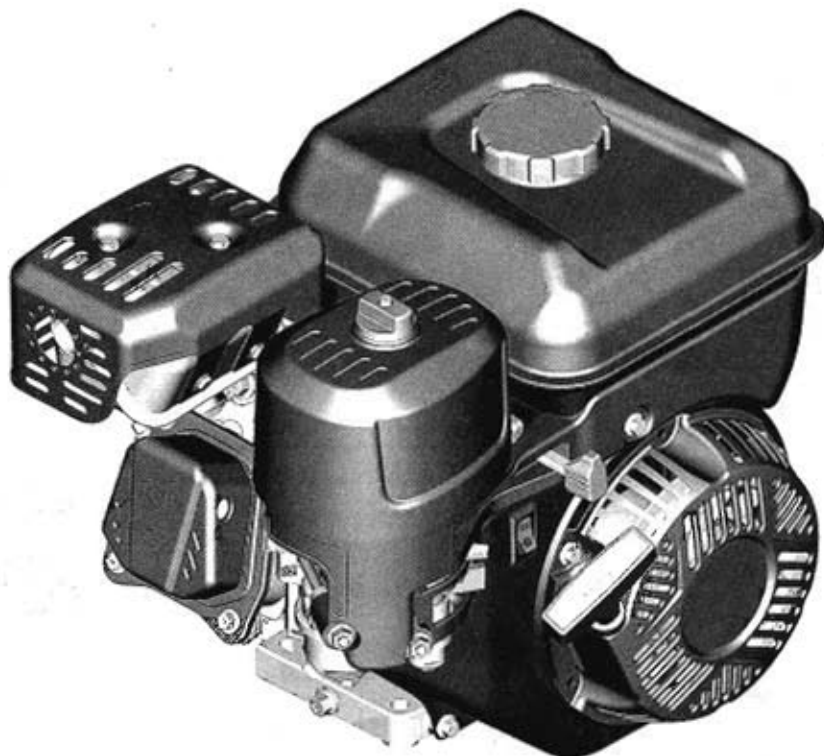




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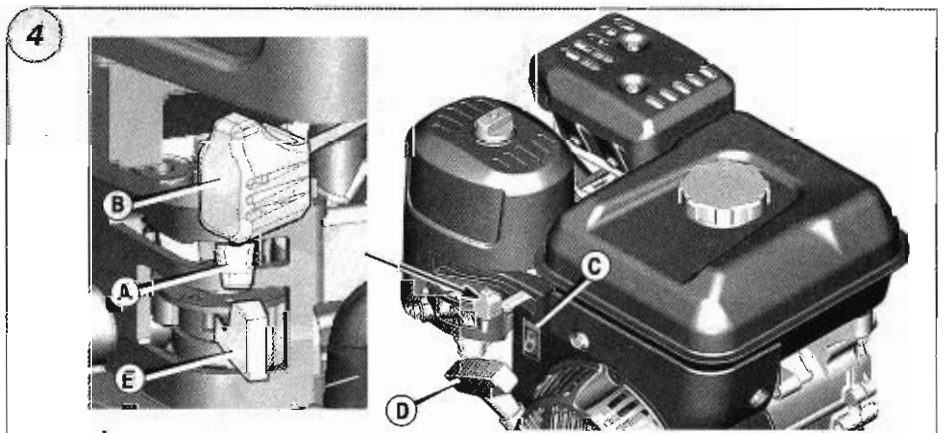
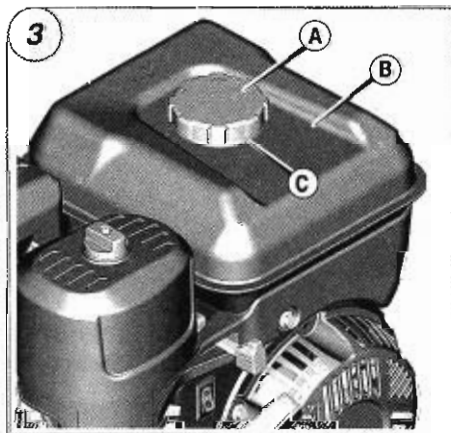
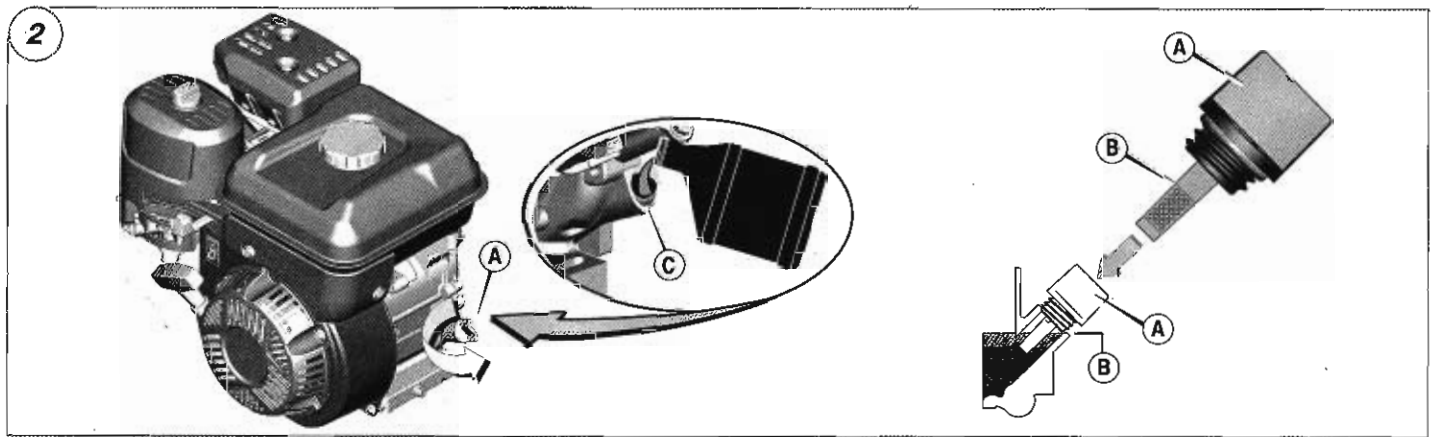
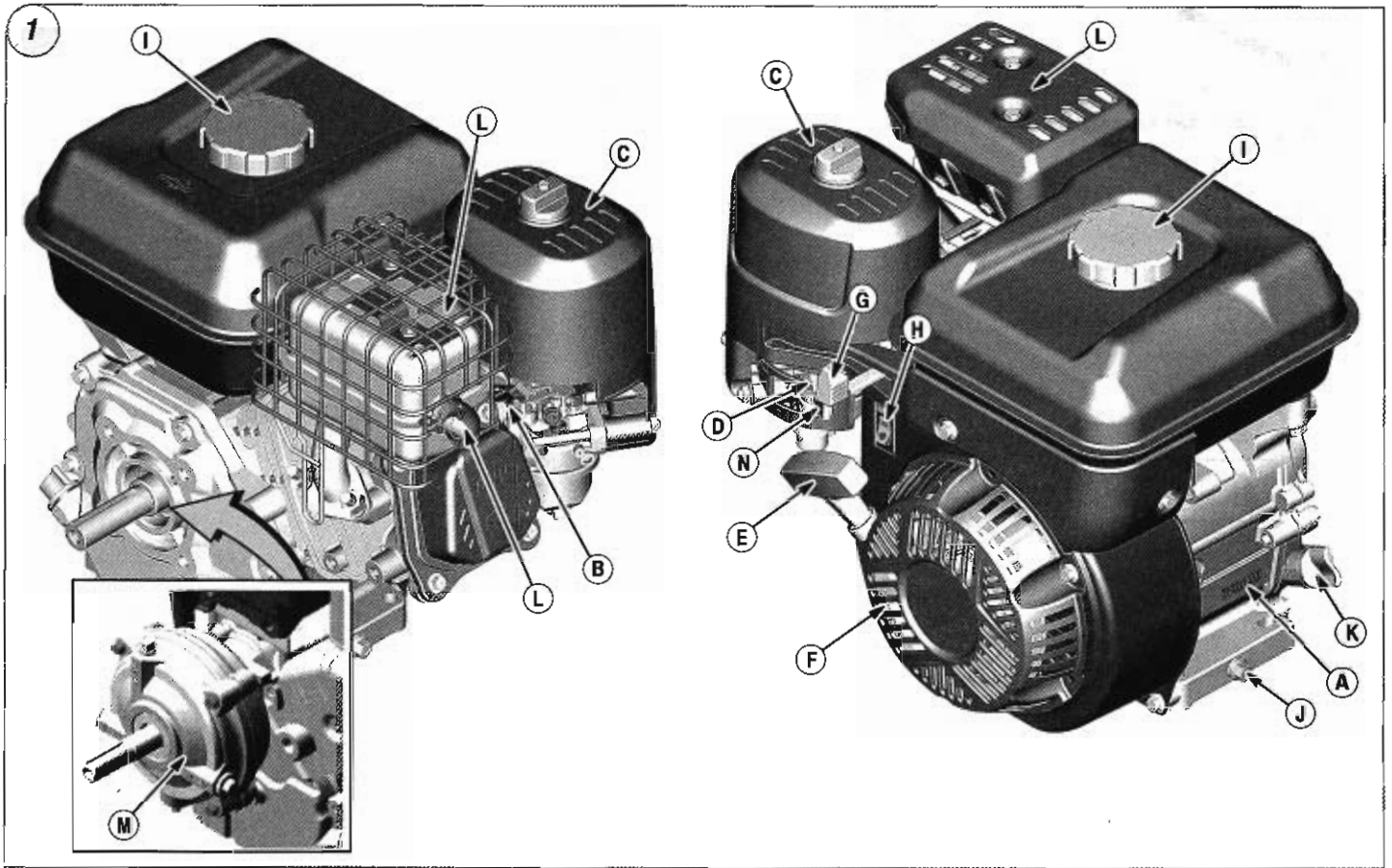
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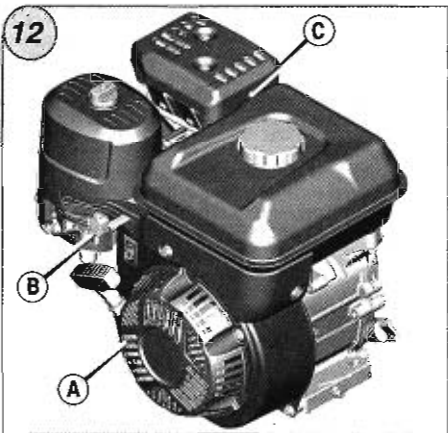
