Engine Replacement Instructions
8 HP & 10 HP
For Briggs & Stratton 8HP, 9HP, 10HP Vanguard Engines

Customer Tools Required: (Fig. 1)

- A socket wrench (3/8 inch drive), with a 6-inch or longer extension bar
- 3/4 inch socket
- Two 1/2 inch wrenchs, either box or open-end type
- A small flat blade screwdriver (3/16 or 1/4 inch blade width)
- A 2-foot length of 2 x 4 lumber or other sturdy object

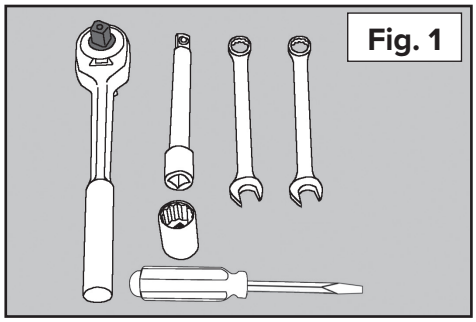


Fig. 1

Tools & Parts Supplied: (Fig. 3)

- 3/8 hex-bit socket
- Impeller bolt with lock washer and heavy washer
- 1/2-13 x 4 inch full threaded bolt (for use as an impeller puller, if needed)
- Engine mounting bolts, set of 4 (5/16-18 x 1.5) with nuts and lock washers
- Shaft key for engine
- Packet of anti-seize grease (for engine shaft) and applicator brush.
- 3/8" steel pin (used for removing impeller from engine shaft)
- Packet of thread locker

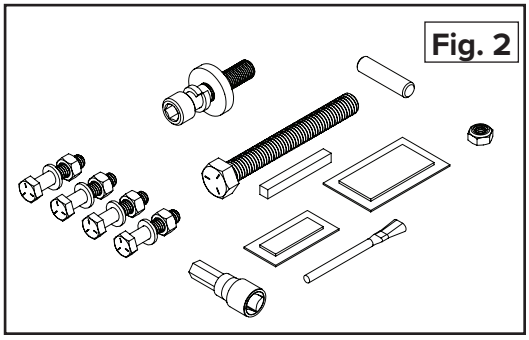


Fig. 2

Step 1. Remove the impeller bolt:

- Disconnect the spark plug wire on the old 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. 3.
- Place the wooden board or 2x4 inside the blower exit chute to prevent impeller rotation.
- Use the hex-bit socket and extension bar to remove the impeller bolt. See Fig. 4.

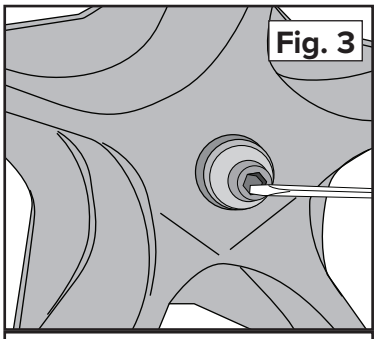
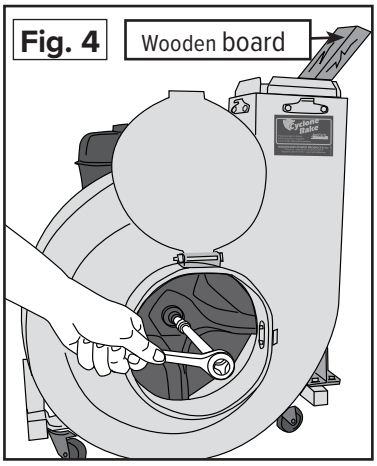
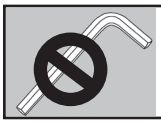


Fig. 3

Note: Thoroughly clean all debris from the impeller bolt hex socket before trying to remove the bolt.





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 blower housing nut

- Using a 1/2 inch wrench, remove the nut which connects the blower unit to the engine. There are two styles of bracket under the nut, depending on the engine being replaced, but the nut is the same for all. See Fig. 5 & Fig. 6.

