DL3701VETR
Operator's Manual

Debris Loader Operator's Manual

DL3701VETR
Beginning Serial: 050124001

80130555

Table of Contents:

Specifications

Engine Specifications

Engine: Type	Briggs and Stratton Vanguard
Engine: Model	61A2770100J1
Engine: Fuel Capacity	32 qt. (30.28 L)
Engine: Oil Capacity	2.47 qt. (2.34 L)

Dimensions

DIMENSIONS

Overall Length	123" - 135" (312 cm - 343 cm)
Overall Width	69" (175.26 cm)
Overall Height	115.25" - 122.75" (292.74 cm - 335 cm)
Unit Weight (W/oil, but no fuel in engine)	1860 lbs (844 Kg)
Maximum Operating Slope	25°

Operator Safety

California Proposition 65

WARNING

This product can expose you to chemicals including gasoline engine exhaust, which is known to the State of California to cause cancer and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Safety Decals

The decals shown below were installed on your Billy Goat® Debris Loader. If any decals are damaged or missing, replace them before operation. For your convenience in ordering replacement decals, part numbers are included below.

1

Callout	Part Number
A	811215
B	790232
C	790142
D	790301
E	440424
F	810736
G	100330
H	794280

Safety Interlock System

The Billy Goat® Leaf Dragon™ Debris Loader is equipped with two safety interlock systems: a hose intake safety interlock (A, Figure 2) a door safety interlock (B). These safety systems are present for your safety. Do not attempt to bypass them! Never tamper with safety systems! Check their operation before each use. The engine will ***not*** start without both of these safety systems activated simultaneously.

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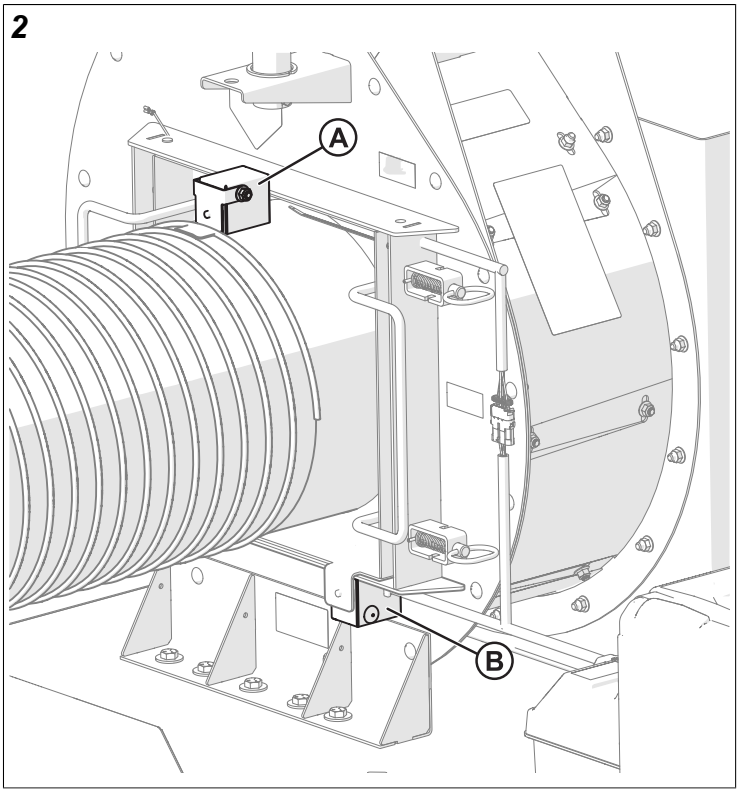

To activate the hose intake safety interlock, slide the hose *over* the switch. The hose will press against the hose intake safety interlock switch, activating it.

To activate the door safety interlock, install the door onto the unit. During installation, a flange on the door will press against the door safety interlock switch, activating it.

Operating Safely

Read the safety rules outlined in the General Safety and Warranty Manual included with this Operator's Manual in your Billy Goat® parts bag and literature assembly. Follow the safety rules closely. Failure to obey these rules could result in loss of control of the unit, severe personal injury or death to you, or bystanders, or damage to property or equipment.

The safety alert triangle (⚠) in text signifies important cautions or warnings which must be followed.

Debris Loader Safety

For your safety, follow this summary of safety information regarding your Billy Goat® Leaf Dragon™ Debris Loader.
Note: For complete comprehension of safety rules, read the General Safety Information packet for the Debris Line (Billy Goat® P/N 100294) provided with the unit.

Always perform the following safety checks before operation. Failure to perform these safety checks could result in damage to the unit and/or death or injury.

- Check the operating area for obstacles or debris that the Debris Loader cannot process such as rocks, glass, string-like material, grain, fabric, cans and metal. Remove any obstacles to the cleanup job.
- Check for loose debris and remove if present. Combustible debris may ignite within proximity to a running engine.
- Alert any bystanders of the work about to be performed. **Always** be aware of bystanders, including children, during operation. Bystanders and children can unexpectedly enter the operating area. Children can be attracted to operating activity. Be aware of their presence and protect their safety.
- Wear the appropriate personal protective equipment such as, but not limited to, safety glasses, hearing protection, and gloves.
- Verify engine oil condition. Replace or add oil if necessary. See the engine operator's manual for engine maintenance procedures.
- Verify engine fuel level. Refuel if necessary. **Do not** refuel with the engine running!
- Check the condition of battery cables and fuel lines. Replace cables and lines if any cracks or damage is present.
- Check the condition of the replaceable liner. Replace a damaged, deformed, or otherwise worn liner before operation.
- Check the condition of the replaceable impeller. Replace a damaged, deformed, or otherwise worn impeller before operation.
- Check for excessive vibration. If excessive vibration occurs, shut engine off immediately and check for damaged or worn impeller, loose impeller bolt, loose impeller key, and/or loose engine or clogged debris in housing, hose, or elbow.

Trailer Safety

For your safety, follow this summary of safety information regarding your Croft® trailer.
Note: For complete comprehension of safety rules, read the Croft® Trailer Owner's Manual provided with the unit.

Always perform the following safety checks before transport. Failure to perform these safety checks could result in damage to the unit, damage to the trailer, and/or death or injury.

- Check tire pressures. Correct tire pressure is listed on the trailer Certification/VIN label.
- Inspect tires for damage. If any tire is damaged (bald spots, bulges, cuts, tears, etc.), replace the tire immediately.
- Inspect trailer for structural damage including bending, cracks, or failures. Do not operate the trailer if structural damage is present.
- Check wheel lug nuts, and be sure they are tight. Check the Croft® Trailer Owner's Manual for proper torque specification.
- Verify that your Billy Goat® Leaf Dragon™ Debris Loader is securely mounted to the trailer.

⚠ **DANGER**

Shifting of cargo during transportation can cause accidents resulting in injury or death.

- Verify that the trailer is properly coupled to the tow vehicle hitch ball. Verify that the trailer safety chains are fastened to the two vehicle frame.

DANGER

Improper coupling can cause the trailer to become loose from the tow vehicle, which could result in injury or death.

- Verify that the trailer wiring harness is properly connected to the vehicle wiring. Check that all lights function properly.

Features and Controls

Hose

Your Billy Goat® Leaf Dragon™ Debris Loader is equipped with a flexible hose that collects debris to be processed through the impeller. The durable urethane plastic material of the hose protects the operator and bystanders from flying debris. The new 16" diameter, 10' length hose provides a larger surface area of intake, which allows operators to process larger amounts of debris than ever before with a Billy Goat® Debris Loader.