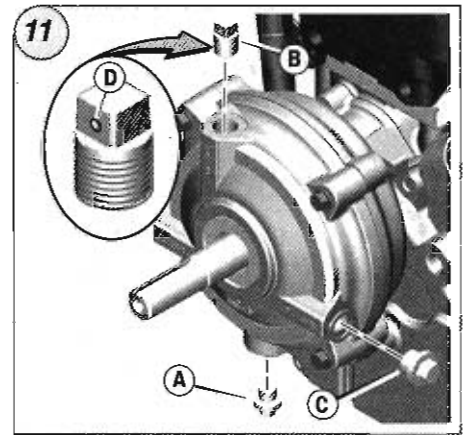
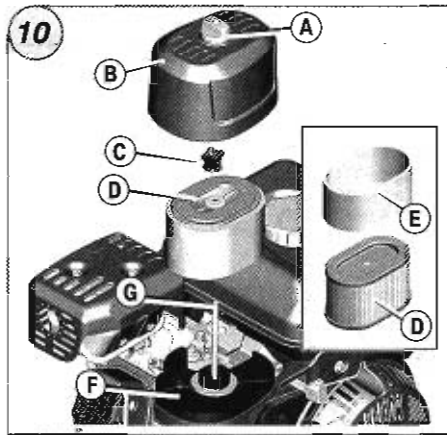
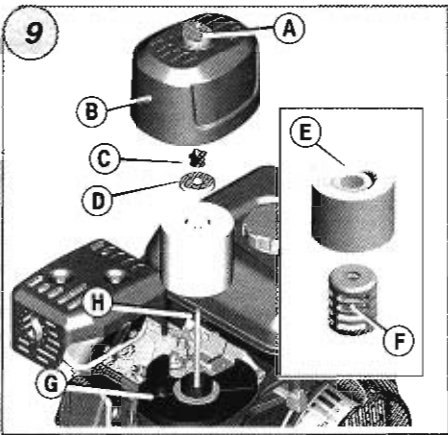
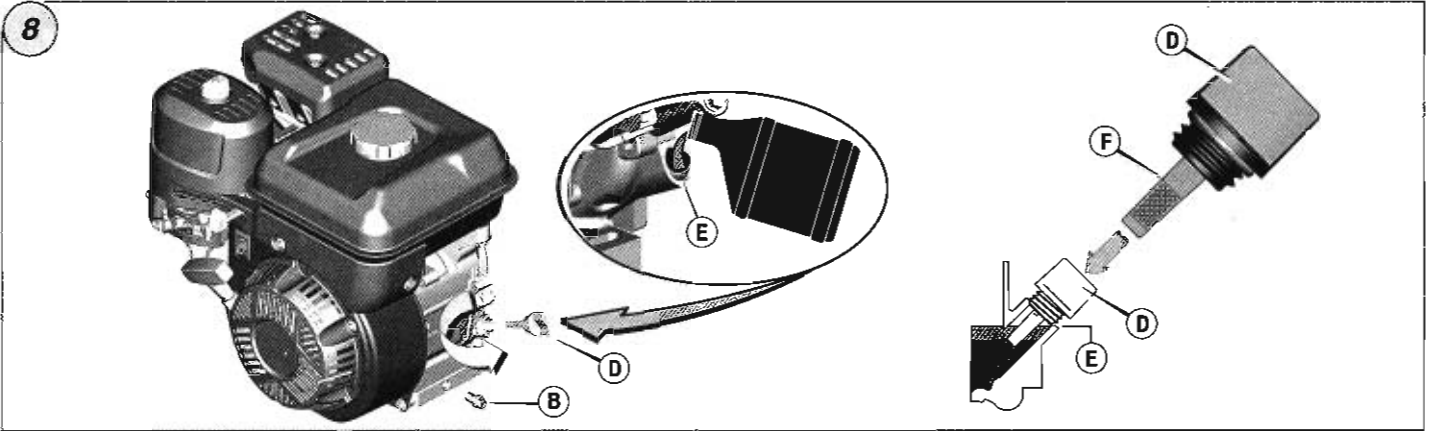
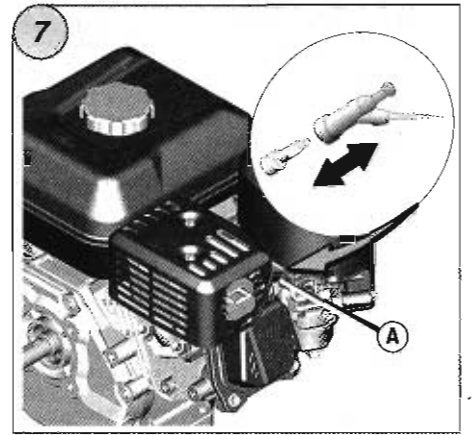
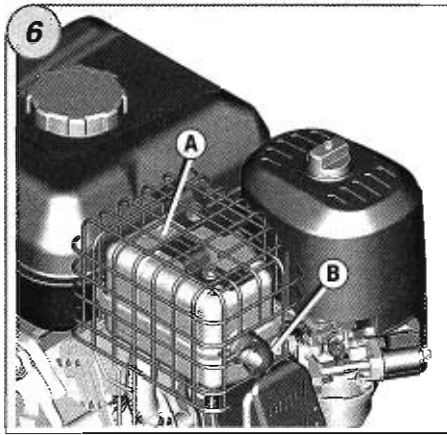
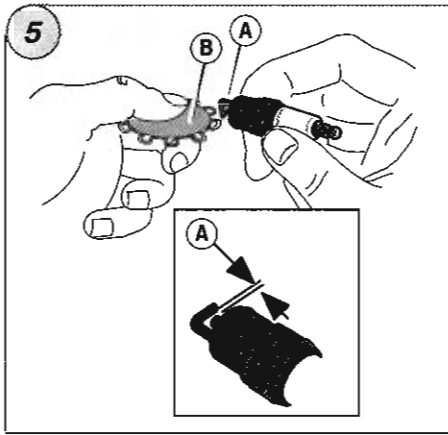


