



DL3702VE Operator's Manual



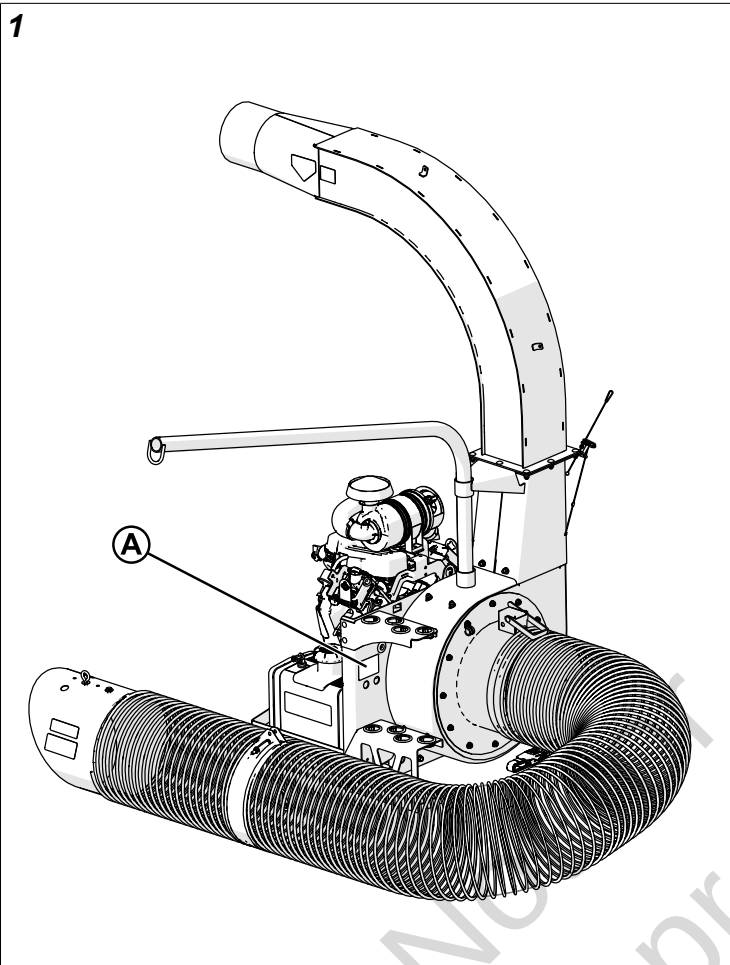
DL Debris Loader

Original Instructions

IMPORTANT: READ INSTRUCTIONS BEFORE OPERATION AND KEEP FOR FUTURE USE

Identifying Your Unit

Thank you for purchasing this quality piece of outdoor power equipment. Before operation, please note the product Identification Tag (A, Figure 1) which is found on the housing underneath the tool rack.



Record your model number, serial number, and engine model and serial numbers in the space provided for easy access.

PRODUCT REFERENCE DATA	
Unit Model Number	Unit SERIAL Number
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make	Engine Model
Engine Type/Spec	Engine Code/Serial Number

When contacting your authorized service dealer for replacement parts, service, or information you **MUST** have these numbers.

Note: For the location of the engine identification numbers, refer to engine owner's manual.



- READ** all safety instructions before assembling the unit.
- TAKE CAUTION** when removing the unit from the box.
- ADD OIL** to the engine before starting.