Hose Door

The hose door connects the hose to the impeller intake, and and shields the operator from the impeller and flying debris. Additionally, the hose door is an integral component of the safety interlock system. See the *Safety Interlock Section* section for more information. The unit will **not** start without the hose door properly installed.

The hose door also allows the operator to easily access the impeller and liner for inspection procedures. Because the unit will not start with the hose door uninstalled, the operator can perform unit inspection safely. **Never** attempt to perform maintenance with the hose door installed on the unit!

To unlock the hose door, simultaneously pull both the spring loaded pins. Then to remove, pull the door slightly up and out of the housing. Remove the hose before attempting to remove the hose door.

Nozzle Handle

The nozzle handle allows the operator to ergonomically collect debris. During initial setup, secure the nozzle handle to the nozzle intake. See the *Setup Assembly* section for more information. During operation, grasp the handle bars and move the hose in a sweeping motion around the operation area, picking up debris as you go.

Three Position Hose Boom

The hose boom can rotate 180 degrees for ease and flexibility during cleanup jobs. Operators can choose any of the three lockable positions. Unlock the hose boom with the boom lock, and rotate the hose boom to the desired position. Then, lock the hose boom into place. See the section *Adjusting the Hose Boom* for more information.

Towable Trailer

Your Leaf Dragon™ mounts onto a towable Croft® trailer that can be transported directly to the jobsite. A Croft® trailer manual is provided with your unit. To protect the longevity of the trailer, **read, understand, and follow** the information provided in the manual regarding proper trailer operation, maintenance, and storage.

Traffic Cone

The traffic cone is included with the Croft® Trailer. The traffic cone serves to protect the operator, the unit and trailer, as well as bystanders. **Always** place the traffic cone near the operating area to alert bystanders of operating activity. Bystanders should be aware of work being done in the area to avoid injury to themselves and/or the operator or damage to the unit and trailer.

Nozzle Holder

The Nozzle Holder is a feature on the Croft® Trailer located on the trailer tongue. The nozzle holder keeps the hose secure during transport. Before transport, rotate the hose boom to face toward the trailer tongue (See the *Adjusting the Hose Boom* section for more information). Place the hose nozzle onto the nozzle holder (A, Figure 3), then hook the small chain below the nozzle holder (B) to the nozzle eyebolt (E, Figure 4). See *Step 7* in the *Setup Assembly* section for more information.

DANGER

Never transport without securing the hose to the nozzle holder. A loose hose during transport can result in damage to the unit or injury and/or death to fellow drivers/ passengers sharing the road with the operator.

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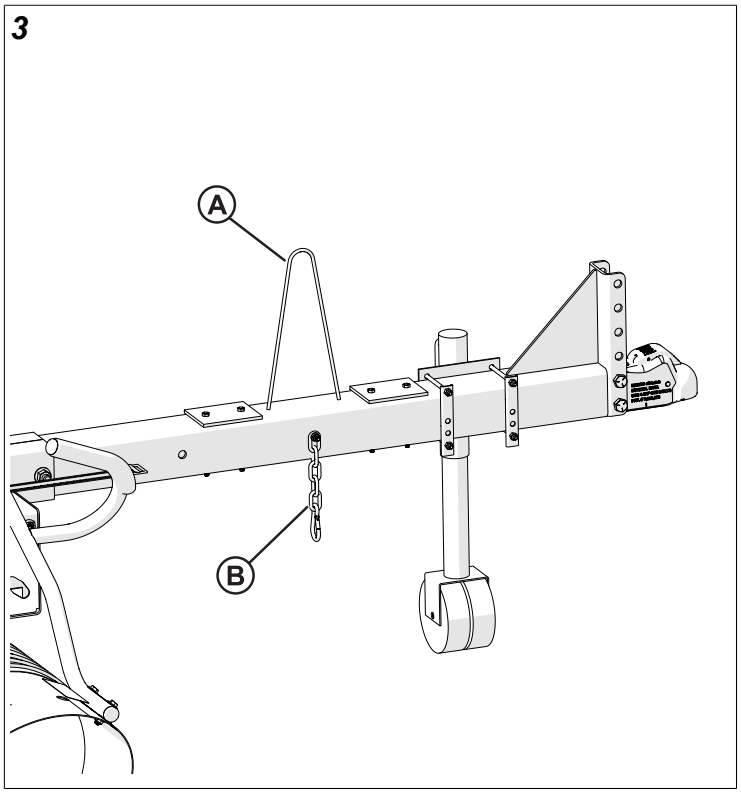

Wheel Chocks

Wheel chocks are provided with the Croft® Trailer. Each wheel chock can be located in a chock box next to each trailer wheel. Use the chock blocks to chock wheels during operation and maintenance to prevent the trailer from rolling.

Assembly

Unpacking

Your Billy Goat® Leaf Dragon™ Debris Loader is shipped mounted on its trailer with loose parts. The Leaf Dragon™ will require additional setup assembly. The operator must complete the initial setup assembly before operating the unit!

Unpack your Debris Loader and locate all loose parts as shown in Figure 4. Use the accompanying table to identify the loose parts. Loose parts include straight elbow section (including hardware), hose, nozzle intake (including hardware), hose boom band (including hardware), hose handle, and boom chain.

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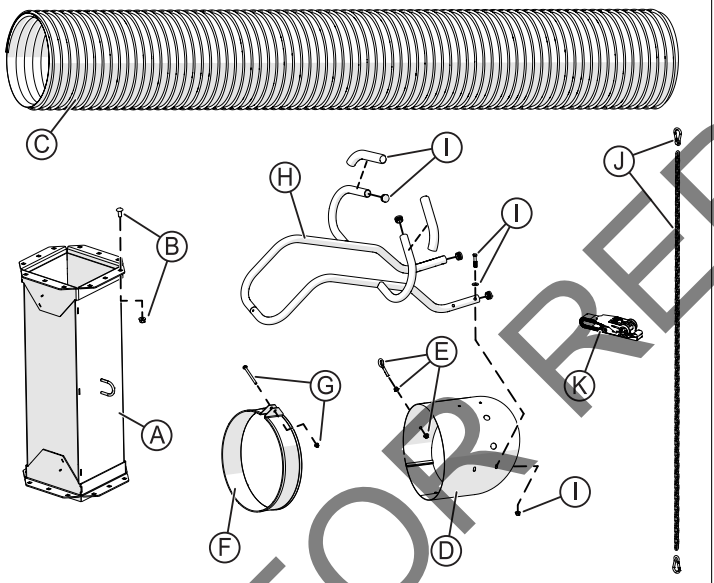

Loose Parts

I.D.	Description	P/N	QTY
A	Straight Elbow Section	794104	1
B	Elbow Hardware	Bolts (8024097)	24
		Nuts (8165005)	24
C	Hose	794243	1
D	Nozzle Intake	794408	1
E	Nozzle Intake Hardware	Eye Bolt (791081)	1
		Outside Nut (791079)	1
		Inside Nut (8165003)	1
F	Hose Boom Band	794406	1
G	Hose Boom Band Hardware	Bolt (8024054)	1
		Nut (8165002)	1

Loose Parts

I.D.	Description	P/N	QTY
H	Hose Handle	794108	1
I	Hose Handle Hardware	Bolts (8041054)	4
		Washers (8171004)	4
		Nuts (8165003)	4
		Grips (440146)	2
		Plugs (5108817)	4
J	Boom Chain and Chain Hooks	Chain (791057)	1
		Hooks (791027)	2
K	Ratchet Straps	792270	2

Setup Assembly

1. Unpack and identify the loose parts as shown in Figure 4. You will use these loose parts to install the elbow, the hose, hose band, nozzle, nozzle handle, and the boom chain.
2. Remove the curved section of the elbow from the unit. The curved section is fastened down with four bolts and nuts. Remove the nuts and bolts, then carefully remove the curved elbow section.

