

## Section 4 Maintenance and Troubleshooting

### Maintenance Recommendations

Regular maintenance will improve performance and extend water pump life. See an Independent Authorized Service Dealer for service.

Water pump warranty does not cover items subjected to operator abuse or negligence. To receive full warranty value, operator must maintain water pump as instructed in this manual, including proper storage as detailed in [Storage](#).

**NOTE:** Call 1-888-GENERAC (888-436-3722) with questions about component replacement.

### Maintenance Schedule

Follow maintenance schedule intervals, whichever occurs first according to use.

**NOTE:** Adverse conditions will require more frequent service.

**NOTE:** All required service and adjustments should be performed each season as detailed in the following chart.

Before Each Use
Check engine oil level
Check air cleaner
Check and tighten fasteners
After Each Use
Drain water from pump
Every 3 Months or 50 Hours
Clean air cleaner*
Every 6 Months or 100 Hours
Change oil ‡
Clean sediment cup
Check and adjust spark plug
Clean fuel tank and fuel filter **
Clean spark arrestor (if equipped)
Every Year or 300 Hours
Replace air cleaner element (paper)
Replace spark plug
Check and adjust idle speed **
Check and adjust valve clearance **
Every Two Years
Check condition of fuel lines and replace if necessary
* Service more often in dusty or dirty conditions.
** Contact an Independent Authorized Service Dealer.
‡ Change oil after the first 20 hours of operation, and every 100 hours thereafter.

### Preventive Maintenance

Dirt or debris can cause improper operation and equipment damage. Clean water pump daily or before each use. Keep area around and behind muffler free from combustible debris.

- Use a damp cloth to wipe exterior surfaces clean.
- Use a soft bristle brush to loosen caked on dirt, oil, etc.
- Use a vacuum to pick up loose dirt and debris.
- Low pressure air (not to exceed 25 psi [172 kPa]) may be used to blow away dirt.

### Engine Maintenance

#### ⚠ WARNING

Accidental start-up. Disconnect spark plug wires when working on unit. Failure to do so could result in death or serious injury.

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**NOTE:** For units equipped with a Subaru engine, refer to the Subaru engine manual shipped with the unit. Maintenance for Subaru engines should be performed according to Subaru recommendations.

### Inspect Engine Oil Level



#### ⚠ WARNING

Risk of burns. Allow engine to cool before draining oil or coolant. Failure to do so could result in death or serious injury.

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Inspect engine oil level prior to each use, or every 8 hours of operation.

Add recommended engine oil as necessary. See [Add Engine Oil](#).

**NOTE:** If equipped with an "Oil Alert System" the system will automatically stop the engine before the oil level falls below a safe limit.

### Change Engine Oil

#### ⚠ WARNING

Accidental start-up. Disconnect spark plug wires when working on unit. Failure to do so could result in death or serious injury.

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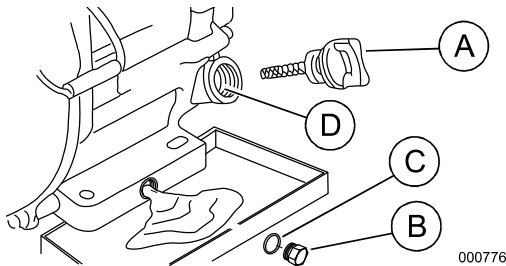
When using water pump under extreme, dirty, dusty conditions, or in extremely hot weather, change oil more frequently.

**NOTE:** Properly dispose of used oil in accordance with all local laws and regulations.

Change oil while engine is still warm from running, as follows:

1. Disconnect the spark plug wire from the spark plug and place the wire where it cannot contact spark plug.

2. Place a suitable collection container beneath the engine.
3. See **Figure 4-1**. Remove oil fill cap (A).



**Figure 4-1. Changing Engine Oil**

4. Remove the oil drain plug (B) and discard the washer (C). Drain oil completely.
5. Place a new washer on the oil drain plug. Install oil drain plug and tighten securely.
6. Add recommended engine oil as necessary. See **Add Engine Oil**.
7. Install oil fill cap, and finger tighten.
8. Wipe up any spilled oil.
9. Properly dispose of oil in accordance with all applicable regulations.

### Service Air Cleaner

Engine will not run properly and may be damaged if run with a dirty air cleaner. Service air cleaner more frequently in dirty or dusty conditions.

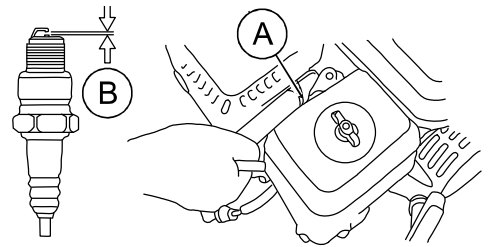
To service air cleaner:

1. Remove air cleaner cover.
2. Remove filter element(s).
3. Inspect filter element(s) and replace if damaged. To order replacements, contact Generac Customer Service at 1-888-GENERAC (888-436-3722) for the name of your nearest Independent Authorized Service Dealer.
4. Clean foam filter element in warm soapy water. Rinse, and allow to dry thoroughly. Dip in clean engine oil and squeeze out excess oil.
5. Tap paper filter element several times on hard surface to remove dirt. Compressed air (not exceeding 30 psi (207 kPa) can also be used to blow through filter element from the inside.
6. Use a clean, damp cloth to wipe dirt from inside air cleaner cover.
7. Put cleaned or new filter element(s) in place. Verify gasket is in place (if equipped).
8. Install air cleaner cover. Tighten air cleaner screws or fasteners securely.

