

HONDA

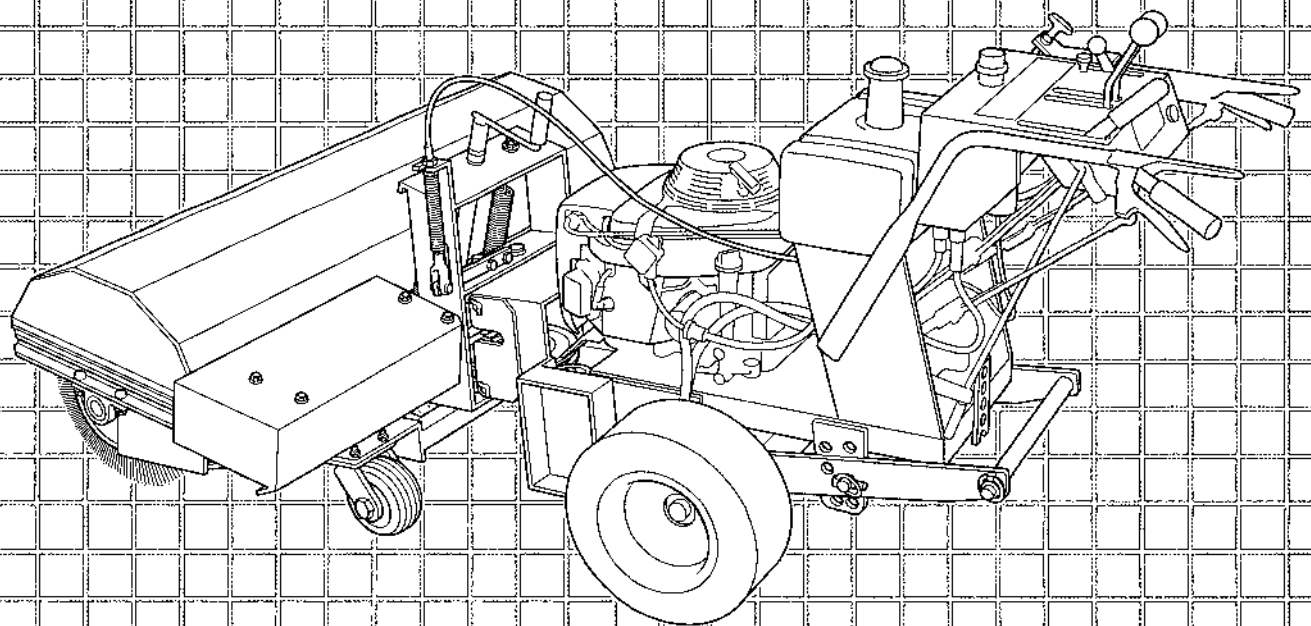
Power

Equipment

OPERATOR'S MANUAL

54" FRONT SWEEPER

MODEL FS7054



HONDA DEALER: PLEASE GIVE THIS PUBLICATION TO YOUR CUSTOMER

PREFACE

Thank you for purchasing a Honda Tested Attachment (HTA) for your Honda Mid-Size Commercial Mower.

This manual covers the operation, maintenance, and installation, of the FS7054 Front Sweeper. The sweeper can be mounted to a HRC7013K1 and all HRC7018 and HRC7020 Mid-Size Commercial Mowers. For your convenience, it also includes a parts description guide, and warranty service information.

Before installing or operating this equipment, read this operator's manual and the owner's manual supplied with the Mid-Size Commercial Mower power unit.

The information in this operator's manual is limited in application to the Honda FS7054 Front Sweeper when installed and used on a Honda Mid-Size Commercial Mower power unit.

Left and right sides of this unit are determined from the operator's position, facing the direction of forward travel.

This manual is a permanent part of the front sweeper and must stay with the front sweeper if resold.

All the information in this publication is based on the latest product information available at the time of printing. American Honda Motor Co., Inc. reserves the right to make changes at any time without notice and without incurring any obligation.

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SAFETY

SAFETY MESSAGES

Your safety and the safety of others are very important. We have provided important safety messages in this manual and on the front sweeper. Please read these messages carefully.

A safety message alerts you to potential hazards that could hurt you or others. Each safety message is preceded by a safety alert symbol  and one of the following three words; DANGER, WARNING, or CAUTION.

These words mean:

 **DANGER**

You **WILL** be Killed or **SERIOUSLY HURT** if you don't follow instructions.

 **WARNING**

You **CAN** be **KILLED** or **SERIOUSLY HURT** if you don't follow instructions.

 **CAUTION**

You **CAN BE HURT** if you don't follow instructions.

Each message tells you what the hazard is, what can happen, and what you can do to avoid or reduce injury.

DAMAGE PREVENTION MESSAGES

You will also see other important messages that are preceded by the word NOTICE.

This word means:

NOTICE

Your equipment or other property can be damaged if you don't follow instructions.

The purpose of these messages is to help prevent damage to the front sweeper, commercial mower, other property, or the environment.

IMPORTANT SAFETY INFORMATION

Most accidents with this product can be prevented if you follow all instructions in this manual and on the product. The most common hazards, according to accident statistics, are discussed below, along with the best way to protect yourself and others.

Honda Sweeper Usage

Honda sweepers are designed to give safe and dependable service if operated according to instructions and intended use: Ground level outdoor commercial sweeping of dirt and snow. Any other use could be dangerous.

Honda sweepers are intended to be used by an experienced, trained, commercial operator who is familiar with the use of commercial power equipment. Do not allow a child or an inexperienced, untrained operator to use this sweeper. Operating this equipment requires special effort on your part to ensure your safety and the safety of others. Read and understand the power unit owner's manual and this operator's manual.

Avoid Rotating Broom

The rotating broom can cause injury. Keep away from the broom hood whenever the engine is running. If you need to adjust the broom height, or work around the broom hood for any reason, always shut off the engine. Disconnect the spark plug cap(s) if you need to clean or handle the broom.

Clear Sweeping Area

The sweeper broom can throw rocks and other objects with enough force to cause injury. Before sweeping, carefully inspect the area and remove all large debris.

Keep Shields in Place

Guards and shields are designed to protect you from being hit by thrown objects and from hot engine parts and moving components. For your safety and the safety of others, keep all shields in place when the engine is running.

Refuel with Care

Gasoline is extremely flammable and gasoline vapor can explode. Refuel only outdoors, in a well-ventilated area, with the engine off. Never smoke near gasoline, and keep other flames and sparks away. Always store gasoline in an approved container.

Wear Protective Clothing

Wearing protective clothing will reduce your risk of injury. Long pants and eye protection reduce the risk of injuries from thrown objects. Sturdy shoes with aggressive soles will help protect your feet and give you better traction on slopes or uneven ground. Clothing worn by the operator should be fairly tight and belted. Loose clothing should not be permitted because of the danger of getting into moving parts. Tie up or restrain long hair.

Turn Engine Off When Not Sweeping

If you need to leave the sweeper for any reason, even just to inspect the area ahead, always turn the engine off.

SAFETY

IMPORTANT MESSAGE TO EMPLOYERS

As an employer, you have special responsibilities to the people who work for you.

Before you ask anyone to operate this sweeper, you need to determine whether the person is old enough, large enough, and strong enough to safely handle and control the sweeper.

If you decide they are, make sure the employee reads and understands all instructions and warnings in the owner's manual, this manual, and on the labels before operating the sweeper.

Allow adequate time for hands-on training by a qualified instructor, and personally supervise practice sessions until you feel sure the employee is ready to operate the sweeper.

Also be sure employees wear proper clothing and have eye protection and any other gear that may be required by local ordinances or your insurance company.

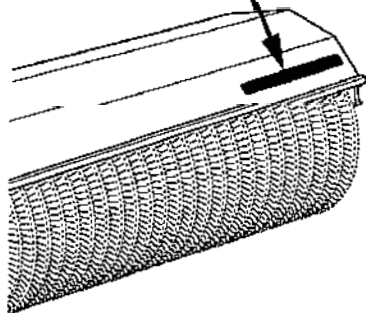
Remember, too, that you are responsible for keeping the sweeper properly maintained and in safe operating condition.

Your commitment to safety on the job can help prevent accidents and result in longer and more productive years of service.

SAFETY LABEL LOCATIONS

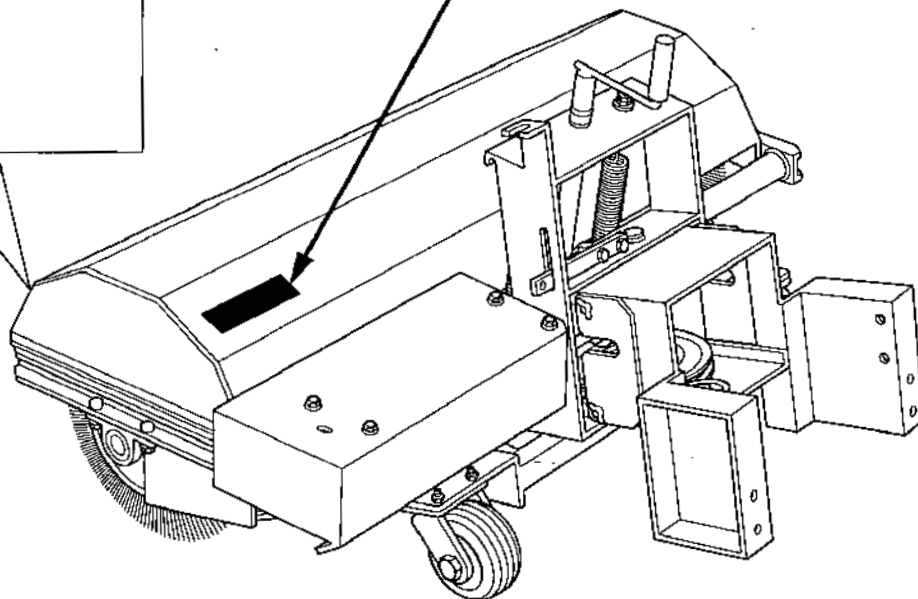
The labels shown here contain important safety information. Please read them carefully. These labels are considered permanent parts of your sweeper. So if a label comes off or becomes hard to read, immediately contact a Honda mid-size commercial mower servicing dealer for a replacement label.

DANGER | KEEP HANDS and FEET AWAY



⚠ WARNING

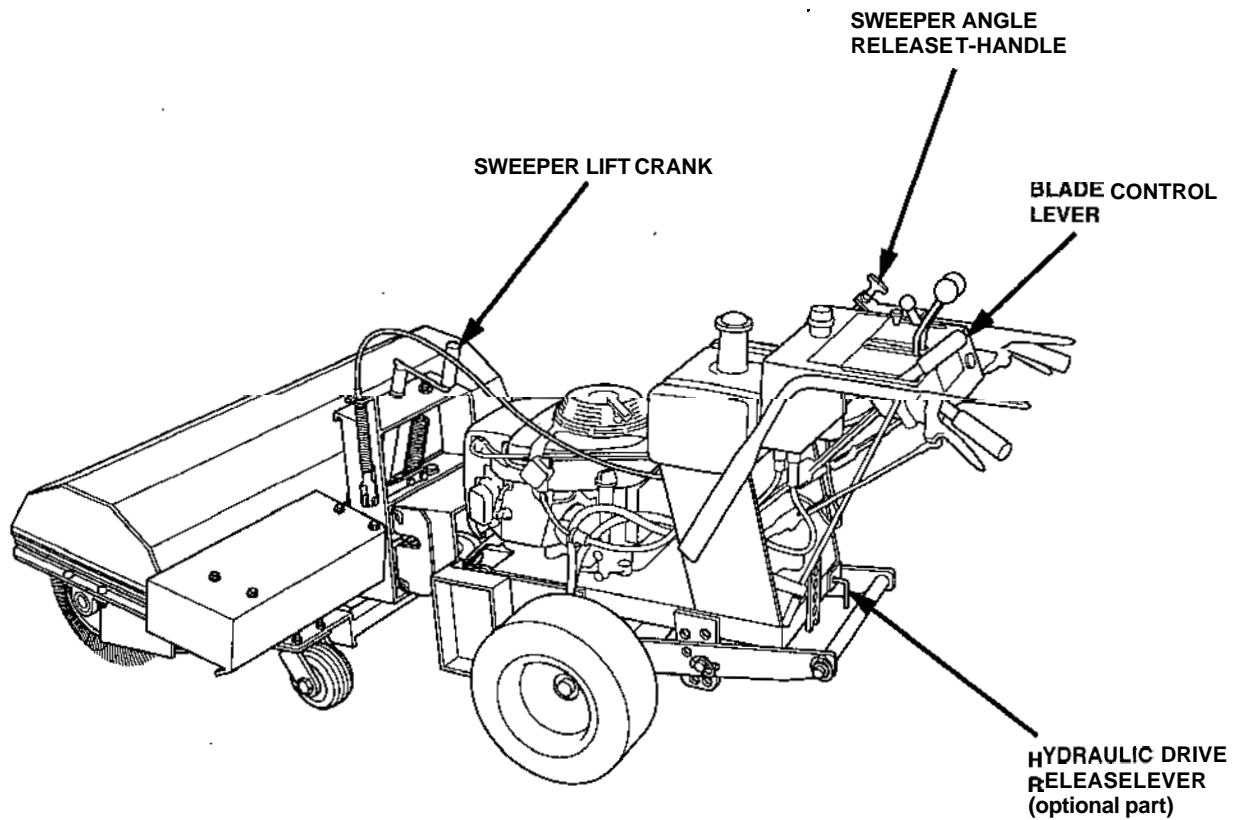
- The broom can throw objects, which can cause serious injury. Wear eye protection, and keep people and pets away while sweeping.
- Moving parts can cause serious injury. Keep all guards and shields in place. Before adjusting or servicing the sweeper, turn off the engine and allow all moving parts to stop.
- Read the operator's manual for safe operating instructions before sweeping.



