

Customer Tools Required: (Fig. 1)

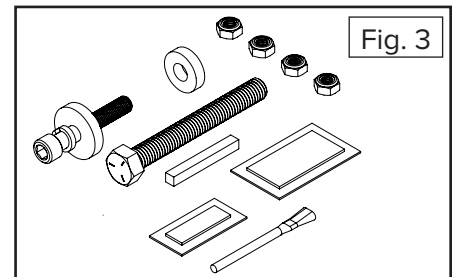
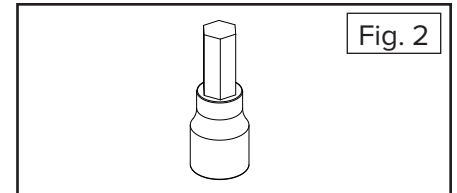
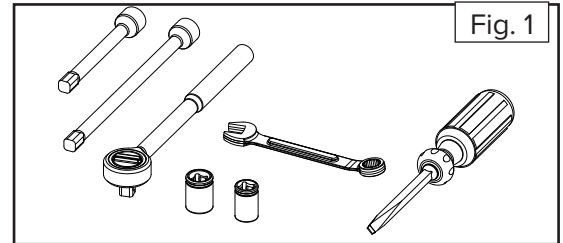
- A socket wrench (3/8 drive), with a 6-inch and 3-inch extension bar
- 1/2 and 3/4 inch sockets
- 1/2 inch box wrench
- A small flat blade screwdriver (3/16 or 1/4 inch blade width)
- A wooden board, about 3 to 4 inches wide and about 2 feet long, or a 2 foot length of 2 x 4 lumber

Tools provided: (Fig. 2)

- 5/16 hex-bit socket

Parts Supplied: (Fig. 3)

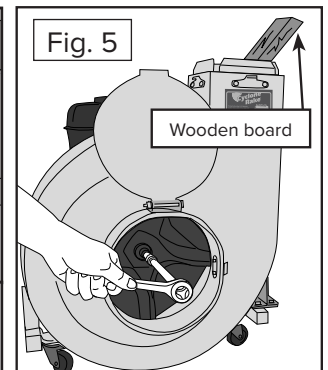
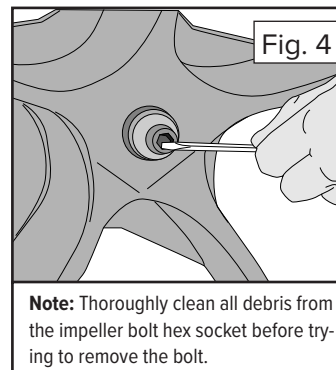
- Impeller bolt with lock washer and heavy washer
- 1/4 inch impeller spacer
- 1/2-13 x 4-inch full threaded bolt (for use as an impeller puller, if needed)
- Shaft key for engine
- Packet of anti-seize grease (for engine shaft) and applicator brush
- 4 rear cover nylon locknuts
- Packet of thread locker



Disassemble the Blower Unit & the Engine Unit:

Step 1. Remove the Impeller Bolt:

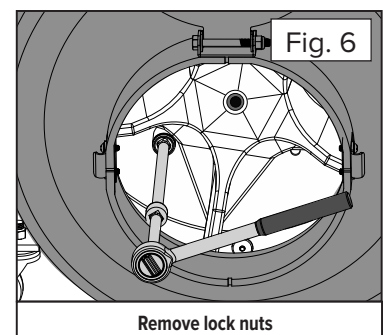
- **Disconnect the spark plug wire on the engine.**
- **Clean the impeller bolt hex socket thoroughly**, using the small blade screwdriver. You must **remove all dirt and debris** so that the hex-bit socket seats all the way to the bottom of the bolt head. See Fig. 4.
- Place the wooden board or 2 x 4 inside the blower chute to prevent impeller rotation.
- Use the hex bit socket and extension bar to remove the impeller bolt. See Fig 5.



WARNING: Never use an L-shaped hex wrench to remove the impeller bolt. You will not get enough torque and risk stripping the bolt head. If you strip the bolt head, you will not be able to remove the engine.

Step 2. Remove the Four Nylon Lock Nuts That Hold the Rear Cover on to the Engine Mounting Plate:

- You'll need the 1/2 inch socket and both extension bars to reach the nuts. See Fig. 6.
- You'll have to rotate the impeller to reach the nuts (you did disconnect the spark plug, right?)



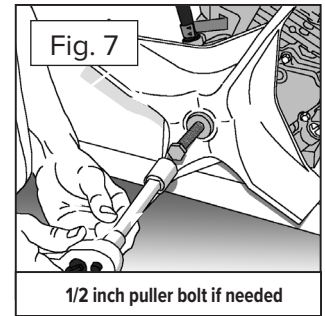
Step 3. Remove the Blower Unit:

- Slide the Blower Unit (blower housing and impeller) away from the engine.

