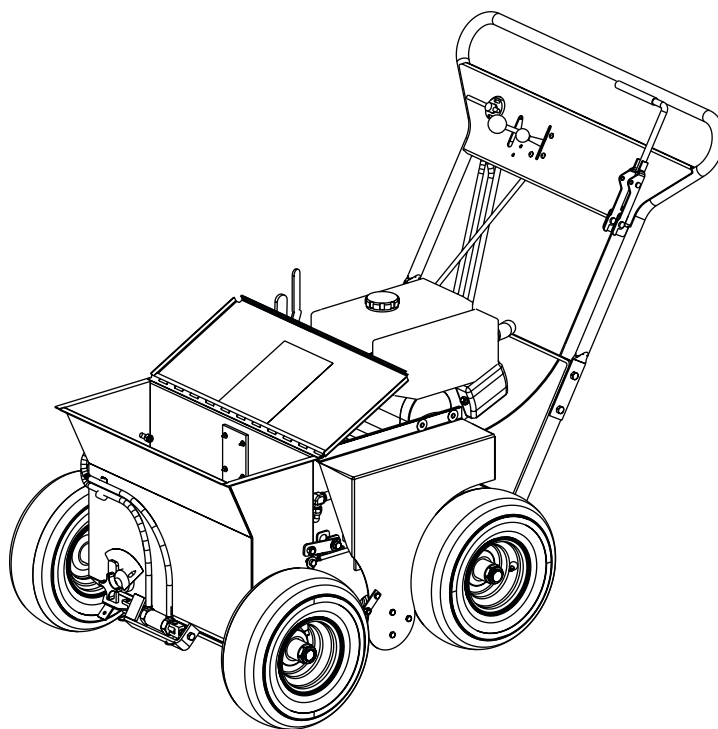




OPERATOR'S MANUAL



Hydraulic Renovator

⚠ WARNING

**READ AND FOLLOW ALL SAFETY RULES AND INSTRUCTIONS IN THIS MANUAL
BEFORE ATTEMPTING TO OPERATE THIS MACHINE.
FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.**

CUB CADET LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019

Thank You

Thank you for purchasing a Hydraulic Renovator manufactured by Cub Cadet LLC. The Renovator is designed to provide professional landscapers, commercial lawn service companies, professional turf managers and golf course superintendents with a reliable and economical slicer, seeder and dethatcher. The Renovator is an excellent machine for applying seed to new or previously seeded turf grass areas. However, due to the many variables involved, including soil conditions, moisture, time of seeding, fertilization, weather, condition and age of grass seed, we are unable to guarantee results. It was carefully engineered to provide excellent performance when properly operated and maintained.

Please read this entire manual prior to operating the equipment. It instructs you how to safely and easily set up, operate and maintain your machine. Please be sure that you, and any other persons who will operate the machine, carefully follow the recommended safety practices at all times. Failure to do so could result in personal injury or property damage.

All information in this manual is relative to the most recent product information available at the time of printing. Review

this manual frequently to familiarize yourself with the machine, its features and operation. Please be aware that this Operator's Manual may cover a range of product specifications for various models. Characteristics and features discussed and/or illustrated in this manual may not be applicable to all models. Cub Cadet LLC reserves the right to change product specifications, designs and equipment without notice and without incurring obligation.

If you have any problems or questions concerning the machine, phone your local Cub Cadet dealer or contact us directly. Cub Cadet's Dealer Locator telephone number, web site address and mailing address can be found on this page. We want to ensure your complete satisfaction at all times.

Throughout this manual, all references to *right* and *left* side of the machine are observed from the operating position.

The engine manufacturer is responsible for all engine-related issues with regards to performance, power-rating, specifications, warranty and service. Please refer to the engine manufacturer's Owner's/Operator's Manual, packed separately with your machine, for more information.

Table of Contents

<i>Safe Operation Practices</i>	<i>3</i>	<i>Maintenance</i>.....	<i>13</i>
<i>Set-up</i>	<i>8</i>	<i>Specifications</i>.....	<i>16</i>
<i>Controls</i>.....	<i>9</i>	<i>Troubleshooting</i>.....	<i>17</i>
<i>Operation</i>.....	<i>11</i>	<i>Warranties</i>	<i>18</i>

Record Product Information

Before setting up and operating your new equipment, please locate the model plate on the equipment and record the information in the provided area to the right. You can locate the model plate by standing at the operator's position and looking at the back of the unit. This information will be necessary, should you seek technical support via our web site or with your local Cub Cadet dealer.

MODEL NUMBER

--	--	--	--	--	--	--	--	--	--	--

SERIAL NUMBER

--	--	--	--	--	--	--	--	--	--	--

Customer Support

If you have difficulty assembling this product or have any questions regarding the controls, operation, or maintenance of this machine, you can seek help from the experts. Choose from the options below:

- ◇ Visit us on the web at www.cubcadet.com
- ◇ Locate your nearest Cub Cadet Dealer at (877) 282-8684
- ◇ Write us at Cub Cadet LLC • P.O. Box 361131 • Cleveland, OH • 44136-0019



WARNING: This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol. **HEED ITS WARNING!**

CALIFORNIA PROPOSITION 65



WARNING: Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to State of California to cause cancer and birth defects or other reproductive harm.



WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. *Wash hands after handling.*



DANGER: This machine was built to be operated according to the safe operation practices in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating fingers, hands, toes and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

General Operation

1. Read this Operator's Manual before starting the Renovator. Study the controls and learn the proper sequence of operation.
2. Do not allow anyone to operate or maintain this machine who has not read the manual. Never permit children to operate this machine.
3. Always have your feet and hands clear of the power deck when starting the engine.
4. Do not remove the seeder safety switch. If this switch is damaged or does not function, repair or replace it before operating the Renovator.
5. Do not remove any shields, guards, decals or safety devices. If a shield, guard, decal or safety device is damaged or does not function, repair or replace it before operating the Renovator.
6. Always wear safety glasses, long pants and safety shoes when operating or maintaining this machine. Do not wear loose-fitting clothing.
7. Never run the engine indoors without adequate ventilation. Exhaust fumes are deadly.
8. To avoid serious burns, do not touch the engine, muffler or hydraulic components while the engine is running or until everything has cooled after the engine has been shut off.
9. Keep adults, children and pets away from the area to be renovated.
10. Always remove debris and other objects from the area to be renovated.
11. Watch out for rocks, small tree stumps, sprinkler heads, water shutoff plates, etc.
12. When starting the engine, always have the hydraulic traction control lever in neutral and never have the slicer safety clutch engaged.
13. Operate the machine in a straight line to avoid damage to the slicer blades.
14. Always have proper footing on slopes and hillsides and never operate when conditions are slippery.
15. Always keep both hands on the handle.
16. Be careful when crossing roadways. Always release the slicer safety clutch and place the machine in the transport position.

17. When leaving the Renovator unattended, shift the hydraulic traction control lever into neutral, shut off the engine, shut the fuel shutoff valve and disconnect the spark plug wire.
18. Always park the Renovator and start the engine on a level surface with the hydraulic traction control lever in neutral.
19. If you hit a solid object while slicing, release the slicer safety clutch, shift the hydraulic traction control lever into neutral and shut off the engine. Disconnect the spark plug wire and inspect the slicer reel for damage. Repair any damage and make sure the blades are in good condition and the blade bolts are tight before restarting the engine.
20. Always disconnect the spark plug wire to prevent the engine from accidentally starting before performing any maintenance on this machine.
21. Keep the Renovator and especially the engine, pump and belt area clean and free of grease, grass and leaves to reduce the chance of fire and to permit proper cooling.

Slope Operation

Slopes are a major factor related to slip and fall accidents, which can result in severe injury. Operation on slopes requires extra caution. If you feel uneasy on a slope, do not operate on it. For your safety, use the slope gauge included as part of this manual to measure slopes before operating this machine on a sloped or hilly area. If the slope is greater than 15 degrees, do not operate on it.

Do:

1. Move across the face of slopes; never up and down. Exercise extreme caution when changing direction on slopes.
2. Watch for holes, ruts, rocks, hidden objects, or bumps which can cause you to slip or trip. Tall grass can hide obstacles.
3. Always be sure of your footing. A slip and fall can cause serious personal injury.

Do Not:

1. Do not operate near drop-offs, ditches or embankments, you could lose your footing or balance.
2. Do not operate on slopes greater than 15 degrees as shown on the slope gauge.
3. Do not operate on wet grass. Unstable footing could cause slipping.

Service

Safe Handling Of Gasoline:

1. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes, which can ignite. Wash your skin and change clothes immediately.
2. Use only an approved gasoline container.
3. Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
4. 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.
5. Keep the 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.
6. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
7. Never fuel machine indoors because flammable vapors will accumulate in the area.
8. Never remove gas cap or add fuel while engine is hot or running. Allow engine to cool at least two minutes before refueling.
9. Never over fill fuel tank. Fill tank to no more than 1 inch below bottom of filler neck to provide for fuel expansion.
10. Replace gasoline cap and tighten securely.
11. If gasoline is spilled, wipe it off the engine and equipment. Move machine to another area. Wait 5 minutes before starting engine.
12. Never store the machine or fuel container near an open flame, spark or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.
13. To reduce fire hazard, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
14. Allow machine to cool at least 5 minutes before storing.