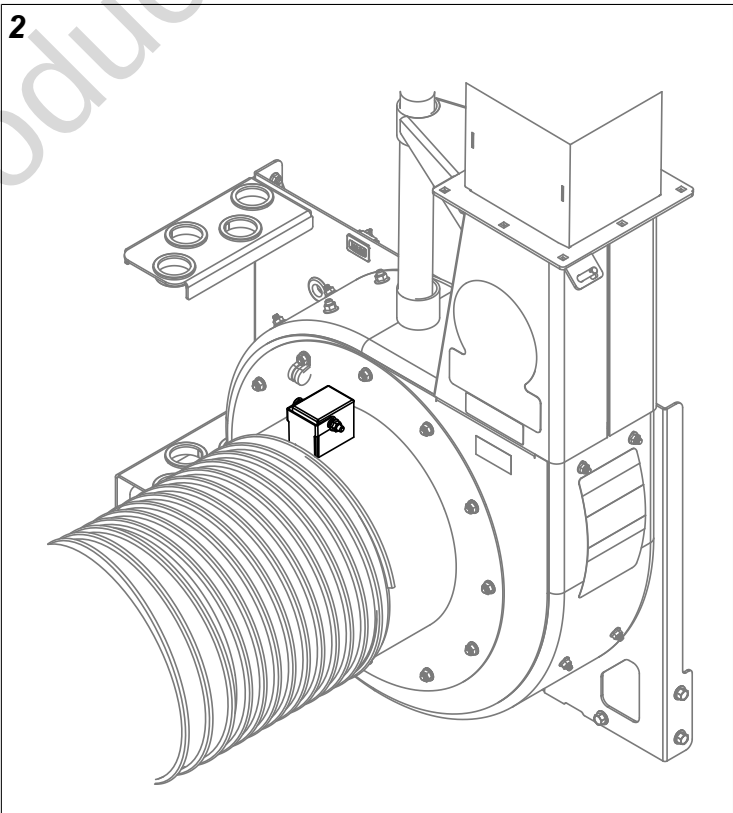
Operating Safely

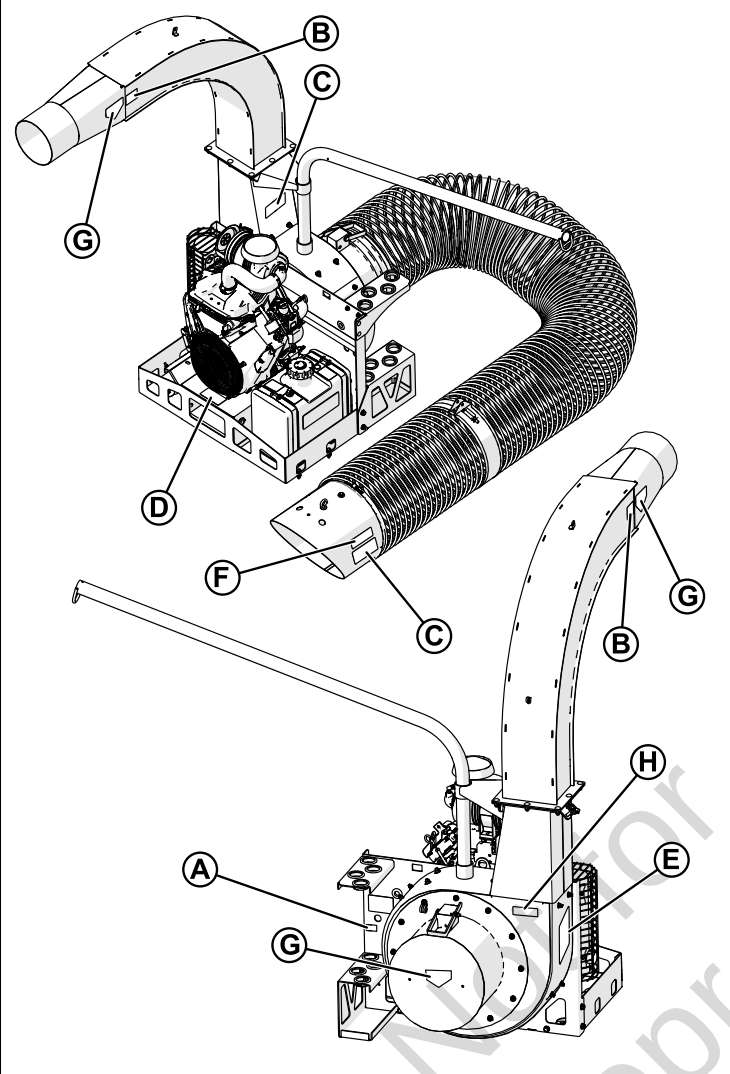
Read the safety rules outlined in the General Safety and Warranty Manual included with this Operator's Manual in your Billy Goat® parts bag and literature assembly. Follow the safety rules closely. Failure to obey these rules could result in loss of control of the unit, severe personal injury or death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

Safety Interlock System

With hose coupler installed (as shown in Figure 2) the switch is open and engine is not grounded out, allowing engine to run. Hose must be installed over the switch and the switch lever must engage switch for engine to start.





- A. 100443
- B. 810736
- C. 811215
- D. 790232
- E. 790142
- F. 790301
- G. 440424
- H. 100330

100443



810736



811215



790232



790142

CAUTION

READ OWNER'S MANUAL
BEFORE OPERATING

USE PERSONAL
PROTECTION EQUIPMENT

PROTECT BYSTANDERS
FLYING DEBRIS

DO NOT OPERATE UNLESS
DEBRIS IS DISCHARGING
INTO AN ENCLOSED
CONTAINER

KEEP ENGINE CLEAN OF DEBRIS

ENGINE EXHAUST SYSTEM IS HOT.
KEEP HANDS CLEAR.

BEFORE STARTING, MAKE SURE:

- EXHAUST ELBOW IS SECURELY ATTACHED.
- INTAKE HOSE IS ATTACHED.
- ALL GUARDS ARE ATTACHED.

FOR PREVENTATIVE MAINTENANCE:

- CHECK ENGINE OIL DAILY.
- INSPECT AND CLEAN ENGINE AIR FILTER DAILY. REPLACE AS NEEDED.
- INSPECT AND CLEAN ENGINE RECOIL FILTER DAILY. REPLACE AS NEEDED.