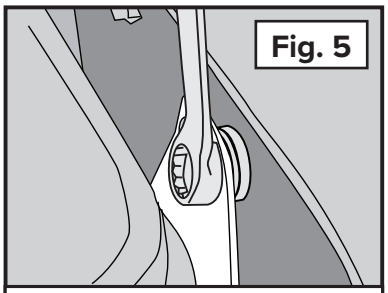


Fig. 5

Briggs Style 1

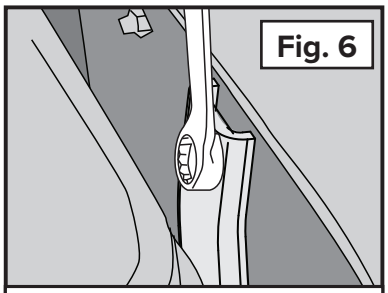


Fig. 6

Briggs Style 2

WOODLAND POWER PRODUCTS, INC.
72 Acton Street, West Haven, Connecticut 06516
TOLL-FREE 1-(888)-531-RAKE
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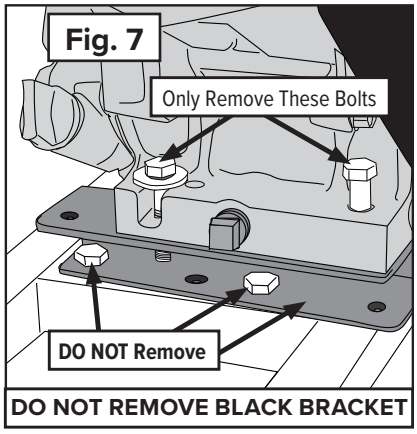
Step 3. Remove the engine bolts

- Use two 1/2 inch box or open-end wrenches to remove ONLY the 2 bolts that connect the engine to the black support bracket.



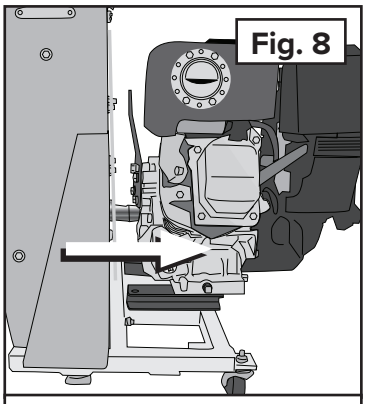
DO NOT REMOVE BLACK BRACKET

IMPORTANT:
Remove only the engine bolts shown in Fig. 7.
DO NOT REMOVE the BOLTS which connect the black support brackets to the Engine Frame.
DO NOT REMOVE the BLACK SUPPORT BRACKET!
This would disturb the engine alignment to the Engine Frame.

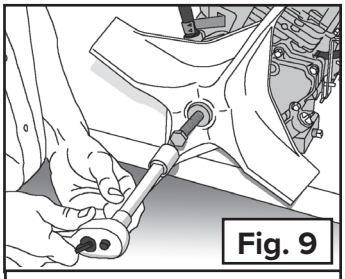
Step 4. Remove the engine

- Pull the engine away from the blower housing. See fig 8. The engine shaft should pull right out of the impeller. If necessary, reach inside the front of the blower to support the impeller while you pull out the engine. The impeller will stay inside the sealed blower housing.
- If the impeller does not pull out easily by hand, insert the 3/8 inch steel pin into the hole in the impeller hub, then screw in the 1/2-13 bolt. Use a 3/4 inch socket to tighten the bolt. It will act as a puller to remove the impeller. See Fig. 9.

TIP: Because the motor frame is on wheels, it is helpful to clamp one or two short lengths of 2x4 to your work bench so the frame does not roll around. This is especially helpful if you are doing a one-person job.



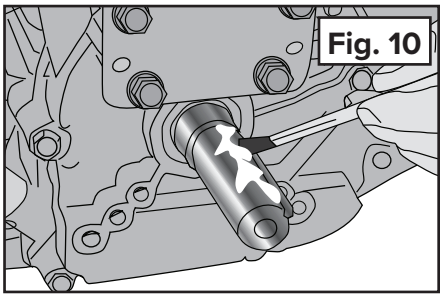
Slide engine out



Use 1/2 inch puller bolt if needed

Step 5. Prepare the new engine shaft

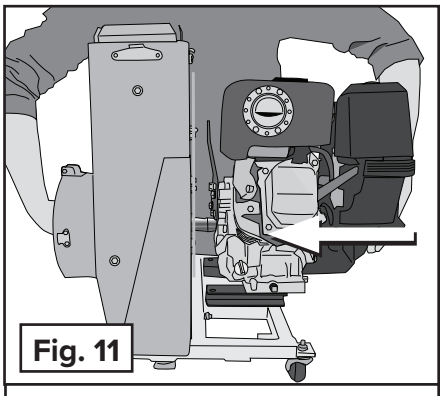
- Disconnect the Spark Plug.
- Orient the new engine shaft so the keyway is on top. Gently pull the starter cord to rotate the shaft into position.
- Clean the shaft keyway with an old toothbrush or clean rag to remove all dust or grit from the keyway.
- Press the shaft key unto the keyway to seat it completely. You can tap it with a soft object, such as a screwdriver handle, if needed. But do not tap it 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 10.