General Service:

1. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
2. Before cleaning, repairing, or inspecting, make certain all moving parts have stopped. Disconnect the spark plug wire and ground against the engine to prevent unintended starting.
3. Check the blades and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blades for damage (e.g., bent, cracked, worn) Replace blades with the original equipment manufacturer's (O.E.M.) blade only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"
4. Renovator blades are sharp and can cut. Wrap the blades or wear gloves, and use extra caution when servicing them.
5. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
6. Never tamper with safety devices. Check their proper operation regularly.
7. After striking a foreign object, stop the engine, disconnect the spark plug wire and ground against the engine. Thoroughly inspect the unit for any damage. Repair the damage before starting and operating the renovator.
8. Never attempt to make a wheel or cutting height adjustment while the engine is running.
9. Guards and shields are subject to wear and damage which could expose moving parts or allow objects to be thrown. For safety protection, frequently check components and replace immediately with original equipment manufacturer's (O.E.M.) parts only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"
10. Do not change the engine's governor setting or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
11. Check fuel line, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.
12. Do not crank engine with spark plug removed.
13. Maintain or replace safety and instruction labels, as necessary.
14. Observe proper disposal laws and regulations. Improper disposal of fluids and materials can harm the environment.

Do not modify engine

To avoid serious injury or death, do not modify engine in any way. Tampering with the governor setting can lead to a runaway engine and cause it to operate at unsafe speeds. Never tamper with factory setting of engine governor.

Notice Regarding Emissions

Engines which are certified to comply with California and federal EPA emission regulations for SORE (Small Off Road Equipment) are certified to operate on regular unleaded gasoline, and may include the following emission control systems: Engine Modification (EM), Oxidizing Catalyst (OC), Secondary Air Injection (SAI) and Three Way Catalyst (TWC) if so equipped.

Spark Arrestor



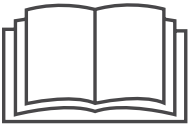
WARNING: This machine is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrestor meeting applicable local or state laws (if any).

If a spark arrestor is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands.

A spark arrestor for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131 Cleveland, Ohio 44136-0019.

Safety Symbols

This page depicts and describes safety symbols that may appear on this product. Read, understand, and follow all instructions on the machine before attempting to assemble and operate.

Symbol	Description
	READ THE OPERATOR'S MANUAL(S) Read, understand, and follow all instructions in the manual(s) before attempting to assemble and operate.
	DANGER — ROTATING BLADES To reduce the risk of injury, keep hands and feet away. Do not operate unless discharge cover or grass catcher is in its proper place. If damaged, replace immediately.
	DANGER — BYSTANDERS Do not mow when children or others are around.
	DANGER — HAND/ FOOT CUT Keep hands and feet away from rotating parts.
	DANGER — THROWN DEBRIS Remove objects that can be thrown by the blade in any direction. Wear safety glasses.
	DANGER — SLOPES Use extra caution on slopes. Do not mow slopes greater than 15°.
	WARNING—GASOLINE IS FLAMMABLE Allow the engine to cool at least two minutes before refueling.
	WARNING— CARBON MONOXIDE Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
	WARNING— HOT SURFACE Engine parts, especially the muffler, become extremely hot during operation. Allow engine and muffler to cool before touching.



WARNING: Your Responsibility—Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

SAVE THESE INSTRUCTIONS!

Slope Gauge

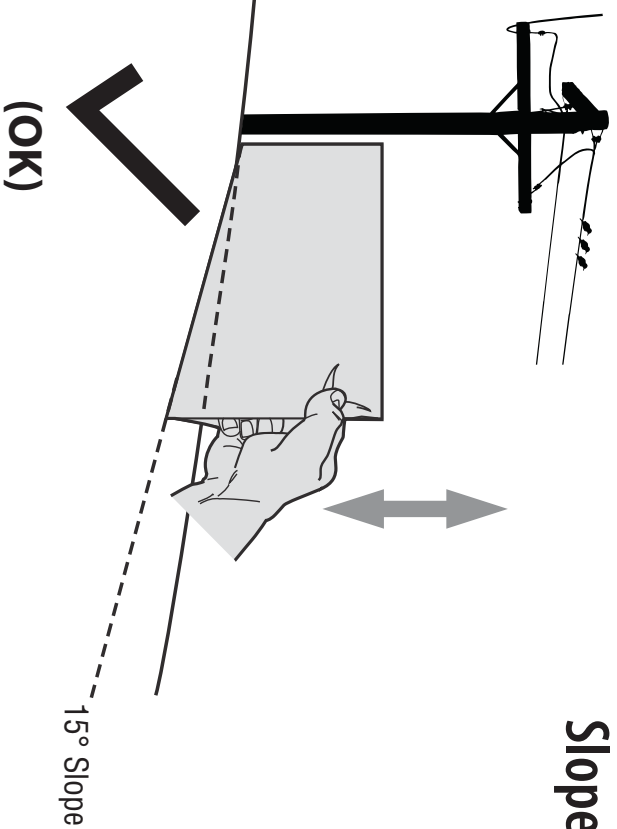


Figure 1

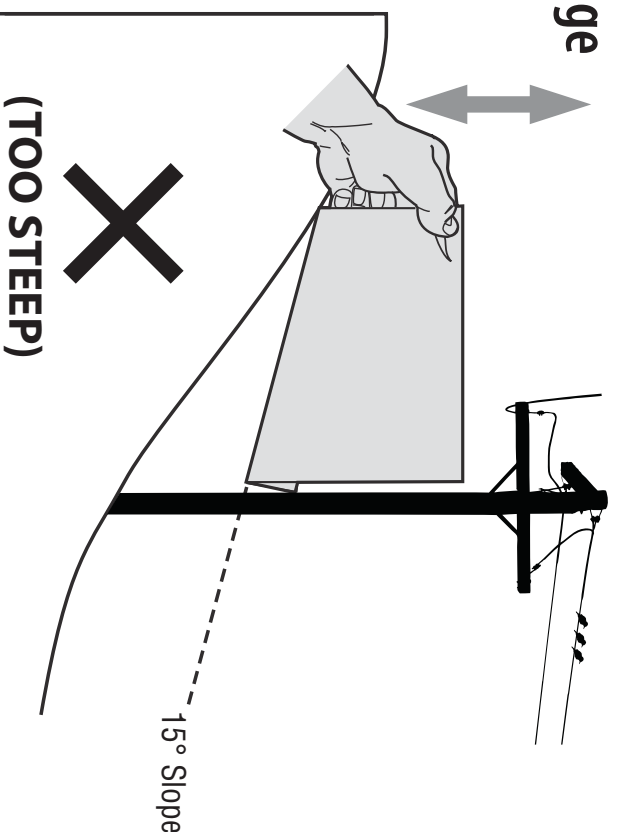


Figure 2

USE THIS SLOPE GAUGE TO DETERMINE IF A SLOPE IS TOO STEEP FOR SAFE OPERATION!

To check the slope, proceed as follows:

1. Remove this page and fold along the dashed line.
2. Locate a vertical object on or behind the slope (e.g. a pole, building, fence, tree, etc.)
3. Align either side of the slope gauge with the object (See Figure 1 and Figure 2).
4. Adjust gauge up or down until the left corner touches the slope (See Figure 1 and Figure 2).
5. If there is a gap below the gauge, the slope is too steep for safe operation (See Figure 2 above).

15° dashed line



WARNING! Slopes are a major factor related to tip-over and roll-over accidents which can result in severe injury or death.

Do not operate machine on slopes in excess of 15 degrees. All slopes require extra caution.
Always mow across the face of slopes, never up and down slopes.

Initial Adjustments



WARNING! Before performing any adjustments, disconnect the spark plug wire to prevent the engine from accidentally starting.

Tires

1. Check the tire pressure. Proper operating pressure is 20 psi.
NOTE: New tires might be overinflated in order to properly seat the bead to the rim.

Belt Tension

1. Remove the belt safety cover.
2. Make sure the belts clear the belt guides by 1/8" to 1/4" inch with operating levers engaged.

The slicer safety clutch should be adjusted so that when the lever is pulled back and held down against the handle assembly, the slicer reel drive belt is tight.

First, adjust the slicer clutch control cable where it passes through the lower handle:

1. Loosen the two adjustment nuts on the cable jacket and move the jacket down to tighten or up to loosen the pressure of the idler pulleys on the slicer reel drive belt.
2. Re-tighten the adjustment nuts. If the drive belt is still not tight when the cable jacket is down as far as it will go, the engine must be adjusted.
3. The engine must be moved to the rear to tighten the belt (or forward to loosen the belt):
 - a. Loosen the pump mounting bolts and move the pump to the rear.
 - b. Loosen the engine mounting bolts, move the engine to adjust the slicer reel drive belt and then tighten the engine mounting bolts. (The mounting bolts are threaded into nut bars which will slide with the pump or the engine.)
 - c. Move the pump forward to tighten the pump drive belt. The tension of the pump drive belt should be adjusted so that a five-pound pull between the engine pulley and the pump pulley deflects the belt about 3/16 inch.
 - d. Tighten the pump mounting bolts.
 - e. Readjust the position of the control cable in the lower handle.
3. Replace the belt safety cover.