ALWAYS:

- INSPECT MACHINE BEFORE EACH USE AND REPLACE ANY WORN OR DAMAGED PARTS.
- PROPERLY SECURE EQUIPMENT BEFORE TRANSPORTING.
- DISCONNECT SPARK PLUG WIRES AND BATTERY CABLE BEFORE SERVICING UNIT.
- USE ONLY A QUALIFIED MECHANIC TO SERVICE THIS MACHINE.

400424



100330

**Check replaceable
liner for wear
before each use**

790301

WARNING

**ALWAYS TRANSPORT WITH NOZZLE
SECURED TO THE TRAY.**

Packing Checklist

Your Billy Goat Debris Loader is shipped from the factory in one carton and requires some assembly. You must assemble the exhaust elbow, nozzle, handle loop for nozzle, hose booms, hose bands, hose coupler, and clamps using the related hardware included.



READ all safety instructions before assembling the unit.

TAKE CAUTION when removing the unit from the box.

ADD OIL to the engine before starting.

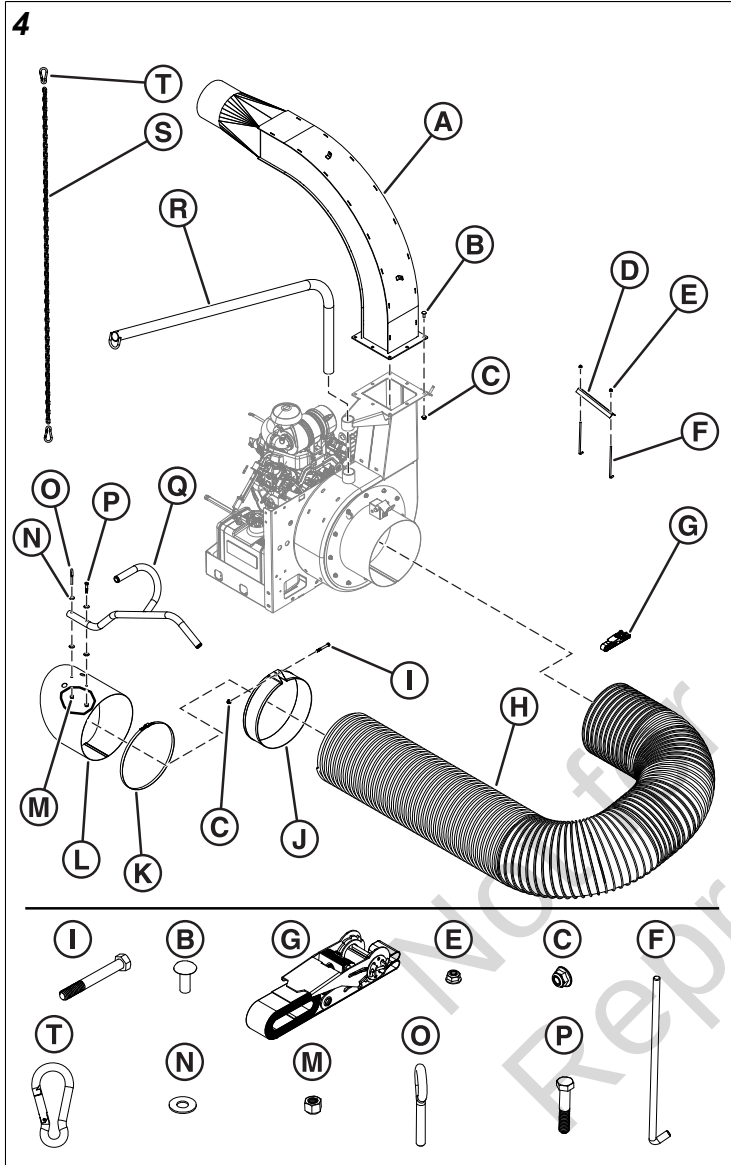
Note: Battery is not included! VE units require a 12V, 40AH, 350CCA min. U1 series group battery for proper fit.

Unpacking

Your Billy Goat Debris Loader is shipped mounted on its trailer with loose parts. The Debris Loader 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 list to identify the loose parts.



Note: Part Numbers can be viewed in the units IPL on billygoat.com.