Step 6. Mate the engine and impeller

TIP: This can be done by one person. But it's a lot easier if you have a helper. The helper doesn't need any mechanical skill.

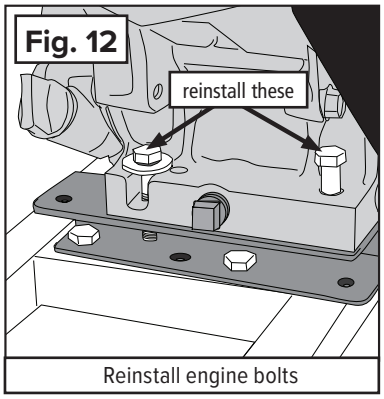
- Place the engine on the motor frame. Using one arm, reach through the front of the blower to grasp the impeller. Hold the impeller so the steel hub passes through the hole in the rear of the blower housing. With the other arm, slide the engine toward the impeller. Orient the slot in the impeller hub with the engine shaft key. Push the engine and impeller together gently so the engine shaft slides into the impeller. See Fig. 11.
- Be sure the hole in the engine bracket passes over the 5/16 inch threaded stud on the blower housing.



Slide engine into impeller

Step 7a. Install the engine bolts and engine bracket nut on Manual Start Engines

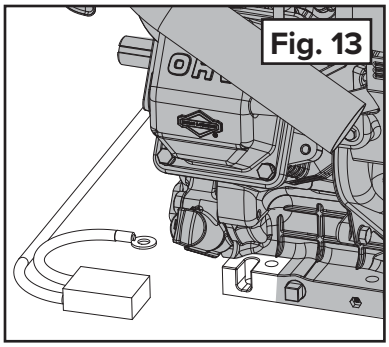
- Loosely install the four engine bolts, along with the lock washers and nuts. Leave them several turns loose. See Fig 12.
- Use two 1/2 inch box or open-end wrenches.
- Install the nylon lock nut onto the 5/16 inch threaded stud which passes through the engine bracket. Tighten the nut.
- Tighten all 4 of the engine bolts.

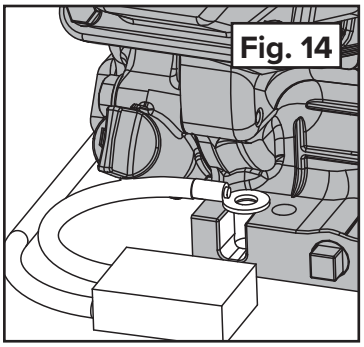


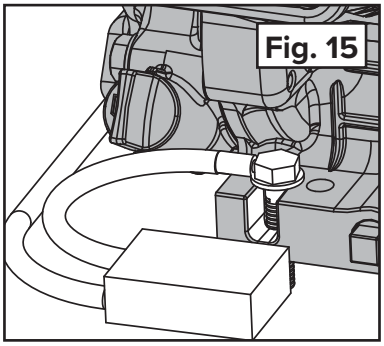
Reinstall engine bolts

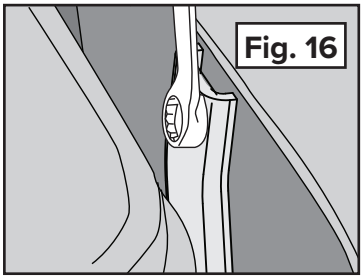
Step 7b. Install the harness wire, engine bolts and engine bracket nut on Electric Start Engines

- Before you install the four engine bolts, you will need to install the electric start harness to the engine. See Fig. 13.
- Place the round connector of the harness onto the engine base. See Fig. 14.
- Then loosely install an engine bolt through the round connector (See Fig. 15) and secure with the washer and lock nut using two 1/2 inch box or open-end wrenches.
- Continue with the 3 other engine bolts. Leave them several turns loose.
- Install the nylon lock nut onto the 5/16 inch threaded stud which passes through the engine bracket. Tighten the nut. See Fig. 16.
- Tighten all 4 of the engine bolts.



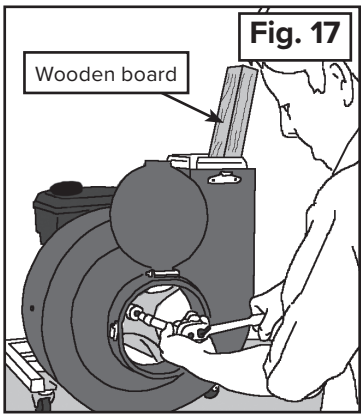






Step 8. Install the impeller bolt

- 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.17.
- Reconnect spark plug.



Congratulations! You're all done.

NOTE: Please refer to the engine's manual provided for instructions on how to add oil and use your new Briggs & Stratton engine.