Traction Drive Chain Tension

1. Raise the rear end of the power deck off the ground.
2. Press in on the traction drive chain between the drive sprocket on the hydraulic motor and the driven sprocket on the differential. The chain should deflect 3/16 inch.

3. To adjust the tension in this chain, the hydraulic motor must be moved. Loosen the four mounting bolts which hold the motor to its mounting bracket and pivot the motor to the proper position and tighten the four mounting bolts.
4. While the traction drive chain is exposed, oil it lightly with clean engine oil.
5. Lower the rear end of the Renovator back to the ground.

Gas and Oil Fill-up



WARNING! Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes, and other sources of ignition.

IMPORTANT: Your renovator is shipped with motor oil in the engine. However, **you MUST check the oil level before operating.** Be careful not to overfill.

1. Check the hydraulic oil level. When filling the tank, stop when the oil reaches one inch from the top. This space must be left for expansion. Use 10W-40 engine oil.
2. Check the engine oil level. Fill to the proper level with 10W40 engine oil rated for service SE or SF.
3. Before moving the renovator, set the slicer depth adjusting lever so that the slicer reel is in the fully raised position. Then, shift the hydraulic traction control lever to forward if you wish to push the machine forward or hold it in reverse if you wish to pull the unit to the rear.
4. Move the machine outdoors. Check the engine gasoline level. When filling the tank, stop when the gasoline reaches one inch from the top. This space must be left for expansion. Use fresh, clean, unleaded, regular gasoline.
4. Lubricate all fittings listed in the maintenance section.
5. Check that all nuts, bolts, and screws are tight.

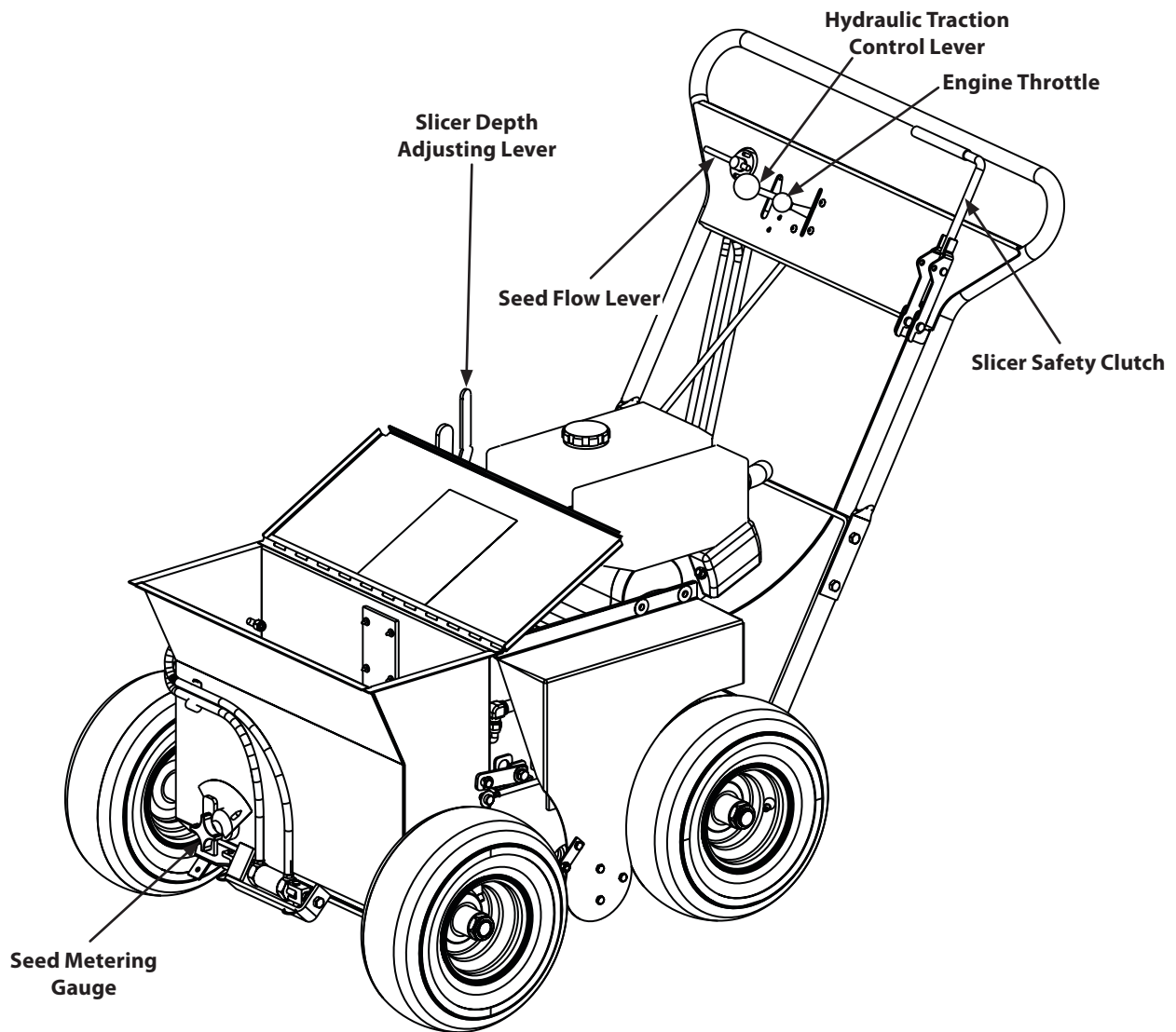


Figure 4-1

Renovator controls and features are illustrated in Fig 4-1 and described on the following pages.



WARNING! Read and follow all safety rules and instructions in this manual, including the entire Operation section, before attempting to operate this machine. Failure to comply with all safety rules and instructions may result in personal injury.

Renovator Controls

Slicer Safety Clutch

The slicer safety clutch is the large "L"-shaped lever located on the left side of the control panel, and when pulled back, causes the slicer reel to rotate. To disengage the slicer clutch, release the 'L' shaped lever. See Fig. 4-1.



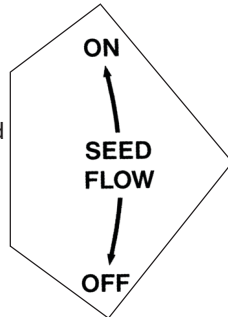
Hydraulic Traction Control Lever

The hydraulic traction control lever is located on the control panel at the top of the handle assembly and is used to determine the direction of travel. It can be moved into three positions — Forward, Neutral and Reverse. This lever also enables the Renovator to move when the engine is not running, this lever must be placed in the forward position to push the Renovator forward or held in the reverse position to pull the Renovator to the rear.

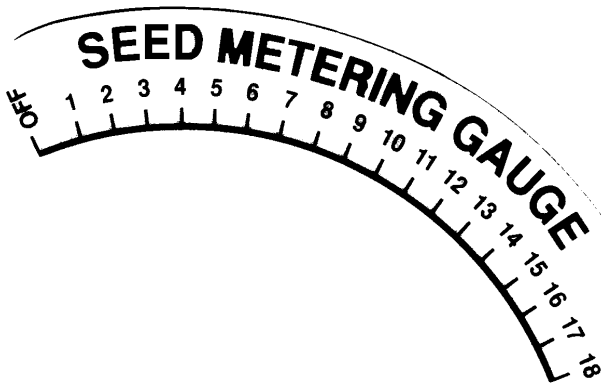
NOTE: Before starting the engine, this lever must be placed in the neutral position or the neutral safety switch will not permit the engine to start.

Seed Flow Lever

The seed flow lever is located on the right side of the control panel, and when pushed forward, opens the hydraulic seed gate to the preset adjustment causing the seed to start flowing through the diamond-shaped openings. When the lever is pulled backward, the seed gate will close and stop the seed flow.



Seed Metering Gauge



The seed metering gauge is located on the seed hopper at the front of the machine. The adjustment is made by loosening the threaded handle and turning the adjustment dial to the desired setting and then tightening the handle to lock the dial in position. The settings for common types of seed at various seeding rates are shown in the Operation section.

Slicer Depth Adjusting Lever

The slicer depth adjusting lever is located on the top of the power deck on the right side of the machine. To adjust the slicer depth, grasp the hopper lift handle, release the spring loaded lock and set depth. Depth adjustment ranges from 0 to 1-1/4" .

NOTE: This adjustment should be made while pushing down on the Renovator's handle to take the weight off the front wheels.

Engine Controls

On/Off Switch

The on/off switch is located on the front, right side of the engine. When pushed to the "On" position, the engine can be started.

Fuel Shut-Off Valve

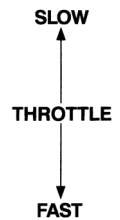
The fuel shut-off valve is located on the rear, right side of the engine. Moving it to the "On" position allows fuel to flow to the engine.

Choke Control

The choke control is located on the right side of the engine over the Fuel Shutoff Valve. Activating the choke control closes the choke plate on the carburetor and aids in starting the engine.