CAUTION

Elbow sections are heavy! Injury may occur without proper care when handling. Use caution when installing or removing elbow sections.

3. Install the straight elbow section (A, Figure 5) onto the unit. Use the nuts and bolts (B) provided in the Loose Parts to secure the straight elbow section to the unit.

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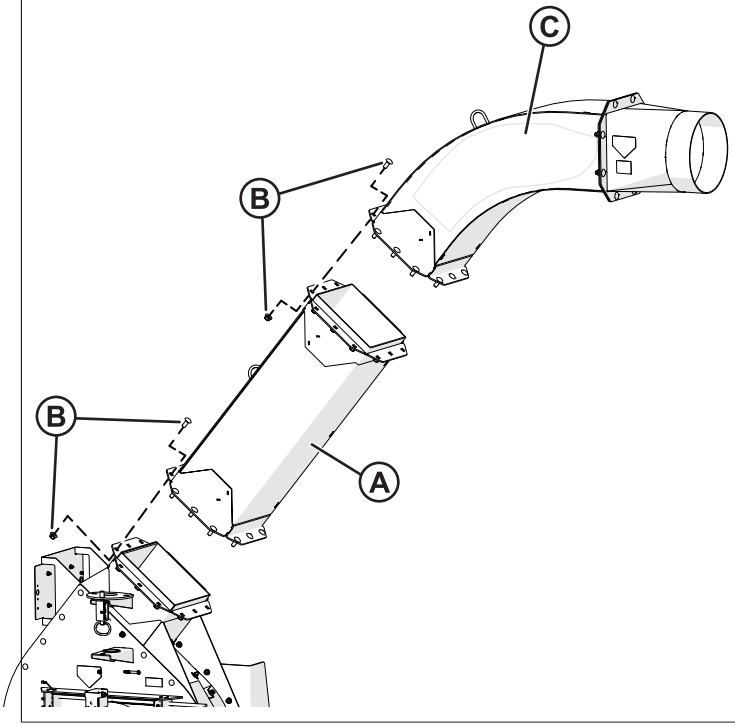

4. Install the curved elbow (C, Figure 5) section onto the straight elbow section. Use the nuts and bolts provided in the Loose Parts to secure the curved elbow to the straight elbow.

CAUTION

Elbow sections are heavy! Injury may occur without proper care when handling. Use caution when installing or removing elbow sections.

5. Install the hose band (F, Figure 4) onto the hose. Slide the band over the hose and secure with nut and bolt (G).
6. Install the hose onto the unit. Slide the hose onto the debris loader intake. Be sure to cover the hose safety interlock system (A, Figure 2). Use a ratchet strap to secure the hose to the intake.

Note: Note the *air flow arrows* printed on the hose. Be sure to install the hose with the correct air flow orientation. Orient the arrows to face towards the debris loader.

7. Install the intake nozzle (D, Figure 4) onto the hose. Insert the intake nozzle into the opposite side of the hose. Install the eyebolt, outer nut, and inner nut (E) onto the intake nozzle.
8. Install the handle (H, Figure 4) onto the nozzle intake (D). Use the four bolts, washers, and nuts (I) to secure.
9. Install the boom chain (J, Figure 4) . Attach a hook (there are two hooks total) to each end of the chain. Secure one side of the hook and chain assembly to the boom. Secure the other side of the hook and chain assembly to the hose band.
10. Connect one side of the the positive battery cable to the battery. The other side of the battery cable should be connected to the engine starter.

Coupling the Trailer

Before transporting the Billy Goat® Leaf Dragon™ Debris Loader and Croft® trailer, you must couple the trailer to the tow-vehicle.

1. Verify that the tow-vehicle has the correct size ball hitch. The proper towing hitch for the Croft® trailer is a 2.3125" ball hitch.
2. If necessary, adjust the trailer tongue length. Trailer tongue length can be adjusted in 6" increments. Remove the hardware securing the tongue (A, Figure 6). Then slide the tongue (B) either forward or backward to the desired position. Reinstall the hardware to secure the tongue.

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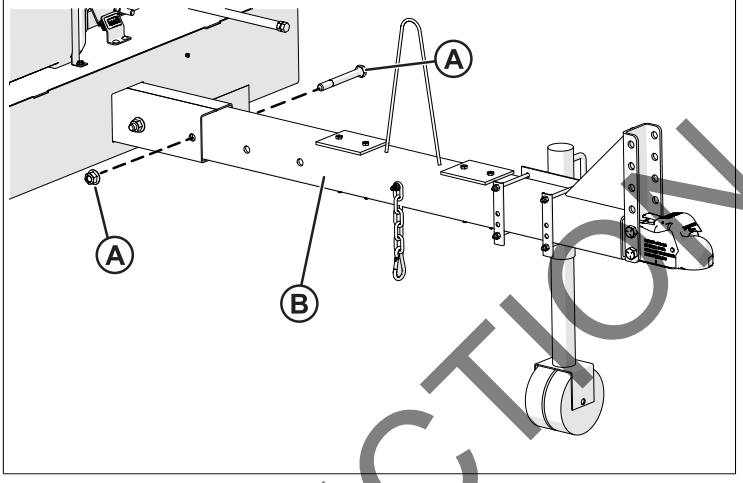

3. Align the tow-vehicle directly in front of the Croft® trailer hitch. Slowly reverse the tow-vehicle until it is about 1' away from the hitch.
4. Observe the height of the trailer hitch (A, Figure 7) versus the height of the tow-vehicle hitch. To properly couple the trailer, position the tow-vehicle hitch ball 2-3" below the trailer hitch.
   If the tow-vehicle hitch is much higher than the trailer hitch, raise the trailer hitch (A). Adjust the height of the trailer hitch by removing the hardware (B) securing the height adjuster. Move the hitch to the desired position, then secure with the hardware in the pin slots.

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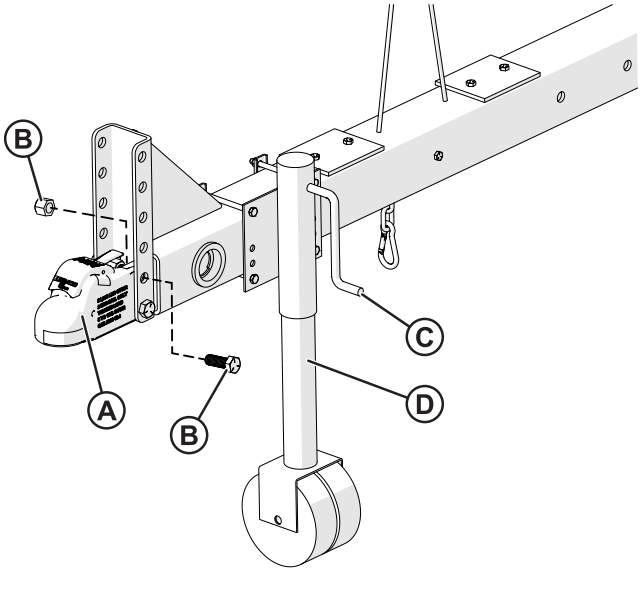

5. Slowly reverse the tow-vehicle until the tow-vehicle hitch ball is centered underneath the trailer hitch. Park the tow-vehicle.
6. Use crank handle (C, Figure 7) on the trailer hitch jack to lower the trailer hitch onto the tow-vehicle hitch ball. The operator will hear a distinct "clunking" noise as the spring-loaded pin in the trailer hitch couples to the hitch ball.