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English

en





General Information

This manual contains safety information to make you aware of the hazards and risks associated with engines and how to avoid them. It also contains instructions for the proper use and care of the engine. Because Briggs & Stratton Corporation does not necessarily know what equipment this engine will power, it is important that you read and understand these instructions and the instructions for the equipment. **Save these original instructions for future reference.**

For replacement parts or technical assistance, record below the engine model, type, and code numbers along with the date of purchase. These numbers are located on your engine (see the *Features and Controls* page).

Date of purchase: _____

MM/DD/YYYY

Engine model: _____

Model:

Type:

Code:

Look for the 2D barcode located on some engines. When viewed with a 2D-capable device, the code will bring up our website where you can access support information for this product. Data rates apply. Some countries may not have online support information available.



Power Ratings: The gross power rating for individual gasoline engine models is labeled in accordance with SAE (Society of Automotive Engineers) code J1940 Small Engine Power & Torque Rating Procedure, and is rated in accordance with SAE J1995. Torque values are derived at 2600 RPM for those engines with "rpm" called out on the label and 3060 RPM for all others; horsepower values are derived at 3600 RPM. The gross power curves can be viewed at www.BRIGGSandSTRATTON.COM. Net power values are taken with exhaust and air cleaner installed whereas gross power values are collected without these attachments. Actual gross engine power will be higher than net engine power and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given the wide array of products on which engines are placed, the gasoline engine may not develop the rated gross power when used in a given piece of power equipment. This difference is due to a variety of factors including, but not limited to, the variety of engine components (air cleaner, exhaust, charging, cooling, carburetor, fuel pump, etc.), application limitations, ambient operating conditions (temperature, humidity, altitude), and engine-to-engine variability. Due to manufacturing and capacity limitations, Briggs & Stratton may substitute an engine of higher rated power for this engine.

Operator Safety

SAFETY AND CONTROL SYMBOLS



The safety alert symbol is used to identify safety information about hazards that can result in personal injury. A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

- DANGER** indicates a hazard which, if not avoided, will result in death or serious injury.
- WARNING** indicates a hazard which, if not avoided, could result in death or serious injury.
- CAUTION** indicates a hazard which, if not avoided, could result in minor or moderate injury.

NOTICE indicates a situation that could result in damage to the product.

WARNING
Certain components in this product and its related accessories contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Wash hands after handling.

WARNING
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

WARNING
Briggs & Stratton Engines are not designed for and are not to be used to power: fun-karts; go-karts; children's, recreational, or sport all-terrain vehicles (ATVs); motorbikes; hovercraft; aircraft products; or vehicles used in competitive events not sanctioned by Briggs & Stratton. For information about competitive racing products, see www.briggsracing.com. For use with utility and side-by-side ATVs, please contact Briggs & Stratton Engine Application Center, 1-866-927-3349. Improper engine application may result in serious injury or death.

NOTICE: This engine was shipped from Briggs & Stratton without oil. Before you start the engine, make sure you add oil according to the instructions in this manual. If you start the engine without oil, it will be damaged beyond repair and will not be covered under warranty.



WARNING



Fuel and its vapors are extremely flammable and explosive.
Fire or explosion can cause severe burns or death.

When Adding Fuel

- Turn engine off and let engine cool at least 2 minutes before removing the fuel cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank. To allow for expansion of the fuel, do not fill above the bottom of the fuel tank neck.
- Keep fuel away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary
- If fuel spills, wait until it evaporates before starting engine.

When Starting Engine

- Ensure that spark plug, muffler, fuel cap and air cleaner (if equipped) are in place and secured.
- Do not crank engine with spark plug removed.
- If engine floods, set choke (if equipped) to OPEN/RUN position, move throttle (if equipped) to FAST position and crank until engine starts.

When Operating Equipment

- Do not tip engine or equipment at angle which causes fuel to spill.
- Do not choke the carburetor to stop engine.
- Never start or run the engine with the air cleaner assembly (if equipped) or the air filter (if equipped) removed.

When Changing Oil

- When you drain the oil from the top oil fill tube, the fuel tank must be empty or fuel can leak out and result in a fire or explosion.

When Tipping Unit for Maintenance

- When performing maintenance that requires the unit to be tipped, the fuel tank must be empty or fuel can leak out and result in a fire or explosion.

When Transporting Equipment

- Transport with fuel tank EMPTY or with fuel shut-off valve OFF.

When Storing Fuel Or Equipment With Fuel In Tank

- Store away from furnaces, stoves, water heaters or other appliances that have pilot lights or other ignition sources because they can ignite fuel vapors.



WARNING



Starting engine creates sparking.
Sparking can ignite nearby flammable gases.
Explosion and fire could result.

- If there is natural or LP gas leakage in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.



WARNING



POISONOUS GAS HAZARD. Engine exhaust contains carbon monoxide, a poisonous gas that could kill you in minutes. You CANNOT see it, smell it, or taste it. Even if you do not smell exhaust fumes, you could still be exposed to carbon monoxide gas. If you start to feel sick, dizzy, or weak while using this product, shut it off and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.

- Operate this product ONLY outside far away from windows, doors and vents to reduce the risk of carbon monoxide gas from accumulating and potentially being drawn towards occupied spaces.
- Install battery-operated carbon monoxide alarms or plug-in carbon monoxide alarms with battery back-up according to the manufacturer's instructions. Smoke alarms cannot detect carbon monoxide gas.
- DO NOT run this product inside homes, garages, basements, crawlspaces, sheds, or other partially-enclosed spaces even if using fans or opening doors and windows for ventilation. Carbon monoxide can quickly build up in these spaces and can linger for hours, even after this product has shut off.
- ALWAYS place this product downwind and point the engine exhaust away from occupied spaces.



WARNING



Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go.

Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.
- Remove all external equipment/engine loads before starting engine.
- Direct-coupled equipment components such as, but not limited to, blades, impellers, pulleys, sprockets, etc., must be securely attached.