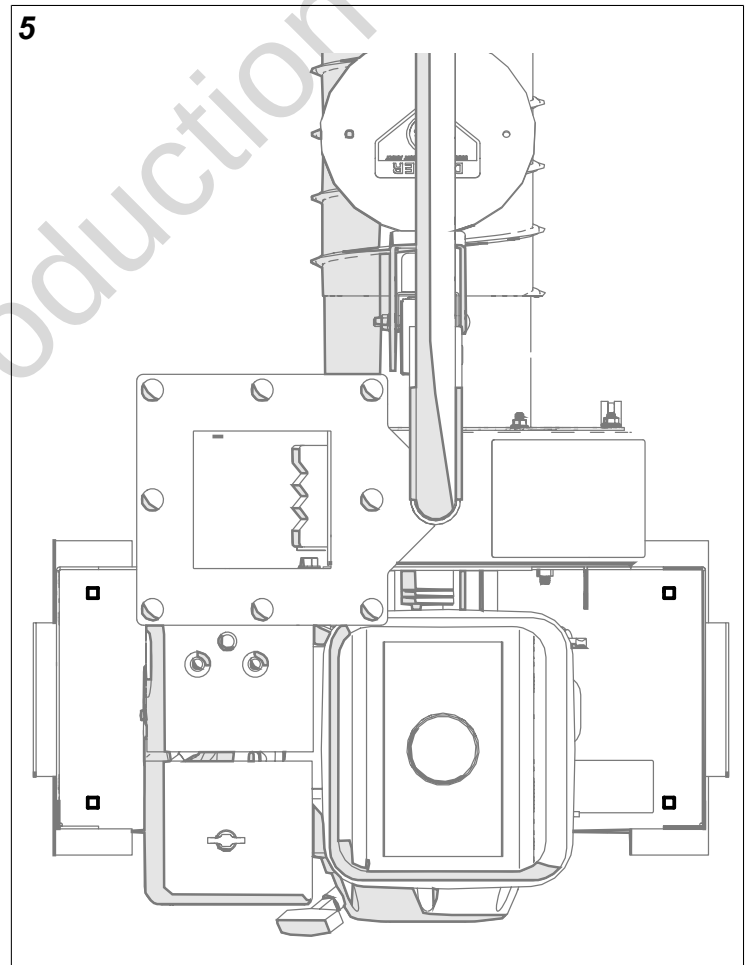
- A. Exhaust Elbow - Quantity (1)
- B. 3/8-16 X 1" Carriage Bolt - Quantity (8)
- C. 3/8-16 Hex Nylock Flange Nut - Quantity (9)
- D. Battery Hold Down Bracket - Quantity (1)
- E. 1/4-20 Hex Nylock Flange Nut - Quantity (2)
- F. Battery Hold Down Rods - Quantity (2)
- G. Ratchet Strap - Quantity (1)
- H. 14" X 10' Intake Hose - Quantity (1)
- I. 3/8-16 X 3" Bolt - Quantity (1)
- J. Hose Boom Band - Quantity (1)
- K. Hose Clamp - Quantity (1)

- L. Formed Intake Nozzle - Quantity (1)
- M. 3/8-16 Hex Lock Nut - Quantity (2)
- N. 3/8 Washer - Quantity (4)
- O. 3/8-16 X 1-3/4" Eye Bolt - Quantity (1)
- P. 3/8-16 X 2" Bolt - Quantity (1)
- Q. Nozzle Handle Assembly - Quantity (1)
- R. Hose Boom - Quantity (1)
- S. Boom Chain - Quantity (1)
- T. Safety Snap Hook - Quantity (2)

Assembly

Mounting Main Unit

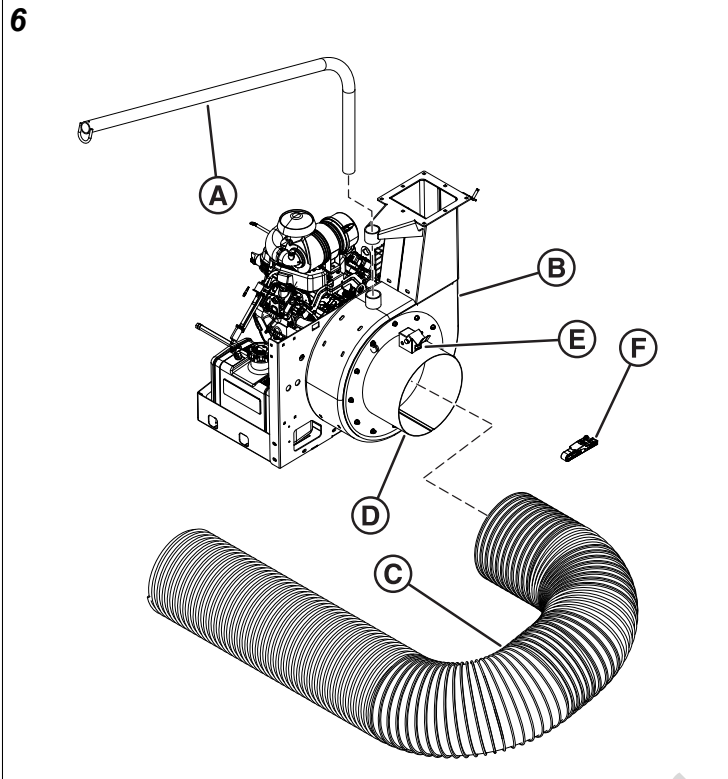
This unit must be securely mounted to a trailer, truck bed, or other similar surface before use. Do not use this unit in a freestanding position. Unit is not stable until it has been secured in place. Secure unit by bolting through the base of the unit and through the mounting surface using 3/8" bolts, with washers and locking nuts.