DANGER

Do not transport if the trailer hitch is not properly coupled to the ball hitch. Always verify the integrity of the tow vehicle-to-trailer coupling. Failure to couple the trailer correctly can result in damage to the unit, injury, and/or death.

7. For additional security, hook the two chains (not shown) from the trailer to the tow-vehicle. Use a criss-cross orientation.
8. Connect the trailer wiring to the tow-vehicle wiring. Start the tow-vehicle and verify that all trailer lights function properly.
9. Lift the trailer hitch jack (D, Figure 7) off the ground. Pull out the spring-loaded pin that secures the vertical position of the trailer hitch jack. Then, rotate the trailer hitch jack 90 degrees until the spring-loaded pin locks into position. The trailer hitch jack should now be secured and parallel to the ground.
10. Verify that the trailer license plate is present before transport.

Operation

Starting the Unit

Pre-Start

1. Perform all of the pre-operation safety checks listed in the *Debris Loader Safety section*.
2. Perform all of the pre-operation safety checks listed in the *Trailer Safety* section.
3. Connect the wiring harness on the hose door to the engine wiring harness.
4. Connect the red battery cable on the engine starter to the battery.

Starting the Engine

1. Use the key to start the engine. There is no choke present on this engine.

Adjusting Hose Boom

Properly adjusting the boom prevents most hose clogs from occurring and maximizes vacuum performance by keeping the hose straight and perpendicular to the housing. Raise or lower one of the attachment links to a different area on the chain to make height adjustments.

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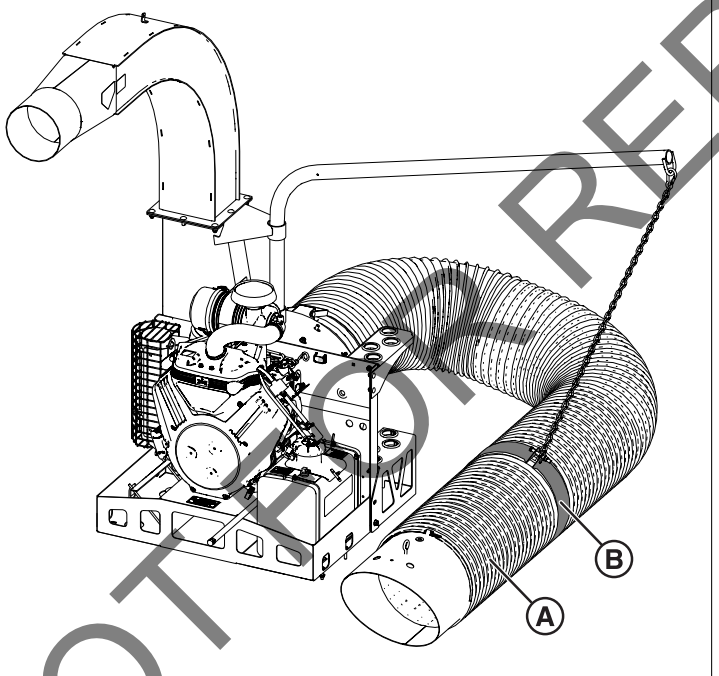

I.D.	Description
A	Hose
B	Hose Band (stretch out the hose before clamping)

Vacuuming Operation

Important: With the machine off and spark plug disconnected, check the condition of the replaceable liner before every use and replace if necessary.

Exhaust Direction and Distance: Exhaust direction and distance are controlled by the rotation of the exhaust elbow. Typically debris is aimed to discharge to the rear of the container. The direction of discharge is adjusted by rotating the exhaust elbow in the desired direction then securing the elbow to the housing with the hardware provided. See the Initial Set-Up Assembly section for instructions on how to mount the elbow.

CAUTION

Elbow is heavy. Use caution when adjusting. Never stand directly under the elbow while adjusting direction of exhaust. Never direct exhaust into an area where bystanders may cross the path of the debris.

Intake Operation: With the fully assembled machine running, move the nozzle in sweeping motions over debris. Always allow air to flow into the nozzle along with the debris. Do not completely block the nozzle when vacuuming as it will reduce performance and increase clogging.

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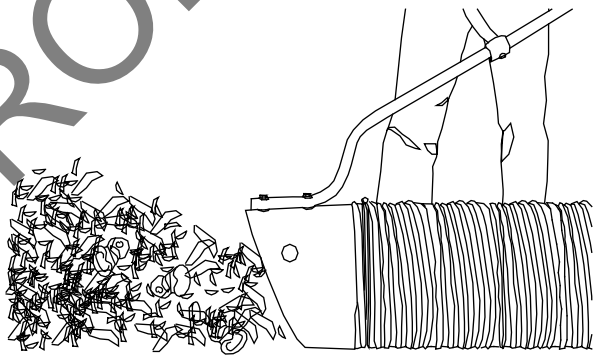


For removal of heavier debris, or debris that is stuck to the ground, rock nozzle forward to concentrate suction power around the debris.

10

Hose Care

To increase hose life, periodically rotate hose and position nozzle and coupler on the front plate of the unit. This ensures that the hose will not wear on only one side, further increasing its life.

Keep the hose as straight as possible and avoid sharp bends during operation for best pick-up and to avoid clogs. Never drag the hose. Always remove and store the hose before transporting the unit. Store hose straight and flat to maintain flexibility for next use.

Battery Care

Proper care can extend the life of a battery. Follow these recommendations to ensure your battery's best performance and long life:

- Do not allow the battery charge to get too low. If the machine is not used, charge the battery every 4 – 6 weeks with a 2 amp battery charger. Operate the engine for at least 45 minutes to maintain proper battery charge.
- Store an unused battery in a dry area that does not freeze.
- Do not charge an already charged battery. In theory, you cannot overcharge our battery with a trickle charger; however, when a battery is fully charged and the charger is still on, it generates heat that could be harmful to the battery. A fully charged battery will read 12V-13.2V with a voltmeter.
- Do not continue to crank your engine when the battery charge is low.

Maintenance Procedures

Unclogging a Clogged Hose

With engine running and unit secured to a trailer, truck bed, or other similar surface, fully stretch hose in a straight line to dislodge the clog. If the clog will not clear, turn the unit off and allow engine to come to a complete stop. Remove hose and manually clear the hose clog.

CAUTION

The clogged debris may be sharp. Always wear durable gloves when removing clogs.

Unclogging a Clogged Housing or Exhaust Elbow

1. Turn off engine and wait for impeller to come to a complete stop.
2. Disconnect spark plug wires and battery cables.
3. Remove the hose from the housing and determine where the clog is located.
4. If possible, clear the clog through the intake opening. It may require removal of the intake adapter to allow access to clear the housing.
5. If clog is in the elbow, carefully remove the elbow and clear the clog.

CAUTION

Elbow is very heavy. Do not stand directly under elbow during removal.