WARNING



Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories.

Traumatic amputation or severe laceration can result.

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.



WARNING



Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.

Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated debris from muffler area and cylinder area.
- 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 arrester, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws. Contact the original equipment manufacturer, retailer, or dealer to obtain a spark arrester designed for the exhaust system installed on this engine.



WARNING



Unintentional sparking can result in fire or electric shock.

Unintentional start-up can result in entanglement, traumatic amputation, or laceration.

Fire hazard


Before performing adjustments or repairs:

- Disconnect the spark plug wire and keep it away from the spark plug.
- Disconnect battery at negative terminal (only engines with electric start.)
- Use only correct tools.
- Do not tamper with governor spring, links or other parts to increase engine speed.
- Replacement parts must be of the same design and installed in the same position as the original parts. Other parts may not perform as well, may damage the unit, and may result in injury.
- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.

When testing for spark:

- Use approved spark plug tester.
- Do not check for spark with spark plug removed.

Features and Controls

Compare the illustration  with your engine to familiarize yourself with the location of various features and controls.

- A. Engine Identification Model Type Code
- B. Spark Plug
- C. Air Cleaner
- D. Choke
- E. Starter Cord Handle
- F. Finger Guard
- G. Throttle Control (optional)
- H. Stop Switch (optional)
- I. Fuel Tank and Cap
- J. Oil Drain Plug
- K. Oil Fill
- L. Muffler Muffler Guard (optional) Spark Arrester (optional)
- M. Gear Reduction Unit (optional)
- N. Fuel Shutoff

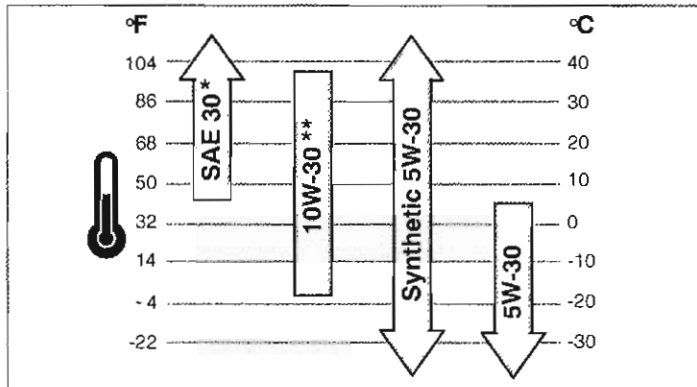
Operation

Oil capacity (see the *Specifications* section)

Oil Recommendations

We recommend the use of Briggs & Stratton Warranty Certified oils for best performance. Other high-quality detergent oils are acceptable if classified for service SF, SG, SH, SJ or higher. Do not use special additives.

Outdoor temperatures determine the proper oil viscosity for the engine. Use the chart to select the best viscosity for the outdoor temperature range expected.



* Below 40°F (4°C) the use of SAE 30 will result in hard starting.

** Above 80°F (27°C) the use of 10W-30 may cause increased oil consumption. Check oil level more frequently.

How To Check/Add Oil - Figure

Before adding or checking the oil

- Place engine level.
 - Clean the oil fill area of any debris.
1. Remove the dipstick (A) and wipe with a clean cloth.
 2. Insert the dipstick. Do not turn or tighten.
 3. Remove the dipstick and check the oil level. It should be at the top of the full indicator (B) on the dipstick.
 4. To add oil, pour the oil slowly into the engine oil fill (C). Fill to point of overflowing.
 5. Replace and tighten the dipstick.

Low Oil Protection System (if equipped)

Some engines are equipped with a low oil sensor. If the oil is low, the sensor will either activate a warning light or stop the engine. Stop the engine and follow these steps before restarting the engine.

- Make sure the engine is level.

- Check the oil level. See the *How To Check/Add Oil* section.
- If the oil level is low, add the proper amount of oil. Start the engine and make sure the warning light (if equipped) is not activated.
- If the oil level is not low, **do not start** the engine. Contact an Authorized Briggs & Stratton Dealer to have the the oil problem corrected.

Fuel Recommendations

Fuel must meet these requirements:

- Clean, fresh, unleaded gasoline.
- A minimum of 87 octane/87 AKI (91 RON). High altitude use, see below.
- Gasoline with up to 10% ethanol (gasohol) is acceptable.

CAUTION: Do not use unapproved gasolines, such as E15 and E85. Do not mix oil in gasoline or modify the engine to run on alternate fuels. Use of unapproved fuels will cause damage to engine components, which will not be covered under warranty.

To protect the fuel system from gum formation, mix a fuel stabilizer into the fuel. See *Storage*. All fuel is not the same. If starting or performance problems occur, change fuel providers or change brands. This engine is certified to operate on gasoline. The emissions control system for this engine is EM (Engine Modifications).

High Altitude

At altitudes over 5,000 feet (1524 meters), a minimum 85 octane/85 AKI (89 RON) gasoline is acceptable. To remain emissions compliant, high altitude adjustment is required. Operation without this adjustment will cause decreased performance, increased fuel consumption, and increased emissions. See an authorized Briggs & Stratton Dealer for high altitude adjustment information.

Operation of the engine at altitudes below 2,500 feet (762 meters) with high altitude adjustment is not recommended.

How To Add Fuel - Figure



WARNING

Fuel and its vapors are extremely flammable and explosive. Fire or explosion can cause severe burns or death.

When Adding Fuel

- Turn engine off and let engine cool at least 2 minutes before removing the fuel cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank. To allow for expansion of the fuel, do not fill above the bottom of the fuel tank neck.
- Keep fuel away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.
- If fuel spills, wait until it evaporates before starting engine.

1. Clean the fuel cap area of dirt and debris. Remove the fuel cap (A) (Figure 3).
2. Fill the fuel tank (B) with fuel. To allow for expansion of the fuel, do not fill above the bottom of the fuel tank neck (C).
3. Reinstall the fuel cap.

How To Start The Engine - Figure



WARNING

Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go. Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.



WARNING

Fuel and its vapors are extremely flammable and explosive. Fire or explosion can cause severe burns or death.

When Starting Engine

- Ensure that spark plug, muffler, fuel cap and air cleaner (if equipped) are in place and secured.
- Do not crank engine with spark plug removed.
- If engine floods, set choke (if equipped) to OPEN/RUN position, move throttle (if equipped) to FAST position and crank until engine starts.




WARNING

POISONOUS GAS HAZARD. Engine exhaust contains carbon monoxide, a poisonous gas that could kill you in minutes. You CANNOT see it, smell it, or taste it. Even if you do not smell exhaust fumes, you could still be exposed to carbon monoxide gas. If you start to feel sick, dizzy, or weak while using this product, shut it off and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.


- Operate this product ONLY outside far away from windows, doors and vents to reduce the risk of carbon monoxide gas from accumulating and potentially being drawn towards occupied spaces.
- Install battery-operated carbon monoxide alarms or plug-in carbon monoxide alarms with battery back-up according to the manufacturer's instructions. Smoke alarms cannot detect carbon monoxide gas.
- DO NOT run this product inside homes, garages, basements, crawlspaces, sheds, or other partially-enclosed spaces even if using fans or opening doors and windows for ventilation. Carbon monoxide can quickly build up in these spaces and can linger for hours, even after this product has shut off.
- ALWAYS place this product downwind and point the engine exhaust away from occupied spaces.

