figure 19 Belts and Pulleys) by loosening the two capscrews (A).
 4. Remove the broom drive belt as follows:
 - a. Slip the broom drive belt (D, Figure 19 Belts and Pulleys) from the idler pulley (G) by pushing it away from the pulley and then toward the rear.
 - b. Remove the belt from the engine pulley.
 - c. Remove six capscrews from bottom cover to power broom frame. Loosen nuts (A, Figure 20 Broom Pulley Belt Stops) on each side to release broom pulley belt stops (B). Move belt stops and remove belt from pulley (C).
- NOTE: Make sure to firmly support the broom assembly.
- d. Remove the four bolts that hold the broom head on and remove broom head assembly.
 - e. Remove broom drive belt.
 - f. For more clearance to remove the belt, engage the traction drive lever.
5. Remove the traction drive belt as follows:
 - a. Pull the idler pulley (I, Figure 19 Belts and Pulleys) away from the belt and slip the belt from the pulley.

- b. Slip the belt off the traction pulley and then the engine pulley. The arm for the front idler pulley (G, Figure 19 Belts and Pulleys) may have to be pivoted to provide clearance for removing the belt from the traction pulley.
- c. Pull the belt out between the broom pulley (F, Figure 19 Belts and Pulleys) and traction pulley.



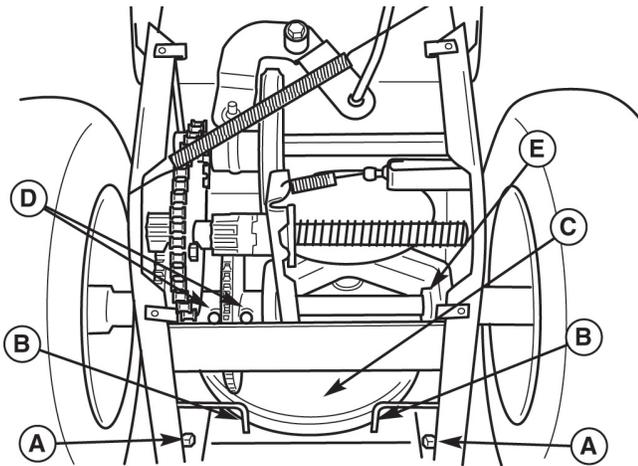
- | | |
|-------------------------------|----------------------------------|
| A. Capscrews | F. Broom Pulley |
| B. Belt Guides | G. Idler Pulley, Broom |
| C. Traction Drive Belt | H. Traction Pulley |
| D. Broom Drive Belt | I. Idler Pulley, Traction |
| E. Engine Pulley | |

Figure 19 Belts and Pulleys

6. Reverse the procedure to install the belts. Be sure there are no twists and the belts are properly seated in the grooves. Adjust the belt stops so there is 1/8" (3mm) clearance between belt and stop. The pattern for both belts is shown in Figure 21 Belt Pattern (viewed from front). If the set collar (E) was loosened, slide the right axle left fully before tightening the set collar (E, Figure 20 Broom Pulley Belt Stops).
7. Check the traction drive tension and broom drive tension. Follow the procedures under BROOM/TRACTION DRIVE TENSION.
8. Make sure the broom stops when the broom drive lever is released. Make sure traction drive stops when the traction drive lever is released. If not, check the drive tension. If a problem exists, see your dealer.

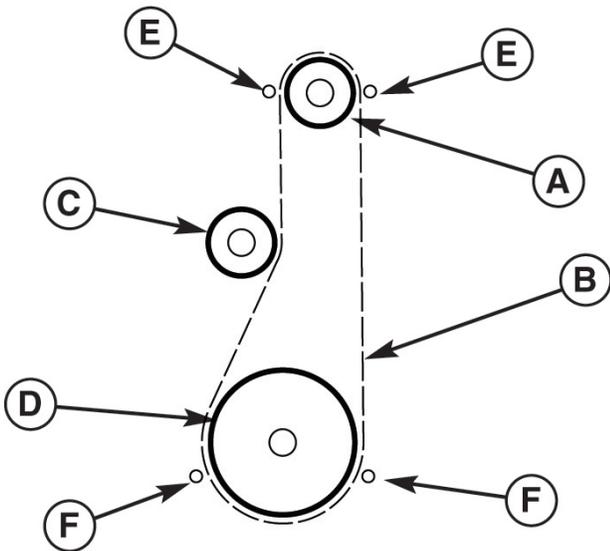
ADJUSTMENT AND SERVICE

Shown with bottom cover removed for clarity.
DO NOT operate broom with cover removed!



- A. Nuts
- B. Belt Stops
- C. Broom Pulley
- D. Gear Assembly Bolts
- E. Set Collar

Figure 20 Broom Pulley Belt Stops

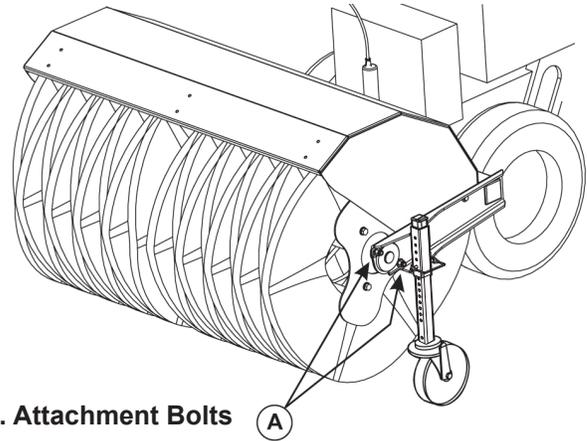


- A. Engine Pulley
- B. Drive Belt
- C. Idler Pulley
- D. Driven Pulley
- E. Engine Belt Stops
- F. Broom Pulley Belt Stops

Figure 21 Belt Pattern (viewed from front)

BRUSH SEGMENT REPLACEMENT

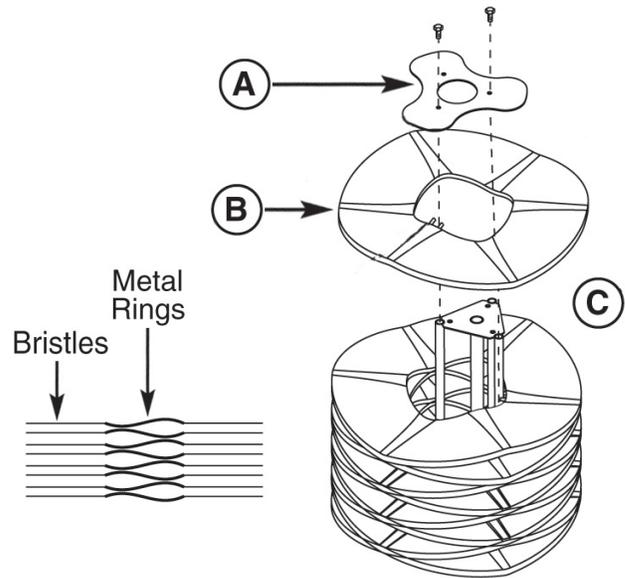
1. Remove bolts from broom bearings at both ends of the support shaft (A, Figure 22 Brush Removal).



A. Attachment Bolts

Figure 22 Brush Removal

2. Loosen bearing setscrews and slide bearings inwards toward the center of broom.
 3. Manually move power unit backwards away from the brush assembly.
- IMPORTANT!** Support splined drive shaft to prevent damage.
4. Stand broom assembly on one end. (See Figure 23 Brush Assembly)



- A. End Plate
- B. Brush Segment

C. Engagement Fingers

Figure 23 Brush Assembly

5. Remove the three bolts from the end plate (See A, Figure 23 Brush Assembly).
6. Remove used broom segments.
7. Install new broom segments. Position the segment cores to provide hill to hill valley to valley contact.

NOTE: Align segment engagement fingers (C, Figure 23 Brush Assembly) on alternating support shafts. This will evenly spread rotating force through the drive system.

8. Reinstall broom assembly.

IMPORTANT! Fully tighten the bearing setscrews before operating the power broom.

MAINTENANCE

MAINTENANCE SCHEDULE

Maintenance Required	Service Interval	Notes
Lubricate power broom	10 Hours	Use 10W Oil and Automotive Lithium Grease
Check tire pressure	Monthly	Inflate to 20 psi (1.37 bar)
Check/Change engine oil**	Check oil before each use**	None
Replace spark plug**	Yearly**	None
Check drive linkage and belt tension	4-6 Hours	None

** See your engine owner's manual for engine-related information.

LUBRICATION

NOTE: Grease points are noted with an applicable decal.



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

IMPORTANT!

It is very important that grease fittings on the broom shaft are lubricated regularly. If broom rusts to shaft, damage to worm gear may occur if shear pins do not break.

To prevent wheels rusting to axles, it is also necessary to remove the wheels and grease the axles regularly.

1. Apply medium weight (10W) oil to points shown (See Figure 24 Control Linkage through Figure 27).
2. Remove wheels and grease axles once each year (See Figure 26).
3. Apply 5W-50 synthetic motor oil to the friction disc drive hex shaft.
4. Grease broom drive universal joint (See Figure 27).

NOTE: Access is best gained from underneath machine.

5. Grease broom pivot pin (See Figure 27).

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.

LUBRICATION NOTES:



Grease locations indicated by grease gun symbol. Use grease fittings when present. Disassemble parts to apply grease to moving parts when grease fittings are not installed.



Oil locations indicated by oil can symbol. Do not allow oil to drip onto traction drive or friction disc.