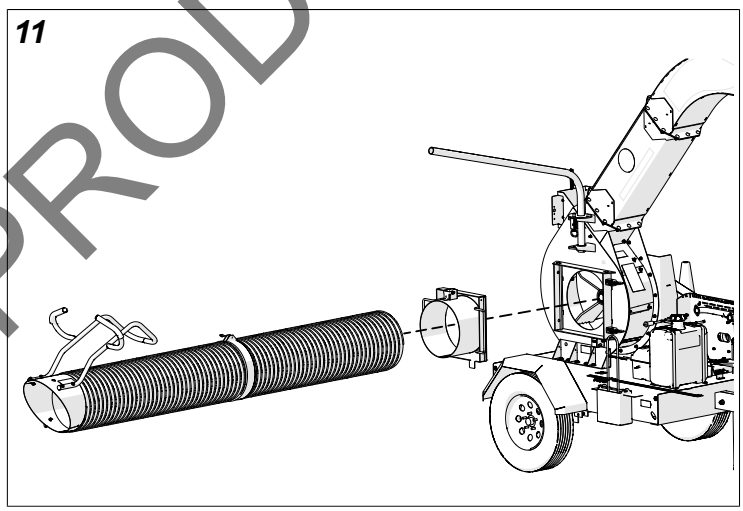
DANGER

The clog may contain sharp materials. Clear the clog wearing durable gloves.

6. Reconnect the spark wire.

Replacing the Liner

1. Stop the unit. Turn off the engine and disconnect the red battery cable from the battery. Disconnect the door wiring harness from the unit wiring harness. Chock the trailer wheels with the wheel chocks provided with the trailer.
2. Remove the hose, then remove the hose door. See Figure 11.



3. Remove the hose boom. Unlock the hose boom to allow movement. Loosen and remove the hardware securing the boom to the boom bracket. Finally, pull up on the hose boom and remove it from the boom bracket. Refer to the *Adjusting the Hose Boom* section for more information.

DANGER

The hose boom is heavy! Use caution when removing it. Serious injury and/or death can occur.

4. Remove the support weldment (A, Figure 12). Loosen and remove the five bolts (B), washers (C), and nuts (D) that secure the support weldment to the trailer. Then, remove the four bolts (E) and nuts (F) that secure the support weldment to the front plate.

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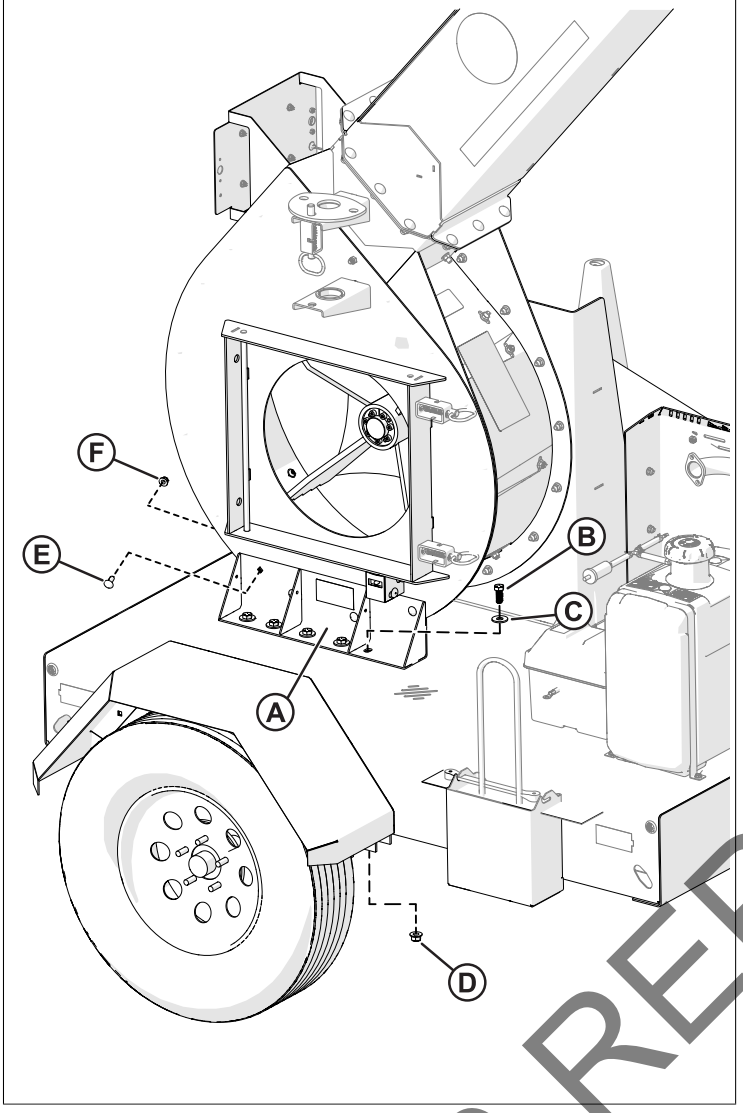

5. Remove the front plate (A, Figure 13). Loosen and remove the thirteen bolts (B) and nuts (C) securing the front plate to the housing. Then, remove the two nuts (D) securing the front plate to the housing. After removing the front plate and support weldment, you can now access the housing cutoff and liner.

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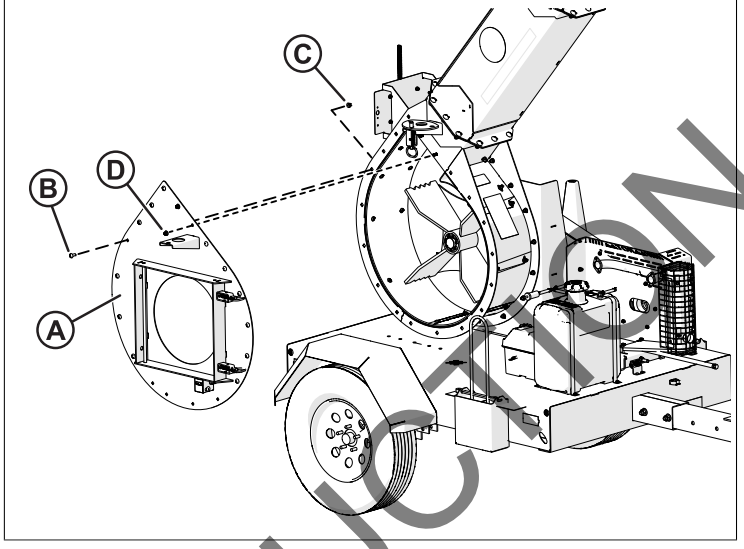

6. Remove the housing cutoff (A, Figure 14). Remove the four bolts (B) and nuts (C) that secure the housing cutoff, then remove the housing cutoff.