CONTROLS

This chapter shows the sweeper control locations and it tells you how the sweeper controls work. It only covers controls relating to the sweeper. Have your Honda mid-size commercial mower owner's manual handy for reference while reading this chapter.

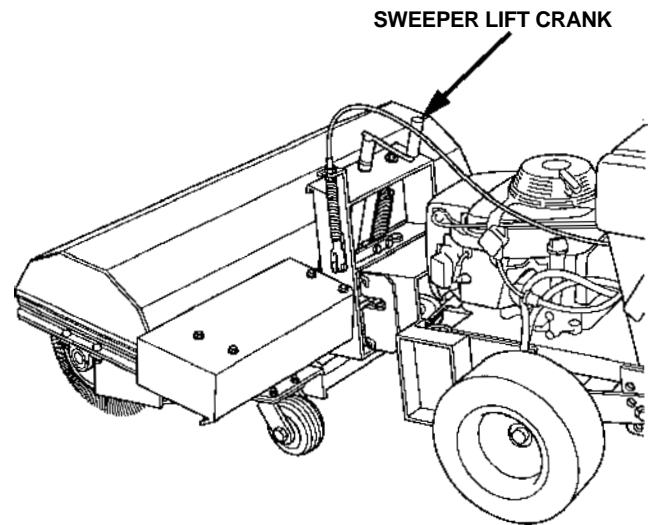
COMPONENT IDENTIFICATION



DESCRIPTION OF CONTROLS

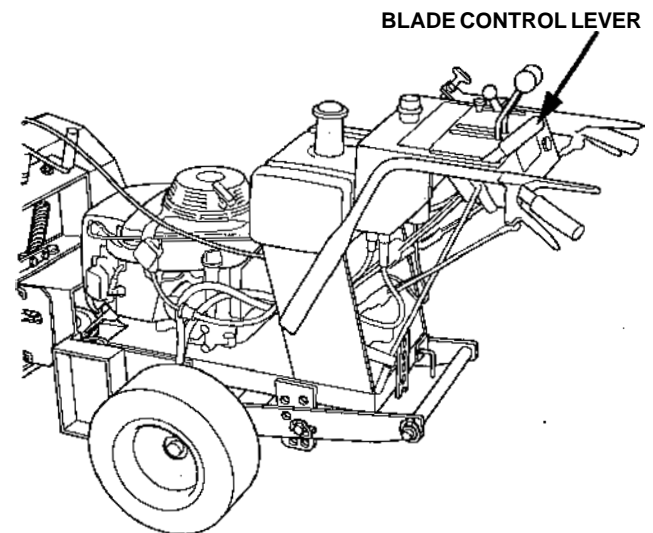
Sweeper Lift Crank

Use the sweeper lift crank to raise and lower the broom. Turn the crank clockwise to raise the boom and counterclockwise to lower the broom.



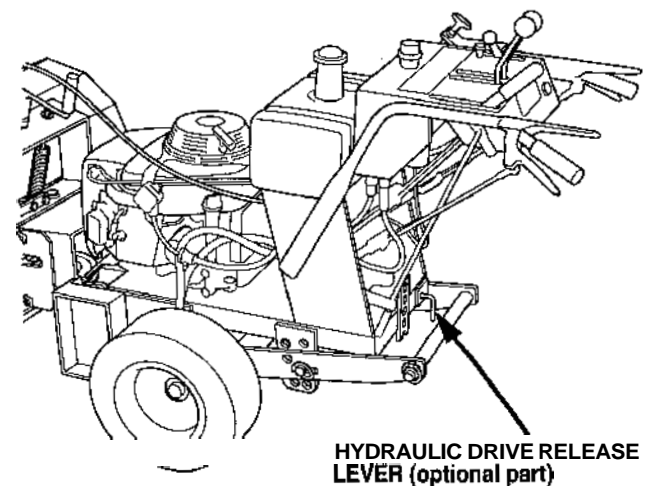
Blade Control Lever

This lever is used to engage and disengage engine power to the sweeper. Move the lever forward to the ON position to engage broom rotation and pull it back to the OFF position to disengage broom rotation.



Hydraulic Drive Release Lever (optional part)

Pull out and rotate this lever to lock it in the "out" position. With the lever out, the hydraulic drive pumps are disengaged from the engine. This reduces the load on the engine for starting in extremely cold weather. Once the engine has started, pull and turn the lever, and allow it to return to the "in" position.



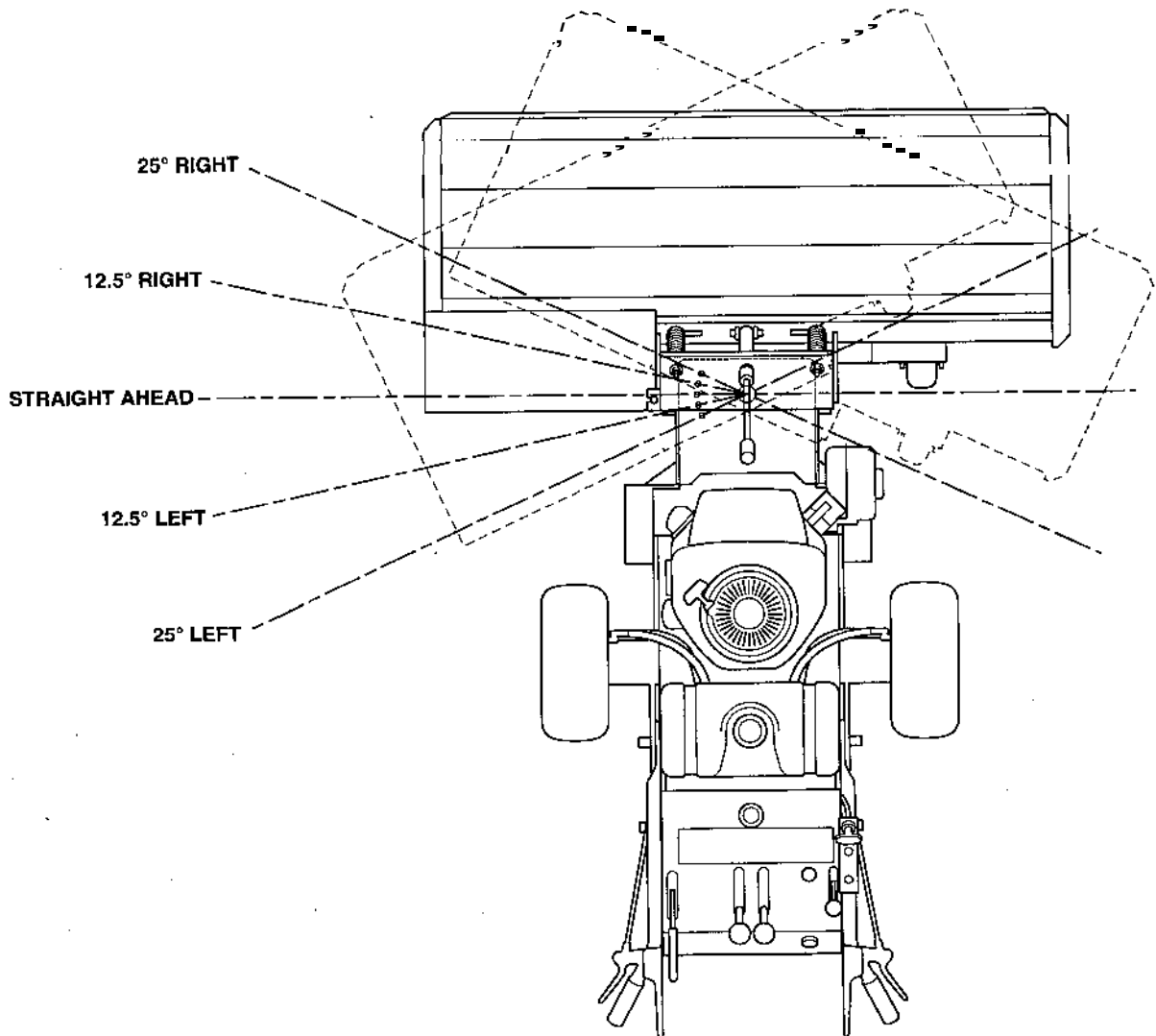
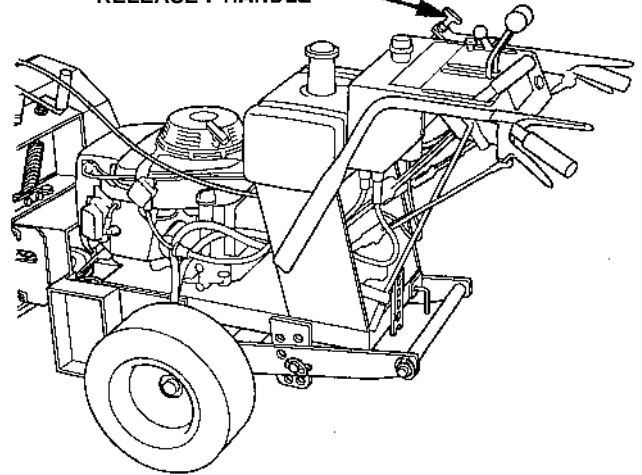
CONTROLS

Sweeper Angle Release T-Handle

This T-handle allows the operator to release the angle lock on the sweeper.

When released, the sweeper can be angled to the broom angles shown below.

SWEeper ANGLE
RELEASE T-HANDLE



GENERAL

The operator presence levers are part of the interlock system. If the interlock system is not working properly, repair it before operating the sweeper.

The engine will shut off when both power unit operator presence levers are released, if the speed control levers are out of neutral or the blade control lever is ON.

For your safety, and to prolong the service life of your equipment, always inspect the sweeper before each use. Refer to the MAINTENANCE SCHEDULE on page 17.

Perform the Before Mowing checks listed in the power unit owner's manual.

Cold Weather

It may be necessary to install any or all of the following options depending on your particular power unit and your operating conditions.

- Headlight Kit.
- Agricultural Tire Kit.
- Engine Cold Weather Kit.
- Carburetor Anti-Icing Kit (HRC7013K1 only).
- Hydraulic Drive Release.
- Cab Kit.

Refer to page 36 for option details.

Refer to the power unit owner's manual for correct oil viscosity selection.

CHECK SWEEPING AREA

For your safety and the safety of others, always inspect the area before sweeping.

Objects

Anything which can be picked up by the broom and thrown is a potential hazard to you and others. Always remove any large debris from the sweeping area.

Remove motor vehicles or other objects from the sweeping area to prevent them from getting damaged.

People and Pets

People and animals near the sweeping area can move into your path or into a position where they could be struck by thrown objects. Clear the area of people and pets, especially children. Their safety is your responsibility.

PROTECTIVE CLOTHING

Be sure to wear protective clothing such as long pants and eye protection which can lower your risk of injury from thrown objects. Wear footwear that protects your feet and won't let you slip if you sweep on uneven ground. Wear hearing protection to protect your hearing.

Do not wear loose fitting clothing, jewelry, scarves, ties, etc., which may get caught in moving parts. Tie up or restrain long hair.

Wear a dust mask when sweeping in dusty conditions.

OPERATION

SAFETY PRECAUTIONS

Before operating the sweeper for the first time, please review the IMPORTANT SAFETY INFORMATION beginning on page 3 and the previous chapter, titled BEFORE OPERATION.

Even if you have operated other sweepers, take time to become familiar with how this sweeper works, and practice in a safe area until you build up your skills.

For your safety, avoid starting or operating the engine in an enclosed area such as a garage. Your sweeper's engine exhaust contains poisonous carbon monoxide gas which can collect rapidly in an enclosed area and cause illness or death.

The following precautions are suggested to help prevent accidents. A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. Read the following precautions before operating the sweeper to help prevent accidents. Equipment should be operated only by those who are responsible and instructed to do so.

- Do not allow anyone to ride on the sweeper.
- Keep hands, feet, face, hair and clothing away from rotating parts.
- Be aware of the sweeper discharge direction. Do not point discharge at anyone.
- Always move the blade control lever OFF, shut the engine OFF, remove the ignition key, and wait for all moving parts to stop before leaving the operator's position, leaving the sweeper unattended or inspecting the sweeper.
- Be sure the area is clear of other people before operation. Stop the machine if anyone enters the area. Do not operate the sweeper with children, pets or others nearby.
- Watch out for traffic when operating near or crossing roadways. Slow down before turning and approach blind corners cautiously.
- Always observe the area ahead. Avoid obstacles and stay away from holes, ditches, soft or steep embankments and other potentially dangerous areas.
- Wet surfaces reduce traction and stability. Always maintain proper traction.

Children

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

- Keep children out of the work area and under the watchful eye of another responsible adult.
- Be alert and turn off the machine if children enter the area.

SWEEPING

Read the mid-size commercial mower owner's manual carefully. Be thoroughly familiar with the controls and proper use of the mid-size commercial mower. Know how to stop the mid-size commercial mower and disengage the controls quickly.

Refer to the mid-size commercial mower owner's manual for detailed instructions on starting the engine and parking the mower.