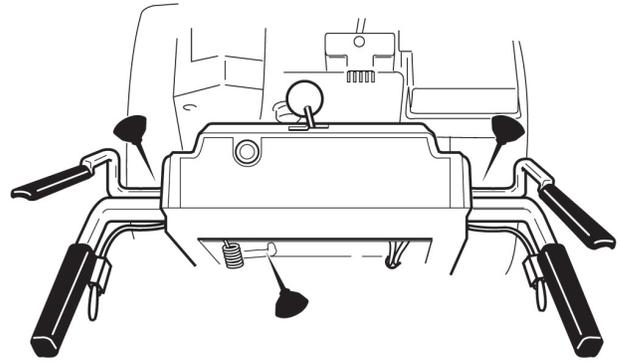


Figure 24 Control Linkage

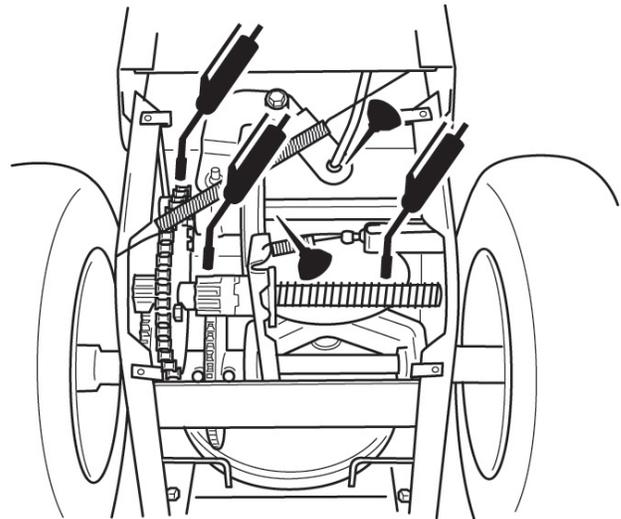


Figure 25 Drive Lubrication

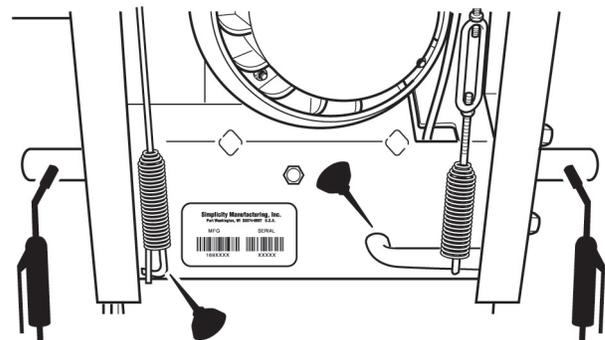


Figure 26

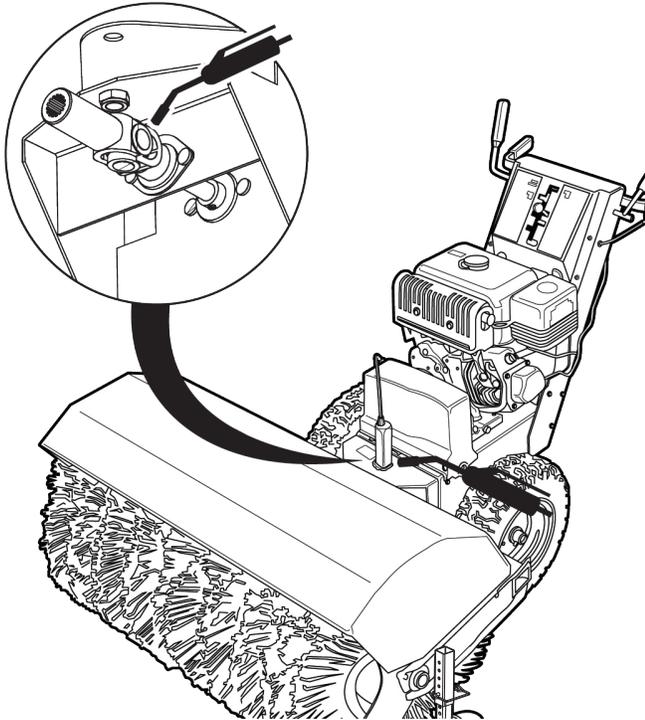


Figure 27

CHECKING TIRE PRESSURE

The air pressure in each tire (Figure 28) should be 20 psi (136 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.

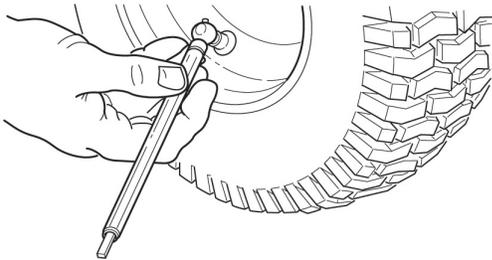


Figure 28

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.

TROUBLESHOOTING

This section provides troubleshooting and service instructions. Locate the problem and check the possible cause/remedy in the order listed.

Also, refer to the engine manufacturer's Owner's Manual for additional information.

For problems not covered here, contact your local dealer.

IMPORTANT!

Before performing any adjustment or service to power broom, stop the engine and wait for moving parts to stop. Remove the key. To prevent accidental starting, disconnect the spark plug wire and fasten away from the plug.

Trouble	Possible Cause	Remedy
Engine fails to start.	<ol style="list-style-type: none"> 1. Engine switch is OFF. 2. Fuel valve is in CLOSED position. 3. Out of fuel. 4. Choke OFF - cold engine. 5. Engine flooded. 6. No spark. 7. Water in fuel, or old fuel. 	<ol style="list-style-type: none"> 1. Set switch to ON position. 2. Turn valve to OPEN position. 3. Fill fuel tank. 4. Turn choke to ON, set throttle to FAST. 5. Turn choke to OFF; try starting. 6. Check gap. Gap plug, clean electrode, or replace plug as necessary. 7. Drain tank (Dispose of fuel at an authorized hazardous waste facility). Fill with fresh fuel.
Engine starts hard or runs poorly.	<ol style="list-style-type: none"> 1. Fuel mixture too rich. 2. Carburetor adjusted incorrectly. 3. Spark plug faulty, fouled, or gapped improperly. 4. Fuel Cap Vent is blocked. 	<ol style="list-style-type: none"> 1. Move choke to OFF position. 2. See your dealer for adjustments. 3. Clean and gap, or replace. 4. Clear vent.
Brush does not clean hard surface.	<ol style="list-style-type: none"> 1. Casters improperly adjusted. 	<ol style="list-style-type: none"> 1. RAISE casters (this lowers the broom).
Broom does not rotate.	<ol style="list-style-type: none"> 1. Broom Control not engaged. 2. Broom drive clutch rod slack. 3. Broom drive belt slipping. 4. Broken belt. 5. Shear pin broken. 	<ol style="list-style-type: none"> 1. Engage Broom Control. 2. Tighten to remove slack. See broom clutch rod adjustment. 3. Check broom drive belt adjustment. 4. Replace belt. 5. Replace shear pin.
Poor traction.	<ol style="list-style-type: none"> 1. Tires slipping. 	<ol style="list-style-type: none"> 1. Check tire pressure and tread.
Broom does not stop when broom lever is released.	<ol style="list-style-type: none"> 1. Free-Hand™ Control is ACTIVE. 2. Broom clutch rod too tight or bent. 3. Broom drive belt out of adjustment. 4. Broom belt guide out of adjustment. 	<ol style="list-style-type: none"> 1. Release BOTH broom Engage Control AND Free-Hand™ Control to stop broom. 2. Loosen or straighten clutch rod. 3. Adjust broom belt. 4. Adjust broom belt guide.
Power broom does not stop when drive lever is released.	<ol style="list-style-type: none"> 1. Traction drive clutch rod bent or too tight. 2. Traction drive clutch rod loose. 3. Drive belt loose, broken, or stretched. 4. Drive roller chain damaged. 5. Traction Lock Pins in Free-Wheeling position (OUTER hole). 6. Friction Disc worn. 	<ol style="list-style-type: none"> 1. Loosen rod to remove slack or replace. See adjustment procedure. 2. Tighten to remove slack. See adjustment procedure. 3. Replace drive belt. 4. Replace chain. 5. Change Traction Lock Pins to INNER hole to engage traction drive. 6. Replace Disc (see your dealer).
Power broom veers to one side.	<ol style="list-style-type: none"> 1. Tires pressure unequal. 2. One wheel is set in Free-Wheeling mode (Traction Lock Pin is in the OUTER hole). 	<ol style="list-style-type: none"> 1. Check and adjust tire pressure. 2. Make certain the left Traction Lock Pin is in the INNER holes (to engage traction drive).
Excessive vibration.	<ol style="list-style-type: none"> 1. Loose parts or damaged broom assembly. 	<ol style="list-style-type: none"> 1. Tighten all hardware. Replace broom assembly if necessary. If vibration continues, see your dealer.
Drive fails to move power broom at slow speeds.	<ol style="list-style-type: none"> 1. Traction Drive out of adjustment. 	<ol style="list-style-type: none"> 1. Readjust drive, or shift Speed Selector setting up one speed faster.
Speed selector difficult to move or frozen in place.	<ol style="list-style-type: none"> 1. Hex shaft needs lubrication. 	<ol style="list-style-type: none"> 1. Lubricate hex shaft with 5W-50 synthetic motor oil (see Maintenance).

SERVICE PARTS

Part Number	Description
430-97417	Kit, Cable and Lever Assy, Swing Control
100-140487	Caster Wheel
380-172458	Lever, Caster Wheel Adjustment
1676461	V-Belt (3L), Traction Drive
504-132341	V-Belt, Broom Drive
1729254	Collar, Set, Traction Drive Axle
1667335	Collar, Set, Friction Disc Hub
1678956	Collar, Thrust, Friction Disc Hub
1666207	Pin, Loop, Friction Disc Hub
1665995	Hub, Friction Disc
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.

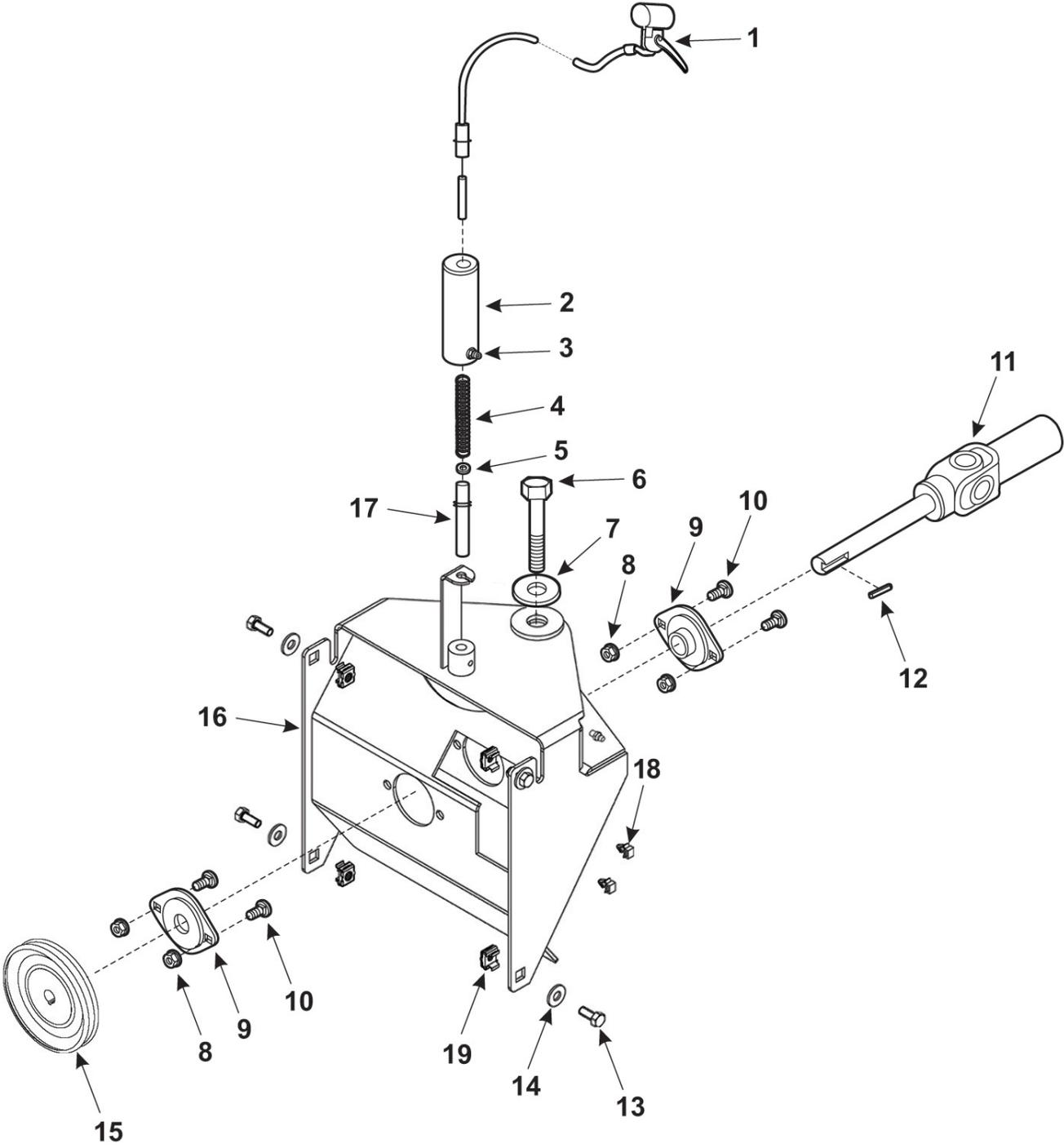
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 email: sales@m-bco.com
 Phone: 800-558-5800 or 920-898-4203
 FAX:

Main 920-898-4588
 Attachments 920-898-1085
 Brush Dept. 920-898-1082

PARTS LIST

BROOM FINAL DRIVE



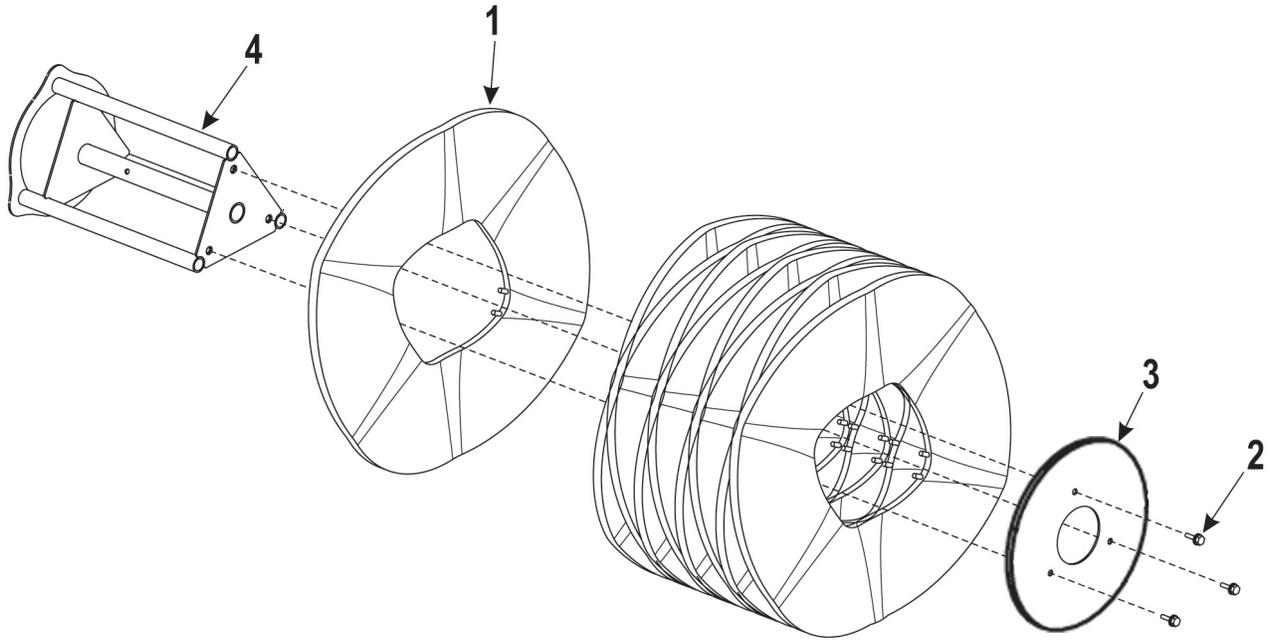
PARTS LIST

BROOM FINAL DRIVE

Item	Part Number	Description	Qty
1	430-97417	Kit, Swing Control	1
	106-147833	• Cable and Lever Assembly, Swing Control	1
	311-12000	• Hex Head Capscrew, 1/4-20 x 2", Lever Mounting	1
	351-10000	• Lockwasher, 1/4", Lever Mounting	1
	341-10000	• Flat Washer, 1/4", Lever Mounting	3
2	488-140763	Cap, Vinyl	1
3	206-72100	Grease Zerk, 1/4"-28	1
4	382-140710	Spring, Compression, 0.51" OD x 3-1/2" Long	1
5	371-81807	Nut, Hex, 10-24	1
6	370-97446	Hex Head Capscrew, 3/4-10 x 3-3/4"	1
7	341-80000	Washer, Flat 3/4"	1
8	371-92059	Nut, Flanged, Locking, 5/16"-18	4
9	600-132224	Bearing, Flangette, 3/4"	2
10	370-126976	Carriage Bolt, 5/16-18 x 3/4"	4
11	502-129543	Driveline, Keyed	1
12	386-91174	Key, Round End, 0.1875 x 1"	1
13	311-20750	Hex Head Capscrew, 5/16-18 x 3/4"	4
14	341-20000	Washer, Flat, 5/16"	4
15	505-129571	Sheave, Belt, 6" OD, 3/4" ID	1
16	410-140536	Frame, Mounting	1
17	380-140544	Pin, Swing, Trigger Release	1
18	387-140764	Mount Base, Cable	2
19	371-160349	Cage Nut, Square, 5/16"-18	4

PARTS LIST

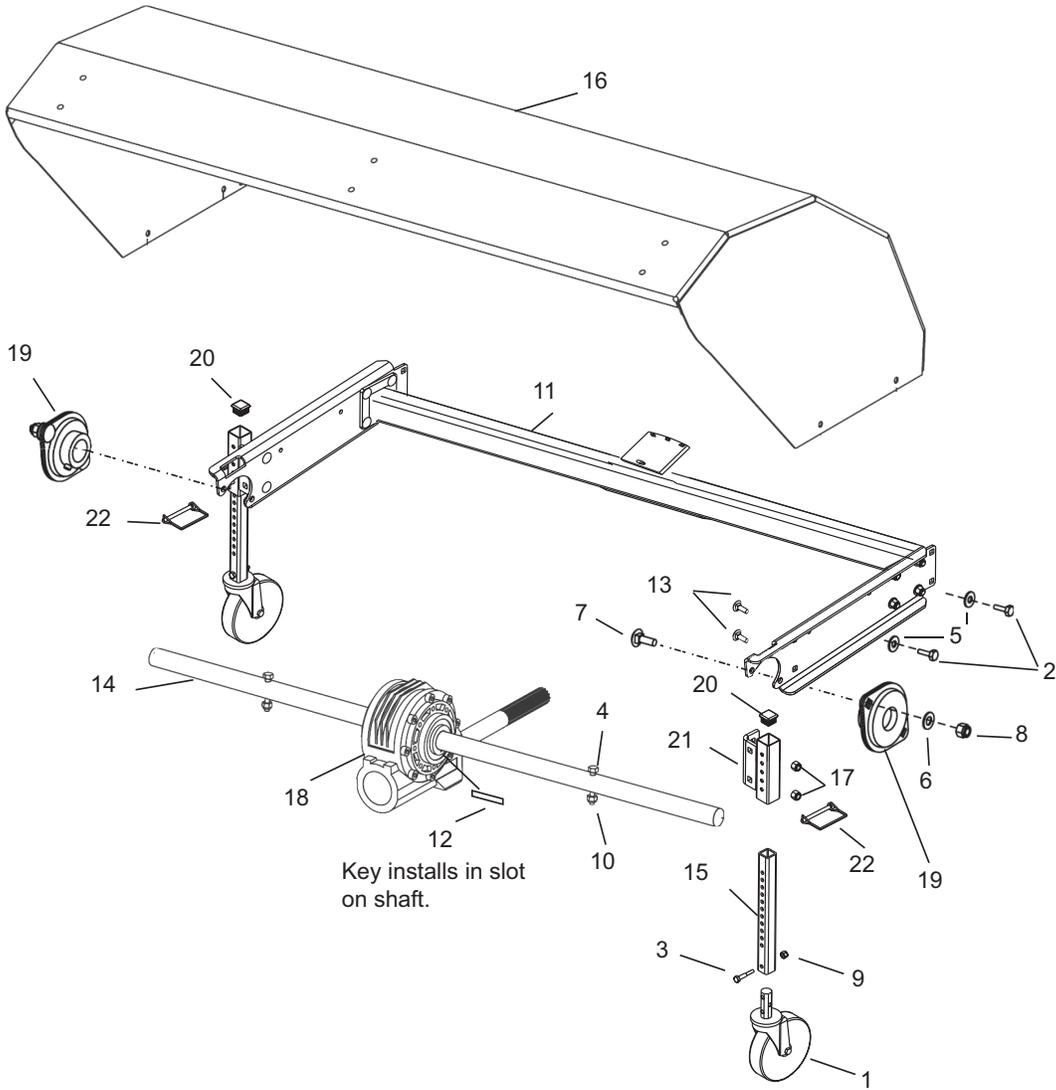
BRUSH ASSEMBLY



Item	Part Number	Description	Qty
1	101-129541	Segment, Poly, 25" x 10", Conv Black, 3' Brush	9
	101-132808	Segment, Poly/Wire, 25" x 10", Cov Black, 3' Brush	9
	101-129541	Segment, Poly, 25" x 10", Conv Black, 4' Brush	12
	101-132808	Segment, Poly/Wire, 25" x 10", Cov Black, 4' Brush	12
2	370-126977	HHCS, Serrated Flange, 3/8-16 x 1 Plated, 3' or 4' Brush	3
3	401-147887	Plate, End Retainer, 3' or 4' Brush	2
4	410-169692	Core, W.U., Thru Shaft Tri, 3' Brush	2
	410-169689	Core, W.U., Thru Shaft Tri, 4' Brush	2