Initial Set-Up Assembly

1. Securely attach unit to the bed of a truck or to a trailer, so that the exhaust discharges into an enclosed container.

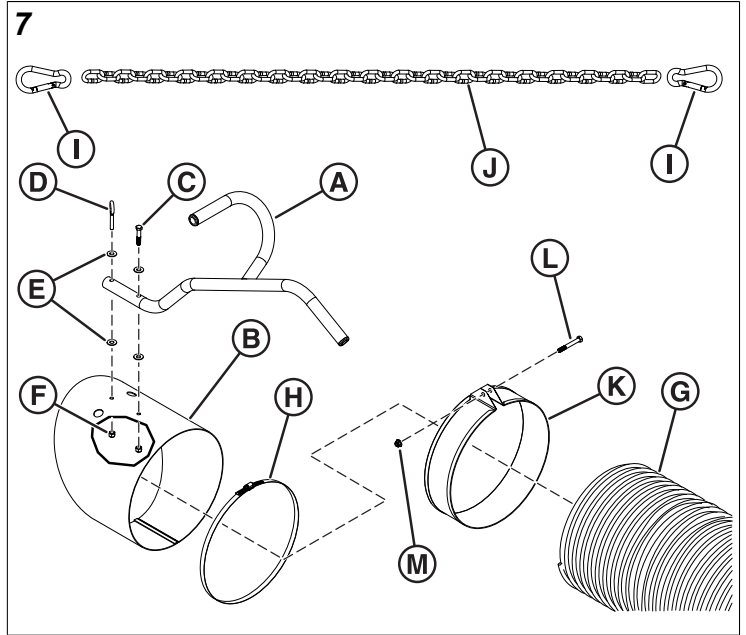
2. Attach the hose boom (A, Figure 6) to the housing (B) by sliding the boom through the rings on the top of the housing.



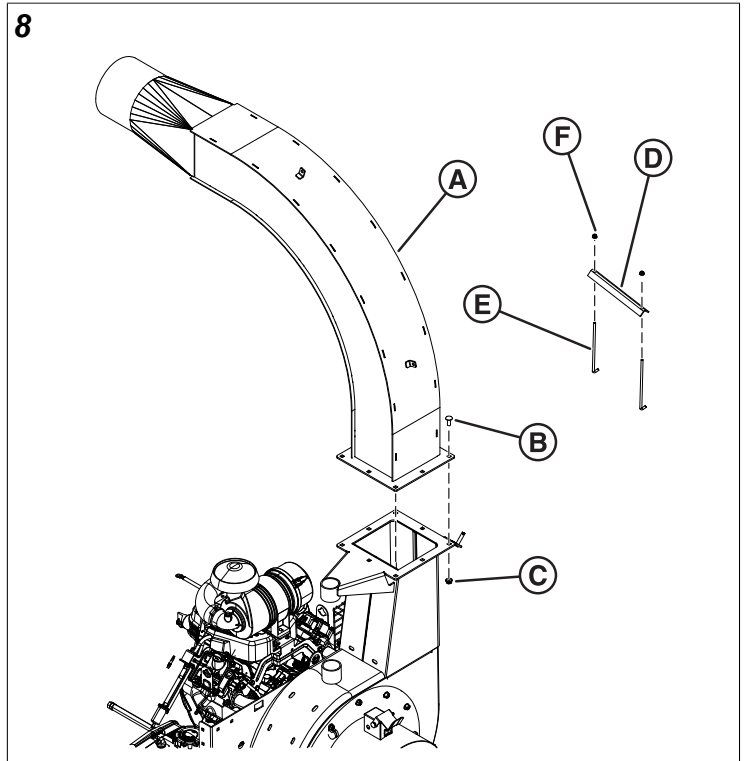
3. Attach hose (C) to the housing intake (D). Be sure to place the safety switch (E) under the hose. Note the air flow direction arrows on the hose. Be sure the hose air flow arrows point toward the housing intake. Place the ratchet strap (F) over and around the end of the hose and tighten to secure the hose to the housing. Ensure that the shut-off switch is pressed in or the vacuum will not start. See the Safety Interlock section of this manual for more information.

Note: The ratchet strap is located in the Parts Bag and Literature Assembly.

4. Assemble nozzle handle (A, Figure 7) to nozzle intake (B) using the 3/8-16 X 2" bolt (C), 3/8-16 X 1-3/4" eye bolt (D), 3/8 washers (E), and lock nuts (F).