Throttle Control

The engine throttle is located on the control panel at the top of the handle assembly and is used to adjust the engine speed. Move the throttle lever from the front to the rear to increase the engine speed from slow to fast.



Recoil Starter

The recoil starter is located on the right side of the engine and is used to start the engine.

Oil Protection System

This system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level can fall below a safe limit, the system will automatically shut down the engine while the engine switch remains in the "On" position. If this system shuts down the engine, the oil protection lamp will flash when you pull on the recoil starter but the engine will not start. If this occurs, check to ensure that the engine is not leaking and then add engine oil.



WARNING: Make certain you thoroughly understand all of the safety precautions before you attempt to operate this machine.

IMPORTANT: Your renovator is shipped with motor oil in the engine. However, you **MUST** check the oil level before operating. Be careful not to overfill. Refer to the Engine Operator's Manual included with your unit for complete Gasoline and Oil fill-up instructions.

Starting the Engine

1. Move the machine to a "test area" where you can operate it for about a half an hour without being disturbed.
2. Set the slicing/dethatching depth using the slicer depth adjustment lever. (The blades should just graze the ground for dethatching and should slice the ground for seeding.)
NOTE: In actual operation, you would perform the following step. For practice, however, it is not necessary to load the seed hopper.
3. Set the seed flow adjustment dial at the desired seed flow rate. The settings for common types of seed at various seeding rates are shown in the table on page 6. Load the seed hopper.
4. Do not let anyone touch the slicer safety clutch.
5. Shift the hydraulic traction control lever to neutral.
6. Connect the spark plug wire.
7. Open the fuel shutoff valve.
8. Turn the engine On/Off switch to ON.
9. Place the engine choke control in the CHOKe position.
10. Move the engine throttle control halfway between the SLOW and FAST position.
11. Grasp the starter grip and pull slowly until the starter engages and then pull the cord rapidly to overcome compression, prevent kickback and start the engine. Allow the cord to recoil slowly. Repeat if necessary with the choke opened slightly.
12. Push the engine choke to the half open position and allow the engine to warm up.
13. Once the engine warms up, open the choke all the way and move the throttle lever to fast.

Stopping the Engine

1. Move the hydraulic traction control lever to NEUTRAL and push the throttle lever to SLOW.
2. Turn the engine switch to OFF.
3. Close the fuel shutoff valve, and disconnect the spark plug wire to prevent unintended starting.

Using the Renovator

1. Slowly move the hydraulic traction control lever in the "Forward" direction and the renovator will start to move forward.
2. Open the seed flow lever by pushing it forward. Use the hydraulic traction control lever to adjust the forward speed.
3. Push down on the handle to lift the front wheels off the ground and pull the slicer safety clutch down with your left hand and hold it against the handle and the slicer reel will start to rotate.
4. Lower the front wheels and ease the slicer reel into the ground.
5. Operate the renovator in a straight line. Before you have reached the end of the first pass, use the hydraulic traction control lever to slow your rate of travel, close the seed flow lever and press down on the handle to lift the rotating slicer reel out of the ground.
NOTE: The slicer reel will not stop rotating unless you release the slicer safety clutch with your left hand.
6. Turn the renovator around 180 degrees and line up the unit for a proper overlap.
7. Lower the unit down, easing the slicer reel back into the ground.
8. Open the seed flow lever and start the second pass, resuming normal operating speed.
NOTE: For best results, renovate each area in two directions, 90 degrees apart, at 1/2 the total seeding rate.
- IMPORTANT:** When renovating an area surrounded by walkways or driveways, make at least two complete passes around the perimeter. This will provide enough room to make turns at the end of each pass without running the slicer blades into the concrete or asphalt.
9. Practice operating the Renovator for at least one-half hour and then close the seed flow lever, release the slicer safety clutch and move the hydraulic traction control lever to "Neutral".
10. Set the slicer depth adjusting lever to the transport position, move the hydraulic traction control lever in the "Forward" direction and return the machine to the shop.
11. After the first full day of use, all bolts, nuts and screws should be rechecked for proper tightness and the slicer safety clutch and the pump drive belt should be rechecked for proper tension.

Slope Operation

Refer to the SLOPE GAUGE in the Safe Operation Practices section of this manual to help determine slopes where you may operate the renovator safely.



WARNING: Do not operate on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). The renovator could overturn and cause serious injury.

DO:

- Go across slopes, not up and down.
- Remove obstacles such as rocks, limbs, etc.
- Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Use slow speed. Choose a low enough speed so that you will not have to stop while on the slope.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction.
- Avoid starting or stopping on a slope. If the tires lose traction, disengage renovator and proceed slowly straight down the slope.

DO NOT:

- Do not turn on slopes unless necessary; then, turn slowly and use extra care.
- 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 on wet grass. Reduced traction could cause sliding.

Seed Flow Settings

The proper seed drop rate has been determined to be about 15 seeds per square inch. Since the size and weight of different grass seeds varies greatly (see the list in the next column), a calibration study was performed on the Renovator to determine the proper flow setting for various seeds. The results are listed in the table below.

Tall Fescue	Approximately 220,000 seeds/lb.
Ryegrass (Perennial)	Approximately 250,000 seeds/lb.
Fine Fescue	Approximately 550,000 seeds/lb.
Bluegrass	Approximately 1,000,000 seeds/lb.
Bermudagrass (Hulled)	Approximately 1,900,000 seeds/lb.
Bentgrass	Approximately 6,000,000 seeds/lb.

APPROXIMATE SEED FLOW SETTINGS TO ACHIEVE 15 SEEDS PER SQUARE INCH AT THE FORWARD OPERATING SPEED

SEED TYPE	RENOVATOR SETTING	APPROXIMATE SEEDING RATE PER 1000 SQ.FT.
Ryegrass (Perennial)	6.0	5.0 lb.
	8.0	7.0 lb.
	15.0	20.0 lb.
Tall Fescue	10.0	8.0 lb.
Creeping Red, Chewings and Hard Fescue	6.0	4.0 lb.
Kentucky Bluegrass	1.0	1.0 lb.
	2.0	2.0 lb.
Bentgrass	0.5	0.5 lb.
Bermudagrass (Hulled)	1.0	1.0 lb.

Maintenance Schedule

	After Each use	Every 25 Hours	Every 100 Hours	Every 200 Hours	Prior to Storing
Clean the machine and allow to dry	✓				✓
Check Engine Oil Level	✓				
Check Hydraulic Oil Level	✓				
Check Air Filter for Dirty, Loose or Damaged Parts	✓				
Clean and Re-oil Air Filter's Elements		✓			
Check the fuel level	✓				
Clean the cooling-air intake	✓				
Check Air Cleaner	✓				
Check slicer blades and mounting bolt tightness	✓				
Lube Points Listed on previous page			✓		✓
Lube Points Listed on previous page				✓	✓
Check condition and tension of transaxle belt			✓		
Replace Air Filter Element			✓		
Change Engine Oil and Replace Oil Filter			✓		✓
Check all nuts, bolts and screws are tight			✓		✓
Replace Spark Plug			✓		
Check Spark Plug Condition & Gap					✓

General Purpose Lubrication: Use any NLGI grade 2 multi-purpose grease. Shell Albida EP2 is recommended. Shell Albida EP 2 is a red-colored multi-purpose grease designed for heavy-duty bearing applications. It has high base oil viscosity for mechanical stability, has been formulated for high load, low-speed applications, and has excellent lubrication and corrosion protection.



WARNING! Before performing any maintenance disconnect the spark plug wire to prevent the engine from accidentally starting.

General Recommendations

- Always observe safety rules when performing any maintenance.
- The warranty on this machine does not cover items that have been subjected to operator abuse or negligence. To receive full value from warranty, operator must maintain this machine as instructed here.
- Changing of engine-governed speed will void engine warranty.
- All adjustments should be checked at least once each season.
- Periodically check all fasteners and make sure these are tight.
- Close the fuel shutoff valve after each use.

Engine

Refer to the Kawasaki Owner's Manual for all engine maintenance procedures and instructions.

NOTE: Maintenance, repair, or replacement of the emission control devices and systems which are being done at owner's expense may be performed by any engine repair establishment or individual. **Warranty repairs must be performed by a Cub Cadet Dealer.**

Change the Engine Oil



WARNING! If the engine has been recently run, the engine, muffler and surrounding metal surfaces will be hot and can cause burns to the skin. Exercise caution to avoid burns.

Maintain oil level as instructed in engine manual. The oil filter should be changed at every oil change interval. Be careful not to spill oil on any of the belts.

Air Cleaner

Service the pre-cleaner and cartridge/air cleaner element as instructed in the Kawasaki Owner's Manual.

Spark Plug

The spark plug should be cleaned and the gap reset once a season. Refer to the Kawasaki Owner's Manual for correct plug type and gap specifications.

Hydrostatic Transmission

The hydrostatic transmission is sealed at the factory and is maintenance-free. The fluid level cannot be checked and the fluid cannot be changed. The transaxle is not owner repairable. If you have a problem with a transaxle, please contact your service center for a replacement. Do not disassemble the transaxle.