PARTS LIST

BROOM HEAD ASSEMBLY



PARTS LIST

BROOM HEAD ASSEMBLY

Item	Part Number	Description	Qty
1	100-140487	Wheel, 5" Caster, 3/4" Stem	2
2	311-10750	Hex Head Capscrew, 1/4-20 x 3/4"	4
3	311-11500	Hex Head Capscrew, 1/4-20 x 1-1/2"	2
4	311-22250	Bolt, Shear, 5/16-18 x 2-1/4"	2
5	341-10000	Washer, Flat, 1/4"	4
6	343-30000	Washer, Flat, 3/8"	4
7	370-92047	Carriage Bolt, 3/8-16 x 1"	4
8	371-81297	Lock Nut, 3/8"-16	4
9	371-81299	Lock Nut, 1/4"-20	2
10	371-81620	Lock Nut, 5/16"-18	2
11	420-172234	Frame, Bolt-On Arms 3'	1
	420-172233	Frame, Bolt-On Arms 4'	1
12	386-140951	Key, Square, 1/4 x 1/4 x 3"	1
13	370-92047	Carriage Bolt 3/8-16 UNC x 1	4
14	401-140151	Shaft, Thru, 36" Brush	1
	401-140471	Shaft, Thru, 48" Brush	1
15	401-172238	Tube, Caster	2
16	410-129522-X	Hood, Welded, 36" (Up to S/N 10-2954)	1
	420-169347	Hood, Riveted, 36" (S/N 10-2955 and up)	1
	410-140003-X	Hood, Welded, 48"	1
	420-169885	Hood, Riveted, 48"	1
17	371-81297	Nut, Hex, ESNA, 3/8-16 UNC	8
18	501-140152	Gearbox, Worm, Aluminum, 8.25:1	1
19	600-132225	Flangette Bearing	2
20	711-132229	Plug, Square, 1" Plastic	2
21	410-172575	Caster Bracket WU	2
22	380-172458	Pin, Wire Lock 1/4 x 2-1/4	2

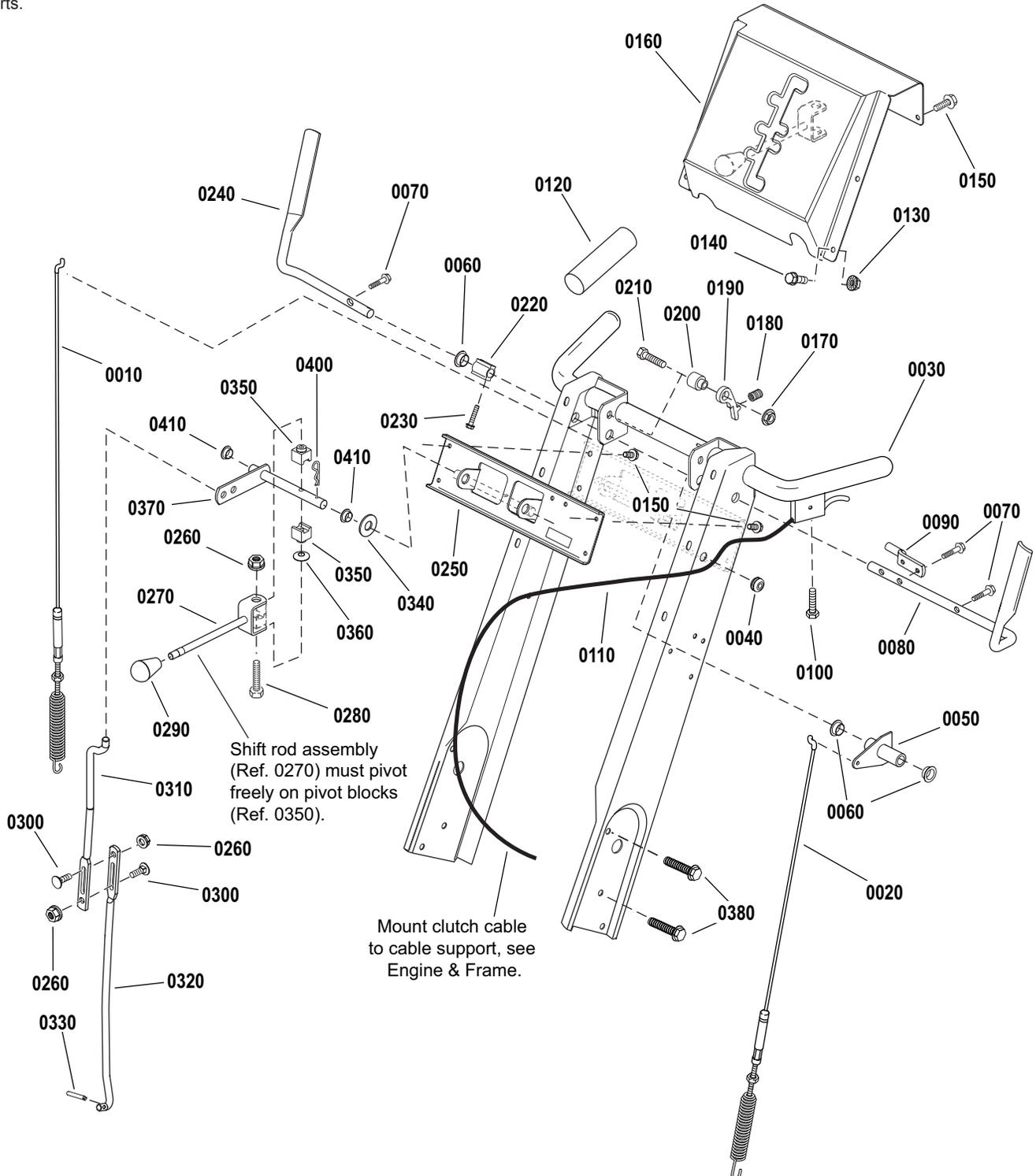
PARTS LIST

HANDLES & CONTROLS

(Drive Unit S/Ns 2012697931 and up)

The drive unit (engine and drive wheels) serial number decal is located on the inside front of the frame for drive unit S/Ns prior to 2014627501. The broom head mounting frame must be disconnected from the drive unit to gain access to the decal.

Beginning with drive unit S/N 2014627501, the serial number decal is located on the outside rear of the bottom cover, between the handlebar supports.



PARTS LIST

HANDLES & CONTROLS

(Drive Unit S/Ns 2012697931 and up)

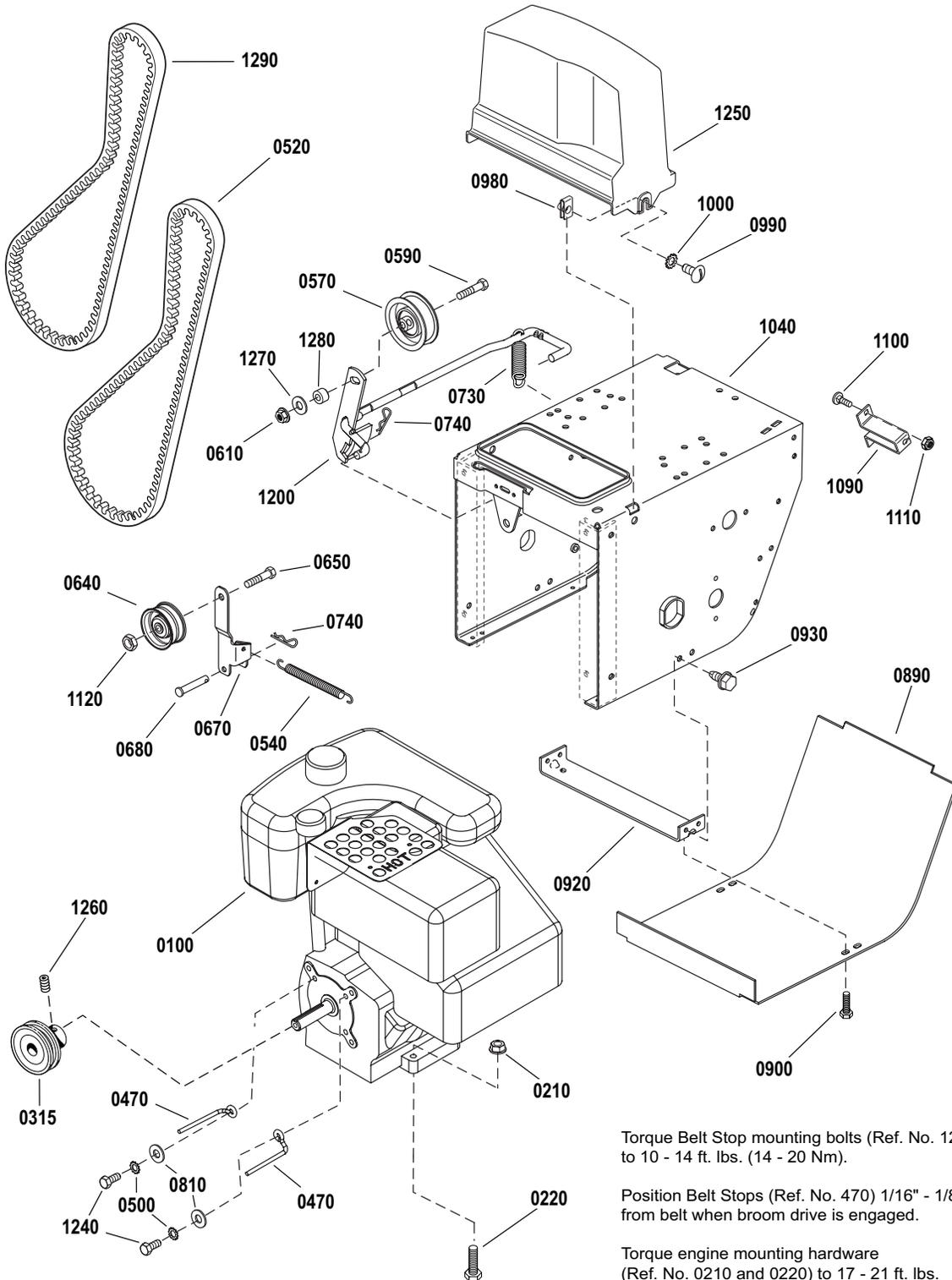
Item	Part Number	Description	Qty
0010	1735148	Cable & Spring Assembly, Broom Drive Engage (RH)	1
0020	1728115	Cable & Spring Assembly, Traction Drive Engage (LH)	1
0030	1729855J	Handle Assembly	1
0040	1664022	Grommet, 1/2"	1
0050	1725205A	Lever, Cable Actuation	2
0060	1732732	Bushing	4
0070	1960471	Screw, Hex Washerhead, 12-24 x 1"	4
0080	1727127	Lever, Traction Drive Engage, LH (Vinyl Dipped)	1
0090	1677453	Rod, Control	1
0100	1725702	Screw, Pan Head	1
0110	1718791	Cable & Handle Assembly, Easy Turn	1
0120	1726317	Grip	2
0130	1930641	Nut, Hex Flange, 1/4"-20	4
0140	1935450	Capscrew, Hex Flange, 1/4-20 x 3/4"	4
0150	1925592	Screw, Hex Washerhead, 1/4-20 x 3/4"	6
0160	1733919J	Dashboard	1
0170	1960686	Nut, Hex Flange, 5/16"-18	1
0180	1701342	Spring, Compression (S/Ns 2012697931 to 2014155198)	1
0180	1750475	Spring, Compression (S/Ns 2014627501 and up)	1
0190	1705898	Latch, Control	1
0200	1678579	Spacer, 21/64"	1
0210	1933689	Screw, Hex Whiz Lock, 5/16-18 X 1-1/2"	1
0220	1705899	Guide, Control Levers	1
0230	1928732	SCREW, Hex Washer Head, #10-24 x 1"	1
0240	1727128	Lever, Broom Drive Engage, RH (Vinyl Dipped)	1
0250	1723935	Bracket, Shift Control	1
0260	1960685	Nut, Hex, 1/4"-20	3
0270	1668523	Rod & Clevis Assembly, Shift	1
0280	1960705	Screw, Hex Whiz Lock, 1/4-20 x 2-1/4"	1
0290	1732470	Knob	1
0300	1931317	Bolt, Carriage, 1/4-20 x 3/4"	2
0310	1734388	Rod, Shift, Upper, 11.5" Long	1
0320	1666255	Rod, Shift, Lower, 15.32" Long	1
0330	1722460	Pin, Quick	1
0340	1924361	Washer, Flat, 1/2"	1
0350	1668524	Block, Pivot	2
0360	1668681	Washer, Curved	1
0370	1734696	Rod & Arm Assembly, Shift Control	1
0380	1960729	Screw, Hex Head, 5/16-18 x 1"	6
0400	1960074	Clip, Hair Pin	1
0410	1668185	Bushing, 1/2 x 3/4 x 1/4"	2

PARTS LIST

ENGINE & FRAME

The drive unit (engine and drive wheels) serial number decal is located on the inside front of the frame for drive unit S/Ns prior to 2014627501. The broom head mounting frame must be disconnected from the drive unit to gain access to the decal.