NOTICE: This engine was shipped from Briggs & Stratton without oil. Before you start the engine, make sure you add oil according to the instructions in this manual. If you start the engine without oil, it will be damaged beyond repair and will not be covered under warranty.

Note: Equipment may have remote controls. See the equipment manual for location and operation of remote controls.

1. Check the oil level. See the *How To Check/Add Oil* section.
2. Make sure equipment drive controls, if equipped, are disengaged.
3. Move the fuel shutoff (E) to the on position.
4. Move the choke control lever (A) to the choke  position (Figure 4).


Note: Choke is usually unnecessary when restarting a warm engine.

5. Move the throttle control lever (B), if equipped, to the fast  position. Operate the engine with the throttle control lever in the fast position.
6. On engines equipped with a stop switch (C), move the switch to the on position.
7. Firmly hold the starter cord handle (D). Pull the starter cord handle slowly until resistance is felt, then pull rapidly.

Note: If the engine does not start after repeated attempts, go to BRIGGSandSTRATTON.COM or call 1-800-233-3723 (in USA).



WARNING: Rapid retraction of the starter cord (kickback) will pull your hand and arm toward the engine faster than you can let go. Broken bones, fractures, bruises or sprains could result. When starting engine, pull the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.

8. As the engine warms up, move the choke control (A) to the run  position.

How To Stop The Engine - Figure 4



WARNING



Fuel and its vapors are extremely flammable and explosive. Fire or explosion can cause severe burns or death.

- Do not choke the carburetor to stop engine.

1. Move the stop switch (C) to the stop position.

or

Move the throttle control lever (B), if equipped, to slow  and then to the stop  position.

2. Move the fuel shutoff (E) to the off position.

Maintenance

We recommend that you see any Briggs & Stratton Authorized Dealer for all maintenance and service of the engine and engine parts.

NOTICE: All the components used to build this engine must remain in place for proper operation.



WARNING: When performing maintenance that requires the unit to be tipped, the fuel tank must be empty or fuel can leak out and result in a fire or explosion.

Emissions Control

Maintenance, replacement, or repair of the emissions control devices and systems may be performed by any non-road engine repair establishment or individual. However, to obtain "no charge" emissions control service, the work must be performed by a factory authorized dealer. See the Emissions Warranty.



WARNING



Unintentional sparking can result in fire or electric shock. Unintentional start-up can result in entanglement, traumatic amputation, or laceration. Fire hazard

Before performing adjustments or repairs:

- Disconnect the spark plug wire and keep it away from the spark plug.
- Disconnect battery at negative terminal (only engines with electric start.)
- Use only correct tools.
- Do not tamper with governor spring, links or other parts to increase engine speed.
- Replacement parts must be of the same design and installed in the same position as the original parts. Other parts may not perform as well, may damage the unit, and may result in injury.
- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.

When testing for spark:

- Use approved spark plug tester.
- Do not check for spark with spark plug removed.

Maintenance Chart

First 5 Hours
<ul style="list-style-type: none">• Change oil
Every 8 Hours or Daily
<ul style="list-style-type: none">• Check engine oil level• Clean area around muffler and controls• Clean finger guard
Every 25 Hours or Annually
<ul style="list-style-type: none">• Clean air filter *• Clean pre-cleaner *
Every 50 Hours or Annually
<ul style="list-style-type: none">• Change engine oil• Inspect muffler and spark arrester
Every 100 Hours
<ul style="list-style-type: none">• Change gear reduction oil (if equipped)
Annually
<ul style="list-style-type: none">• Replace air filter• Replace pre-cleaner• Replace spark plug• Clean air cooling system *

* In dusty conditions or when airborne debris is present, clean more often.

Carburetor And Engine Speed Adjustment

Never make adjustments to the carburetor or engine speed. The carburetor was set at the factory to operate efficiently under most conditions. Do not tamper with the governor spring, linkages, or other parts to change the engine speed. If any adjustments are required contact a Briggs & Stratton Authorized Service Center for service.

NOTICE: The equipment manufacturer specifies the maximum speed for the engine as installed on the equipment. Do not exceed this speed. If you are unsure what the equipment maximum speed is, or what the engine speed is set to from the factory, contact a Briggs & Stratton Authorized Service Center for assistance. For safe and proper operation of the equipment, the engine speed should be adjusted only by a qualified service technician.

How To Replace The Spark Plug - Figure 5

Check the gap (A, Figure 5) with a wire gauge (B). If necessary, reset the gap. Install and tighten the spark plug to the recommended torque. For gap setting or torque, see the **Specifications** section.

Note: In some areas, local law requires using a resistor spark plug to suppress ignition signals. If this engine was originally equipped with a resistor spark plug, use the same type for replacement.

Inspect Muffler And Spark Arrester - Figure 6



WARNING



Running engines produce heat. Engine parts, especially muffler, become extremely hot.



Severe thermal burns can occur on contact.

Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated debris from muffler area and cylinder area.
- 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 arrester, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws. Contact the original equipment manufacturer, retailer, or dealer to obtain a spark arrester designed for the exhaust system installed on this engine.

Remove accumulated debris from muffler area and cylinder area. Inspect the muffler (A, Figure 6) for cracks, corrosion, or other damage. Remove the spark arrester (B), if equipped, and inspect for damage or carbon blockage. If damage is found, install replacement parts before operating.



WARNING: Replacement parts must be of the same design and installed in the same position as the original parts. Other parts may not perform as well, may damage the unit, and may result in injury.

How To Change The Oil - Figure 7 8

Used oil is a hazardous waste product and must be disposed of properly. Do not discard with household waste. Check with your local authorities, service center, or dealer for safe disposal/recycling facilities.

Remove Oil

1. With engine off but still warm, disconnect the spark plug wire (A) and keep it away from the spark plug (Figure 7).
2. Remove the oil drain plug (B, Figure 8). Drain the oil into an approved receptacle.
3. After the oil has drained, install and tighten the oil drain plug.

Add oil

- Place engine level.
 - Clean the oil fill area of any debris.
 - See the **Specifications** section for oil capacity.
1. Remove the dipstick (D, Figure 8) and wipe with a clean cloth.
 2. Pour the oil slowly into the engine oil fill (E). Fill to point of overflowing.
 3. Insert the dipstick. **Do not turn or tighten.**
 4. Remove the dipstick and check the oil level. It should be at the top of the full indicator (F) on the dipstick.
 5. Install and tighten the dipstick.

How To Service The Air Filter - Figure 9 10



WARNING



Fuel and its vapors are extremely flammable and explosive. Fire or explosion can cause severe burns or death.



- Never start or run the engine with the air cleaner assembly (if equipped) or the air filter (if equipped) removed.

NOTICE: Do not use pressurized air or solvents to clean the filter. Pressurized air can damage the filter and solvents will dissolve the filter.

Two types of air filter systems are shown, a **Standard** and a **High Capacity**. Determine the type installed on your engine and service as follows.

Standard Air Filter - Figure 9

The standard air filter uses a foam element that can be washed and reused.

1. Loosen the fastener (A) that holds the cover (B). Remove the cover.
2. Remove the fastener (C), the washer (D), and the foam element (E).
3. Remove the support cup (F) from the foam element.
4. Wash the foam element in liquid detergent and water. Squeeze dry the foam element in a clean cloth.
5. Saturate the foam element with clean engine oil. To remove the excess engine oil, squeeze the foam element in a clean cloth.
6. Insert the support cup into the foam element.
7. Install the foam element into the base (G) and onto stud (H). Make sure foam element is properly assembled into base and secure with the washer and the fastener.
8. Install the air filter cover and secure with the fastener. Make sure the fastener is tight.