5. Attach assembled nozzle to hose (G) using hose clamp (H). Before tightening hose clamp, position nozzle handle upward when hose is stretched to prevent twisting load on hose assembly during operation.
6. Install the two (2) safety snap hooks (I) onto the ends of the boom chain (J).
7. Assemble the hose band (K) around hose and secure the chain between the flanges of the hose band using 3/8-16 X 3" bolt (L) and a 3/8-16 hex nylock flange nut (M). See Adjusting the Hose Boom for more information.
8. Securely attach the exhaust elbow (A, Figure 8) using eight (8) 3/8-16 X 1" carriage bolts (B) and 3/8-16 hex nylock flange nuts (C).



9. Install a standard 12 volt lawn and garden “U1” series battery (not included) with at least 350 cold cranking amps and a 40 amp hour rating by using battery hold down bracket (D), battery hold down rods (E), and 1/4-20 hex nylock flange nuts (F).
10. Connect the positive (red) battery cable to the positive [+] terminal of the battery and then connect the negative (black) battery cable to the negative [-] terminal.

Operation

Vacuumping 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.

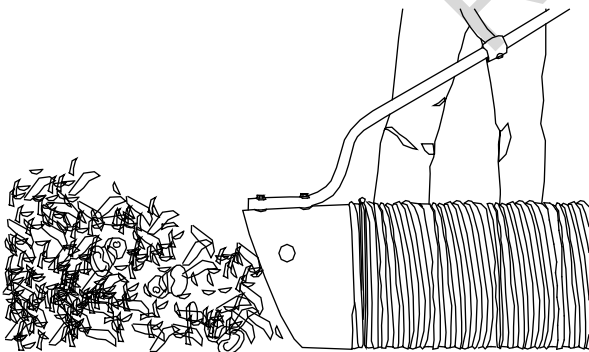


CAUTION

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.

9



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

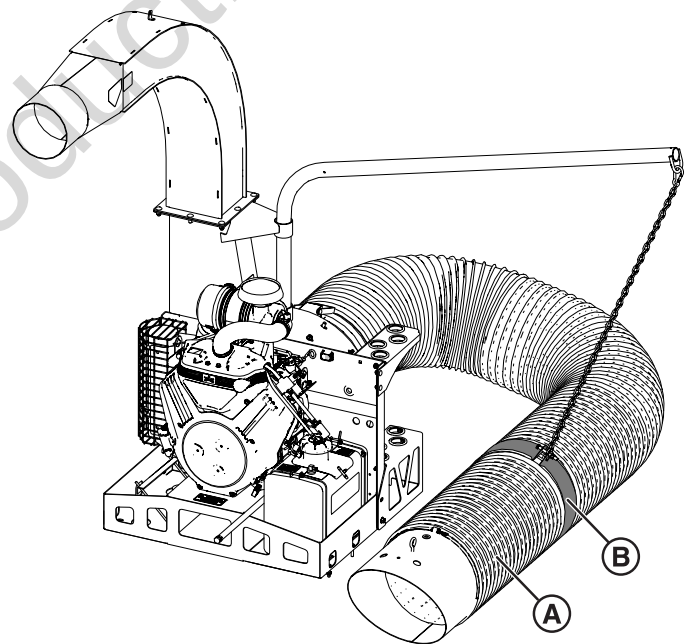
10



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.

11



A. Hose

B. Hose Band (stretch out the hose before clamping)

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

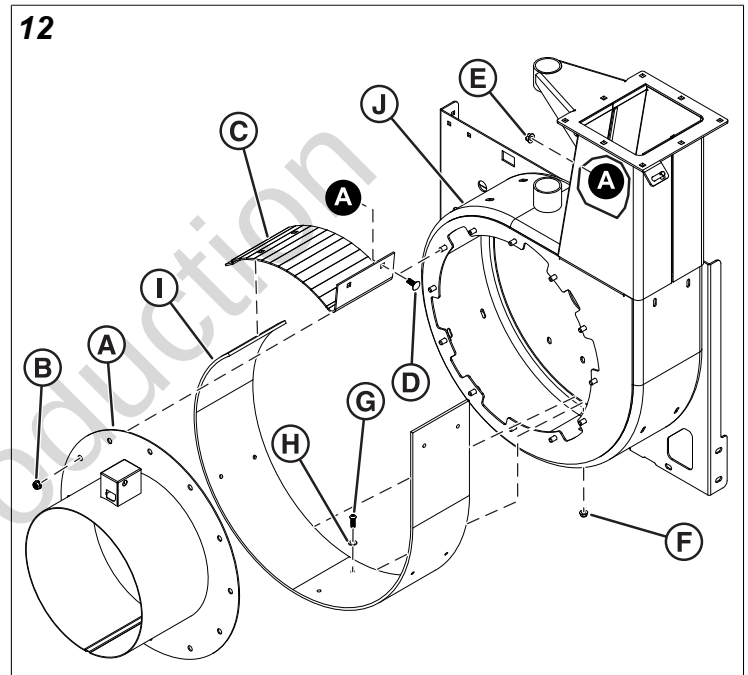
The clog may contain sharp materials. Clear the clog wearing durable gloves.

