



**en** *Operator's Manual*  
**es** *Manual del Operario*  
**fr** *Manuel de l'opérateur*



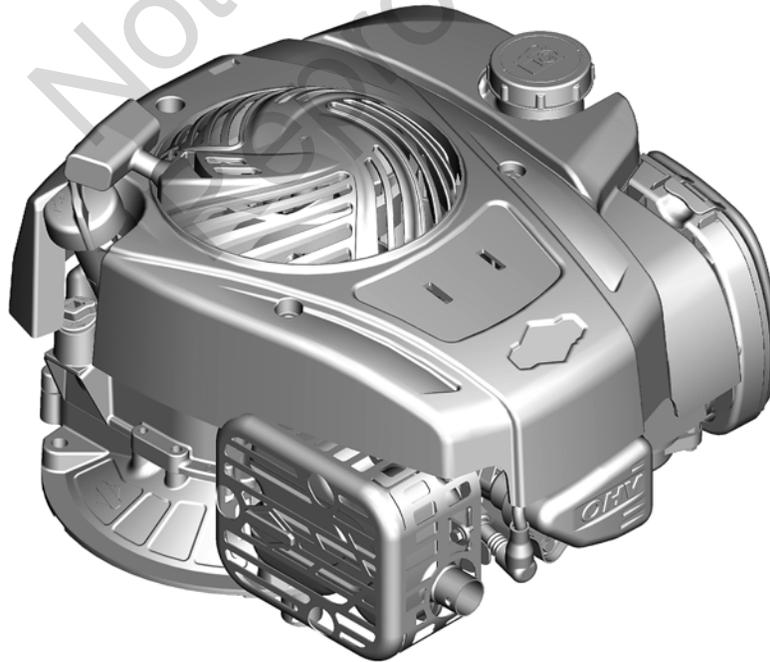
---

**Model 80000**

**E Series™**    **300e Series™**  
**450e Series™**

**Model 90000**

**E Series™**    **500e Series™**  
**EX Series™**    **550e Series™**  
**550ex Series™**  
**575ex Series™**  
**600e Series™**  
**625ex Series™**



Copyright © Briggs & Stratton Corporation,  
Milwaukee, WI, USA. All rights reserved.  
Briggs & Stratton is a registered trademark  
of Briggs & Stratton Corporation.