High Capacity Air Filter - Figure 10

The air cleaner system uses a pleated filter with an optional pre-cleaner. The pre-cleaner can be washed and reused.

1. Remove the fastener (A) and the cover (B).
2. Remove the fastener (C) and the filter (D).
3. Remove the pre-cleaner (E), if equipped, from the filter. To loosen debris, gently lap the filter on a hard surface. If the filter is excessively dirty, replace with a new filter.
4. Wash the pre-cleaner in liquid detergent and water. Then allow it to thoroughly air dry. **Do not** oil the pre-cleaner.
5. Assemble the dry pre-cleaner to the filter.
6. Install the filter and pre-cleaner into the base (F) and onto stud (G). Make sure filter fits securely into the base. Secure the filter with the fastener (C).
7. Install the cover and secure with the fastener (A). Make sure the fastener is tight.

How To Change The Gear Reduction Oil - Figure 11

If your engine is equipped with a gear reduction unit, service as follows.

1. Remove the oil fill plug (B) and the oil level plug (C).
2. Remove the oil drain plug (A, Figure 11) and drain the oil into an appropriate receptacle.
3. Install and tighten the oil drain plug.
4. To refill, slowly pour gear lube into the oil fill hole (see **Specifications** section). Continue to pour until the oil runs out of the oil level hole.
5. Install and tighten the oil level plug.
6. Install and tighten the oil fill plug.
Important: The oil fill plug has a vent hole (D) and must be installed on the top of the gear case cover as shown.

How To Clean The Air Cooling System - Figure 12



WARNING



Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.



Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated debris from muffler area and cylinder area.

NOTICE: Do not use water to clean the engine. Water could contaminate the fuel system. Use a brush or dry cloth to clean the engine.

This is an air cooled engine. Dirt or debris can restrict air flow and cause the engine to overheat, resulting in poor performance and reduced engine life.

Use a brush or dry cloth to remove debris from the finger guard (A) (Figure 12). Keep linkage, springs and controls (B) clean. Keep the area around and behind the muffler (C) free of any combustible debris.

Storage



WARNING



Fuel and its vapors are extremely flammable and explosive.



Fire or explosion can cause severe burns or death.

When Storing Fuel Or Equipment With Fuel In Tank

- Store away from furnaces, stoves, water heaters or other appliances that have pilot light or other ignition source because they can ignite fuel vapors.

Fuel System

Fuel can become stale when stored over 30 days. Stale fuel causes acid and gum deposits to form in the fuel system or on essential carburetor parts. To keep fuel fresh, use **Briggs & Stratton Advanced Formula Fuel Treatment & Stabilizer**, available wherever Briggs & Stratton genuine service parts are sold.

For engines equipped with a FRESH START® fuel cap, use **Briggs & Stratton FRESH START®** available in a drip concentrate cartridge.

There is no need to drain gasoline from the engine if a fuel stabilizer is added according to instructions. Run the engine for 2 minutes to circulate the stabilizer throughout the fuel system before storage.

If gasoline in the engine has not been treated with a fuel stabilizer, it must be drained into an approved container. Run the engine until it stops from lack of fuel. The use of a fuel stabilizer in the storage container is recommended to maintain freshness.

Engine Oil

While the engine is still warm, change the engine oil.

Troubleshooting

Need Assistance? Go to **BRIGGSandSTRATTON.COM** or call 1-800-233-3723 (in USA).

Specifications

Engine Specifications

Model	83100
Displacement	7.74 ci (127 cc)
Bore	2.441 in (62 mm)
Stroke	1.654 in (42 mm)
Engine Oil Capacity	18 - 20 oz (0.54 - 0.59 L)

Gear Reduction Specifications (If equipped)

Gear Reduction Oil Type	80W-90
Gear Reduction Oil Capacity	4 oz (0.12 L)

Tune-up Specifications *

Model	83100
Spark Plug Gap	0.030 in (0.76 mm)
Spark Plug Torque	180 lb-in (20 Nm)
Armature Air Gap	0.006 - 0.010 in (0.15 - 0.25 mm)
Intake Valve Clearance	0.005 - 0.007 in (0.13 - 0.18 mm)
Exhaust Valve Clearance	0.005 - 0.007 in (0.13 - 0.18 mm)

* Engine power will decrease 3.5% for each 1,000 feet (300 meters) above sea level and 1% for each 10° F (5.6° C) above 77° F (25° C). The engine will operate satisfactorily at an angle up to 15°. Refer to the equipment operator's manual for safe allowable operating limits on slopes.

Common Service Parts ✓

Service Part	Part Number
Standard Air Filter	797258
High Capacity Air Filter	796970
Fuel Additive	100117
Spark Plug	797235
Spark Plug Wrench	89838, 5023
Spark Tester	19368

✓ We recommend that you see any Briggs & Stratton Authorized Dealer for all maintenance and service of the engine and engine parts.

LIMITED WARRANTY

Briggs & Stratton warrants that, during the warranty period specified below, it will repair or replace, free of charge, any part that is defective in material or workmanship or both. Transportation charges on product submitted for repair or replacement under this warranty must be borne by purchaser. This warranty is effective for and is subject to the time periods and conditions stated below. For warranty service, find the nearest Authorized Service Dealer in our dealer locator map at BRIGGSandSTRATTON.COM. The purchaser must contact the Authorized Service Dealer, and then make the product available to the Authorized Service Dealer for inspection and testing.

There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to the warranty period listed below, or to the extent permitted by law. Liability for incidental or consequential damages are excluded to the extent exclusion is permitted by law. Some states or countries do not allow limitations on how long an implied warranty lasts, and some states or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state and country to country. **

STANDARD WARRANTY TERMS * ▲

Brand/Product Type	Consumer Use	Commercial Use
Vanguard™ ■	3 years	3 years
Commercial Turf Series™	2 years	2 years
Engines Featuring Dura-Bore™ Cast Iron Sleeve	2 years	1 year
All Other Briggs & Stratton Engines	2 years	90 days

* These are our standard warranty terms, but occasionally there may be additional warranty coverage that was not determined at time of publication. For a listing of current warranty terms for your engine, go to BRIGGSandSTRATTON.COM or contact your Briggs & Stratton Authorized Service Dealer.

** In Australia - Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. For warranty service, find the nearest Authorized Service Dealer in our dealer locator map at BRIGGSandSTRATTON.COM, or by calling 1300 274 447, or by emailing or writing to salesenquiries@briggsandstratton.com.au, Briggs & Stratton Australia Pty Ltd, 1 Moorebank Avenue, Moorebank, NSW, Australia, 2170.

▲ There is no warranty for engines on equipment used for prime power in place of a utility or for standby generators used for commercial purposes. Engines used in competitive racing or on commercial or rental tracks are not warranted.

■ Vanguard installed on standby generators: 2 years consumer use, no warranty commercial use. Vanguard installed on utility vehicles: 2 years consumer use, 2 years commercial use. Vanguard 3-cylinder liquid cooled: see Briggs & Stratton 3/LC Engine Warranty Policy.

The warranty period begins on the date of purchase by the first retail or commercial consumer. "Consumer use" means personal residential household use by a retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once an engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty.

Save your proof of purchase receipt. If you do not provide proof of the initial purchase date at the time warranty service is requested, the manufacturing date of the product will be used to determine the warranty period. Product registration is not required to obtain warranty service on Briggs & Stratton products.