Left and right sides of the sweeper are determined from the operator's position, facing the direction of forward travel.

Always remain behind the power unit when operating the sweeper.

If you strike a foreign object, move the blade control lever to OFF, shut the engine OFF, and remove the ignition key. Inspect for and repair any damage before operating the sweeper again.

If the sweeper should start to vibrate abnormally, stop the engine immediately and check for the cause. Vibration is generally an indication of trouble.

As a general rule, do not operate the sweeper in reverse. If it is absolutely necessary to back up:

- a) Move the blade control lever to the OFF position.
- b) Check the area on the ground directly behind the sweeper.
- c) Continue to observe area behind the sweeper while backing up.

NOTICE

- Regularly remove any accumulation of snow, ice, dirt or mud from the broom hood and from between the broom bristles. Excess weight will imbalance the rotating broom causing premature and uneven bristle wear. Remove any accumulation with a stick, not your hands.
- Never operate the broom on any kind of carpet.
- Prevent damage to the broom by removing large foreign objects from the sweeping area.

Dry Sweeping

For light material and to obtain a wider sweeping path, angle the broom 12.5" right or left rather than 25".

To avoid dust from being blown back on the operator, if possible, sweep with the wind blowing in the discharge direction. If dusty conditions are encountered, use a dust mask.

1. Verify that the sweeper is set at the desired angle and locked in position.
2. Start the engine (refer to the mid-size commercial mower owner's manual).
3. Move the blade control lever to the ON position.
4. Adjust the ground speed for the sweeping conditions. Use the forward speed control levers to change ground speed, never the throttle. For best performance, the throttle should always be set to FAST.

OPERATION

Snow Sweeping

Never operate the sweeper without good visibility.

Foreign objects in snow may be thrown farther than the snow itself. Use the slowest ground speed possible to achieve a satisfactory job. Stay aware of the broom discharge direction.

This broom works best on a snow depth of 4 inches or less. Larger amounts of snow may be moved if ground speed is reduced.

Agricultural (bar-tread) tires are recommended for maximum traction.

NOTICE

Do not use tire chains. Using tire chains will damage the hydraulic lines near the tires.

To avoid snow from being blown back on the operator, sweep with the wind blowing in the discharge direction, if possible.

After stopping the sweeper in wet freezing conditions, lift the broom off the ground surface to prevent the broom bristles from freezing to the ground. After lifting the broom off the ground, move the blade control lever to ON to remove any remaining water from the broom. If water is left in the broom and allowed to freeze, the sweeper will vibrate when the blade control lever is moved to ON.

Slopes

Sweep across slopes, not up and down. Avoid steep slopes (more than 10°), and be careful when changing direction.

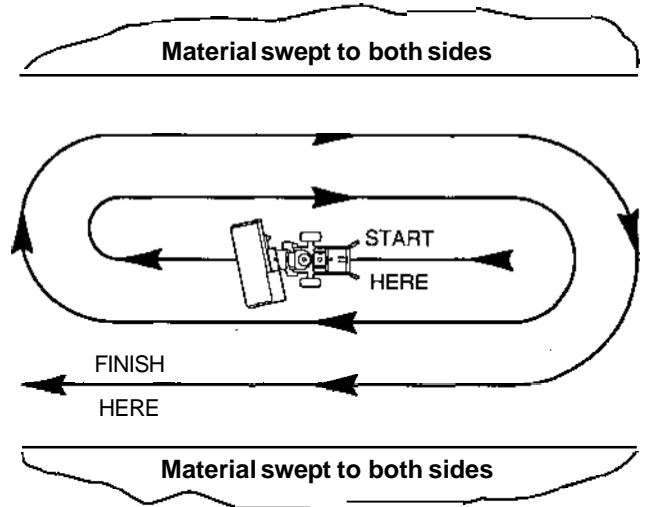
When changing direction, always turn the sweeper up the slope. This will give you better control and help you maintain your balance.

Avoid abrupt changes of direction or speed when operating on slopes.

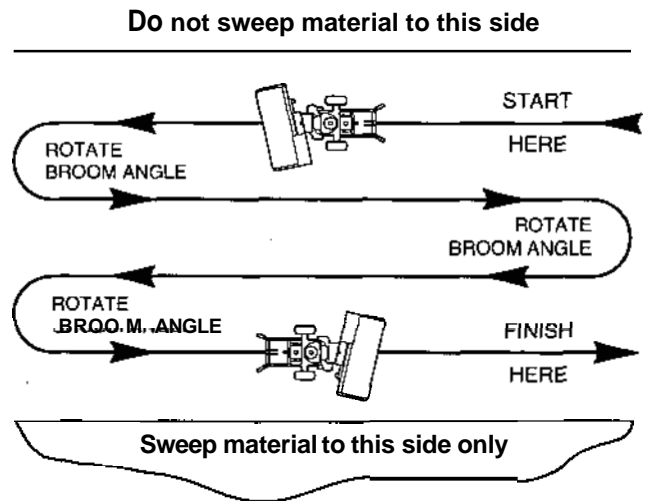
SWEEPING PATTERNS

These removal patterns will avoid sweeping material into unwanted places as well as eliminating a second pass.

When it is possible to sweep material to the left and right, as on a parking lot or long driveway, it is best to start in the middle. Sweep from one end to the other while sweeping material away from the center to avoid having to rotate the broom angle.



If the material can only be swept to one side of a driveway or sidewalk, begin opposite the discharge direction. After making the first turn, rotate the broom angle to the other side for the return pass. At the end of each succeeding turn, rotate the broom angle to maintain discharge toward the same side.

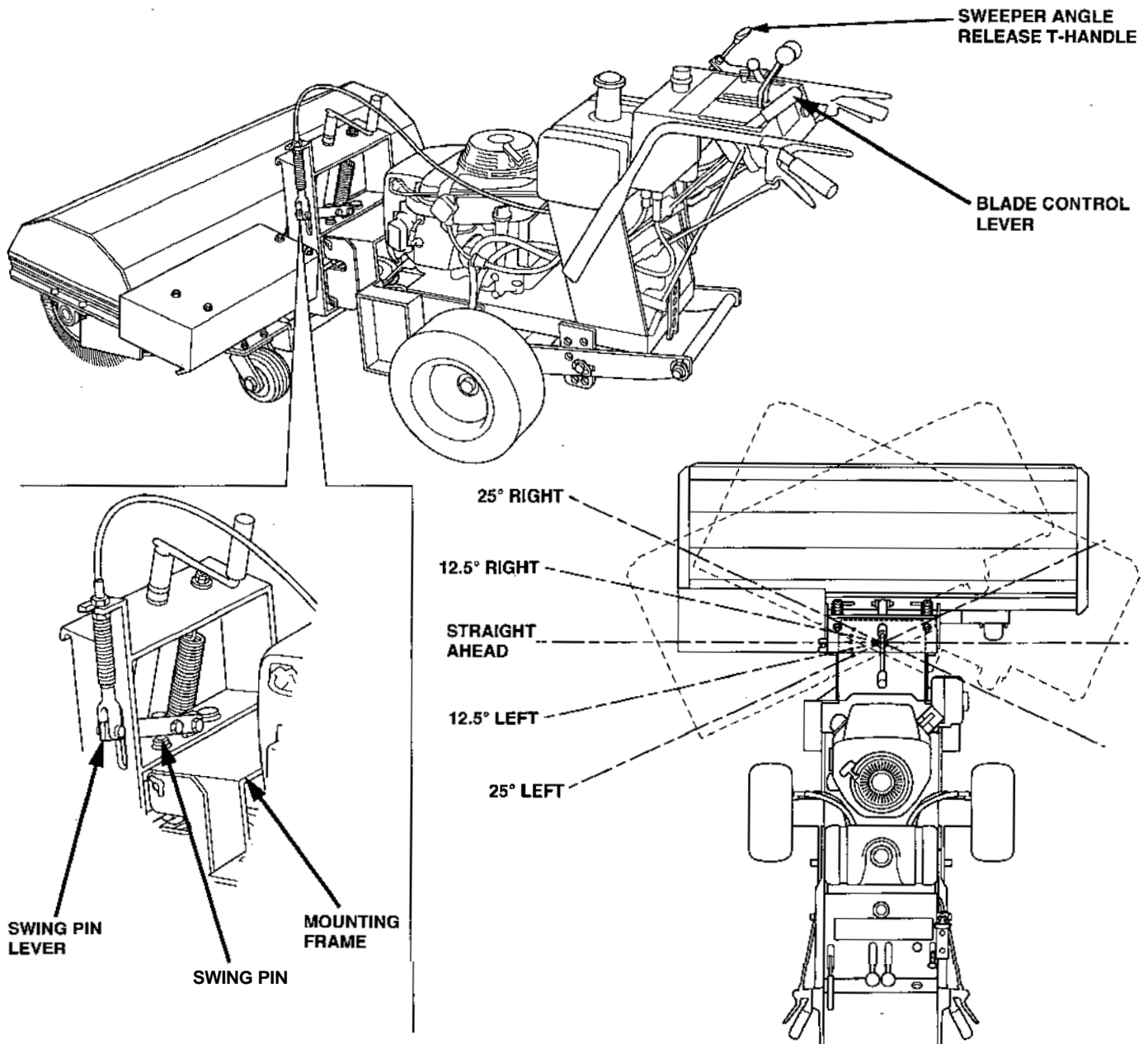


OPERATION

BROOM ANGLE

Broom angle can be changed from the operator's position by using engine power to move the power unit.

1. Put the blade control lever in the OFF position.
2. Turn the T-handle counterclockwise 1/4-turn to unlock the cable. Raise it to the up position and turn it clockwise 1/4-turn to lock it in the up position.
3. Use the directional control levers to move the power unit and pivot the broom to the desired angle.
4. After the desired angle has been achieved, turn the T-handle counterclockwise 1/4-turn to unlock it and allow it to return to the down position.
5. Slowly alternate the directional control levers to be sure the sweeper swing pin drops all the way down and is fully engaged with the mounting frame. With the T-handle all the way down, turn it clockwise 1/4-turn to lock it in the down position.
6. Make sure the swing pin lever is all the way down and locked in position.



THE IMPORTANCE OF MAINTENANCE

Good maintenance is essential for safe, economical, and trouble-free operation.

To help you properly care for your sweeper, the following pages include a maintenance schedule, routine inspection procedures, and simple maintenance procedures using basic hand tools. Other service tasks that are more difficult, or require special tools, are best handled by professionals and are normally performed by a Honda technician or other qualified mechanic.

The maintenance schedule applies to normal operating conditions, consult an authorized Honda servicing dealer for recommendations applicable to your individual needs and use.

⚠ WARNING

Improper maintenance, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously hurt or killed.

Always follow the inspection and maintenance recommendations and schedules in this operator's manual and the owner's manual included with the power unit.

MAINTENANCE & ADJUSTMENTS

MAINTENANCE SAFETY

Some of the most important safety precautions follow. However, we cannot warn you of every conceivable hazard that can arise in performing maintenance. Only you can decide whether or not you should perform a given task.

WARNING

Failure to properly follow maintenance instructions and precautions can cause you to be seriously hurt or killed.

Always follow the procedures and precautions in this operator's manual and the owner's manual included with the power unit.

Safety Precautions

- Make sure the engine is off, ignition key is removed, blade control lever is in the OFF position and all moving parts have stopped before you begin any maintenance or repairs. This will eliminate several potential hazards:
 - **Carbon monoxide poisoning from engine exhaust.**
Be sure there is adequate ventilation whenever you operate the engine.
 - **Burns from hot parts.**
Let the engine and exhaust system cool before touching.
 - **Injury from moving parts.**
Do not run the engine unless the instruction tells you to do so. Even then, keep your hands, fingers, and clothing away. Do not run the engine when any protective guard or shield is removed.
- Read the instructions before you begin, and make sure you have the tools and skills required.
- To reduce the possibility of fire or explosion, be careful when working around gasoline. Use only a nonflammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.
- For certain operations, the sweeper must be raised off the ground. Be sure the sweeper is solidly supported and the wheels are blocked before you put any part of your body under the sweeper.

Remember that an authorized Honda servicing dealer knows your sweeper best and is fully equipped to maintain and repair it.

To ensure the best quality and reliability, use only new, genuine Honda parts or their equivalents for repair and replacement.

Do not alter or modify the sweeper. If you have any questions, contact your dealer.

MAINTENANCE SCHEDULE

Use the following maintenance schedule and the maintenance schedule shown in the power unit owner's manual.

REGULAR SERVICE PERIOD		Before Each Use	Every 8 Hours	Every 25 Hours	Every 50 Hours	Every 100 Hours	Every 300 Hours	Notes
ITEM	Perform at every indicated interval							
Drive chain	Lubricate	○	○					GL-4 or GL-5 SAE 80w90 hypoid gear oil
	Check-adjust	○						1/2-inch slack
Coupling chain	Lubricate	○	○					GL-4 or GL-5 SAE 80w90 hypoid gear oil
Lubrication points (Sweeper)	Lubricate	○	○					NLGI #2
Gear box	Check level	○			○			GL-4 or GL-5 SAE 80w90 hypoid gear oil
Belt	Check	○						
	Adjust				○			
Broom contact	Adjust		○					
Broom wear	Check	○						
Air cleaner	Check	○						When used in dry dusty conditions **
	Glean	○						
	Replace						○*(1)	
Engine oil	Check	○						When used in dry dusty conditions ** †
	Change				○			
Engine oil filter (if equipped)	Change				○			When used in dry dusty conditions **
Nuts and bolts	Check-torque	○	○					

* Replace paper filter only.