6. Reconnect the spark wire.

Replacing the Liner

1. Remove the strap securing the hose to the front plate.
2. Gently wiggle the hose off front plate.
3. Remove the front plate (A, Figure 12). Use a 9/16" wrench to loosen the front plate nuts (B). Slide off the front plate and set aside.

Note: DL9-13 series will have six (6) front plate nuts. DL14-18 series will have ten (10) nuts. DL29-37 series will have twelve (12) nuts.



CAUTION

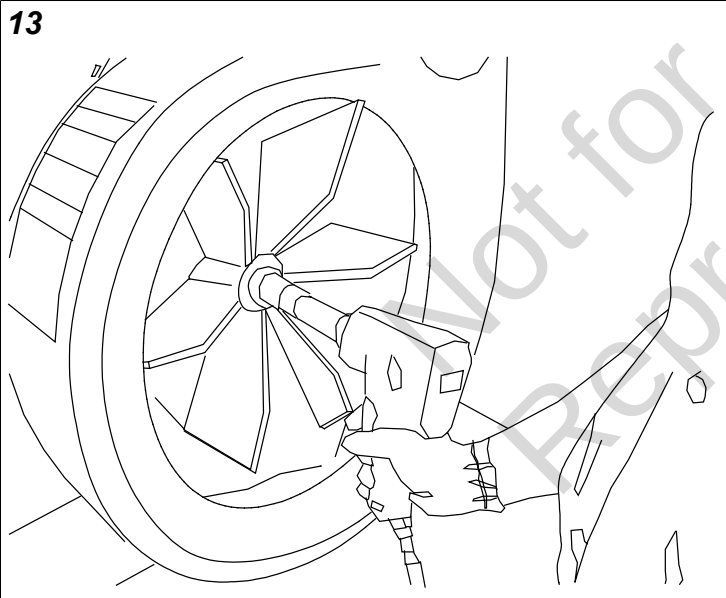
Elbow is very heavy. Do not stand directly under elbow during removal.

4. Remove the elbow. Use a 9/16" wrench to loosen the eight (8) nuts and bolts that secure the elbow to the housing flange.
5. Remove the housing cut-off (C). Loosen and remove the four bolts (D) and nuts (E) that secure the housing cutoff, then remove the housing cutoff
6. Remove the ten (10) nuts (F), bolts (G), and washers (H) that secure the liner (I) to the housing (J). Use a 3/16" Allen wrench on the button-head bolts. Simultaneously use a 1/2" wrench on the nuts to loosen the hardware.
7. With the hardware securing the liner removed, reach into the elbow-to-housing transition. Grasp the liner and pull it out through the top of the transition.

8. Slide the new liner into the housing through the elbow-to-housing transition. Reattach the hardware removed in Step 6 to secure the new liner to the housing. Install a new housing cut-off, or reinstall the existing housing cut-off if no damage is present.
9. Reverse Steps 2-4. When reattaching the hose, position the hose over the safety interlock switch. See the *Safety Interlock System* section of this manual for more information.

Replacing the Impeller

1. Wait for engine to cool and disconnect spark plug wires from both sides of the engine.
2. Disconnect the negative battery cable (black) from the battery.
3. Remove the hose from the unit.
4. Detach the hose from the boom assembly.
5. Remove the intake housing assembly using 9/16" socket and socket wrench to remove 12 lock nuts. Be careful to place intake assembly to the side without putting excess strain on the safety switch wire harness.
6. Remove the hardware that secures the impeller with an impact wrench. See Figure 13.



7. Slide the impeller out.
8. When impeller is free of the engine shaft, align impeller with the opening and pull it straight out of the housing.
9. Using a new set of hardware to secure the impeller, install the new impeller in reverse order.
10. Tighten impeller bolt. Torque impeller bolt to 33-38 ft.lbs (45-52 N.m) for DL9-18 series. Torque impeller bolt to 175-180 ft.lbs (237-244 N.m) for DL29-37 series.
11. Repeat steps 2 through 5 in reverse order.
12. Install spark plug wires.