About Your Warranty

This limited warranty covers engine-related material and/or workmanship issues only, and not replacement or refund of the equipment to which the engine may be mounted. Routine maintenance, tune-ups, adjustments, or normal wear and tear are not covered under this warranty. Similarly, warranty is not applicable if the engine has been altered or modified or if the engine serial number has been defaced or removed. This warranty does not include used, reconditioned, second-hand, or demonstration equipment or engines. This warranty does not cover engine damage or performance problems caused by:

- 1 The use of parts that are not original Briggs & Stratton parts;
- 2 Operating the engine with insufficient, contaminated, or an incorrect grade of lubricating oil;
- 3 The use of contaminated or stale fuel, gasoline formulated with ethanol greater than 10%, or the use of alternative fuels such as liquefied petroleum or natural gas on engines not originally designed/manufactured by Briggs & Stratton to operate on such fuels;
- 4 Dirt which entered the engine because of improper air cleaner maintenance or re-assembly;

- 5 Striking an object with the cutter blade of a rotary lawn mower, loose or improperly installed blade adapters, impellers, or other crankshaft coupled devices, or excessive v-belt tightness;
- 6 Associated parts or assemblies such as clutches, transmissions, equipment controls, etc., which are not supplied by Briggs & Stratton;
- 7 Overheating due to grass clippings, dirt and debris, or rodent nests which plug or clog the cooling fins or flywheel area, or by operating the engine without sufficient ventilation;
- 8 Excessive vibration due to over-speeding, loose engine mounting, loose or unbalanced cutter blades or impellers, or improper coupling of equipment components to the crankshaft;
- 9 Misuse, lack of routine maintenance, shipping, handling, or warehousing of equipment, or improper engine installation.

Warranty service is available only through Briggs & Stratton Authorized Service Dealers. Locate your nearest Authorized Service Dealer in our dealer locator map at BRIGGSandSTRATTON.COM or by calling 1-800-233-3723 (In USA).

California, U.S. EPA, and Briggs & Stratton Corporation Emissions Control Warranty Statement
Your Warranty Rights And Obligations
For Briggs & Stratton Engine Models with "F" Trim Designation
(Model-Type-Trim Representation xxxxxx xxx Fx)

January 2014

The California Air Resources Board, U.S. EPA, and Briggs & Stratton (B&S) are pleased to explain the emissions control system warranty on your Model Year 2014-2015 engine/equipment. In California, new small off-road engines and large spark ignited engines less than or equal to 1.0 liter must be designed, built, and equipped to meet the State's stringent anti-smog standards. B&S must warrant the emissions control system on your engine/equipment for the periods of time listed below provided there has been no abuse, neglect, or improper maintenance of your engine/equipment.

Your exhaust emissions control system may include parts such as the carburetor or fuel injection system, ignition system, and catalytic converter. Also included may be hoses, belts, connectors, sensors, and other emissions-related assemblies. Your evaporative emission control system may include parts such as: carburetors, fuel tanks, fuel lines, fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, and other associated components.

Where a warrantable condition exists, B&S will repair your engine/equipment at no cost to you including diagnosis, parts, and labor.

Manufacturer's Warranty Coverage:

Small off-road engines and large spark ignited engines less than or equal to 1.0 liter, and any related emissions components of the equipment, are warranted for two years*. If any

emissions-related part on your B&S engine/equipment is defective, the part will be repaired or replaced by B&S.

* Two years or for the time period listed in the respective engine or product warranty statement, whichever is greater.

Owner's Warranty Responsibilities:

- As the engine/equipment owner, you are responsible for the performance of the required maintenance listed in your Operator's Manual. B&S recommends that you retain all receipts covering maintenance on your engine/equipment, but B&S cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.
- As the engine/equipment owner, you should however be aware that B&S may deny you warranty coverage if your engine/equipment or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- You are responsible for presenting your engine/equipment to a B&S distribution center, servicing dealer, or other equivalent entity, as applicable, as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have any questions regarding your warranty rights and responsibilities, you should contact B&S at 1-800-444-7774 (in USA) or BRIGGSandSTRATTON.COM.

Briggs & Stratton Emissions Control Warranty Provisions

The following are specific provisions relative to your Emissions Control Warranty Coverage. It is in addition to the B&S engine warranty for non-regulated engines found in the Operator's Manual.

1. Warranted Emissions Parts

Coverage under this warranty extends only to the parts listed below (the emissions control systems parts) to the extent these parts were present on the B&S engine and/or B&S supplied fuel system.

- Fuel Metering System**
 - Cold start enrichment system (soft choke)
 - Carburetor and internal parts
 - Fuel pump
 - Fuel line, fuel line fittings, clamps
 - Fuel tank, cap and tether
 - Carbon canister
- Air Induction System**
 - Air cleaner
 - Intake manifold
 - Purge and vent line
- Ignition System**
 - Spark plug(s)
 - Magneto ignition system
- Catalyst System**
 - Catalytic converter
 - Exhaust manifold
 - Air injection system or pulse valve
- Miscellaneous Items Used in Above Systems**
 - Vacuum, temperature, position, time sensitive valves and switches
 - Connectors and assemblies

2. Length of Coverage

For a period of two years from date of original purchase*, B&S warrants to the original purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board; that it is free from defects in material and workmanship that could cause the failure of a warranted part; and that it is identical in all material respects to

the engine described in the manufacturer's application for certification. The warranty period begins on the date the engine is originally purchased.

* Two years or for the time period listed in the respective engine or product warranty statement, whichever is greater.

The warranty on emissions-related parts is as follows:

- Any warranted part that is not scheduled for replacement as required maintenance in the Operator's Manual supplied, is warranted for the warranty period stated above. If any such part fails during the period of warranty coverage, the part will be repaired or replaced by B&S at no charge to the owner. Any such part repaired or replaced under the warranty will be warranted for the remaining warranty period.
- Any warranted part that is scheduled only for regular inspection in the Operator's Manual supplied, is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.
- Any warranted part that is scheduled for replacement as required maintenance in the Operator's Manual supplied, is warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by B&S at no charge to the owner. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
- Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the owner will be grounds for disallowing a warranty claim. The manufacturer will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

3. Consequential Coverage

Coverage shall extend to the failure of any engine components caused by the failure of any warranted emissions parts.

4. Claims and Coverage Exclusions

Warranty claims shall be filed according to the provisions of the B&S engine warranty policy. Warranty coverage does not apply to failures of emissions parts that are not original equipment B&S parts or to parts that fail due to abuse, neglect, or improper maintenance as set forth in the B&S engine warranty policy. B&S is not liable for warranty coverage of failures of emissions parts caused by the use of add-on or modified parts.

Look For Relevant Emissions Durability Period and Air Index Information On Your Small Off-Road Engine Emissions Label

Engines that are certified to meet the California Air Resources Board (CARB) small off-road Emissions Standard must display information regarding the Emissions Durability Period and the Air Index. Briggs & Stratton makes this information available to the consumer on our emissions labels. The engine emissions label will indicate certification information.

The **Emissions Durability Period** describes the number of hours of actual running time for which the engine is certified to be emissions compliant, assuming proper maintenance in accordance with the Operator's Manual. The following categories are used:

Moderate:

Engines at or less than 80 cc displacement are certified to be emissions compliant for 50 hours of actual engine running time. Engines greater than 80 cc displacement are certified to be emissions compliant for 125 hours of actual engine running time.

Intermediate:

Engines at or less than 80 cc displacement are certified to be emissions compliant for 125 hours of actual engine running time. Engines greater than 80 cc displacement are certified to be emissions compliant for 250 hours of actual engine running time.