Beginning with drive unit S/N 2014627501, the serial number decal is located on the outside rear of the bottom cover, between the handlebar supports.



Torque Belt Stop mounting bolts (Ref. No. 1240) to 10 - 14 ft. lbs. (14 - 20 Nm).

Position Belt Stops (Ref. No. 470) 1/16" - 1/8" from belt when broom drive is engaged.

Torque engine mounting hardware (Ref. No. 0210 and 0220) to 17 - 21 ft. lbs. (23 - 29 Nm).

PARTS LIST

ENGINE & FRAME

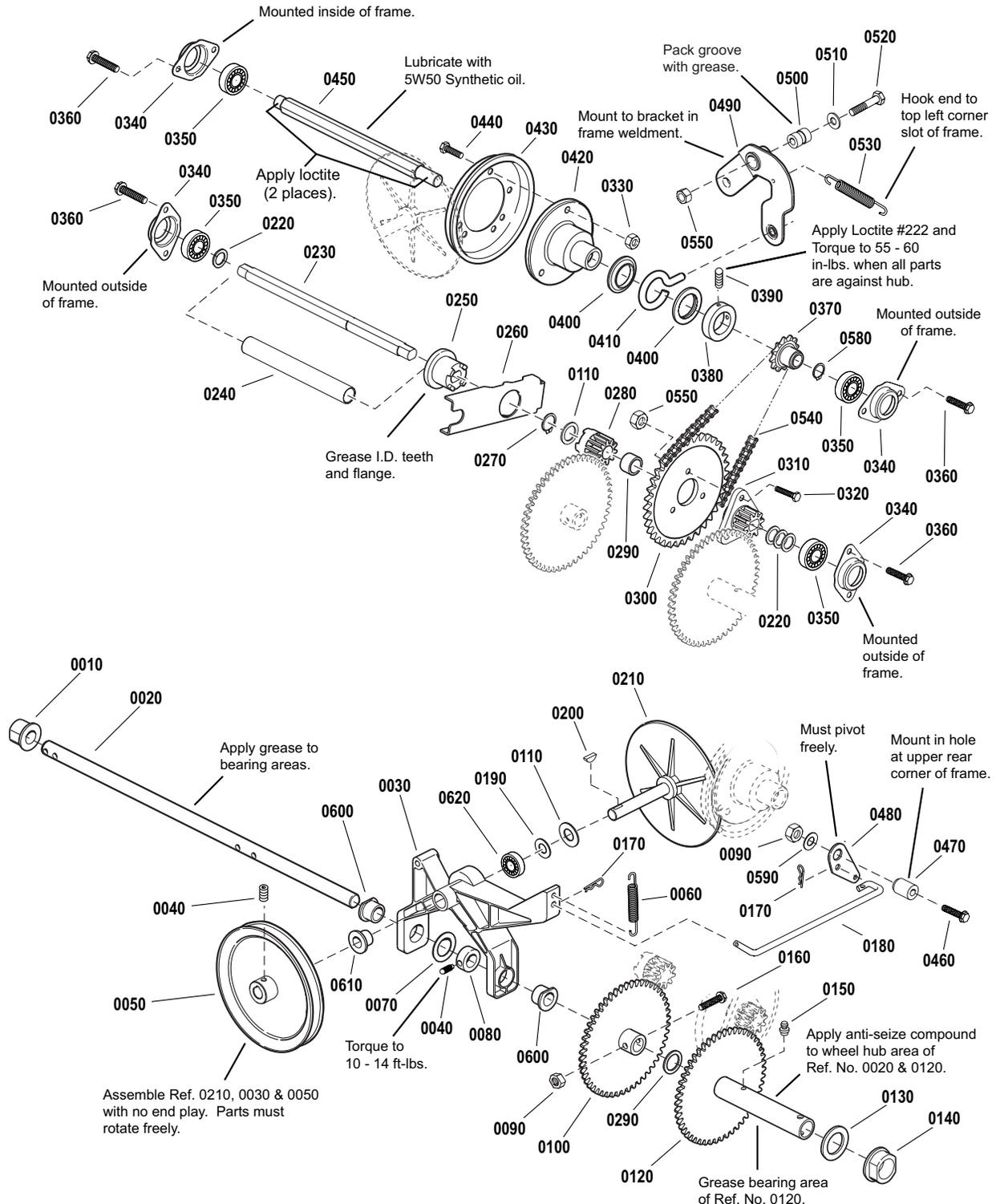
Item	Part Number	Description	Qty
0100	*	Engine (Refer to Engine Label and contact engine manufacturer.)	1
	500-132927	Cap, Fuel Tank	1
0210	2831277	Nut, Hex Flange, 5/16"-18	4
0220	2822127	Capscrew, Hex Head, 5/16-18 x 1-3/4"	4
0315	1676493	Pulley, Engine	1
0470	1731178	Stop, Belt	2
0500	1917356	Lockwasher, Spring	2
0520	1676461	V-Belt, 3L, Traction Drive	1
0540	1727149	Spring, Extension	1
0570	1726348	Pulley, Idler, Broom Drive Belt	1
0590	2860709	Screw, Hex Whiz Lock, 3/8-16 x 1-3/4" (S/Ns 2000636411 to 2013226100)	1
0590	1923701	Screw, Hex Whiz Lock, 3/8-16 x 1-3/4" (S/Ns 2013226186 and up)	1
0610	1928352	Lock Nut, Hex Flange, 3/8"-16	1
0640	1668477	Pulley, Idler, Traction Drive Belt	1
0650	1960647	Screw, Hex Head, 3/8-16 x 1-1/2"	1
0670	1703046A	Arm, Belt Idler, Traction Drive	1
0680	1665994	Pin, Flat Head	1
0730	1724503	Spring, Extension	1
0740	1722460	Pin, Quick	2
0810	1919326	Washer, 5/16"	2
0890	1726870Z	Cover, Bottom	1
0900	1925003	Screw, Hex Washer Head, 1/4-20 x 1/2"	2
0920	1727004A	Support, Tie Bar	1
0930	1664847	Screw, Hex Washer Head, 5/16-18 x 3/4"	4
0980	1935255	Nut, Speed, 5/16"-18	2
0990	1918249	Screw, Truss Head, 5/16-18 x 3/4"	2
1000	2820426	Lockwasher, External Tooth, 5/16"	2
1040	1726568Z	Frame	1
1090	1720404A	Support, Cable	1
1100	1931317	Bolt, Carriage, 1/4-20 x 3/4"	2
1110	1960685	Nut, Hex, 1/4"-20	2
1120	1928731	Nut, Hex, Top Lock, 3/8"-16	1
1200	1729646A	Clutch Rod/Brake Arm, Broom Drive	1
1240	1921515	Capscrew, Hex Head, 5/16-24 x 3/4"	2
1250	1725287	Cover, Belt	1
1260	1930540	Screw, Set, Square Head, 5/16-18 x 5/8"	1
1270	1924940	Washer, Flat, 3/8" (S/Ns 2013226186 and up)	1
1280	1667811	Spacer (S/Ns 2013226186 and up)	1
1290	504-132341	V-Belt, Broom Drive	1

PARTS LIST

TRACTION DRIVE

The drive unit (engine and drive wheels) serial number decal is located on the inside front of the frame for drive unit S/Ns prior to 2014627501. The broom head mounting frame must be disconnected from the drive unit to gain access to the decal.

Beginning with drive unit S/N 2014627501, the serial number decal is located on the outside rear of the bottom cover, between the handlebar supports.



PARTS LIST

TRACTION DRIVE

Item	Part Number	Description	Qty
0010	1666001	Bushing	1
0020	1720299	Axle, Round	1
0030	1670849	Arm, Pivot (with Bushings 600/610 & Bearing 620)	1
0040	1928721	Screw, Set, Square Head Cup Point, 5/16-18 x 1/2" G8	2
0050	1672595	Pulley And Hub Assembly, Broom Drive	1
0060	1725666	Spring, Extension	1
0070	1919394	Washer, Flat	1
0080	1729254	Collar, Set	1
0090	1960686	Lock Nut, Hex Flange, 5/16"-18	2
0100	1720300	Gear And Hub Assembly, RH (S/Ns 2012697931 to 2012711557)	1
0100	1736639	Gear And Hub Assembly, RH (S/Ns 2013226100 and up)	1
0110	1960114	Washer, Flat, 3/4"	3
0120	1730228	Gear And Hub Assembly (with Bushings)	1
0130	2860169	Washer, Flat	1
0140	1720305	Bushing	1
0150	2812808	Fitting, Lube, Tapered, 1/4"-28 (with Check Ball)	1
0160	1930570	Capscrew, Hex Head, 5/16-18 x 1-1/2" G8	1
0170	1722460	Pin, Quick	1
0180	1726467	Rod, Pivot,	1
0190	1924366	Washer, Flat, 5/8"	1
0200	2818312	Key, Woodruff	1
0210	1719879	Drive Disc w/Spindle	1
0220	2860164	Washer, Flat, 5/8"	4
0230	1718752	Jackshaft, Double D	1
0240	1720298	Spring	1
0250	1718689	Clutch, Sliding	1
0260	1720078A	Arm, Clutch	1
0270	2827732	Ring, Retaining	1
0280	1718688	Gear, Stationary Clutch	1
0290	1679556	Spacer	1
0300	1667330	Sprocket, 36-Tooth	1
0310	1718687	Gear, Double D, 10-Tooth	1
0320	1921333	Capscrew, Hex Head, 5/16-18 x 1" G5	3
0330	1960684	Nut, Hex Keps, 5/16"-18, Conical Washer	6
0340	1667341	Retainer, Bearing	4
0350	1705897	Bearing, Ball	4
0360	1930601	Screw, Hex Washer Head, Taptite, 5/16-18 x 5/8"	8
0370	1726931	Sprocket, 10 Tooth	1
0380	1667335	Collar, Set	1
0390	1724333	Screw, Set, Square Head Cup Point, 1/4-20 x 1/2"	2
0400	1678956	Collar, Thrust	2
0410	1666207	Pin, Loop	1
0420	1665995	Hub, Friction Disc	1
0430	1725428	Disc, Friction (with Insert)	1