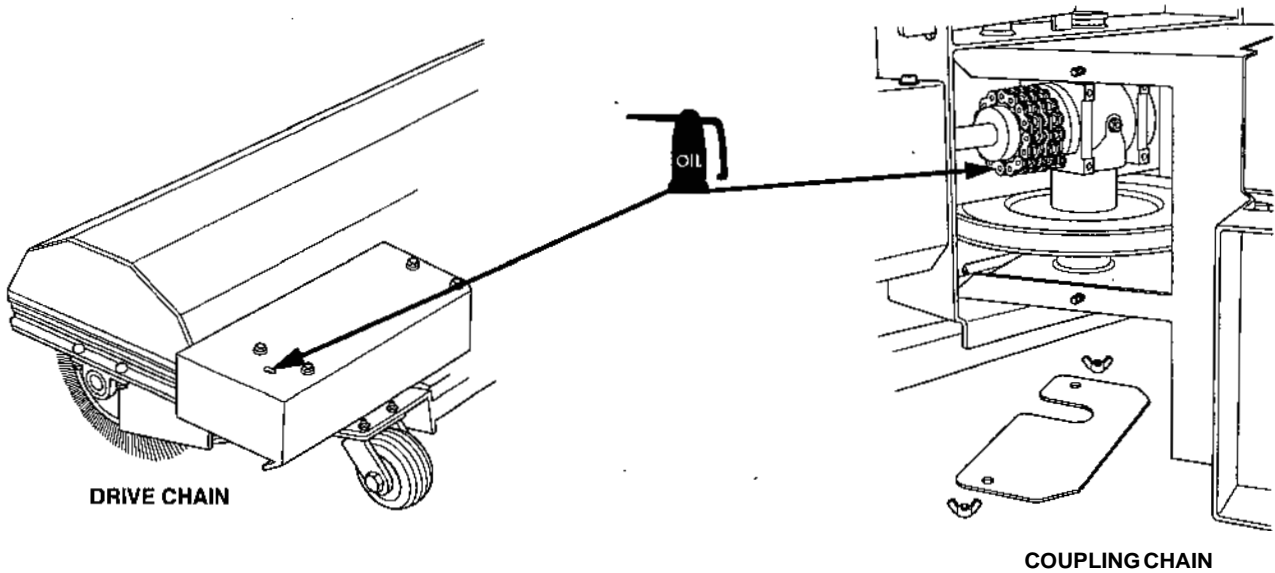
** Because of dust raised when sweeping (other than snow), the engine air cleaner should be checked and cleaned daily and replaced when necessary. The engine oil and filter should be changed every 50 hours. When operating in non-dusty conditions, refer to the mid-size commercial mower owner's manual or shop manual maintenance schedule.

† Refer to the mid-size commercial mower owner's manual or shop manual for the oil recommendation when the average ambient temperature is 32° F (0°C).

MAINTENANCE & ADJUSTMENTS

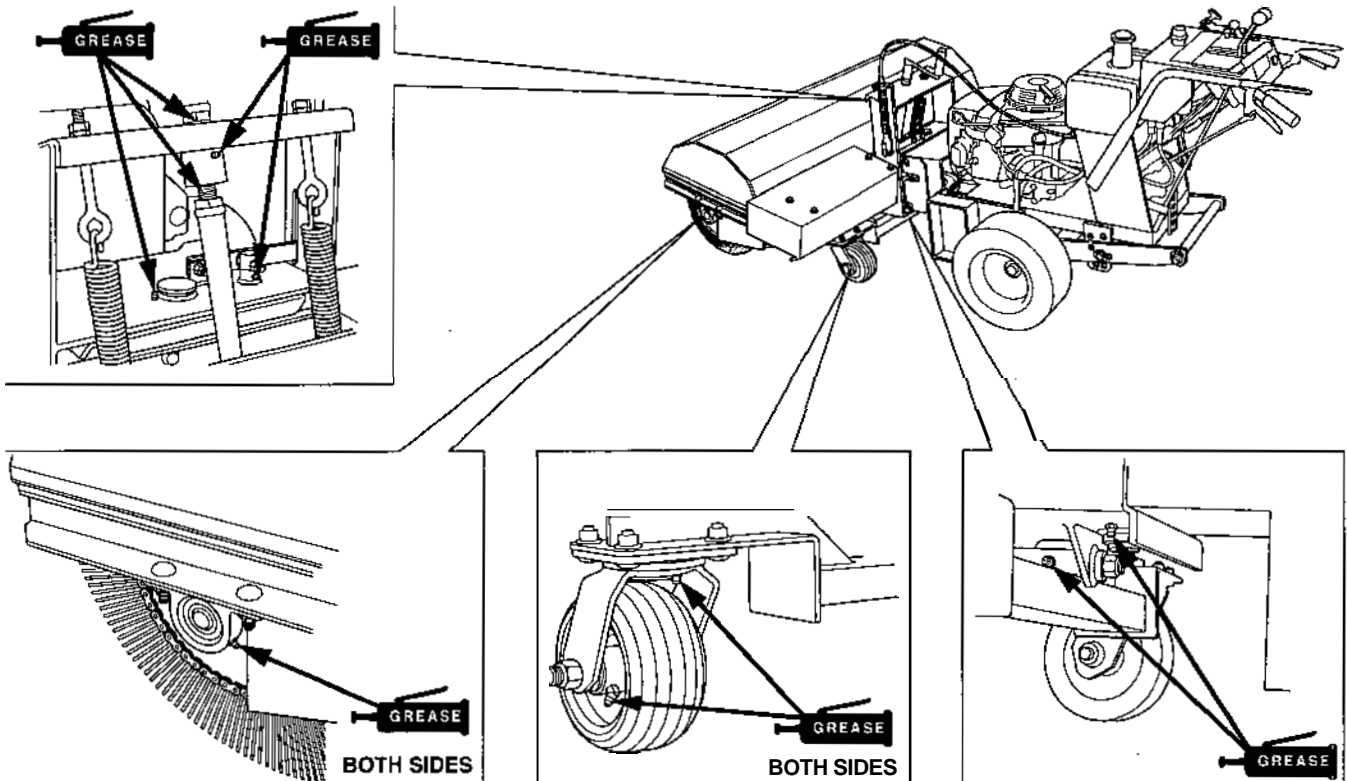
Drive Chain and Coupling Chain

Lubricate chains with GL-4 or GL-5 SAE 80w90 hypoid gear oil. Avoid getting any oil on the belt or pulley.



Sweeper Lubrication Points

After every 8 hours of operation, use a good quality multi-purpose grease to grease all 11 grease fittings the crank handle threads, and bearing. One or two pumps from a manual grease gun is sufficient.



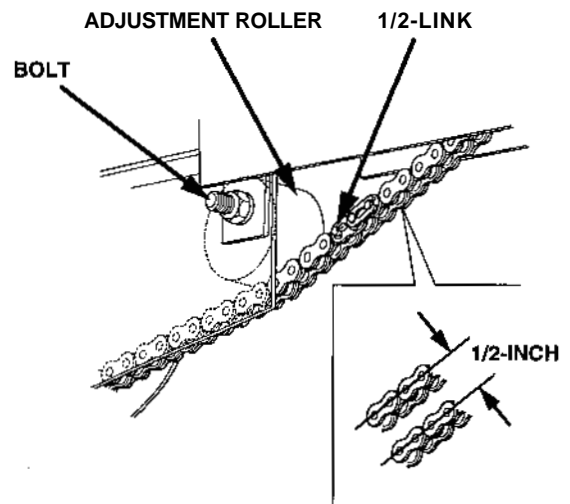
Drive Chain Slack

Loosen the bolt securing the adjustment roller so the roller is free to drop down. The chain should have approximately 1/2-inch of slack at the location shown. After adjustment, tighten bolt securely.

Premature chain, roller and sprocket wear will result if the chain is run without enough slack.

If the chain slack cannot be adjusted with the roller all the way down, remove the 1/2-link and re-check slack. Always install a new master link with the retaining clip positioned as shown.

If proper chain slack cannot be achieved with the 1/2-link removed and the roller all the way down, replace the chain.

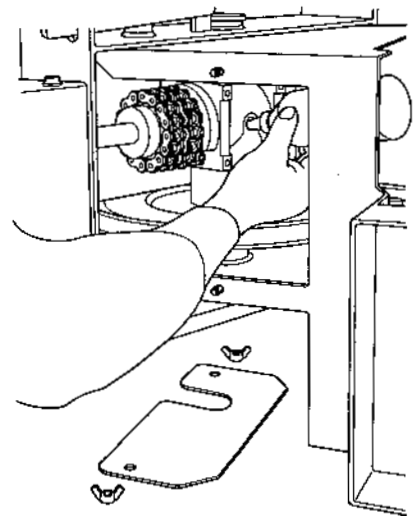


Gear Box

Put the sweeper on a level surface.

1. Remove the two wing nuts and left access cover.
2. Use a 1/4 inch allen wrench and remove the oil check plug.
3. The oil should flow out the plug hole. If not, fill with the recommended oil.
4. Install the oil check plug and tighten it securely.
5. Install the access cover.

Recommended oil: GL-4 or GL-5 80w90 gear oil



Deck Belt

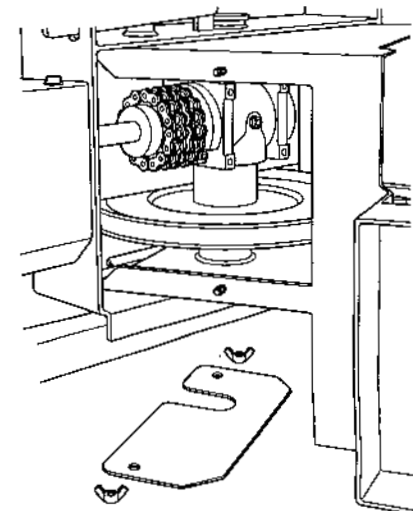
Refer to the mid-size commercial mower owner's manual or shop manual for additional details and illustrations.

Removal

1. Move the blade control to the OFF position.
2. Angle the sweeper 25° left.
3. Remove the right access cover.
4. Angle the sweeper 25° right.
5. Remove the left access cover.
6. Loosen the belt-guide bolts on the power unit. These are accessible from the top of the power unit. Loosen belt guide on idler pulley.
7. Remove the belt.

Installation

Reverse of removal.

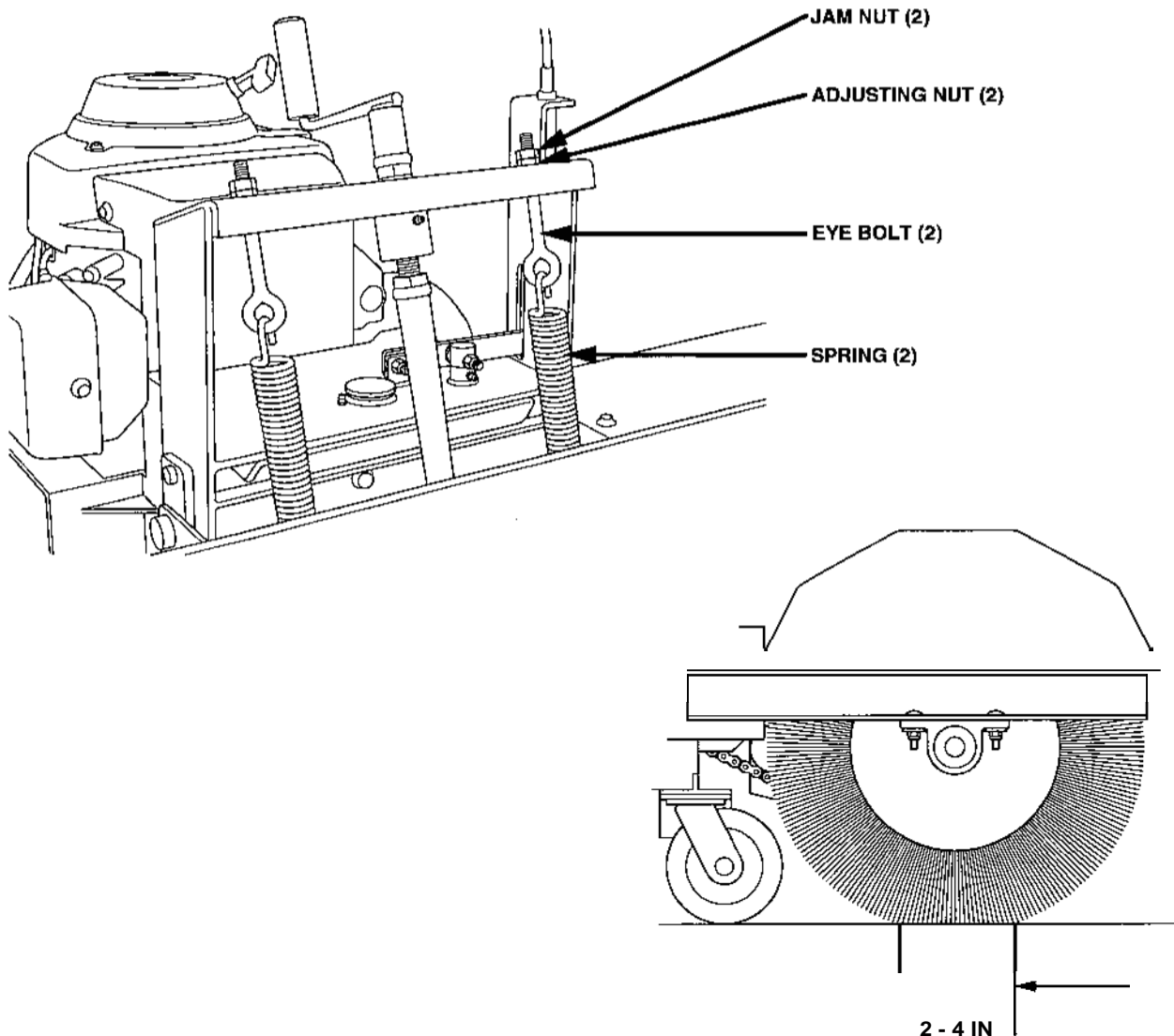


MAINTENANCE & ADJUSTMENTS

BROOM CONTACT ADJUSTMENT

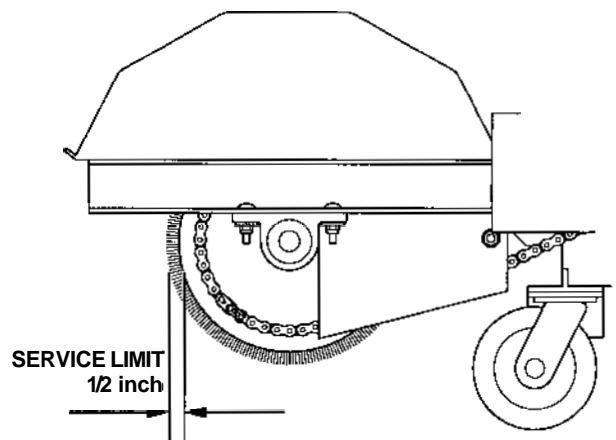
This adjustment should be done with the rear drive axle in the 2-1/2 inch position. As the bristles approach the wear limit, it will be necessary to adjust the rear drive axle to the 3-1/2 inch position.