Extended:

Engines at or less than 80 cc displacement are certified to be emissions compliant for 300 hours of actual engine running time. Engines greater than 80 cc displacement are certified to be emissions compliant for 500 hours of actual engine running time.

For example, a typical walk-behind lawn mower is used 20 to 25 hours per year. Therefore, the **Emissions Durability Period** of an engine with an **Intermediate** rating would equate to 10 to 12 years.

Briggs & Stratton engines are certified to meet the United States Environmental Protection Agency (USEPA) Phase 2 or Phase 3 emissions standards. The Emissions Compliance Period referred to on the Emissions Compliance label indicates the number of operating hours for which the engine has been shown to meet Federal emissions requirements.

For engines at or less than 80 cc displacement:

Category C = 50 hours, Category B = 125 hours, Category A = 300 hours

For engines greater than 80 cc displacement and less than 225 cc displacement:

Category C = 125 hours, Category B = 250 hours, Category A = 500 hours

For engines of 225 cc or more displacement:

Category C = 250 hours, Category B = 500 hours, Category A = 1000 hours

California, U.S. EPA, and Briggs & Stratton Corporation Emissions Control Warranty Statement
Your Warranty Rights And Obligations
For Briggs & Stratton Engine Models with "B" or "G" Trim Designation
(Model-Type-Trim Representation xxxxxx xxxxx Bx or xxxxxx xxxxx Gx)

January 2014

The California Air Resources Board, U.S. EPA, and Briggs & Stratton (B&S) are pleased to explain the emissions control system warranty on your Model Year 2014-2015 engine. In California, new small off-road engines and large spark ignited engines less than or equal to 1.0 liter must be designed, built, and equipped to meet the State's stringent anti-smog standards. B&S must warrant the emissions control system on your engine for the periods of time listed below provided there has been no abuse, neglect, or improper maintenance of your engine.

Your exhaust emissions control system may include parts such as the carburetor or fuel injection system, ignition system, and catalytic converter. Also included may be hoses, belts, connectors, sensors, and other emissions-related assemblies.

Where a warrantable condition exists, B&S will repair your engine at no cost to you including diagnosis, parts, and labor.

Manufacturer's Warranty Coverage:

Small off-road engines and large spark ignited engines less than or equal to 1.0 liter, are warranted for two years*. If any emissions-related part on your B&S engine is defective, the part will be repaired or replaced by B&S.

* Two years or for the time period listed in the respective engine or product warranty statement, whichever is greater.

Owner's Warranty Responsibilities:

- As the engine owner, you are responsible for the performance of the required maintenance listed in your Operator's Manual. B&S recommends that you retain all receipts covering maintenance on your engine, but B&S cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.
- As the engine owner, you should however be aware that B&S may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- You are responsible for presenting your engine to a B&S distribution center, servicing dealer, or other equivalent entity, as applicable, as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have any questions regarding your warranty rights and responsibilities, you should contact B&S at 1-800-444-7774 (in USA) or BRIGGSandSTRATTON.COM.

Briggs & Stratton Emissions Control Warranty Provisions

The following are specific provisions relative to your Emissions Control Warranty Coverage. It is in addition to the B&S engine warranty for non-regulated engines found in the Operator's Manual.

1. Warranted Emissions Parts

Coverage under this warranty extends only to the parts listed below (the emissions control systems parts) to the extent these parts were present on the B&S engine.

- Fuel Metering System
 - Cold start enrichment system (soft choke)
 - Carburetor and internal parts
 - Fuel pump
- Air Induction System
 - Air cleaner
 - Intake manifold
- Ignition System
 - Spark plug(s)
 - Magneto ignition system
- Catalyst System
 - Catalytic converter
 - Exhaust manifold
 - Air injection system or pulse valve
- Miscellaneous Items Used in Above Systems
 - Vacuum, temperature, position, time sensitive valves and switches
 - Connectors and assemblies

2. Length of Coverage

For a period of two years from date of original purchase*, B&S warrants to the original purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board; that it is free from defects in material and workmanship that could cause the failure of a warranted part; and that it is identical in all material respects to the engine described in the manufacturer's application for certification. The warranty period begins on the date the engine is originally purchased.

* Two years or for the time period listed in the respective engine or product warranty statement, whichever is greater.

The warranty on emissions-related parts is as follows:

- Any warranted part that is not scheduled for replacement as required maintenance in the Operator's Manual supplied, is warranted for the warranty period stated above. If any such part fails during the period of warranty coverage, the part will be repaired or replaced by B&S at no charge to the owner. Any such part repaired or replaced under the warranty will be warranted for the remaining warranty period.
- Any warranted part that is scheduled only for regular inspection in the Operator's Manual supplied, is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.
- Any warranted part that is scheduled for replacement as required maintenance in the Operator's Manual supplied, is warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by B&S at no charge to the owner. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
- Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the owner will be grounds for disallowing a warranty claim. The manufacturer will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

3. Consequential Coverage

Coverage shall extend to the failure of any engine components caused by the failure of any warranted emissions parts.

4. Claims and Coverage Exclusions

Warranty claims shall be filed according to the provisions of the B&S engine warranty policy. Warranty coverage does not apply to failures of emissions parts that are not original equipment B&S parts or to parts that fail due to abuse, neglect, or improper maintenance as set forth in the B&S engine warranty policy. B&S is not liable for warranty coverage of failures of emissions parts caused by the use of add-on or modified parts.

Look For Relevant Emissions Durability Period and Air Index Information On Your Small Off-Road Engine Emissions Label

Engines that are certified to meet the California Air Resources Board (CARB) small off-road Emissions Standard must display information regarding the Emissions Durability Period and the Air Index. Briggs & Stratton makes this information available to the consumer on our emissions labels. The engine emissions label will indicate certification information.

The **Emissions Durability Period** describes the number of hours of actual running time for which the engine is certified to be emissions compliant, assuming proper maintenance in accordance with the Operator's Manual. The following categories are used:

Moderate:

Engines at or less than 80 cc displacement are certified to be emissions compliant for 50 hours of actual engine running time. Engines greater than 80 cc displacement are certified to be emissions compliant for 125 hours of actual engine running time.

Intermediate:

Engines at or less than 80 cc displacement are certified to be emissions compliant for 125 hours of actual engine running time. Engines greater than 80 cc displacement are certified to be emissions compliant for 250 hours of actual engine running time.

Extended:

Engines at or less than 80 cc displacement are certified to be emissions compliant for 300 hours of actual engine running time. Engines greater than 80 cc displacement are certified to be emissions compliant for 500 hours of actual engine running time.

For example, a typical walk-behind lawn mower is used 20 to 25 hours per year. Therefore, the **Emissions Durability Period** of an engine with an **intermediate** rating would equate to 10 to 12 years.

Briggs & Stratton engines are certified to meet the United States Environmental Protection Agency (USEPA) Phase 2 or Phase 3 emissions standards. The Emissions Compliance Period referred to on the Emissions Compliance label indicates the number of operating hours for which the engine has been shown to meet Federal emissions requirements.

For engines at or less than 80 cc displacement:

Category C = 50 hours, Category B = 125 hours, Category A = 300 hours

For engines greater than 80 cc displacement and less than 225 cc displacement:

Category C = 125 hours, Category B = 250 hours, Category A = 500 hours

For engines of 225 cc or more displacement:

Category C = 250 hours, Category B = 500 hours, Category A = 1000 hours