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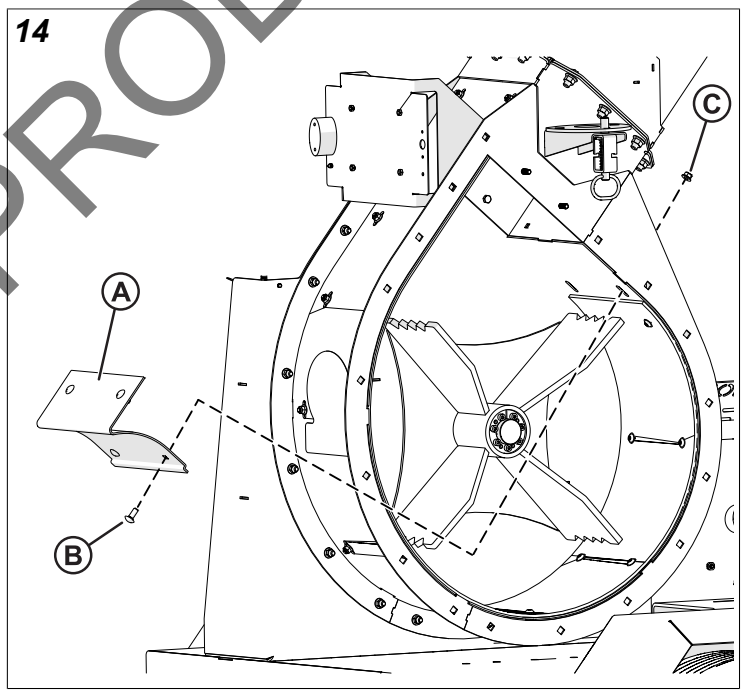

7. Remove the worn or damaged liner (A, Figure 15). Remove the eighteen bolts (B), washers (C), and nuts (D) that secure the liner to the housing. Then remove the old liner.

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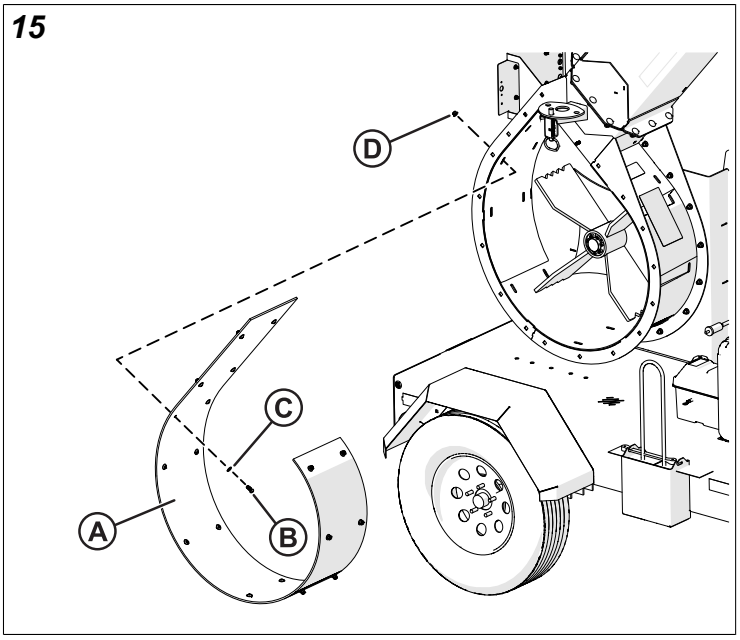

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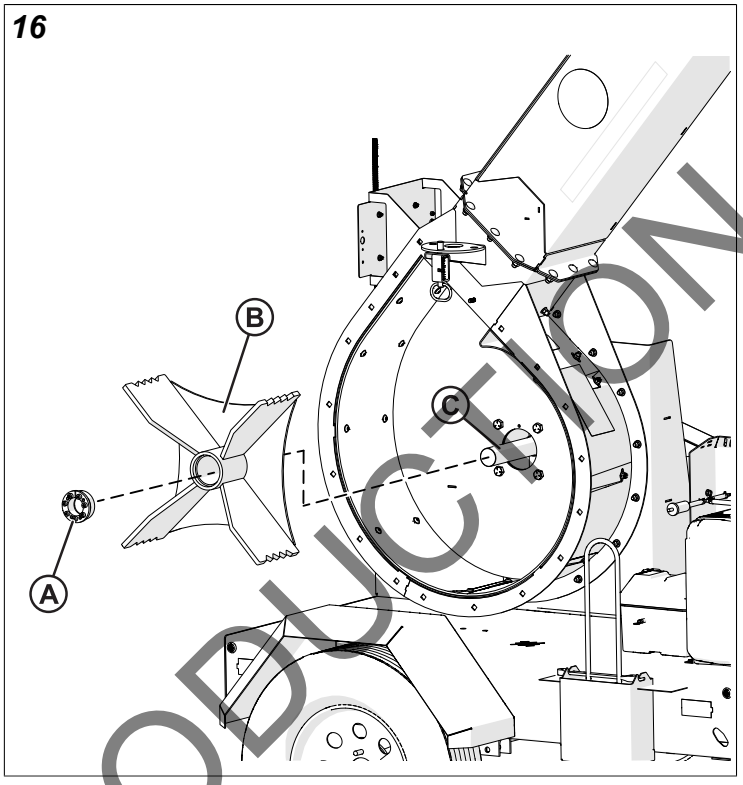

8. Replace the liner with a new liner. Secure the new liner with hardware removed in Step 7.
9. Reverse Steps 1-6 to reassemble the unit after replacing the liner. Be sure to torque the bolts (B, Figure 12) that secure the support weldments to the trailer to 75 ft lb. during reinstallation.

Replacing the Impeller

1. Stop the unit. Turn off the engine and disconnect the red battery cable from the battery. Disconnect the door wiring harness from the unit wiring harness. Chock the trailer wheels with the wheel chocks provided with the trailer.
2. Remove the front plate and the front plate support weldment. See Steps 2-5 in the 1 section for more information.
3. A keyless locking device (KLD (A, Figure 16)) secures the impeller (B) to the impeller shaft (C). To replace the impeller, you must remove the KLD. Remove the locking screws (A, Figure 17) from the KLD locking holes (B). Note the the jacking holes (C) and insert four of the locking screws (A) into these holes. Tighten each screw evenly and gradually in a diametrically opposed pattern (See Figure 18), using quarter turns for each screw. Repeat the pattern until the KLD unlocks. Then slide the KLD off the impeller shaft. Leave the locking screws in the jacking holes.

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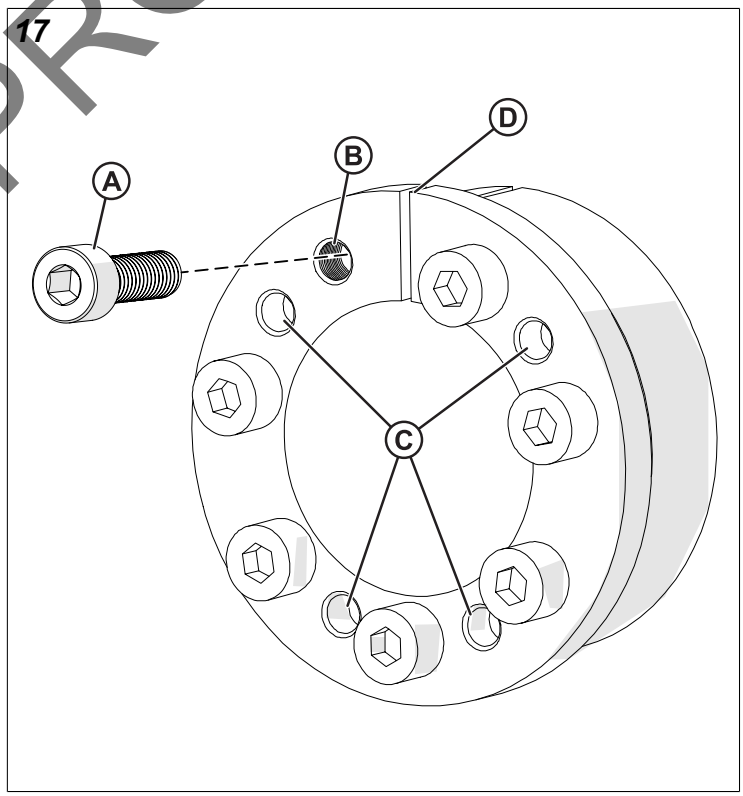