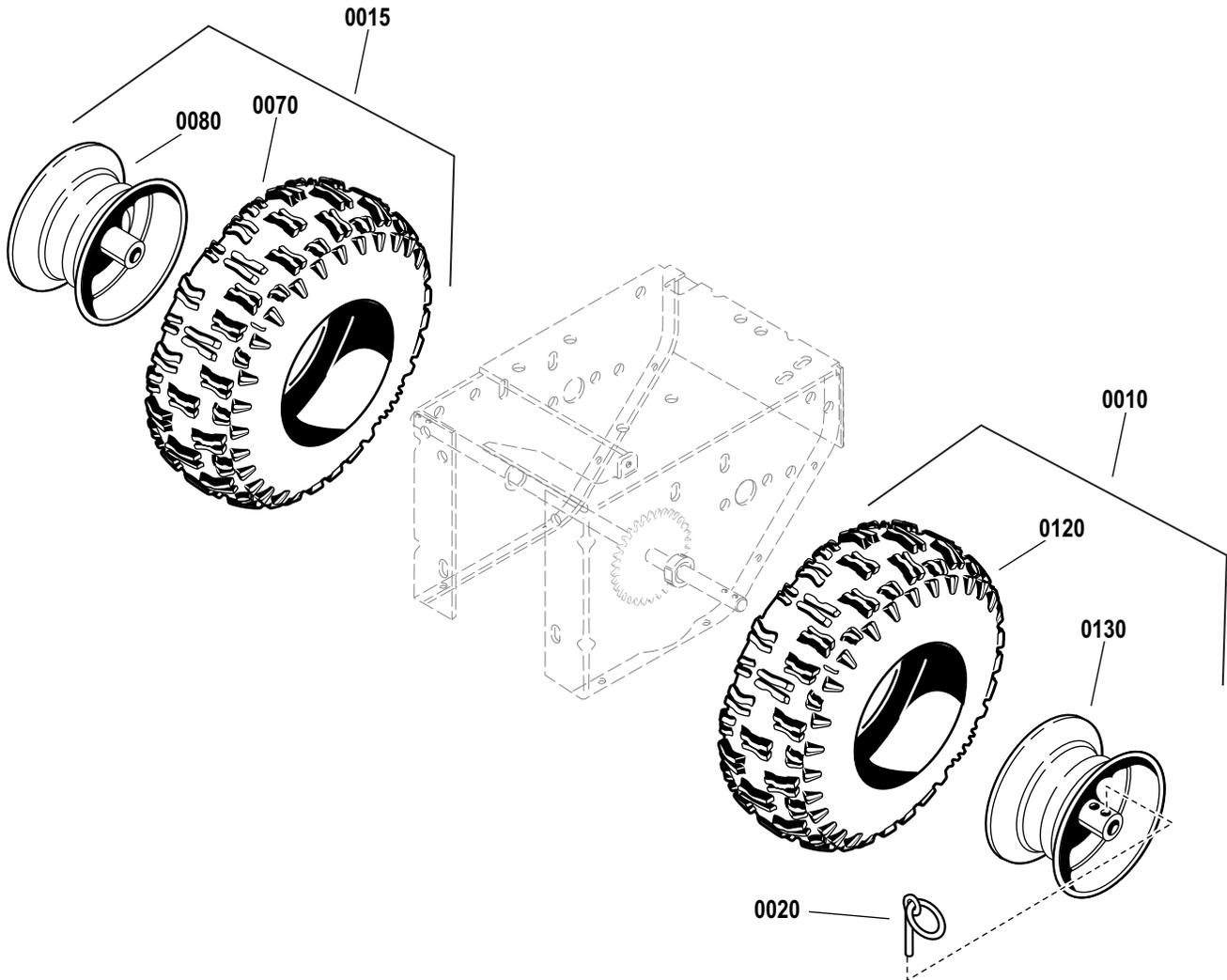
PARTS LIST

TRACTION DRIVE

Item	Part Number	Description	Qty
0440	1921332	Capscrew, Hex Head, 5/16-18 x 3/4" G5	3
0450	1726856	Shaft, Hex (S/Ns 2012697931 to 2012711557)	1
0450	1736100	Shaft, Hex (S/Ns 2013226100 and up)	1
0460	1922127	Capscrew, Hex Head, 5/16-18 x 1-3/4" G5	1
0470	1666106	Bushing, 11/32 ID x 3/4 OD x 1-3/50 Long	1
0480	1700473	Bellcrank	1
0490	1669256	Arm Assembly, Shift (with Bushing Ref. No. 500)	1
0500	1666114	Bushing	1
0510	1924940	Washer, Flat 3/8"	1
0520	1923701	Capscrew, Hex Head, 3/8-16 x 2" G5	1
0530	1668255	Spring, Extension	1
0540	1666980	Chain, Roller	1
0550	1960687	Lock Nut, Hex Flange, 3/8"-16	1
0580	1736222	Ring, Retaining, External, #87	1
0590	1919326	Washer, 11/32 x 3/4 x 1/16"	1
0600	1666425	Bushing	2
0610	1666855	Bushing	1
0620	1665521	Bearing, Ball	1

PARTS LIST

TIRE & WHEEL



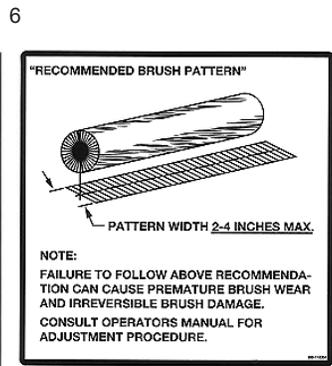
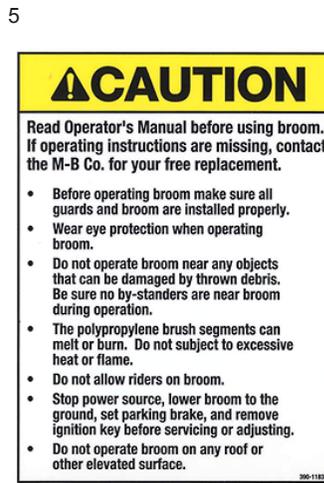
Item	Part Number	Description	Qty
0015	1714235	Wheel & Tire Assembly, RH	1
0070	1612000	Tire	1
0080	1714242	Wheel	1
0010	1720306	Wheel & Tire Assembly, LH	1
0020	1731186	Pin, Klik	1
0120	1612000	Tire	1
0130	1720307	Wheel	1

PARTS LIST

DECALS

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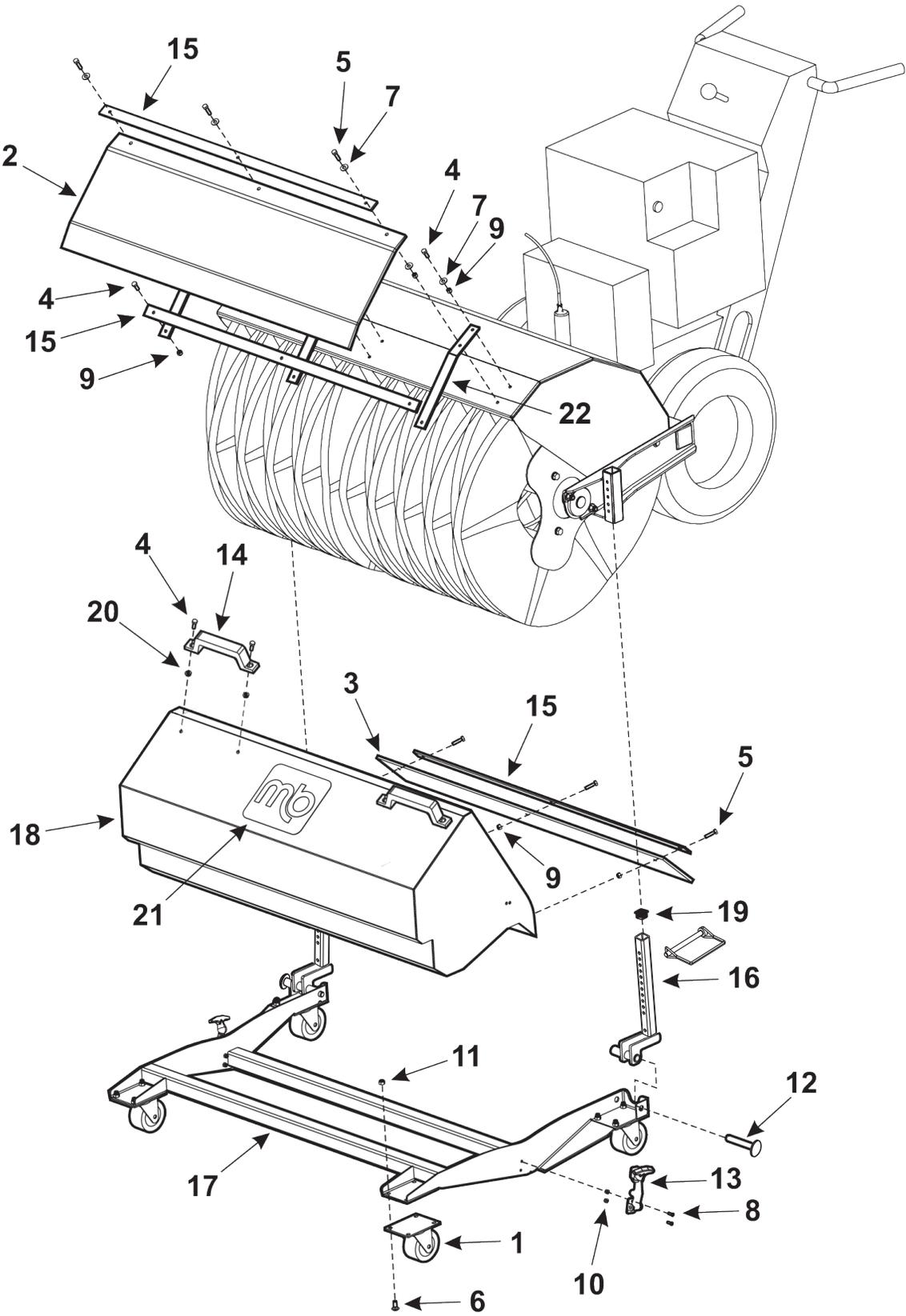
Beginning with drive unit S/N 2014627501, the serial number decal is located on the outside rear of the bottom cover, between the handlebar supports.