1. Park the sweeper on a level surface.
2. Use the crank handle to fully lower the broom to the ground.
3. Adjust the support springs, via the eye bolts, to the same setting.
4. With the engine running just above idle speed, move the blade control lever ON to rotate the broom for about 30 seconds, and then move the blade control lever OFF.
5. Use the lift crank to lift the broom and inspect the broom contact pattern. It should be approximately 2 to 4 inches wide.
6. If adjustment is necessary, loosen both jam nuts and turn each adjusting nut evenly. If wider than 4 inches, increase spring tension by tightening the adjusting nuts. If narrower than 2 inches, decrease the spring tension by loosening the adjusting nuts.
7. After adjustment, tighten the jam nut against the adjusting nut on each eye bolt.



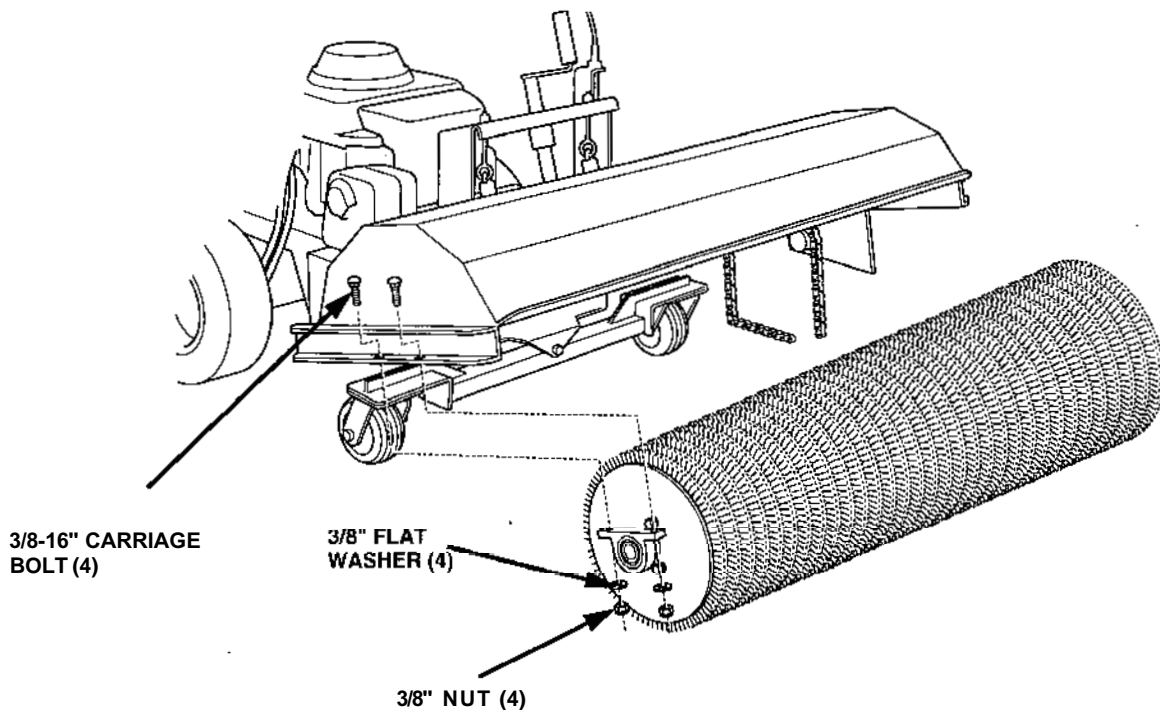
BROOM REPLACEMENT

Whenever the broom becomes excessively tapered, worn past the service limit or sweeping is difficult, replacement is necessary.



Broom Removal

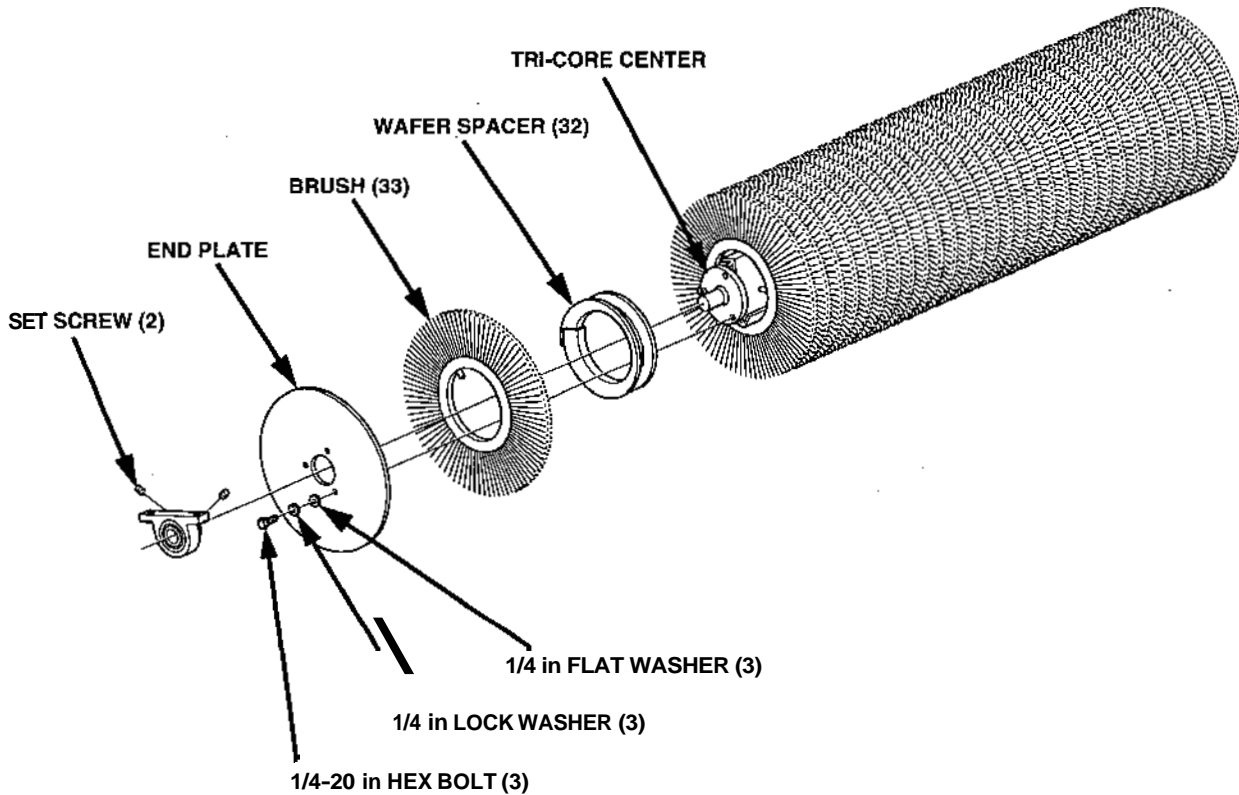
1. Make sure the engine is turned off, the ignition key is removed, and the spark plug cap(s) are disconnected.
2. Use the sweeper lift crank to raise the broom until it is just slightly off the ground.
3. Remove the drive chain retaining clip, and remove the master link from the drive chain. The retaining clip can get bent or damaged during removal, so never reuse the clip. Always install a new master link during assembly.
4. Unbolt the two pillow block bearings from the sweeper hood by removing the four 3/8-16 inch carriage bolts.
5. Use the sweeper lift crank to raise the sweeper hood above the broom assembly. Roll the broom assembly out from under the sweeper hood.



MAINTENANCE & ADJUSTMENTS

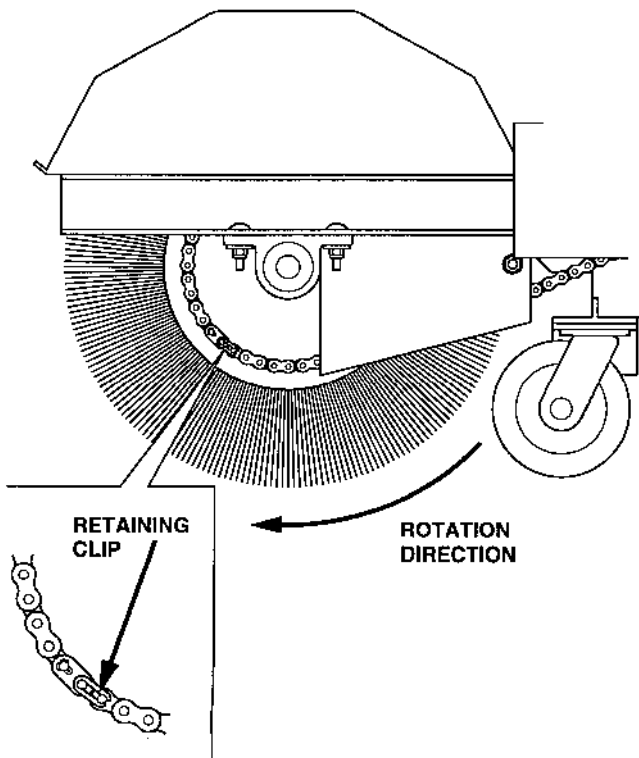
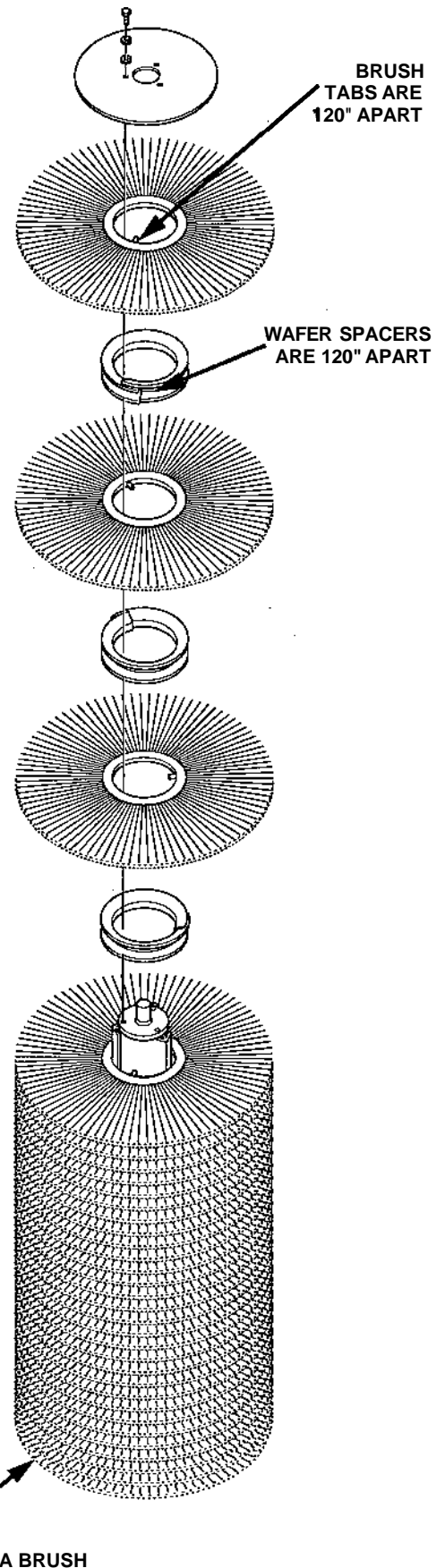
Broom Disassembly

1. Use a 1/8-inch allen wrench to loosen the set screws on the pillow block bearing opposite the 45-tooth sprocket. Remove the pillow block bearing.
2. Remove the bolts from the end plate and remove the end plate.
3. Slide off half the brushes and wafer spacers. Support the tri-core center open end, and slide the remaining brushes and wafer spacers to the open side. Then remove the support and remove the remaining brushes and wafer spacers from the tri-core center.