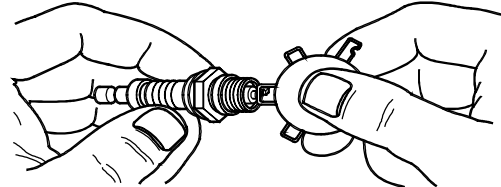
### Service Spark Plug

To service spark plug:

1. See **Figure 4-2**. Clean area around spark plug (A).
2. Remove and inspect spark plug.
3. See **Figure 4-3**. Inspect electrode gap (B) with wire feeler gauge and replace spark plug if gap (A) is not within 0.028 - 0.031 in (0.70 - 0.80 mm).



**Figure 4-2. Service Spark Plug**



**Figure 4-3. Spark Plug Gap**

**NOTE:** Replace spark plug if electrodes are pitted, burned or porcelain is cracked. Use **ONLY** recommended replacement plug. See product specification sheet.

4. Install spark plug finger tight, and tighten an additional 3/8 to 1/2 turn using spark plug wrench. **DO NOT OVERTIGHTEN.**

### Inspect Muffler and Spark Arrestor (if equipped)

**NOTE:** It is a violation of California Public Resource Code, Section 4442, to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrestor, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws.

Contact original equipment manufacturer, retailer, or dealer to obtain a spark arrestor designed for exhaust system installed on this engine.

**NOTE:** Use **ONLY** original equipment replacement parts.

Inspect muffler for cracks, corrosion, or other damage. Remove spark arrestor, if equipped, inspect for damage or carbon blockage. Replace parts as required.

### Storage



#### **DANGER**

Explosion and Fire. Fuel and vapors are extremely flammable and explosive. Store fuel in a well ventilated area. Keep fire and spark away. Failure to do so will result in death or serious injury. (000143)



#### **WARNING**

Risk of Fire. Verify machine has properly cooled before installing cover and storing machine. Hot surfaces could result in fire. (000109)

Refer to the following list to prepare equipment for storage.

- DO NOT place a storage cover on a hot water pump. Allow equipment to cool to room temperature before storage.
- DO NOT store fuel from one season to another unless properly treated.
- Replace fuel container if rust is present. Rust in fuel will cause fuel system problems.
- Cover equipment with a suitable protective, moisture resistant cover.
- Store equipment in a clean and dry area.
- Always store water pump and fuel away from heat and ignition sources.

### Prepare Fuel System for Storage

Fuel stored over 30 days can go bad and damage fuel system components. Keep fuel fresh, use fuel stabilizer.

If fuel stabilizer is added to fuel system, prepare and run engine according to *"Starting the Engine"*. Run engine for 10-15 minutes to circulate stabilizer throughout fuel system. Adequately prepared fuel can be stored up to 24 months.

#### CAUTION

Equipment damage. Always run engine with water in the pump priming chamber. Failure to do so could result in equipment damage.

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**NOTE:** If fuel has not been treated with fuel stabilizer, it must be drained into an approved container. Run engine until it stops from lack of fuel. Use of fuel stabilizer in fuel storage container is recommended to keep fuel fresh.

1. Change engine oil.
2. Remove spark plug.

3. Pour a tablespoon (5-10cc) of clean engine oil or spray a suitable fogging agent into cylinder.



#### WARNING

Vision Loss. Eye protection is required to avoid spray from spark plug hole when cranking engine. Failure to do so could result in vision loss.

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4. Pull starter recoil several times to distribute oil in cylinder.
5. Install spark plug.
6. Pull recoil slowly until resistance is felt. This will close valves so moisture cannot enter engine cylinder. Gently release recoil.

### Change Oil

Change engine oil before storage. See *Change Engine Oil*.

### Prepare Water Pump for Storage

Protect equipment from freezing temperatures. Failure to do so will permanently damage pump and render equipment inoperable. Freeze damage is not covered under warranty.

Protect equipment from freezing temperatures as follows:

1. Shut engine off by turning engine start switch to OFF.
2. Disconnect hoses.
3. Let engine cool.
4. Remove water drain plug and drain trapped water.
5. Turn fuel valve to OFF.
6. Winterize engine per manufacturer specifications.

Store equipment in a clean and dry area.

## Troubleshooting

PROBLEM	CAUSE	CORRECTION
Engine will not start, or starts and runs rough.	<ol style="list-style-type: none"> <li>1. Engine ON/OFF switch in OFF position.</li> <li>2. Dirty air filter</li> <li>3. Out of fuel.</li> <li>4. Stale fuel.</li> <li>5. Fuel switch in OFF position (if equipped).</li> <li>6. Low oil level (units with low oil shutdown system).</li> <li>7. Spark plug wire not connected to plug.</li> <li>8. Bad spark plug.</li> <li>9. Choke position incorrect.</li> <li>10. Water in fuel.</li> <li>11. Excessively rich fuel mixture.</li> <li>12. Impeller obstructed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Place Engine ON/OFF switch in ON position.</li> <li>2. Clean or replace air filter.</li> <li>3. Fill fuel tank.</li> <li>4. Replace with fresh fuel.</li> <li>5. Place fuel switch in ON position.</li> <li>6. Fill oil to proper level.</li> <li>7. Connect wire to spark plug.</li> <li>8. Replace spark plug.</li> <li>9. Adjust choke position.</li> <li>10. Drain fuel tank; replace with fresh fuel.</li> <li>11. Contact Independent Authorized Service Dealer.</li> <li>12. Clean impeller.</li> </ol>