Item	Part Number	Description	Qty
1	390-118356	Decal, Grease Point	1
2	390-118348	Decal, Danger, Falling	1
3	390-118355	Decal, M-B Refills	1
4	390-118349	Decal, Danger, No Riders	1
5	390-118351	Decal, Caution, Read Operator's Manual	1
6	390-118354	Decal, Brush Pattern	1
7	390-118352	Decal, Warning, Moving Parts Hazard	2
8	390-118353	Decal, Danger, Pinch Hazard	2
Not Shown	390-117897	Decal, M-B	1

PARTS LIST

DEBRIS BOX ASSEMBLY (OPTION)



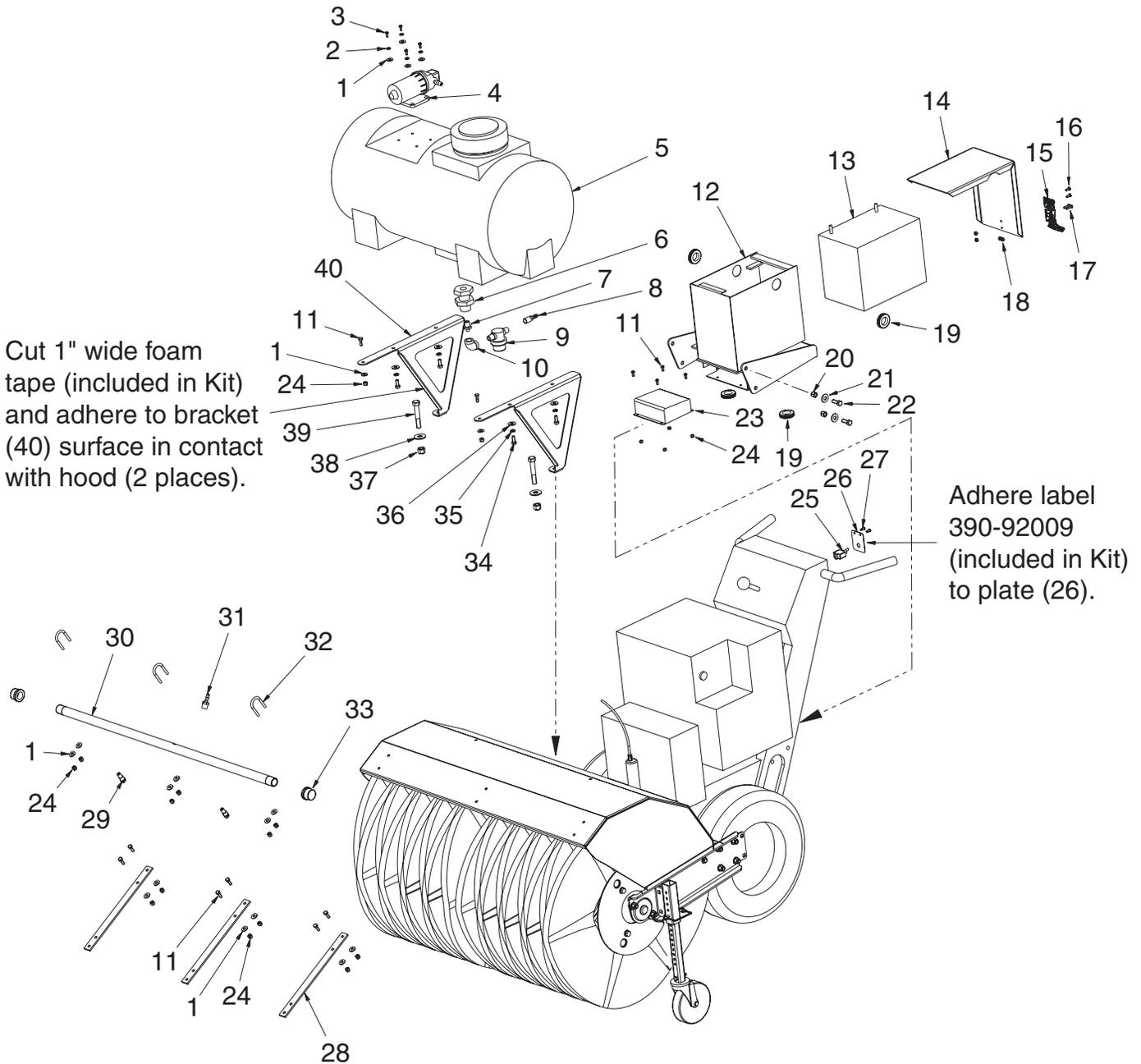
PARTS LIST

DEBRIS BOX ASSEMBLY (OPTION)

Item	Part Number	Description	Qty
	430-96354	Deflector Kit, 3'	
	430-96468	Deflector Kit, 4'	
	430-96675	Debris Box, 3' (Includes deflector kit)	
	430-96683	Debris Box, 4' (Includes deflector kit)	
1	100-90281	Wheel, Caster	4
2	101-132985	Deflector, 3'	1
	101-143141	Deflector, 4'	1
3	101-140412	Ground Deflector, Rubber, 3'	1
	101-147346	Ground Deflector, Rubber, 4'	1
4	311-10750	Capscrew, Hex Head, 1/4-20 x 3/4"	10
5	311-11000	Capscrew, Hex Head, 1/4-20 x 1"	6
6	370-126976	Carriage Bolt, 5/16-18 x 3/4"	16
7	341-10000	Washer, Flat, 1/4"	9
8	370-91955	Screw, Machine, Round Head, #10-32 x 1/2"	8
9	371-81299	Lock Nut, 1/4"-20	12
10	371-81379	Lock Nut, #10-32	4
11	371-81620	Lock Nut, 5/16"-18	16
12	380-172765	Attachment Pin	2
13	384-140384	Latch, Rubber	2
14	384-92034	Grab Handle, Rubber	2
15	401-132987	Strap, Support	3
16	410-172733	Adapter, Mounting, Left	1
	410-172734	Adapter, Mounting, Right	1
17	410-140378	Frame, 3'	1
	410-147347	Frame, 4'	1
18	410-140414	Debris Box, 3'	1
	410-147344	Debris Box, 4'	1
19	711-132229	Plug, Square, 1"	2
20	371-92058	Lock Nut, Flange, Serrated, 1/4"-20	4
21	390-117897	M-B Decal	1
22	401-132986	Strap Deflector Support	3

PARTS LIST

SPRINKLER KIT (OPTION)



PARTS LIST

SPRINKLER KIT (OPTION)

Item	Part Number	Description	Qty
1	341-10000	Washer, Flat, 1/4"	18
2	351-10000	Washer, Lock, 1/4"	4
3	370-90572	Machine Screw, Round Head, 10-24 x 1/2"	4
4	200-140732	Pump, Water Spray	1
5	221-143294	Tank, Water, 15 Gal.	1
6	211-143295	Fitting, Bulkhead	1
7	214-143266	Reducing Nipple, 1/2" x 3/8"	1
8	211-143297	Barb Fitting, 3/8" x 3/8" NPT	1
9	209-72385	Strainer, Line, 3/8" NPT	1
10	217-143296	Pipe Elbow, 90°, 3/8" NPT FM	1
11	311-10750	Capscrew, Hex Head, 1/4-20 x 3/4"	8
12	410-143302	Box, Battery	1
13	700-140734	Battery	1
14	401-143303	Cover, Battery Box	1
15	384-92023	Latch, Rubber, Battery Box Cover	1
16	370-91955	Machine Screw, 10-32 x 1/2"	6
17	370-91956	Machine Screw, 10-32 x 3/4"	2
18	371-81379	Nut, Lock, 10-32	8
19	703-143304	Grommet, Rubber, 1" ID	4
20	371-81297	Nut, Lock, 3/8"-16	4
21	341-30000	Washer, Flat, 3/8"	4
22	311-31000	Capscrew, Hex Head, 3/8-16 x 1"	4
23	706-140770	Charger, Battery	1
24	371-81299	Nut, Lock, 1/4"-20	14
25	702-71948	Switch, ON/OFF, Water Pump	1
26	401-160493	Plate, Switch Mount	1
	390-92009	Label, Water Pump ON/OFF	1
27	370-162180	Screw, 10-16 x 1/2"	2
28	401-140736	Strip, Deflector Support	3
29	206-74292	Nozzle, Spray, 1/4" NPT	2
30	401-140735	Bar, Spray, 3'	1
	401-150980	Bar, Spray, 4'	1
31	268-00020	Barb Adapter, Male Pipe, 3/8" Hose x 3/8" NPT	1
32	370-74138	U-Bolt, 3/4" ID, 1/4"-20	3
33	217-97161	Cap, Pipe, 3/4"	2
34	311-20750	Capscrew, Hex Head, 5/16-18 x 3/4"	4
35	351-20000	Washer, Lock, 5/16"	4
36	341-20000	Washer, Flat, 5/16"	4
37	371-81417	Nut, Lock, 1/2"-13	2
38	341-50000	Washer, Flat, 1/2"	2
39	311-53000	Capscrew, Hex Head, 1/2-13 x 3"	2
40	401-140744	Bracket, Tank Support	2

PARTS LIST

SPRINKLER KIT (OPTION)

200-140732 Pump

FLOJET

Installation for
LF Series
INDUSTRIAL PUMPS

Installation & Service Information

Description

FLOJET Industrial LF Pumps are designed for a wide range of applications and are constructed from a selection of materials suitable for handling a broad range of chemicals. The LF series of diaphragm pumps are self-priming and can be run dry without harm. They are intended for intermittent duty cycles but can be run continuously for short periods of time. The higher the duty cycle the shorter the expected life of the pump.

Typical pump uses are liquid transfer, spraying, circulation, filtration and dispensing.

Operation

To start and prime the pump, the discharge line must be open allowing trapped air to escape thus avoiding the potential of airlock. The pressure switch will shut off the pump automatically when the discharge valve is closed and the pressure has risen to the switch OFF set point. The pressure switch will restart the pump when a valve is opened and the discharge line pressure drops to the ON set point of the pressure switch.

Demand Operation (intermittent duty)

Demand Operation is considered an "intermittent duty" application. The maximum intermittent duty cycle is that which will cause the motor to reach its maximum thermal limits. Once the maximum thermal limit is reached, the motor must be allowed to settle to a lower temperature ideally being ambient before resuming operation. Running the pump at or near the maximum thermal limit for extended period of time will shorten the life of the pump and may result in immediate pump failure.

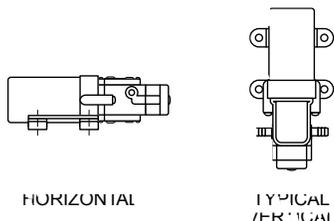
Bypass Operation (if equipped)

Models equipped with an external bypass system are designed to pump at high pressures while at low or high flow rates. Models equipped with a bypass only will continue to run until the power is manually turned off.

The LF pumps are not recommended for continuous duty service due to limited motor brush life. Operation at lower pressures and temperatures, however, will extend overall pump service life.