Broom Assembly

1. Slide on a brush then a wafer spacer. Align brush tabs with the opening in the tri-core center. Rotate the wafer spacer overlap areas and brush tabs every 120° on the tri-core center.
2. Install 4 or 5 brushes and wafer spacers, then push them all down and install 4 or 5 more.
3. Install the end plate using three 1/4-20 inch bolts and washers. Before tightening the bolts, make sure the top brush tabs are aligned with the tri-core center.
4. Install the pillow block bearing so the bearing is flush with the shaft end and/or the set screws reseat into their original indentations in the shaft. Apply 2 drops of HONDA LOCK 2 P/N 08713-0002 to the set screw threads and torque the set screws to 9.6 N•m (85 in-lb).
5. Roll the broom assembly under the sweeper hood, and lower the hood down onto the pillow block bearings.
6. Install and tighten the pillow block bearing carriage bolts.
7. Raise the broom. Install the drive chain using a new master link. Install the master link retaining clip with the closed end toward the rotation direction as shown below.



INSTALLATION

THE IMPORTANCE OF INSTALLATION

Proper installation is essential to operator safety and the reliability of the machine. Any error or oversight made by the technician assembling and servicing a unit can easily result in faulty operation, damage to the machine, or injury to the operator.

WARNING

Improper service can cause an unsafe condition that can lead to serious injury or death.

Follow the procedures and precautions in installation instructions and shop manuals carefully.

Some of the most important safety precautions are given below. However, we cannot warn you of every conceivable hazard that can arise in performing this installation. Only you can decide whether or not you should perform a given task.

WARNING

Failure to properly follow installation instructions and precautions can cause you to be seriously hurt or killed.

Follow the procedures and precautions in installation instructions carefully.

IMPORTANT SAFETY PRECAUTIONS

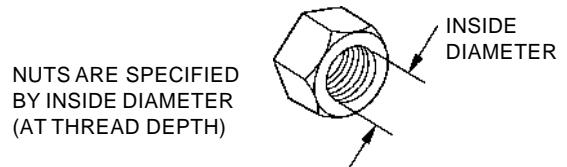
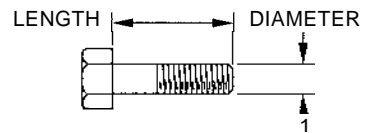
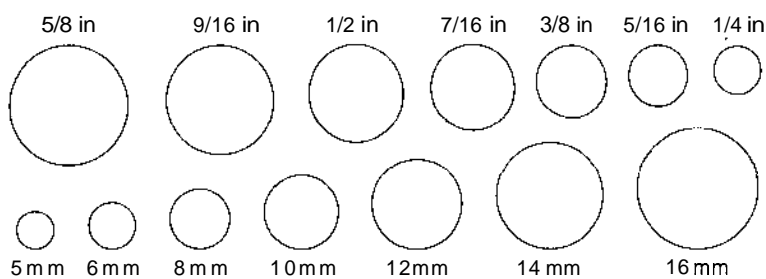
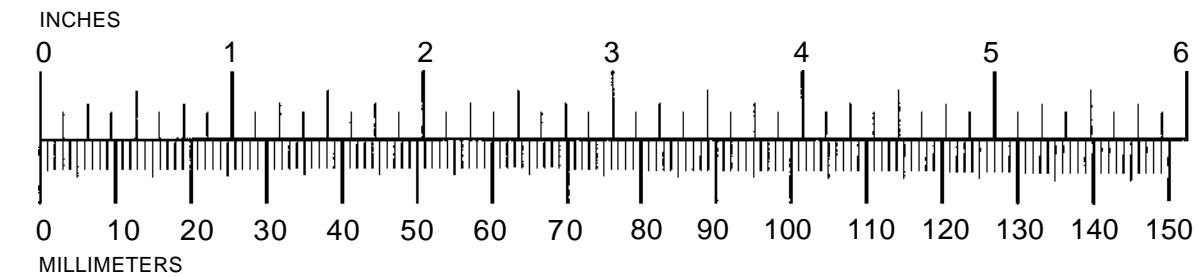
- Make sure you have a clear understanding of all basic shop safety practices and that you are wearing appropriate clothing and safety equipment. When performing this installation, be especially careful of the following:
 - Read the instructions before you begin and be sure you have the tools and skills required to perform the tasks safely.
- Make sure the engine is off before you begin any maintenance or repairs. This will help eliminate several potential hazards:
 - Carbon monoxide poisoning from engine exhaust.**
Be sure there is adequate ventilation whenever you run the engine.
 - Burns from hot parts.**
Let the engine and exhaust system cool before touching.
 - Injury from moving parts.**
Do not run the engine unless the instruction tells you to do so. Even then, keep your hands, fingers, and clothing away. Do not run the engine when any protective guard or shield is removed.
- To reduce the possibility of a fire or explosion, be careful when working around gasoline or batteries. Use only a nonflammable solvent, not gasoline, to clean parts. Keep all cigarettes, sparks, and flames away from the battery and all fuel-related parts.

TORQUE VALUES

American bolt diameter and thread size	Torque Values	
	ft-lb	N•m
1/4 inch - 20	8	10.8
5/16 inch - 18	12	16.3
3/8 inch - 16	22	29.8
1/2 inch - 13	76	103
Metric bolt diameter		
8 mm	15.9	22
10 mm	25.3	35

HARDWARE MEASURING CHART

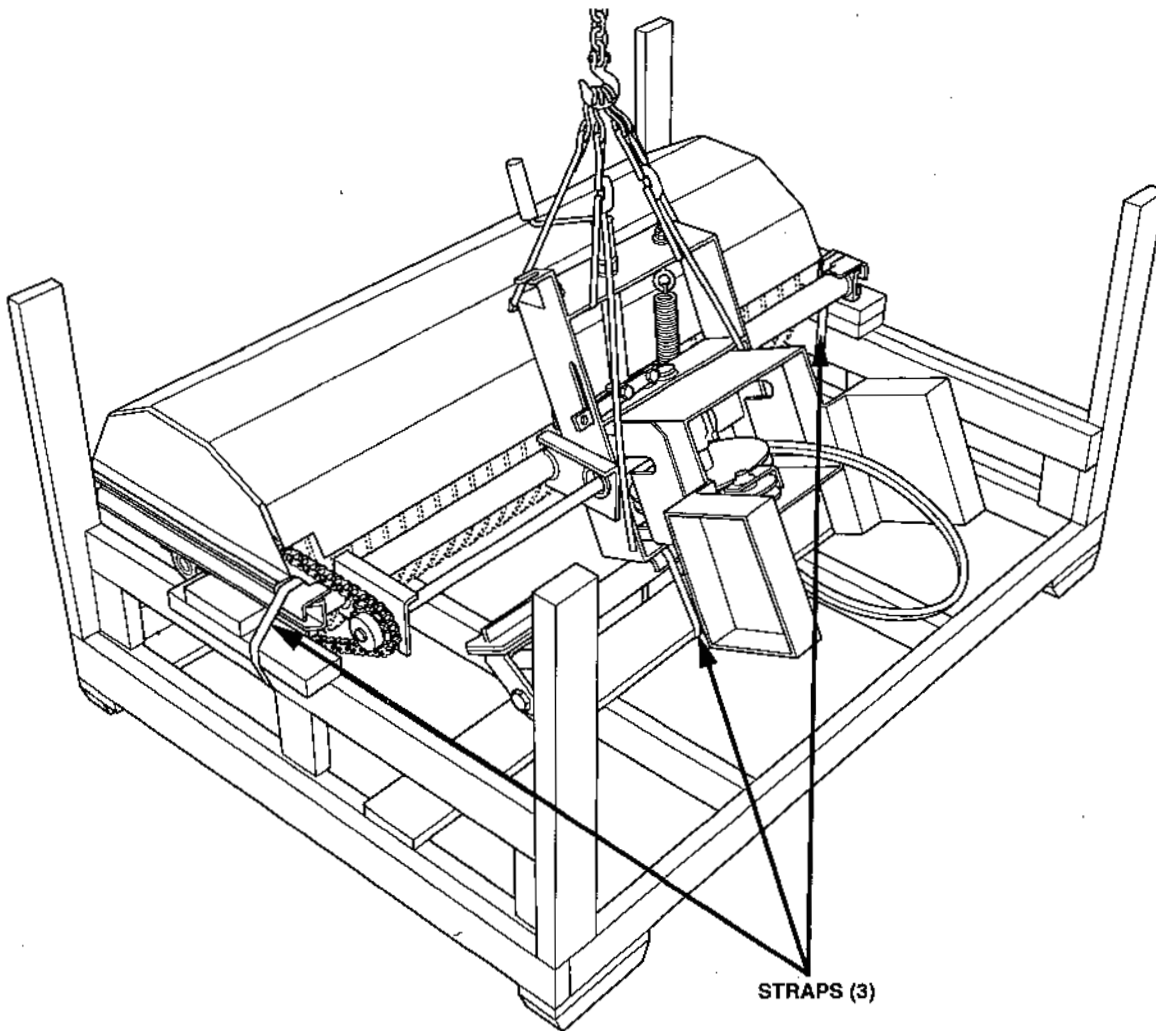
How to measure hardware and components:



INSTALLATION

UNCRATING

1. Cut the straps and remove the crate cover.
2. Remove the loose parts bag and the shaft cover from the wooden frame,
3. Remove the 3 straps holding the sweeper to the shipping pallet.
4. Attach suitable straps to the sweeper. Use a hoist that has a lift capacity of at least 500 lbs. (227 kg), and lift the sweeper horizontally just enough to clear the wooden frame.
5. Slide the wooden frame out from under the sweeper, and lower the sweeper down to the floor,

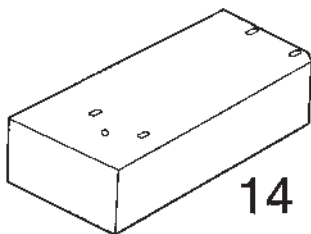
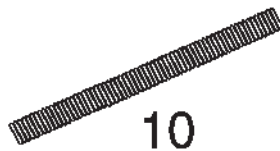
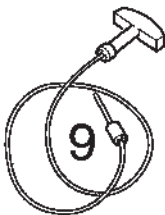
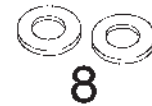
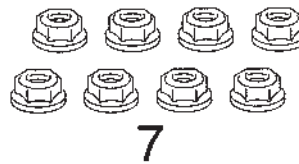
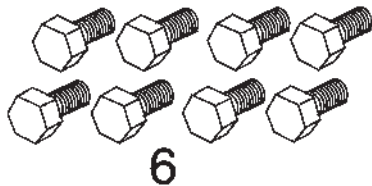
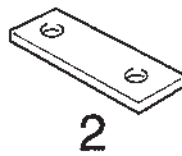
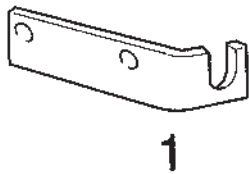


LOOSE PARTS

Check all loose parts against the following list.

Ref. No	Description	Qty.
1	Cable Bracket	1
2	Cable Bracket Spacer	1
3	5/16 x 2 inch hex bolt	2
4	5/16 inch flat washer	2
5	5/16 inch flange nut	2
6	1/2 x 1 inch bolt	8
7	1/2 inch flange nut	8
8	1/2 inch flat washer	2
9	Cable Assembly	1
	includes: 3/8 inch nuts	2
	3/8 inch star washers	2
	12-32 inch jam nut	1

Ref. No	Description	Qty.
10	Cable return spring	1
11	Clevis assembly includes: 1/4 inch pin Cotter pin	1
		1
12	Spring seat, 3/16 x 7/8 inch washer	1
13	Tie	1
14	Shaft cover	1
15	1/4 x 1/2 inch hex bolt	4
16	1/4 inch flat washer	4
17	1/4 inch lock washer	4



SWEEPER ASSEMBLY

Install the shaft cover using the 1/4 inch hex bolts, flat washers and lock washers. Before tightening bolts, make sure the chain oiling access hole aligns with both side links of the chain.