Cleaning the Unit

Clean underside of the machine before each use to prevent build-up of grass or other debris. Any fuel or oil spilled on the machine should be wiped off promptly. Do NOT allow debris to accumulate around the cooling fins of the engine, the transmission's cooling fan or on any other part of the machine, especially the belts and pulleys. Wash the machine off with water. Allow the machine to dry before storing. Follow steps below for this job.

1. Disconnect the spark plug wire.
2. Close the fuel shutoff valve.
3. Allow the machine to cool.
4. Tip the machine on the side with the air cleaner facing up. Hold the machine firmly.



WARNING: Never tip the machine more than 90° in any direction and do not leave the machine tipped for any length of time. Oil can drain into the upper part of the engine causing a starting problem.

5. Wash the machine off with water. Be sure to clean out materials from under the hopper.
- IMPORTANT:** Do not use a pressure washer to clean your unit. These may cause damage to bearings, or the engine.
6. Put the machine back on its wheels on the ground.
 7. Check all of the slicer blades. Check that the blade mounting bolts are tight.
 8. Check the engine oil level, the fuel level, the fuel filter and the air cleaner.
 9. Check the hydraulic oil level.
 10. Place the Renovator in locked storage to avoid tampering or use by an untrained operator.

Lubrication



WARNING! Before lubricating, repairing, or inspecting, always set parking brake, stop engine and remove key to prevent unintended starting.

The following should be lubricated every 100 hours:

(Service more frequently under severe operating conditions.)

1. The slicer safety clutch lever pivot.
2. Both ends of the slicer safety clutch control cable.
3. The idler pulley mounting bracket pivot
4. The hydraulic traction control lever pivot.
5. The hydraulic traction control lever rod pivots.
6. The seed flow lever pivot.
7. Both ends of the seed flow control cable.
8. The seed flow bellcrank and metering link pivots.
9. The slicer depth adjusting lever pivot.
10. The depth control rod and linkage pivots.
11. The slides that connect the seed hopper to the power deck

The following should be lubricated every 200 hours:

(Service more frequently under severe operating conditions.)

1. The traction drive chain
2. The seed flow metering bar where it slides against the bottom of the seed hopper.
3. The seed flow adjustment dial pivot.
4. The hinge on the lid of the seed hopper.

Off-Season Storage

The following steps should be taken to prepare your unit for storage.

- Clean and lubricate the unit thoroughly as described in the lubrication instructions.
- Do not use a pressure washer to clean your unit.
- Place the machine in locked storage to avoid tampering or use by an untrained operator.
- Store the unit in a dry, clean area. Do not store next to corrosive materials, such as fertilizer.

If the machine is to be in storage for more than 30 days, drain the fuel tank, run the engine to drain the carburetor dry, change the oil, remove the spark plug and pour a teaspoonful of oil into the cylinder. Pull the starter to crank the engine and distribute the oil then replace the spark plug.

When storing any type of power equipment in a poorly ventilated or metal storage shed, care should be taken to rust-proof the equipment. Using a light oil or silicone, coat the equipment, especially cables and all moving parts of your machine before storage.

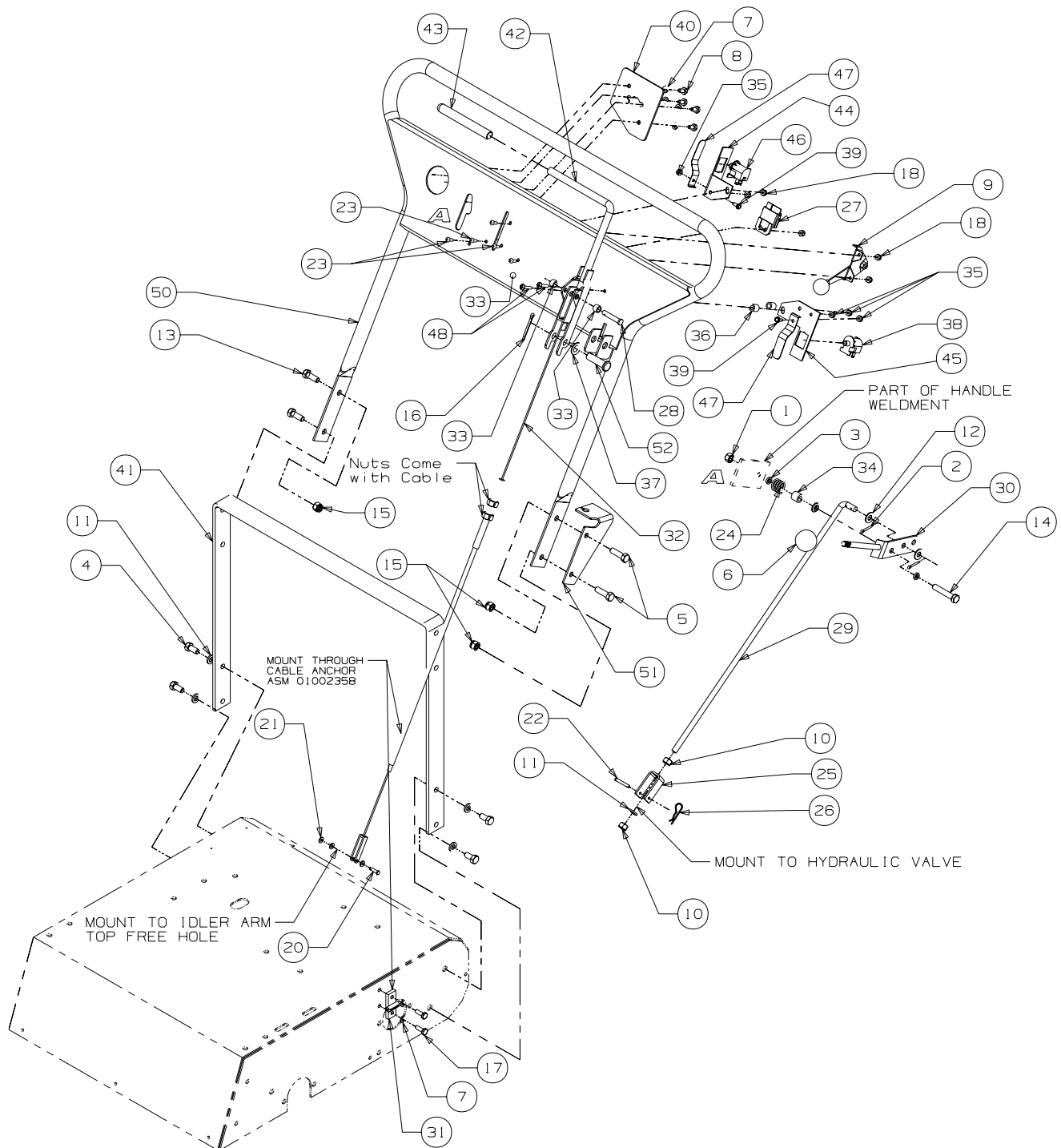
NOTE: Specifications subject to change without notice.

Specifications:

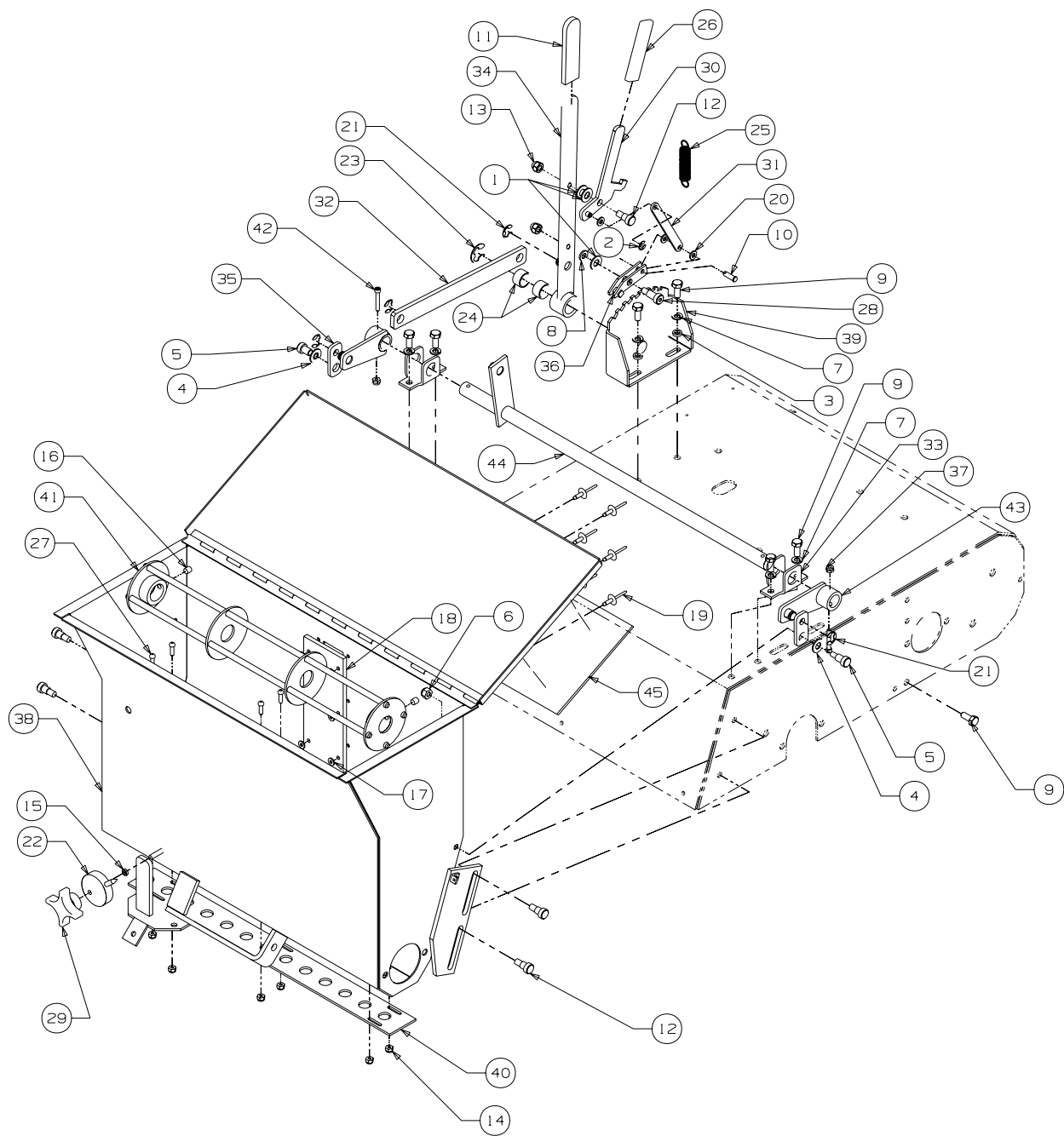
Model:	Hydraulic Renovator
Engine Mfg:	Kawasaki
HP:	8*
Type:	4 Cycle Single Cylinder
Starter:	Recoil
Traction Drive:	Hydraulic with a chain-and-sprocket driven rear axle differential
Slicer Reel Drive:	Double V-belt with a spring-loaded safety clutch
Slicer Blades:	40 hardened, high-carbon steel, reversible, replaceable
Seed Metering System:	Hydraulic activated overlapping, diamond and round-shaped holes
Seed Agitator:	Ground-driven, rotor bar
Seed Hopper:	1-1/2 cubic feet, approximately 35-lb. capacity
Seed Types:	Ryegrass, bluegrass, bermudagrass, fescue and bentgrass
Wheels and Tires:	Steel wheels with 13.5 x 6 pneumatic tires
Seeding/Dethatching Width:	20 inches
Overall Width:	30-3/4 inches
Weight:	290 lbs.

* As rated by engine manufacturer

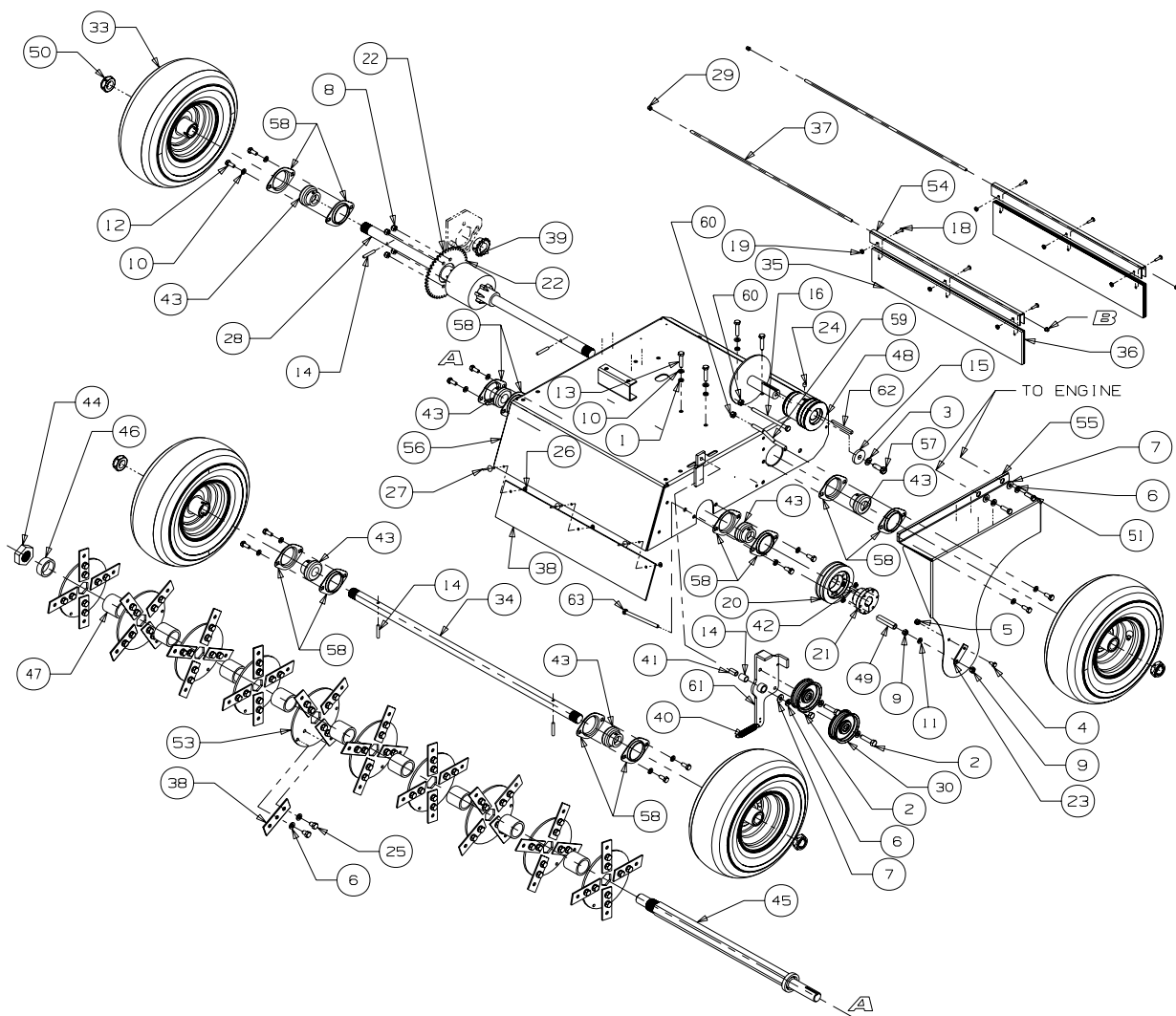
Problem	Cause	Remedy
Engine Fails to start	1. Engine switch not in ON position. 2. Spark plug boot disconnected. 3. Fuel tank empty or stale fuel. 4. Throttle not in starting position. 5. Faulty spark plug. 6. Blocked fuel line. 7. Engine flooded. 8. Fuel valve (if equipped) closed. 9. Engine not choked (if equipped with choke).	1. Turn engine ON/OFF switch to ON. 2. Connect wire to spark boot. 3. Fill tank with clean, fresh gasoline. 4. Move throttle lever halfway between SLOW and FAST. 5. Clean, adjust gap, or replace. 6. Clean fuel line. 7. Wait a few minutes to restart. 8. Open fuel valve. See engine manual. 9. Choke engine. See engine manual.
Engine runs erratic	1. Spark plug boot loose. 2. Blocked fuel line or stale fuel. 3. Vent in gas cap plugged. 4. Water or dirt in fuel system. 5. Dirty air cleaner. 6. Unit running with CHOKE (if equipped) applied.	1. Connect and tighten spark plug boot. 2. Clean fuel line; fill tank with clean, fresh gasoline. 3. Clear vent. 4. Drain fuel tank. Refill with fresh fuel. 5. Refer to engine manual. 6. Move choke lever to CHOKE OFF.
Engine overheats	1. Engine oil level low. 2. Air flow restricted.	1. Fill crankcase with proper oil. 2. Clean area around and on top of engine.
Occasional skips (hesitates) at high speed	1. Spark plug gap too close.	1. Adjust gap to .030".
Idles poorly	1. Spark plug fouled, faulty, or gap too wide. 2. Dirty air cleaner.	1. Reset gap to .030" or replace spark plug. 2. Refer to engine manual.