Mounting

The FLOJET LF Series pumps are self-priming. Vertical prime may vary depending on the fluid viscosity, suction tube size, foot valve and pump configuration. The pump should be mounted in a dry and adequately ventilated area. If mounted within an enclosure, provisions to cool the motor may be necessary.



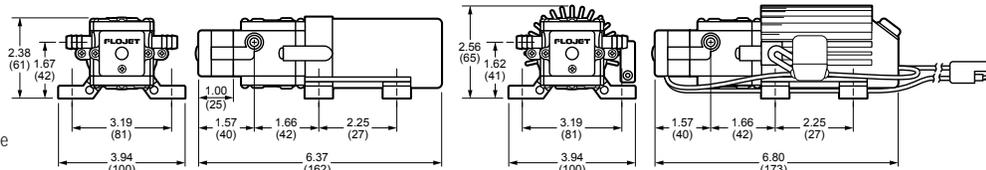
Preventative Maintenance Tips

If pumping a liquid other than water the pump should be flushed with water (if applicable) after each use.

Before freezing conditions occur, the pump must be liquid free or winterized with proper anti-freezing chemicals.

Dimensional Drawing

Inches (Millimeters)
Dimensional tolerances
± 0.06 inches
Consult factory if precise
details are required.

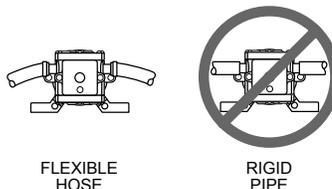


If mounting the pump in an outdoor environment the pump should be shielded from water, dust, sunlight and wash down spray.

Do not assume chemical compatibility. If the fluid is improperly matched to the pumps elastomers, the pump may fail to prime, have low pressures or the pressure switch may not shut off.

Plumbing

Use flexible hose of the correct pressure rating that is compatible with the fluid to be pumped. Tubing should be a minimum of 3/8" (9.5 mm) ID and at least 20 inches (508 mm) in length to avoid excess stress on the pump ports. Do not crimp or kink the tubing.



The use of check valves in the plumbing system could interfere with the priming ability of the pump. If a check valve is installed in the plumbing it must have a cracking pressure of no more than 2 PSI (.14 bar).

Use of a minimum 40-mesh strainer or filter in the pump inlet line will prevent foreign debris from entering the system. Failures due to foreign debris entering the pump will not be covered under the limited warranty.



WARNING



Risk of an electrical shock!

When wiring electrically driven pumps, follow all electrical and safety codes, as well as the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

Make certain the power source conforms to the pump voltage. Be sure all power is disconnected before installation.

The pump should be wired to an individual (dedicated) circuit, controlled with and UL/C-UL certified double pole switch rated at or above the fuse ampere indicated on the pump motor label.

On 115-volt AC pumps, the black wire lead is live common, the whites lead wire is neutral and the green/yellow is ground.

On the LF series 12 and 24 volt pumps the red lead is positive and should be connected to the battery plus (+) terminal. The black lead is ground and should be connected to the battery minus (-) terminal. Use T6 AWG wire minimum. Use a 5 AMP fuse to protect the system wiring and components.

Improper duty cycle and/or rapid start stop conditions caused by undersized spray nozzles will cause the internal thermal breaker (if equipped) to trip, or can cause premature motor failure due to excessive heat.



WARNING

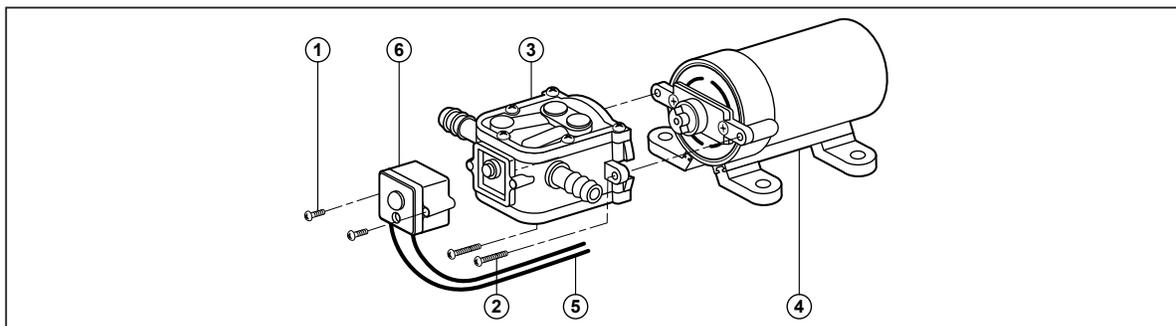


**DO NOT PUMP GASOLINE OR
FLAMMABLE FLUIDS OR USE WHERE
FLAMMABLE VAPORS ARE PRESENT.**

PARTS LIST

SPRINKLER KIT (OPTION)

200-140732 Pump



KEY	DESCRIPTION	KEY	DESCRIPTION
1	Switch cover screws	4	Motor
2	Pump head screws	5	Lead wires
3	Pump head	6	Pressure switch

Disassemble

Pump Head

1. Take precautions to prevent injury due to chemical contact during maintenance.
2. Flush pump with water or neutralizing agent before servicing if the pump has been used to transport chemicals.
3. Disconnect the power to the pump motor.
4. Remove the pressure switch cover by removing the single screw (1) from pressure switch and remove switch cover.
5. Remove wires (5) from pressure switch by gently sliding female spade terminals away from the male spade connectors.
6. Remove two screws (2) from front of pump head.
7. Slide pump head (3) away from motor (4) assembly.

Failure to Prime - Motor operates, but no pump discharge

- Restricted intake or discharge line. Open all line valves, check for "jammed" check valves, and clean clogged lines.
- Air leak in intake line.
- Punctured pump diaphragm.
- Defective pump check valve.
- Crack in pump housing.

- Debris in check valves.

Motor Fails to Turn On

- Pump or equipment not plugged in electrically.
- Loose wiring connection.
- Pressure switch failure.
- Defective motor or rectifier.
- Frozen cam/bearing.

Pump Fails to Turn Off after Discharge valves are Closed

Reassembly

Pump head (3) to Motor (4).

1. Assemble the pump head (3) to motor (4) aligning screws tabs.
2. Install screws (2) and tighten to 15 Inch ounces of torque.
3. Reconnect wires (5) to pressures switch. Wires can be connected can be connected to either terminal of the pressure switch.
4. Install the pressure switch cover with screw (1).
5. Reconnect pump to liquid source.
6. Reconnect pump to power source.
7. Allow pump to prime with discharge line or spray valve open.
8. Check for leaks in discharge system.

Troubleshooting

- Depletion of available liquid supply.
- Punctured pump diaphragm.
- Discharge line leak.
- Defective pressure switch.
- Insufficient voltage to pump.
- Debris in check valves.

Low Flow and Pressure

- Air leak at pump intake.
- Accumulation of debris inside pump and plumbing.

- Worn pump bearing (excessive noise).
- Punctured pump diaphragm.
- Defective rectifier or motor.
- Insufficient voltage to pump.

Pulsating Flow - Pump Cycling On and Off

- Restricted pump delivery. Check discharge lines, fittings, valves and spray nozzles for clogging or undersizing.

Service Kits

Kits are readily available to repair standard LF series pumps. To insure that the correct kits are received the model number and all name plate data must be included with the order. Contact a FLOJET distributor or FLOJET directly to order the necessary repair kits.

PRODUCT WARRANTY

Flojet warrants this product to be free of defects in material and/or workmanship for a period of one year after purchase by the customer from Flojet. During this one year warranty period, Flojet will at its option, at no charge to the customer, repair or replace this product if found defective, with a new or reconditioned product, but not to include costs of removal or installation. No product will be accepted for return without a return material authorization number. All return goods must be shipped with transportation charges prepaid. This is only a summary of our Limited Warranty. For a copy of our complete warranty, please request Form No. 100-101.

RETURN PROCEDURE

Prior to returning any product to Flojet, call customer service for an authorization number. This number must be written on the outside of the shipping package. Place a note inside the package with an explanation regarding the reason for return as well as the authorization number. Include your name, address and phone number.

Flojet



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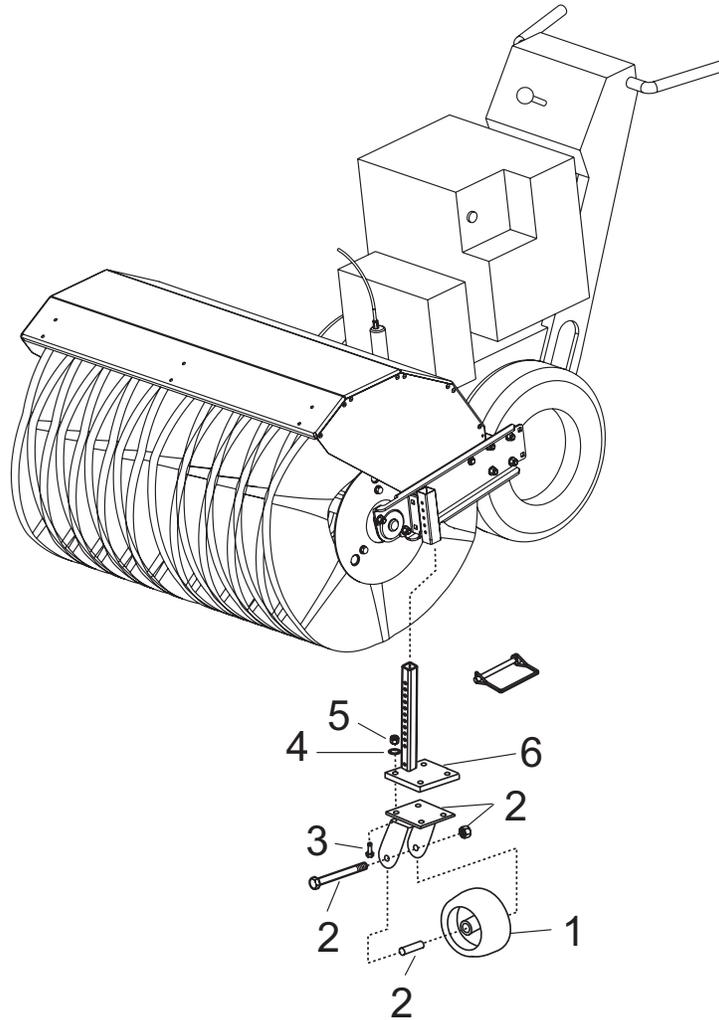
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Form: 81000-312

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PARTS LIST

TURF CASTERS (OPTION)



Item	Part Number	Description	Qty
	430-97676	Turf Caster Wheel Kit (Includes items 1 thru 6.)	1
1	100-92126	Wheel, Caster	2
2	100-92156	Fork Assembly, Caster (Includes wheel sleeve bearing, attachment bolt and nut.)	2
3	370-92047	Carriage Bolt, 3/8-16 x 1" (Fork to Mount)	8
4	341-30000	Washer, Flat, 3/8"	8
5	361-30000	Hex Nut, 3/8-16	8
6	410-172768	Caster Mount	2

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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