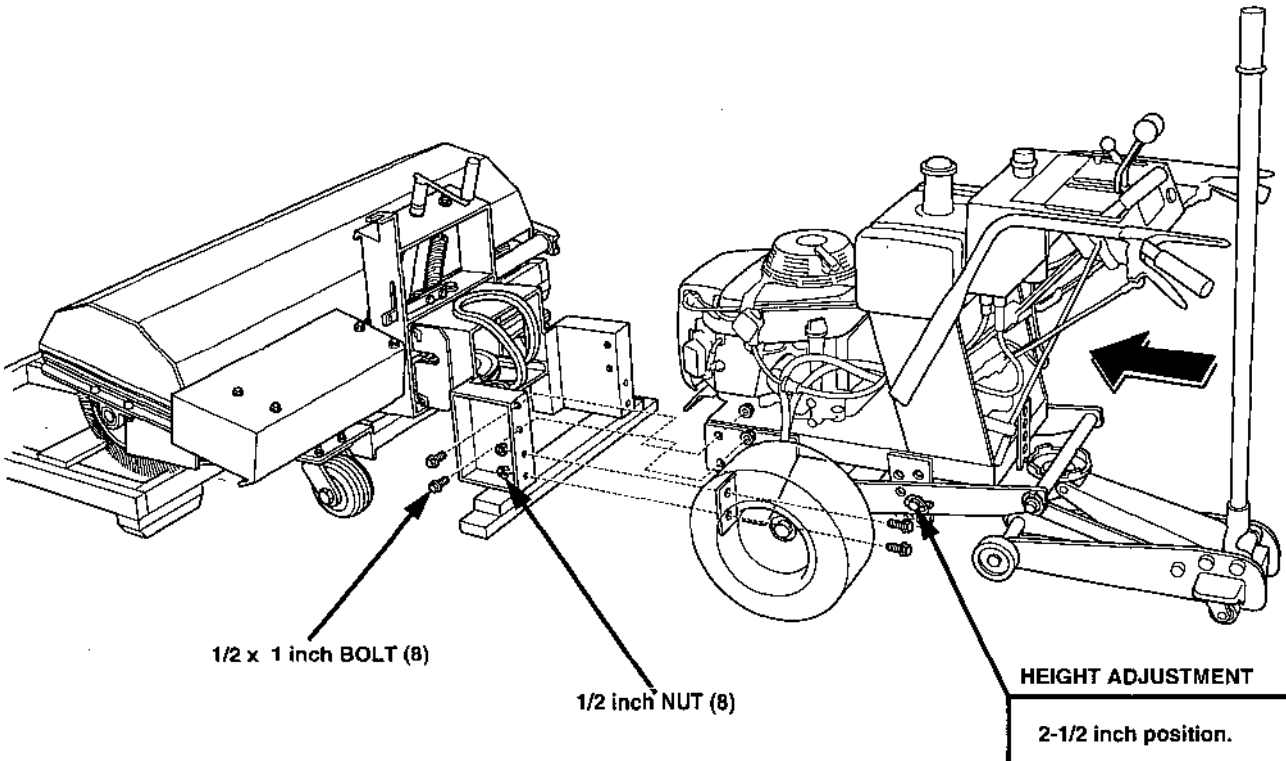
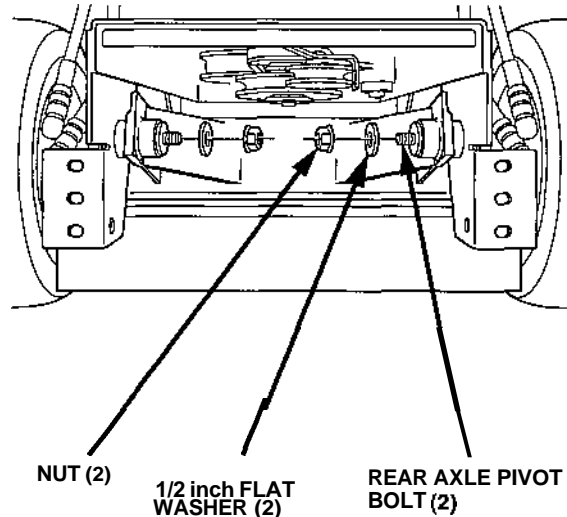
INSTALLATION

SWEEPER INSTALLATION

If installed, remove the mower deck from the power unit. Refer to the removal procedure in the HRC7000-series shop manual. Save the bolts and flange nuts used on the mower deck; they will be reused when the mower deck is reinstalled.

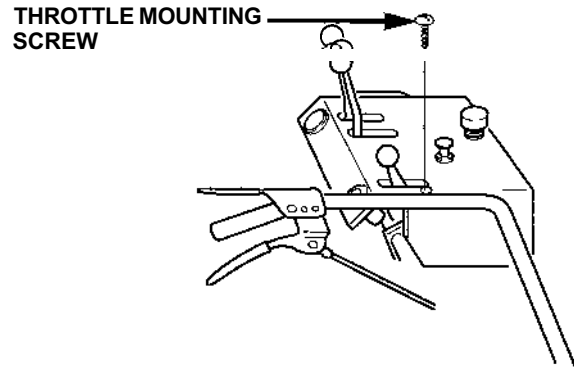
If the optional hydraulic drive release is to be installed, install it now. Refer to the instructions included with the hydraulic drive release.

1. With the power unit on a level surface, ignition key removed, and blade control lever off, install a 1/2-inch flat washer on each rear axle pivot bolt in the Low Range position. Install the original nuts and tighten to 76 ft-lb (103 N•m).
2. Set the cutting-height at the 2-1/2 inch position.
3. Open both pump bypass valves 1/2 turn, and set tire pressures to 15 psi (193 kPa).
4. Support the sweeper arms with two 2x4" boards.
5. Raise the sweeper and support the sweeper broom with the shipping pallet.
6. Support the back of the power unit with a floor jack.
7. Roll power unit up to the sweeper, and connect the power unit to the sweeper using the eight 1/2 x 1-inch bolts and flange nuts. Tighten to 76 ft-lb (103 N•m).
8. Install the sweeper belt on the engine pulley and tensioner. Adjust the belt tension (see the mid-size commercial mower owner's manual or shop manual).

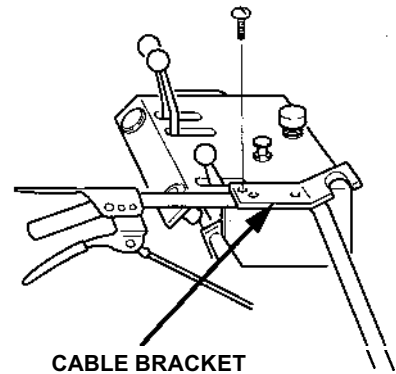


ANGLE RELEASE CABLE INSTALLATION

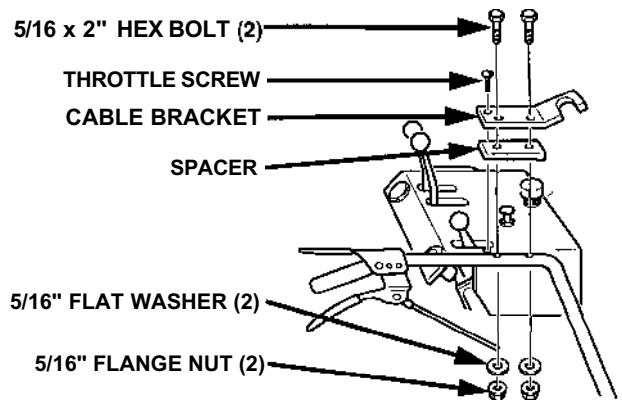
1. Remove the forward throttle mounting screw.
Position the cable bracket so it is parallel to the right side handle tube.
Use the throttle mounting screw to temporarily hold the cable bracket in position.



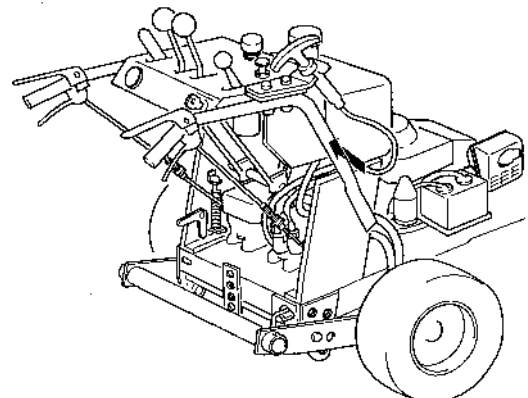
2. Use the cable bracket as a guide to mark, and drill the two mounting bolt holes in the handle tube. Use a center punch to mark the center of one of the holes in the cable bracket. Put on safety glasses and drill a 21/64-inch hole into the handle tube. To hold the bracket in place, install a 5/16 x 2 inch bolt through the cable bracket and handle tube. Then drill the second hole through the handle tube.
3. Remove the cable bracket and deburr the drilled holes in the handle tube.



4. Put the cable bracket and spacer into position, and secure them with the throttle mounting screw and two 5/16 x 2-inch bolts, washers, and flange nuts as shown.



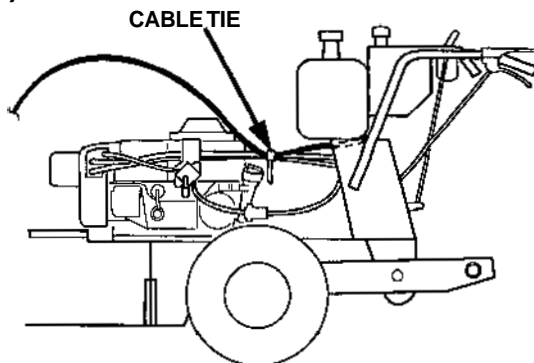
5. Route the cable behind the fuel tank and above the speed control arms.



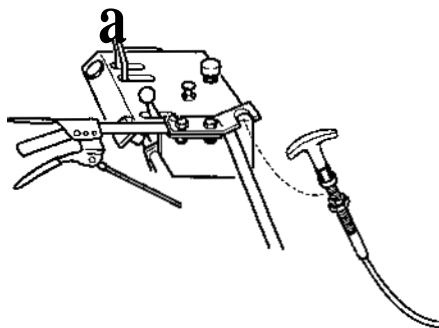
INSTALLATION

ANGLE RELEASE CABLE INSTALLATION (continued)

6. Secure cable to the throttle and choke cables with the cable tie.

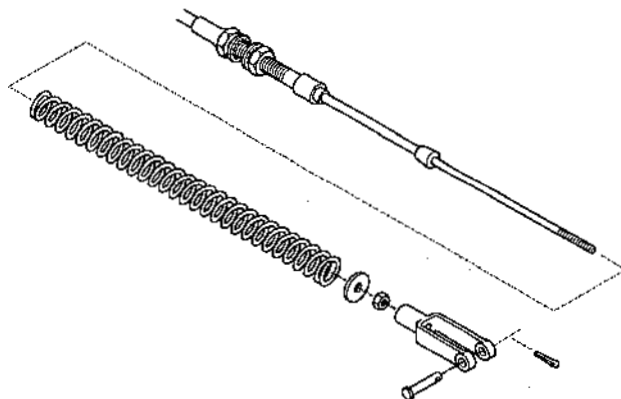


7. Once the cable has been positioned, install it onto the bracket and tighten the bottom jam nut on the T-handle.

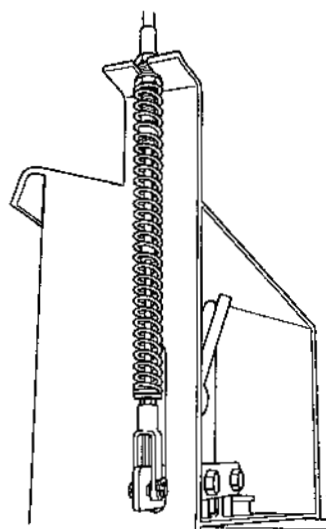


8. Put the sweeper in the straight ahead position (refer to page 8).

9. Assemble the spring, spring seat washer, jam nut and clevis onto the sweeper end of the cable as shown. Hand tighten the jam nut and clevis onto the cable as far as they will go.



10. Make sure the T-handle and swing lever are all the way down. With the clevis positioned over the hole in the swing pin lever, rotate the clevis in 1/4 turn increments until the clevis pin can be installed. Move the cable jam nuts up or down as needed until the cable can be installed onto the bracket. Tighten the jam nuts together.



11. Secure the clevis pin with the cotter pin. Tighten the jam nut against the clevis.

TRANSPORTING

Move the blade control lever to OFF when transporting, or when the sweeper is not in use.

Read the TRANSPORTING chapter of the mid-size commercial mower owner's manual.

STORAGE

1. Never store the unit with fuel in the fuel tank inside a building where open flames or sparks are present. Allow the engine to cool before storing in an enclosure.
2. Clean the broom thoroughly.
3. Lubricate all moving parts as shown in the maintenance chapter.
4. Store broom so the bristles do not touch the ground.
5. When not in use, store inside to avoid exposing broom bristles to direct sunlight for long periods. Long exposure to direct sunlight will damage the bristles. Protect bristles with a tarp.
6. Store the broom in a dry place. Do not cover with sheet plastic or other material which will trap moisture.