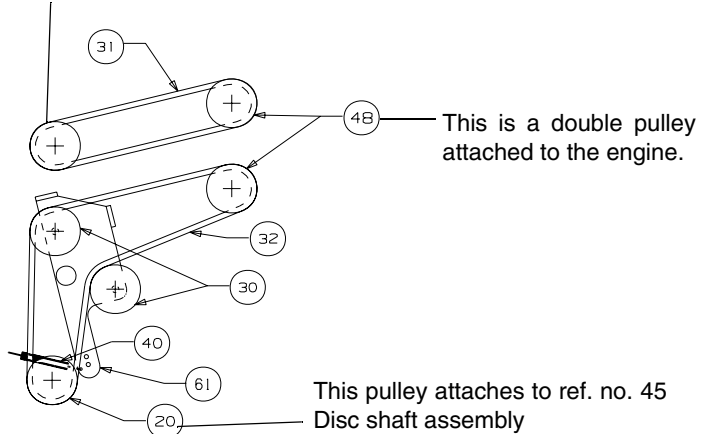
Ref. No.	Part No.	Description	Qty.
1	912-3017	Hex Nut, 3/8-16	1
2	914-0474	Cotter Pin, 1/8 x 3/4	2
3	00011075	Flat Washer, 5/16	3
4	710-3119	Hex Cap Screw, 3/8-16 x 3/4	4
5	00011444	Hex Cap Screw, 3/8-16 x 1 1/4	2
6	00012118	Knob, 1-3/8 x 1-19/64, 3/8-24	1
7	936-0329	Lock Washer, 1/4	6
8	710-3013	Hex Cap Screw, 1/4-20 x 1/2	4
9	00012149	Engine Throttle Cable	1
10	00012156	Hex Nut, 3/8-24	2
11	936-0169	Lock Washer, 3/8	5
12	00012158	Flat Washer, 3/8	2
13	00012171	Hex Cap Screw, 3/8-16 x 1	2
14	00012172	Hex Cap Screw, 3/8-16 x 2	1
15	712-04065	Lock Nut, Nylon Insert, 3/8-16	4
16	00012380	Cotter Pin, 5/32 x 1-1/2	1
17	710-3015	Hex Cap Screw, 1/4-20, .75	2
18	00014608	Lock Nut, Nylon Insert, #10-32	5
19	00014624	Splice Clip (not shown)	1
20	00014630	Clevis Pin, 3/16 x 3/4	1
21	00016771	Flat Washer, 3/16	3
22	00017568	Clevis Pin, 3/16 x 1-1/4	1
23	00017778	Round Head Mach. Screw, 10-32 x 1/2	5
24	00021797	Spring, .850 OD x 1	1
25	00021837	Clevis, Shift	1
26	00021956	3/8"-1/2" Hair Pin	3
27	00030585	Module Volt Sensor	1
28	00032153	Clevis Pin, 5/16 x 1-5/8	1
29	00033601	Shift Lever Rod	1
30	00033746	Direction Control Lever	1
31	00035104	Cable Anchor Assembly	1
32	00036730	Control Cable Adjustment Blade	1
33	00062715	Turnbuckle Sleeve	2
34	00076730	Sleeve Spring, 32/36/48	1
35	712-0161	Nylon Lock Nut, #10-24	4
36	01000799	Spacer, .265 x .500 x .562	2
37	936-0160	Flat Washer, .536 ID x .930 OD x .05	1
38	01001717	Snap Mounting Switch, NC	1
39	01001864	Hex Index Washer Screw, #10-24	2
40	01005907	Mounting Plate Valve	1
41	00030011	Lower Handle	1
42	01005453	Slicer Control Lever	1
43	01005459	Sleeve, 1/2" ID x 5.00" Long	1
44	01008063	Safety Switch Bracket	1
45	01008064	Slicer Safety Switch Bracket	1
46	01008028	Snap Mounting Switch, NO	1
47	732-04200	Retainer Spring	2
48	01008046	Pan Head Machine Screw, 10-24 x 3/4	2
49	01008057	Wire Harness (not shown)	1
50	01008066	Handle Assembly	1
51	01008098	Lower Handle Slicer Bracket	1
52	711-04997	Clevis Pin, .500 DIA. x 1.75 LG.	1



Ref. No.	Part No.	Description	Qty.
1	00005530	Flat Washer, Nylon, 3/8	3
2	00010171	Retainer Clip, "C"	1
3	00011075	Flat Washer, 5/16	2
4	00012158	Flat Washer, 3/8	2
5	00012160	Socket Shoulder Bolt, 3/8 x 12	2
6	912-0429	Nylock Nut, 5/16-18	2
7	936-0119	Lock Washer, 5/16	6
8	00012169	Flat washer, 5/16	1
9	00012179	Hex Cap Screw, 5/16-18 x 3/4	8
10	00012609	Clevis Pin, 1/4 x 3/4	1
11	00013595	Grip, .250 x 1.0 x 4	1
12	00013733	Shoulder Bolt, 3/8 x 3/8	5
13	00014561	Acorn Nut, 5/16-18	2
14	00014608	Lock Nut, Nylon Insert, #10-32	6
15	00016044	Flat Washer, 1/4	1
16	00016358	Cap Screw, 5/16-18 x 5/16	2
17	00016771	Flat Washer, 3/16	6
18	00017597	Clear Plate	1
19	00017732	POP Rivet, 3/16	6
20	00018628	Nylon Washer, 1/4	3
21	00019795	E-Ring, 1/2"	4
22	00021826	Hopper Dial Assembly	1
23	00021961	E-Ring, Retainer	1
24	741-04333	Sintered Bearing	2
25	00030020	Spring Reel Enlargement	1
26	00030899	Grip, 3.5"	1
27	00030906	Machine Screw, 10-32 x 5/8	6
28	00031885	Shoulder Bolt, 3/8 x 5/8	1
29	00060043	Knob Control Rate	1
30	00082159	Hopper Lift, Pivot Assembly	1
31	00082292	Hopper Lift, Link, Short	1
32	00082300	Hopper Lift, Link, Long	1
33	00082743	Hopper Assembly, Lift Support	2
34	00083477	Hopper Lift, Handle Assembly Bearing	1
35	00083661	Hopper Lift, Link	2
36	00084102	Hopper Lift, Latch Assembly	1
37	712-0161	Nylon Lock Nut, #10-24	2
38	02004208	Hopper Assembly Cover	1
39	01002352-0637	Hopper Lift, Bracket Assembly	1
40	01002365-0637	Metering Bar Assembly	1
41	01002367-0637	Agitator Assembly	1
42	01003133	Socket Screw, #10-24 x 1.25	2
43	01007917	Hopper Lift, Arm Assembly	2
44	01007925	Hopper Lift Assembly	1
45	00031742	Step, 6" Roll Safety Adhesive	1



This part is from page 8 and 9 Ref. No. 21
Sheave Pulley connected to Hydraulic Pump.



Description	Part Number
Engine	01001002
Filter	KM-11013-2128
Foam Wrap	KM-11013-2129
Fuel Filter	KM-49019-2095
Muffler	KM-49069-22779X
Gasket Muffler	KM-11009-2487
Sparkplug	KM-BPR5ES

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	00011075	Flat Washer, 5/16	4	35	00021819	Brush	2
2	00011438	Hex Cap Screw, 3/8-16 x 1-1/2	3	36	00021822	Brush Guard	3
3	00012062	Lock Washer, M10	1	37	00021824	Brush Mounting Shaft	2
4	00012133	Hex Cap Screw, 1/4-20 x 1/2	1	38	00030001	Heavy Duty Blade	40
5	00012152	Lock Nut, Nylon Insert, 1/4-20	1	39	00030014	Sprocket Drive Motor	1
6	736-0169	Lock Washer, 3/8	85	40	00030020	Reel Enlargement Spring	1
7	00012158	Flat Washer, 3/8	4	41	00030342	Bellecrank Pivot Tube	1
8	712-0429	Nylock Nut, 5/16-18	4	42	00033670	Key, 1/4 x 1/4 x 1-1/4	1
9	00012166	Hex Nut, 5/16-18	2	43	00034995	Flanged Ball Bearing	6
10	736-0119	Lock Washer, 5/16	15	44	00035603	Hex Lock Nut, 1-1/4-12	1
11	00012169	Flat Washer, 5/16	1	45	00063635	Disc Shaft Assembly	1
12	00012179	Hex Cap Screw, 5/16-18 x 3/4	12	46	00064498	Disc Blade Spacer Assembly	1
13	00012382	Hex Cap Screw, 5/16-18 x 1-1/2	4	47	00064591	Blade Disc Spacer	9
14	00013397	Groove Pin, 1/4 x 1-1/2	4	48	01000165	Double Pulley, 2.65 Dia. 3.15 Dia.	1
15	00013675	Clutch Washer	1	49	01000395	Spacer, Stop Deck	1
16	00014394	Hex Cap Screw, M8-1.25, 120.0	1	50	01000678	Jam Nut Insertion Lock, 1.0 -14	4
17	00014601	Chain, Master Link 21-1/2	1	51	01000720	Hex Cap Screw, M8-1.25 x 25mm	2
18	00014602	Round Head Machine Screw, 10-32 x 3/4	6	52	01001002	8HP Kawasaki Engine (not shown)	1
19	00014651	Nut, Keeper, #10-32	6	53	02004309	Disc Blade	10
20	00014655	Sheave Pulley	1	54	01002328-	Brush Clip Assembly	2
21	00014673	Sheave Bushing	1		0637		
22	00016338	Sprocket	1	55	01002369-	Belt Guard Assembly	1
23	00016344	Belt Guard Bracket	1		0421		
24	00016358	Cap Screw, 5/16-18 x 5/16	1	56	01002373-	Power Deck Assembly	1
25	00016362	Hex Cap Screw, 3/8-24 x 1/2	80		0421		
26	00016771	Flat Washer, 3/16	3	57	01002885	Hex Cap Screw, M10x1.5, 30mm, GR10.9	1
27	00017732	POP, Rivet, 3/16	3	58	741-0242	Flange Bearing Cover	12
28	00021795	Differential	1	59	01004981	Belt Guide Rod, M8-1.25	1
29	00021804	Push-On Cap, 1/4	4	60	01004982	Hex Nut Center Lock, M8	2
30	00021810	Pulley	2	61	00030341	Blade Clutch with Bearings, Bellecrank Assembly	1
31	00021811	Power Wedge COG 26.1" OD, Pump Belt	1				
32	00021812	2 Rib Blade Belt	1	62	01007533	Key, 1/4 x 1/4 x 2-3/4	1
33	00021813	Wheel Assy, 13-5 x 6	4	63	02002974	Tap Bolt, 5/16-18 x 4.00	1
34	00021818	Shaft Agitator	1				

[illegible]

[illegible]

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT
YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board and MTD Consumer Group Inc are pleased to explain the evaporative emission control system warranty on your 2008 lawn mower. In California, new lawn mowers must be designed, built and equipped to meet the State's stringent anti-smog standards. MTD Consumer Group Inc must warrant the EECS on your lawn mower for the period of time listed below provided there has been no abuse, neglect or improper maintenance of your lawn mower.