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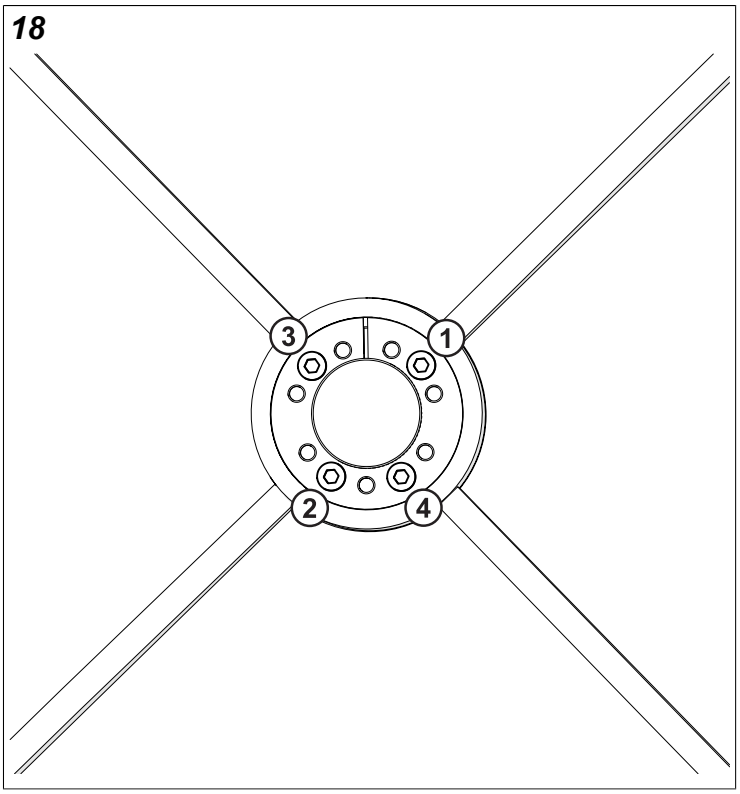


4. With the KLD removed, the impeller will move freely on the impeller shaft. Carefully remove the impeller from the shaft.

CAUTION

The impeller is sharp and may cause injury! Wear shear-proof gloves and use extreme caution when performing maintenance.

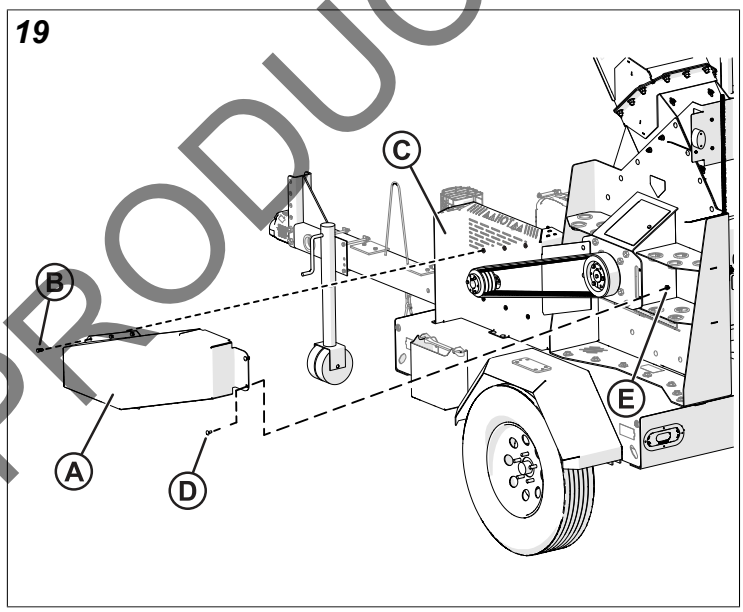
5. Slide a new impeller onto the impeller shaft.
6. Install and secure the KLD to the impeller shaft. Remove the locking screws from the jacking holes and insert them into the locking holes. Set a properly calibrated torque wrench to 31.5 ft lbs. Start with the lock screw that is closest to the slit (D, Figure 17) in the KLD. In a clockwise pattern, tighten each locking screw a quarter turn. Repeat pattern until quarter turns can no longer be achieved. Repeat the pattern for two more passes, tightening the locking screws until they can no longer turn. Reset the torque wrench to 30 ft lbs. Check that the locking screws do not turn at this value. If any locking screws *do* turn at 30 ft lbs torque specification, reset the torque wrench to 31.5 ft lbs, and tighten locking screws (a quarter turn at a time) in a clockwise pattern. Reset the torque wrench to 30 ft lbs, and test the locking screws again until screws do not turn at 30 ft lbs. The KLD is locked in place when screws do not turn at 30 ft lbs..
7. Reinstall the front plate and the front plate support weldment. Be sure to torque the bolts (B, Figure 12) that secure the support weldments to the trailer to 75 ft lb. during reinstallation.
8. Reinstall the hose door and hose. Be sure both of the safety interlock switches activate.

Replacing and Adjusting the Impeller Belt

Replacing the Impeller Belt

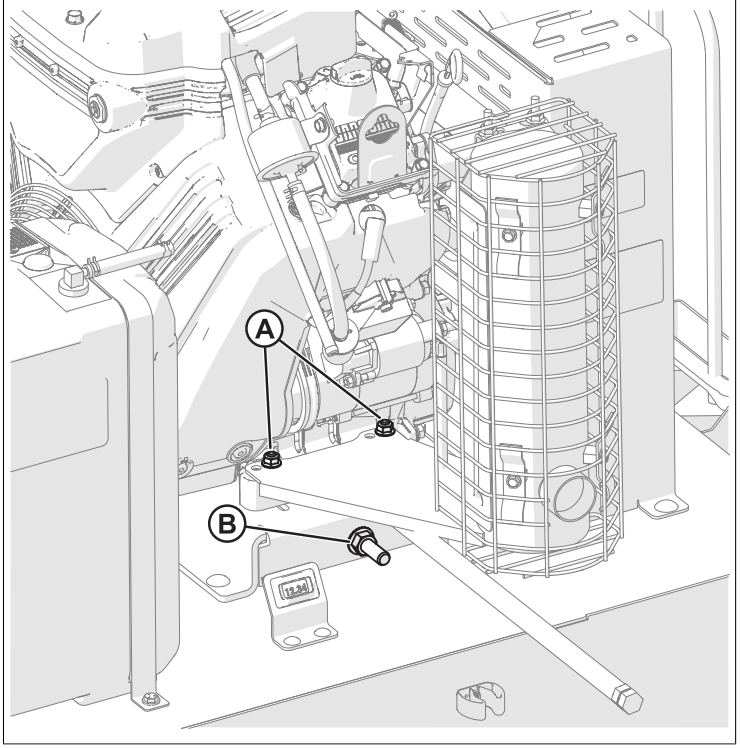
1. Stop the unit. Turn off the engine and disconnect the red battery cable from the battery. Disconnect the door wiring harness from the unit wiring harness. Chock the trailer wheels with the wheel chocks provided with the trailer.
2. Uninstall the belt guard (A, Figure 19). Loosen and remove the six bolts (B) that secure the belt guard to the engine back plate (C). Then, loosen and remove the two bolts (D) and nuts (E) that secure the belt guard to the impeller bearing plate. Finally, remove the belt guard.