NOTE: If the impeller doesn't pull out easily by hand, thread the 1/2-13 bolt into the fan hub and tighten it with a 3/4 socket. This will act as a puller to remove the impeller. See Fig. 7.

Step 5. Remove the Old Engine from the Motor Frame:

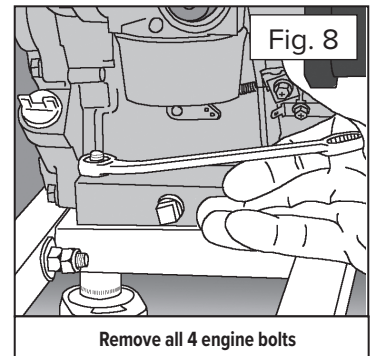
- Use a 1/2 inch socket from below and a 1/2 inch box wrench from above to remove all four bolts and set aside. See Fig. 8. Lift the old engine off the motor frame.



Install the New Engine to Motor Frame & Blower Unit:

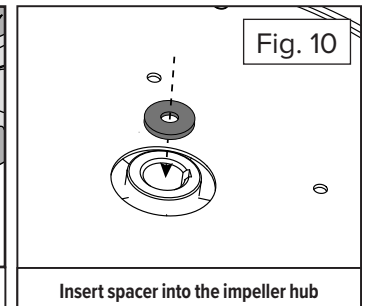
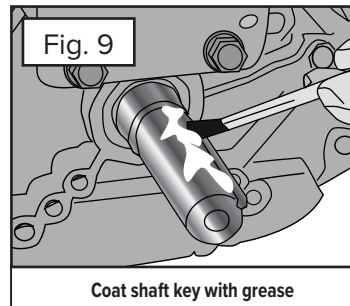
Step 1. Attach New Engine to Motor Frame:

- Use a 1/2 inch socket from below and a 1/2 inch box wrench from above to attach the new engine to the motor frame using all four bolts, nuts, and washers previously removed. See Fig. 8.



Step 2. Prepare the New Engine Shaft:

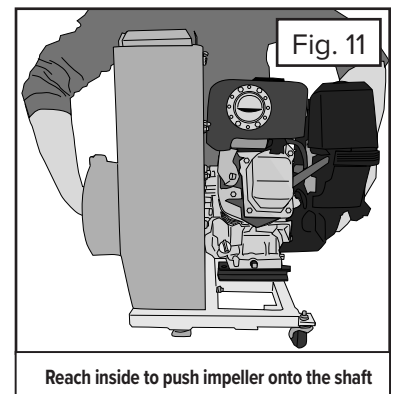
- Disconnect the spark plug wire from the new engine.
- Orient the engine shaft so the keyway is on top. Gently pull the starter cord to rotate the shaft into position.
- Clean the keyway with an old toothbrush or clean rag to remove all dust or grit from the keyway.
- Press the new shaft key into the keyway to seat it completely. You can tap it in with a soft object, such as a screwdriver handle, if needed. **Do not tap it in with a hammer!** If you nick the key it will not fit the impeller hub.
- Open the pack of anti-seize grease and squeeze it onto the applicator brush. Coat the shaft and key completely with the grease. See Fig. 9.



Step 3. Mate the New Engine with the Blower Unit:

IMPORTANT: Insert the 1/4 inch impeller spacer back into the impeller hub if it has fallen out. See Fig.10.

- Reach through the front of the blower and grasp the impeller. Hold the impeller so that the steel hub passes through the rear cover. Orient the slot in the impeller hub with the engine shaft key. Push the impeller and engine together gently so the engine shaft slides into the impeller. See Fig. 11.
- Once the impeller starts onto the engine shaft, line up the four threaded studs on the engine bracket with holes in the rear cover.
- Secure the rear cover to the engine bracket with four new nylon lock nuts included using a 1/2 inch socket and both extensions. You will have to rotate the impeller to get to all four nuts. See Fig. 6.



Step 4. Install the Impeller Bolt:

- Place the wooden board back into the blower housing to prevent impeller rotation.
- Add a drop of thread locker on to the new impeller bolt (socket head cap screw).
- Assemble the new fan bolt with the new lock washer and the new heavy washer into the impeller hub. Tighten firmly (approx. 40 ft. lbs. of torque) with socket wrench, extension bar and hex-bit socket. See Fig. 12.
- Reconnect Spark Plug.
- Check new Engine Owner's Manual for instructions on adding oil and using new engine.