Your EECS may include parts such as the carburetor, fuel-injection system, the ignition system, catalytic converter, fuel tanks, fuel lines, fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, and other associated emission-related components.

Where a warrantable condition exists, MTD Consumer Group Inc will repair your lawn mower at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

This evaporative emission control system is warranted for two years. If any evaporative emission-related part on your equipment is defective, the part will be repaired or replaced by MTD Consumer Group Inc.

OWNER'S WARRANTY RESPONSIBILITIES:

As the lawn mower owner, you are responsible for performance of the required maintenance listed in your owner's manual. MTD Consumer Group Inc recommends that you retain all receipts covering maintenance on your lawn mower, but MTD Consumer Group Inc cannot deny warranty solely for the lack of receipts.

As the lawn mower owner, you should however be aware that MTD Consumer Group Inc may deny you warranty coverage if your lawn mower or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.

You are responsible for presenting your lawn mower to MTD Consumer Group Inc's distribution center or service center as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have a question regarding your warranty coverage, you should contact the MTD Consumer Group Inc Service Department at 1-800-800-7310.

GENERAL EMISSIONS WARRANTY COVERAGE:

MTD Consumer Group Inc warrants to the ultimate purchaser and each subsequent purchaser that the lawn mower is: Designed, built and equipped so as to conform with all applicable regulations; and free from defects in materials and workmanship that cause the failure of a warranted part to be identical in all material respects to that part as described in MTD Consumer Group Inc's application for certification.

The warranty period begins on the date the lawn mower is delivered to an ultimate purchaser or first placed into service. The warranty period is two years.

Subject to certain conditions and exclusions as stated below, the warranty on emission-related parts is as follows:

1. Any warranted part that is not scheduled for replacement as required maintenance in the written instructions supplied, is warranted for the warranty period stated above. If the part fails during the period of warranty coverage, the part will be repaired or replaced by MTD Consumer Group Inc according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period.
 2. Any warranted part that is scheduled only for regular inspection in the written instructions supplied is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.
 3. Any warranted part that is scheduled for replacement as required maintenance in the written instructions supplied is warranted for the period of time before the first scheduled replacement date for that part. If the part fails before the first scheduled replacement, the part will be repaired or replaced by MTD Consumer Group Inc according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
 4. Repair or replacement of any warranted part under the warranty provisions herein must be performed at a warranty station at no charge to the owner.
 5. Notwithstanding the provisions herein, warranty services or repairs will be provided at all of our distribution centers that are franchised to service the subject engines or equipment.
 6. The lawn mower owner will not be charged for diagnostic labor that is directly associated with diagnosis of a defective, emission-related warranted part, provided that such diagnostic work is performed at a warranty station.
 7. MTD Consumer Group Inc is liable for damages to other engine or equipment components proximately caused by a failure under warranty of any warranted part.
 8. Throughout the lawn mower warranty period stated above, MTD Consumer Group Inc will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.
 9. Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of MTD Consumer Group Inc.
 10. Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the ultimate purchaser will be grounds for disallowing a warranty claims. MTD Consumer Group Inc will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.
-

WARRANTED PARTS:

The repair or replacement of any warranted part otherwise eligible for warranty coverage may be excluded from such warranty coverage if MTD Consumer Group Inc demonstrates that the lawn mower has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for repair or replacement of the part. That notwithstanding, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device is still eligible for warranty coverage. The following emission warranty parts are covered:

(1) Fuel Metering System

- Cold start enrichment system (soft choke)
- Carburetor and internal parts
- Fuel pump
- Fuel tank

(2) Air Induction System

- Air cleaner
- Intake manifold

(3) Ignition System

- Spark plug(s)
- Magneto ignition system

(4) Exhaust System

- Catalytic converter
- SAI (Reed valve)

(5) Miscellaneous Items Used in Above System

- Vacuum, temperature, position, time sensitive valves and switches
- Connectors and assemblies

(6) Evaporative Control

- Fuel hose certified for ARB evaporative emissions 2008
- Fuel hose clamps
- Tethered fuel cap
- Carbon canister
- Vapor lines

CUB CADET LLC MANUFACTURER'S LIMITED WARRANTY FOR COMMERCIAL LAWN APPLICATION EQUIPMENT

IMPORTANT: To obtain warranty coverage owner must present an original proof of purchase and applicable maintenance records to the servicing dealer. Please see the operator's manual for information on required maintenance and service intervals.

The limited warranty set forth below is given by Cub Cadet LLC with respect to new merchandise purchased or leased and used in the United States and/or its territories and possessions, and by MTD Products Limited with respect to new merchandise purchased or leased and used in Canada and/or its territories and possessions (either entity respectively, "Cub Cadet").

Cub Cadet warrants this product (excluding its *Normal Wear Parts, Batteries and Attachments* as described below) against defects in material and workmanship for a period of one (1) year commencing on the date of original retail purchase or lease and will, at its option, repair or replace, free of charge, any part found to be defective in materials or workmanship.

Normal Wear Parts are warranted to be free from defects in material and workmanship for a period of thirty (30) days or one hundred (100) operation hours, whichever comes first, commencing on the date of original retail purchase or lease. Normal wear parts include, but are not limited to items such as: belts, blades, blade adapters, grass bags, rider deck wheels, seats, and tires.

Batteries have a one-year prorated limited warranty against defects in material and workmanship, with 100% replacement during the first three months. After three months, the battery replacement credit is based on the months remaining in the twelve (12) month period dating back to the original date of original sale or lease. Any replacement battery will be warranted only for the remainder of the original warranty period.

Attachments — Cub Cadet warrants attachments for this product against defects in material and workmanship for a period of one (1) year, commencing on the date of the attachment's original purchase or lease. Attachments include, but are not limited to items such as: grass collectors and mulch kits.

This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water, or damage because of other peril or natural disaster. Damage resulting from the installation or use of any part, accessory or attachment not approved by Cub Cadet for use with the product(s) covered by this manual will void your warranty as to any resulting damage. In addition, Cub Cadet may deny warranty coverage if the hour meter, or any part thereof, is altered, modified, disconnected or otherwise tampered with.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE AND APPLICABLE MAINTENANCE RECORDS, through your local authorized service dealer. To locate the dealer in your area:

In the U.S.A.:

Check your Yellow Pages, or contact Cub Cadet LLC at P.O. Box 361131, Cleveland, Ohio 44136-0019, call 1-877-282- 8684 or log on to our website at www.cubcadet.com.

In Canada:

Contact MTD Products Limited, Kitchener, ON N2G 4J1, call 1-800-668-1238 or log on to our website at www.mtdcanada.com.

Without limiting the foregoing, this limited warranty does not provide coverage in the following cases:

- a. Routine maintenance items such as lubricants, filters, blade sharpening, tune-ups, brake adjustments, clutch adjustments, deck adjustments, and normal deterioration of the exterior finish due to use or exposure.
- b. Service completed by someone other than an authorized service dealer.
- c. Cub Cadet does not extend any warranty for products sold or exported outside of the United States and/or Canada, and their respective possessions and territories, except those sold through Cub Cadet's authorized channels of export distribution.
- d. Replacement parts and/or accessories that are not genuine Cub Cadet parts.
- e. Transportation charges and service calls.

There are no implied warranties, including without limitation any implied warranty of merchantability or fitness for a particular purpose. No warranties shall apply after the applicable period of express written warranty above. No other express warranties beyond those mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product, shall bind Cub Cadet. The exclusive remedy is repair or replacement of the product as set forth above. The terms of this warranty provide the sole and exclusive remedy arising from the sale and/or lease of the products covered hereby. Cub Cadet shall not be liable for any incidental or consequential loss or damage including, without limitation, expenses incurred for substitute or replacement lawn care services or for rental expenses to temporarily replace a warranted product.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. **Alteration of safety features of the product shall void this warranty.** You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser or to the person for whom it was purchased as a gift.

HOW LOCAL LAWS RELATE TO THIS WARRANTY: This limited warranty gives you specific legal rights, and you may also have other rights that vary in different jurisdictions.

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