19



3. Loosen the four engine mounting nuts (A, Figure 20) and the engine slide plate nut (B). Use 1/2 to 3/4 turns per nut to loosen, but do not remove the nuts completely. This step provides clearance to shift the engine forward or backward.

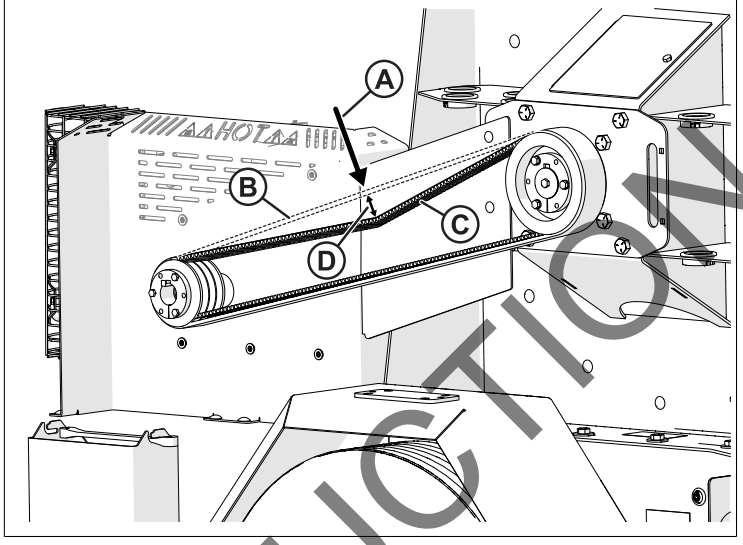
20



Note: Note that only two of the engine mounting nuts (A) are shown in Figure 20, but there are four nuts total.

4. Push the engine forward towards the impeller housing to loosen the belt tension. Then, remove the belt.
5. Install a new belt onto the engine and impeller pulleys.
6. Tension the new belt. Proper belt tension requires that a belt with 20-21.5 lb of pressure in the center of span deflects a distance of 0.5". See Figure 21. Slide the engine forward or backwards. To *tighten* belt tension, slide the engine *backward* towards the trailer tongue. To *loosen* tension, slide the engine *forward* towards impeller housing. Tighten the mounting hardware and return to the belt and verify its tension. Repeat this step of sliding the engine forwards or backwards and tightening hardware until proper tension is achieved.

21



Note: In Figure 21, A represents 20-21.5lb of pressure. B represents a belt with no pressure applied. C represents a deflected belt with pressure applied. D represents a distance 0.5" of deflection for proper belt tension. Please note that Figure is ***not*** to scale.

7. Reverse Step 2 to reinstall the belt guard.

Adjusting the Impeller Belt

1. Stop the unit. Turn off the engine and disconnect the red battery cable from the battery. Disconnect the door wiring harness from the unit wiring harness. Chock the trailer wheels with the wheel chocks provided with the trailer.
2. Uninstall the belt guard. Follow Step 2 from the Replacing the Impeller Belt instructions.
3. Tension the belt. Follow Step 6 from the Replacing the Impeller Belt instructions.
4. Reinstall the belt guard.

Charging the Battery

Operate the engine for at least 45 minutes to maintain proper battery charge. If the battery loses its charge, you will need to use a trickle charger to recharge it.

NOTICE The charger should have an output of 12 volts at no more than 2 amps. Using a charger with higher amps will cause significant damage to the battery.

- At 1 amp, the battery may need charging for as long as 48 hours.
- At 2 amps, the battery may need charging for as long as 24 hours.

Note: When the battery is completely charged, disconnect the charger from the outlet first. Then disconnect the battery charger wires from the battery. If the battery charger wires are connected to the battery, the battery will discharge itself.

Debris Loader Periodic Maintenance

Maintenance Operation	Each Use	Every 50 Hrs	Every 100 Hrs	Every 250 Hrs	Every 300 Hrs
Check engine oil	X				
Change engine oil			X		
Check air filter	X				
Clean air filter		X*			
Replace air filter					X*
Check/Adjust spark plug	X				
Replace spark plug			X		
Inspect battery for corrosion or leaks	X				
Inspect battery terminal for corrosion		X			
Check/Adjust valve clearance				X	
Check thickness of replacement liner for wear	X				
Check and clean engine of debris	X				
Clean hose	X				
Inspect for loose, worn, or damaged parts	X				
Check for excessive vibration	X				
Clean truck loader	X				
Check condition of fuel lines			X		
Check tightness of hardware			X		
Grease impeller bearings**					X

* Or as needed

**Use 1 oz. per bearing

Trailer Periodic Maintenance

This table is a *basic* summary of Croft trailer periodic maintenance. Refer to the Croft® Trailer Owner's Manual for comprehensive knowledge of periodic maintenance.

Maintenance Operation	Each Use	Every 6 Months
Check tire pressure. Tires should be inflated to 50 psi.	X	
Examine the trailer for worn, broken, or cracked parts including but not limited to: axle bolts, frame components, suspension components, hitch components, welds, fasteners, and lights. Replace parts if necessary.	X	
Verify the trailer hitch coupler locking device functions correctly.	X	
Check trailer lights	X	
Check lug nut tightness.	X	
Lubricate wheel bearings.		X
Lubricate crank handle, D-Rings, and other moving parts		X
Lubricate trailer hitch coupler.		X
Tighten lug nuts.		X

Troubleshooting

While normal care and regular maintenance will extend the life of your unit, prolonged or constant use may eventually require that service be performed to allow it to continue to operate properly.

This troubleshooting guide lists the most common problems, their causes, and remedies.

Refer to MAINTENANCE PROCEDURES for instructions on how to perform most of these minor adjustments and service repairs yourself. If you prefer, all of these procedures can be performed for you by your authorized Billy Goat servicing dealer.

WARNING

Remove ignition key prior to performing maintenance on the unit.

To avoid serious injury, perform maintenance on the unit or mower deck only when the engine is stopped and the parking brake is engaged.

Always remove the ignition key, disconnect the spark plug wire(s) and fasten it away from the plug(s) before beginning the maintenance, to prevent accidental starting of the engine.

Troubleshooting Table

Problem	Possible Cause	Solution
Will not vacuum or has poor vacuum performance	• Nozzle is buried in debris • Hose or exhaust is clogged • Excessive quantity of debris	• Withdraw the nozzle from the debris pile • Unclog the hose or exhaust (See Maintenance section for more details)
Engine will not start. (Starter does not turn)	• Battery is low or dead • Battery cable is disconnected or battery terminal is corroded • Harness wire is bad or disconnected from interlock switch(es)	• Charge the battery or replace if the battery cannot hold a charge • Clean the battery terminal and cable, then reconnect • Install the hose door (Leaf Dragon™ model only) securely and check whether the door interlock switch is engaged • Install hose securely to the unit and check whether the hose interlock switch is engaged • Check the wire harness connection
Engine will not start, but starter turns	• Throttle and/or stop switch is in the "OFF" position • Engine is out of gasoline • Gasoline in engine is bad or old • Spark plug wire is disconnected • Air filter is dirty	• Check stop switches, throttle, and gasoline • Connect the spark plug wire • Clean or replace air filter • Contact qualified service personnel if necessary
Engine is locked and will not pull over	• Debris is locked against the impeller • Engine has performance issues	• See Maintenance section "Unclogging a Clogged Housing or Exhaust Elbow" and follow the instructions • Contact an engine servicing dealer for engine problems
Engine will not stay running	Oil reservoir overfilled	Drain oil and refill to correct level.