Charging the Battery

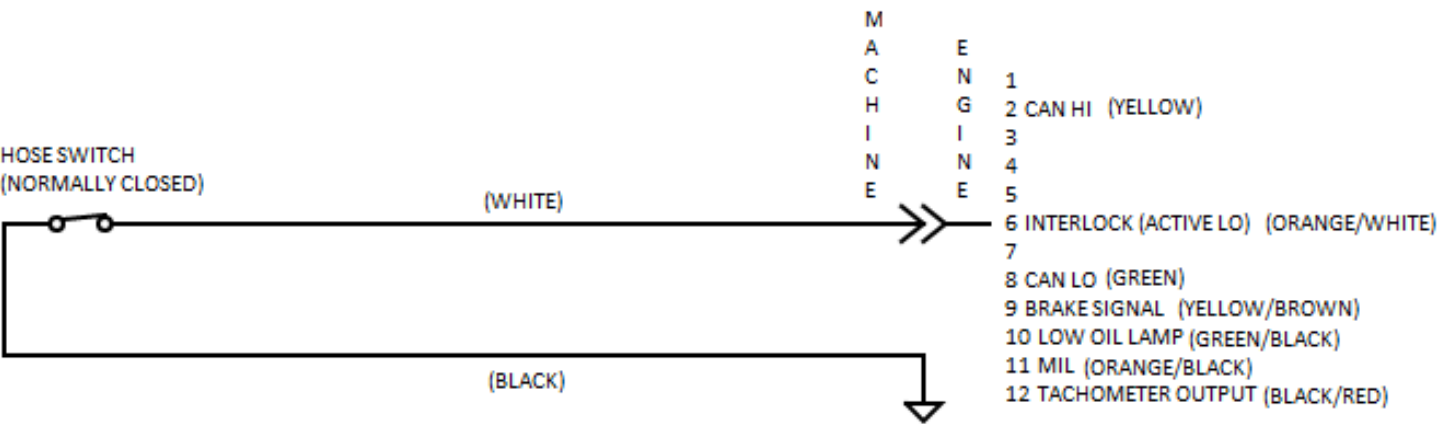
Operate the engine for at least 45 minutes to maintain proper battery charge. If the battery loses its charge, you will need to use a trickle charger to recharge it.

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.

Wiring Diagram



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Reproduction

Debris Loader Periodic Maintenance

Before Each Use:

- Check engine oil.
- Check air filter.
- Check/Adjust spark plug.
- Inspect battery for corrosion or leaks.
- Check thickness of replacement liner for wear.
- Check and clean engine of debris.
- Clean hose.
- Inspect for loose, worn, or damaged parts.
- Check for excessive vibration.
- Clean truck loader.

Every 50 Hours:

- Clean air filter.*
- Inspect battery terminal for corrosion.

Every 100 Hours:

- Change engine oil.
- Replace spark plug.
- Check condition of fuel lines.
- Check tightness of hardware.

Every 250 Hours:

- Check/Adjust valve clearance.

Every 300 Hours:

- Replace air filter.*
- Grease impeller bearings.**

* Or as needed

**Use 1 oz. per bearing

Troubleshooting

PROBLEM: Will not vacuum or has poor vacuum performance.

Cause / Remedy

- Nozzle is buried in debris. / Withdraw the nozzle from the debris pile.
- Hose or exhaust is clogged. / Unclog the hose or exhaust (See Maintenance section for more details).
- Excessive quantity of debris. / Unclog the hose or exhaust (See Maintenance section for more details).

PROBLEM: Engine will not start. (Starter does not turn).

Cause / Remedy

- Battery is low or dead. / Charge the battery or replace if the battery cannot hold a charge.
- Battery cable is disconnected or battery terminal is corroded. / Clean the battery terminal and cable, then reconnect.
- Harness wire is bad or disconnected from interlock switch(es). / Install the hose door (Leaf Dragon™ model only) securely and check whether the door interlock switch is engaged.
- Harness wire is bad or disconnected from interlock switch(es). / Install hose securely to the unit and check whether the hose interlock switch is engaged.

- Harness wire is bad or disconnected from interlock switch(es). / Check the wire harness connection.

PROBLEM: Engine will not start, but starter turns.

Cause / Remedy

- Throttle and/or stop switch is in the "OFF" position. / Check stop switches, throttle, and gasoline.
- Engine is out of gasoline. / Check stop switches, throttle, and gasoline.
- Gasoline in engine is bad or old. / Check stop switches, throttle, and gasoline.
- Spark plug wire is disconnected. / Connect the spark plug wire.
- Air filter is dirty. / Clean or replace air filter.

Note: Contact qualified service personnel if necessary.

PROBLEM: Engine is locked and will not pull over.

Cause / Remedy

- Debris is locked against the impeller. / See Maintenance section *Unclogging a Clogged Housing or Exhaust Elbow* and follow the instructions.
- Engine has performance issues. / Contact an engine servicing dealer for engine problems.

PROBLEM: Engine will not stay running.

Cause / Remedy

- Oil reservoir overfilled. / Drain oil and refill to correct level.

Specifications

Dimensions

- **Weight:** 505 lbs (229 kg)
- **Length:** 60" (152,4 cm)
- **Width:** 34-1/2" (87,63 cm)
- **Height:** 75" (190,5 cm) - 71" (180,34 cm)

ENGINE

- **Engine Type:** Briggs & Stratton Vanguard
- **Engine Model:** 61A277-0100-J1
- **Engine Fuel Capacity:** 6 gallon (22,7 L)
- **Engine Oil Capacity:** 2.4 Qt. (2,3 L)

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Notes

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