SPECIFICATIONS

Power Unit with Sweeper Attached

Model	HRC7013K1ZXA	HRC7018ZXA	HRC7020ZMA
Description code	CPH1	CPH2	CPH3
Overall length*	85-3/8 inch	88-1/4 inch	
Overall height	43-1/2 inch		
Overall width*	61 inch		
Dry weight	638.4 lb	743.8 lb	763.8 lb
Cutting height settings	Low range @ 2-112 or 3-112 inches		

* Sweeper angle set straight ahead

Sweeper

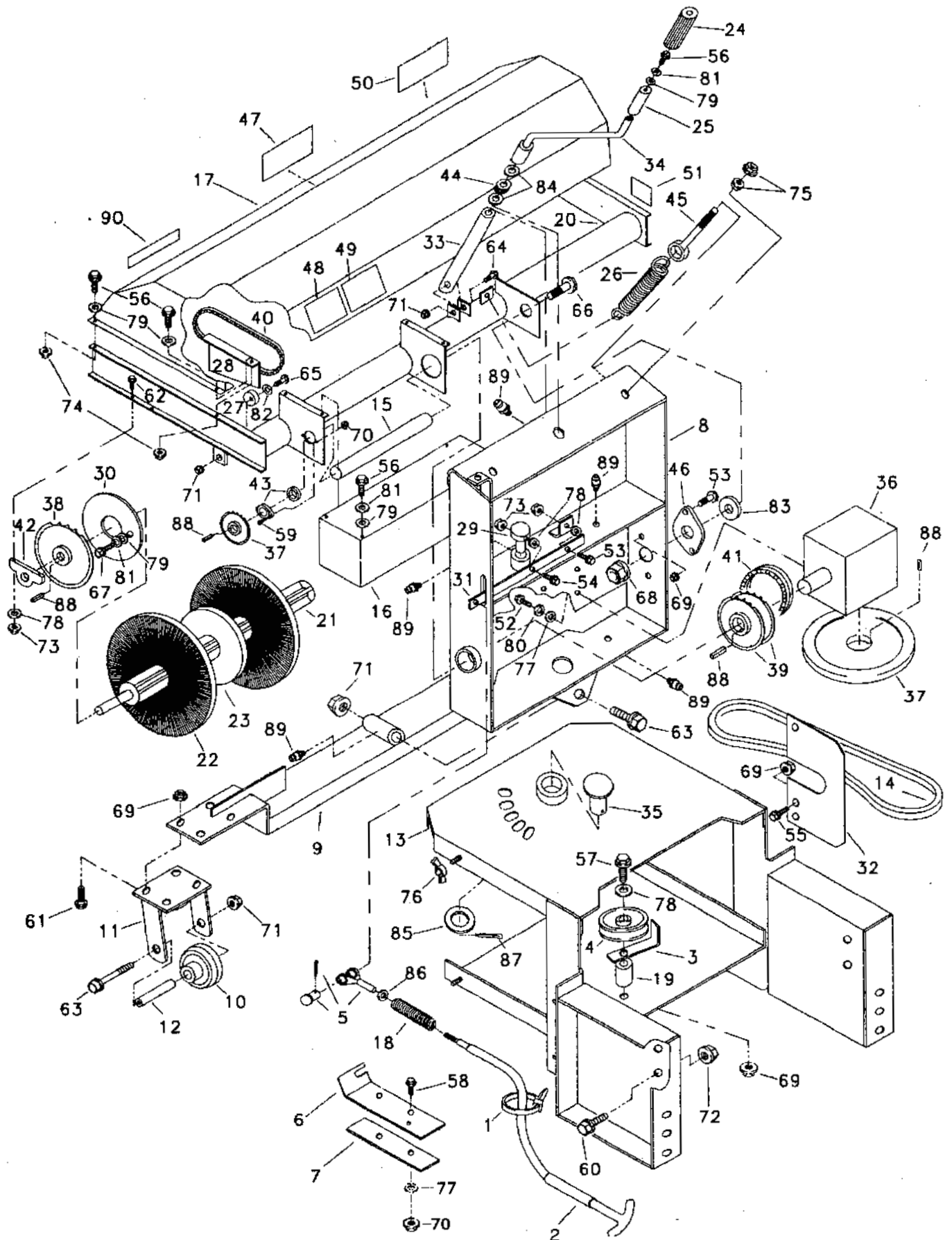
Model	FS7054
Description code	FS3
Tilt angles	12.5° and 25° both right or left
Drive chain	#50 roller type
Drive chain length	42 links, 1/2-link, and master link
Drive/driven sprocket teeth	14/45
Broom contact width	2 ~ 4 inches
Sweeping width	54 inches @ 0° tilt angle, 49 inches @ 25° tilt angle
Broom diameter	20 inches
Broom service limit	1/2-inch from brissel to chain wafer retainer disc
Broom material	Polypropylene
Brushes	33
Brush wafer spacers	32
Broom rotation	Clockwise (viewed from the drive chain side)
Gear box ratio	2:1
Gear box driven pulley	12-inch
Gear box oil capacity	5 oz

PARTS

Ref. No.	Description	Qty.
1	Tie	1
2	Cable assy,swing pin	1
3	Guide A,belt	1
4	Pulley B,tension	1
5	Clevis assv	1
6	Bracket,cable operator	1
7	Spacer,cable operator	1
8	Frame comp,swing	1
9	Axle comp,caster wheel	1
10	Wheel,caster	2
11	Swivel assv,caster	2
12	Tube,caster	2
13	Frame comp,mounting	1
14	V-belt. BK-71	1
15	Shaft,drive	1
16	Cover comp,shaft	1
17	Hood comp	1
18	Spg,cable return	1
19	Spacer,pulley	1
20	Frame comp,broom	1
21	Core comp,broom 54"	1
22	Brush comu	33
23	Spacer	32
24	Grip,handle	1
25	Tube,grip	1
26	Spg,broom	2
27	Tensioner,chain	1
28	Guard,chain	1
29	Pin,swing	1
30	Disc,water retainer	2
31	Lever,swing pin	1
32	Cover,belt	2
33	Lift comp,broom	1
34	Crank comp,broom	1
35	Pin comp,swing frame	2
36	Gearbox,2:1	1
37	Pulley,12"	1
38	Spkt,45 tooth	1
39	Spkt,14 tooth	3
40	Chain,broom (inc. connect link)	1
41	Chain (inc. connect link)	1
42	Bearing,pillow block	2
43	Bearing,flange 3/4"	1
44	Bearing,thrust	1
45	Evebolt,4"	2

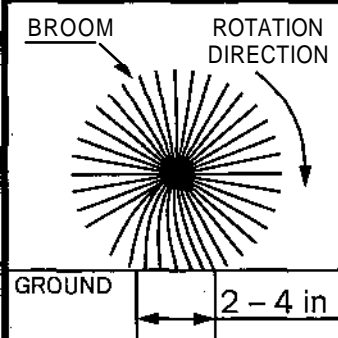
Ref. No.	Description	Qty.
46	Plate,swing pivot	1
47	Mark,Honda	1
48	Mark,operation	1
49	Mark,contact patch	1
50	Mark,HTA	1
51	Mark,mfg plate	1
52	Bolt,hex 5/16-18x11'	4
53	Bolt,hex 3/8-16x1"	1
54	Bolt,hex 3/8-16x2"	1
55	Bolt,hex 3/8"-16x3/4"	1
56	Bokhex 1/4-20x3/4"	4
57	Bolt,hex 3/8-16x3 1/4"	1
58	Bolt,hex 5/16-18x2"	2
59	Bokhex 5/16-18x3/4"	2
60	Bolt,hex flange 1/2-13x1"	8
61	Bolt,carriage 3/8-16x1"	8
62	Bolt,carriage 3/8-16x1 1/2"	4
63	Bolt,hex 1/2-13 x 4 3/4"	1
64	Bolt,hex 1/2-13x2 3/4"	1
65	Bolt,hex 1/2-13x3"	1
66	Bolt,hex 3/4-10 x 1 3/4"	1
67	Bokhex 1/4-20x1"	6
68	Nut,lock 3/4-10	1
69	Nut,flange 3/8-16	8
70	Nut,flange 5/16-18	2
71	Nut,lock 1/2"-13	2
72	Nut,lock 1/2"-13	1
73	Nut,lock 3/8"-16	2
74	Nut,flange 1/4"-20	4
75	Nut,hex 3/8"-16	4
76	Nut,wing 1/4"-20	4
77	Washer,flat 5/16"	2
78	Washer,flat 3/8"	4
79	Washer,flat 1/4"	4
80	Washer,lock 5/16"	4
81	Washer,lock 1/4"	4
82	Washer,flat 1/2"	1
83	Washer,flat 3/4"	1
84	Washer,flat narrow 3/4"	2
85	Washer,flat narrow 1"	2
86	Washer,flat #12 wide	1
87	Pin,cotter,1/8"x2"	2
88	Key,square 1/4"x1/4"x1 1/4"	1
89	Grease fitting	4
90	Mark,operation	1

PARTS



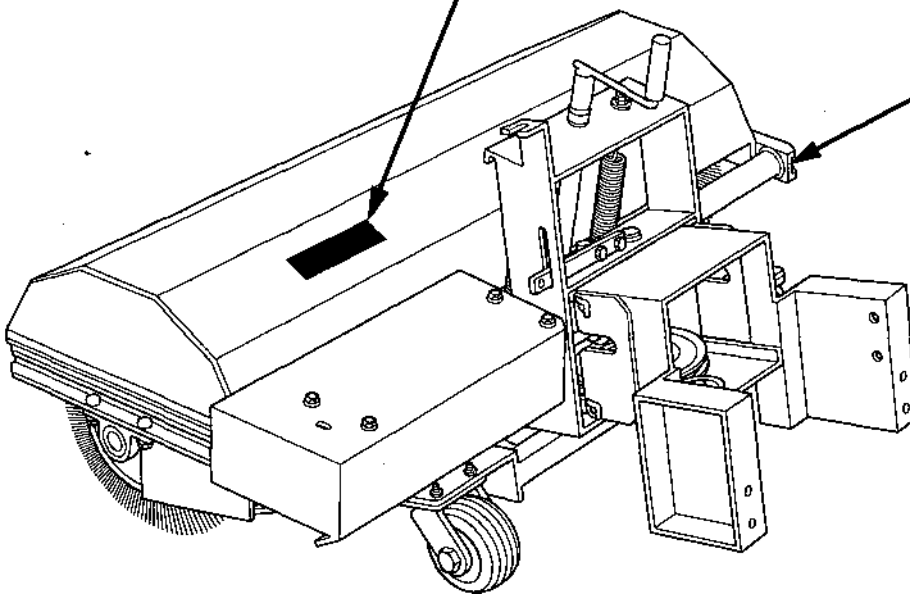
INFORMATION LABELS

Record the model and serial number in the boxes below. You will need these numbers when ordering parts and when making technical or warranty inquiries.

 <p>The diagram shows a broom with lines radiating from a central point. An arrow labeled 'ROTATION DIRECTION' indicates a clockwise rotation. Below the broom, a horizontal line labeled 'GROUND' has a double-headed arrow indicating a contact patch width of '2 - 4 in'.</p>	<h3>BROOM ADJUSTMENT</h3> <p>Adjust the broom so the contact patch is between 2 inches and 4 inches wide.</p> <ul style="list-style-type: none">● Less than 2 in. will reduce sweeping performance.● More than 4 in. will cause the broom to wear rapidly.● Uneven contact on each end will cause the broom to wear unevenly. <p>See the operator's manual for the adjustment procedure.</p>
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SWEeper IDENTIFICATION PLATE

AMERICAN HONDA MOTOR CO., INC.	
4475 RIVER GREEN PKWY	
DULUTH, GA 30136-9420	
MODEL #	<input type="text"/>
SER. #	<input type="text"/>



ADDITIONAL INFORMATION

OPTIONS

Below is a list of available options to enhance productivity and comfort when operating your sweeper.

Headlight Kit

This single-lamp light kit is mounted to a light support arm which mounts to the tank bracket. The light features an integrated, weather-resistant on/off switch and a 50 watt halogen bulb.

Agricultural (AG) Tire Kit

For best traction, use of agricultural (bar tread) tires is recommended. The agricultural tire kit includes two bar tread tires and wheels.

NOTICE

Do not use tire chains. Using tire chains will damage the hydraulic lines near the tires.

Engine Cold Weather Kit

The cold weather kit is a cover for the cooling air intake. It helps the engine maintain proper operating temperature when used in very cold weather conditions.

Carburetor Anti-Icing Kit (HRC7013K1 only)

This special kit is used to prevent the formation of ice on the carburetor linkage.

Hydraulic Drive Release

This hydraulic drive release is used for cold weather starting. It disengages the hydraulic drive pumps from the engine. This reduces the load on the engine for starting in extremely cold weather.

Cab Kit

Original Tractor Cab Company Inc. model #9371 is available through your Honda mid-size commercial mower dealer.

HONDA PUBLICATIONS

These publications will give you additional information for maintaining and repairing your sweeper. You may order them from your Honda mid-size commercial mower dealer.

Shop Manual

This manual covers complete power unit maintenance and overhaul procedures. It is intended to be used by a skilled technician.

Parts Listing

This parts listing provides a complete illustrated service parts list.

WARRANTY SERVICE INFORMATION

Honda Power Equipment dealership personnel are trained professionals. They should be able to answer any question you may have. If you encounter a problem that your dealer does not solve to your satisfaction, please discuss it with the dealership's management. The Service Manager or General Manager can help. Almost all problems are solved in this way.

If you are dissatisfied with the decision made by the dealership's management, contact the Honda Power Equipment Customer Relations Office.

You can write to: **American Honda Motor Co., Inc.**
Power Equipment Division
Customer Relations Office
4475 River Green Parkway
Duluth, GA 30136-2565

Or telephone: (770) 497-6400 weekdays, 8:30 a.m. - 5:00 p.m. EST

When you call or write, please provide us the following information:

- Model and serial numbers (sweeper and power unit)
- Name of the dealer who sold you the sweeper
- Name and address of the dealer who services your sweeper or mid-size commercial mower
- Date of purchase
- Your name, address, and telephone number
- A detailed description of the problem

Current customer service contact information:

United States, Puerto Rico, and U.S. Virgin Islands:

Honda Power Equipment dealership personnel are trained professionals. They should be able to answer any question you may have. If you encounter a problem that your dealer does not solve to your satisfaction, please discuss it with the dealership's management. The Service Manager or General Manager can help. Almost all problems are solved in this way.

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American Honda Motor Co., Inc.
Power Equipment Division
Customer Relations Office
4900 Marconi Drive
Alpharetta, GA 30005-8847

Or telephone: (770) 497-6400 M-F, 8:30 am - 5:00 pm EST

When you write or call, please provide the following information:

- Model and serial numbers
- Name of the dealer who sold the Honda power equipment to you
- Name and address of the dealer who services your equipment
- Date of purchase
- Your name, address, and telephone number
- A detailed description of the problem

HONDA

H/C: 5045638



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