Form No. 381266TRI  
Revision: E

English

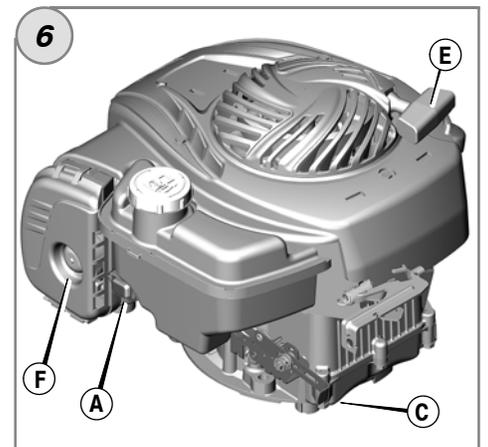
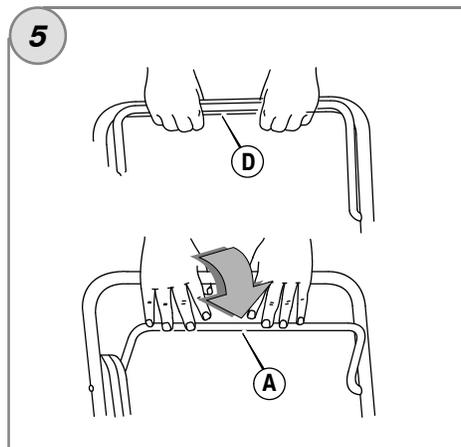
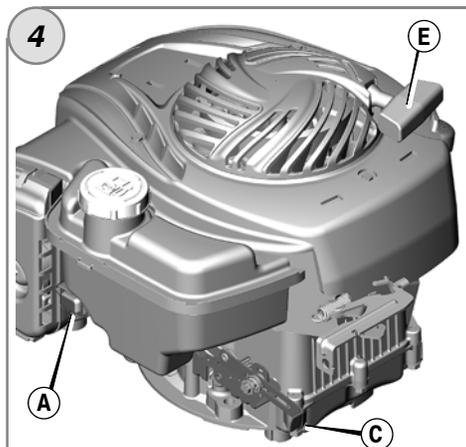
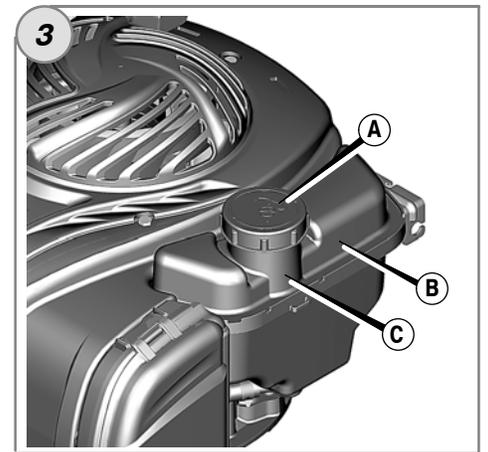
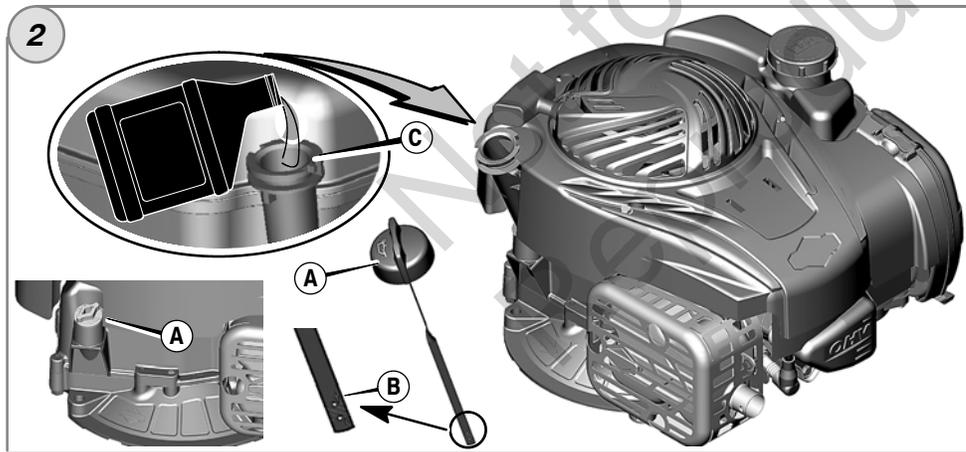
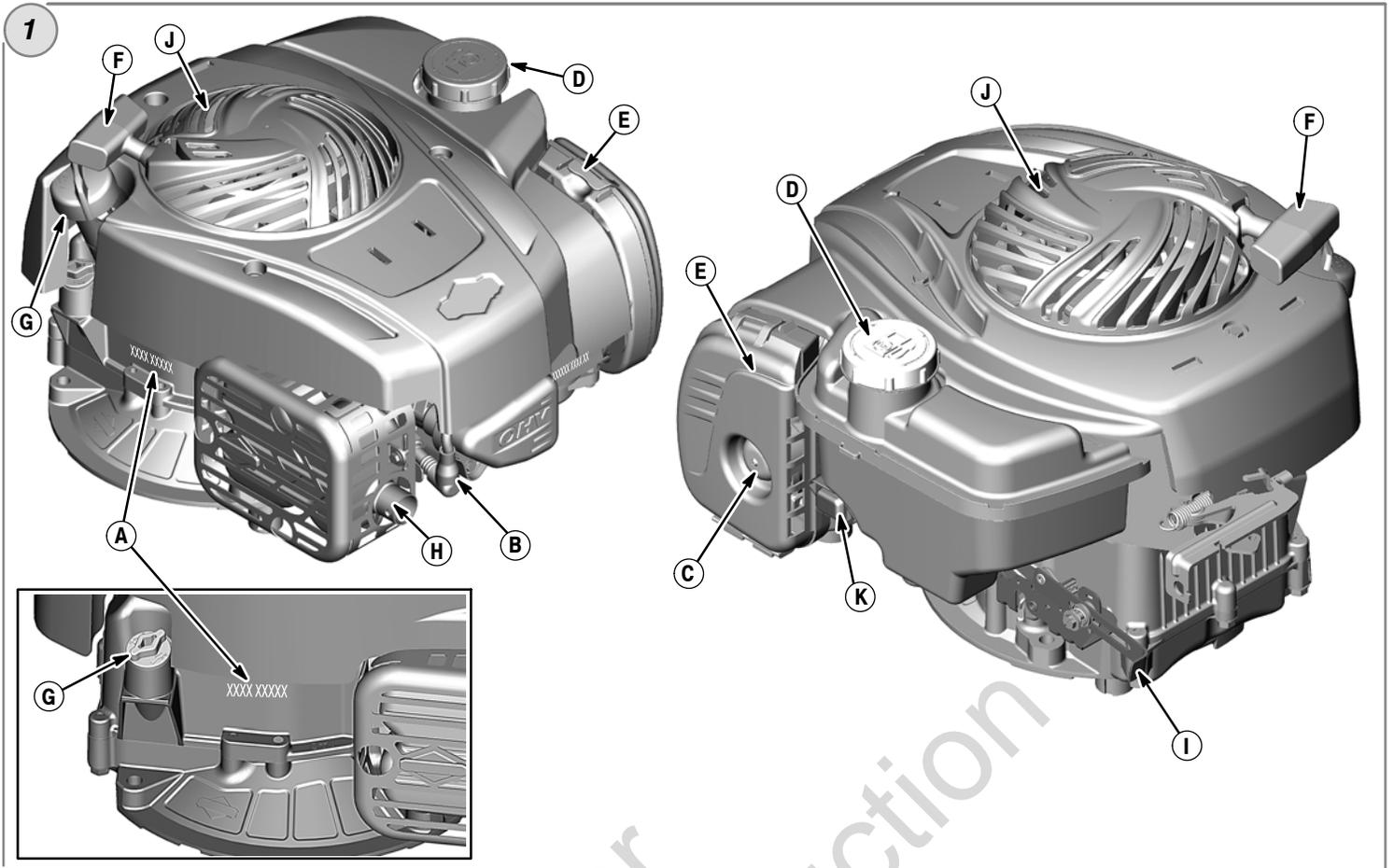
**en**

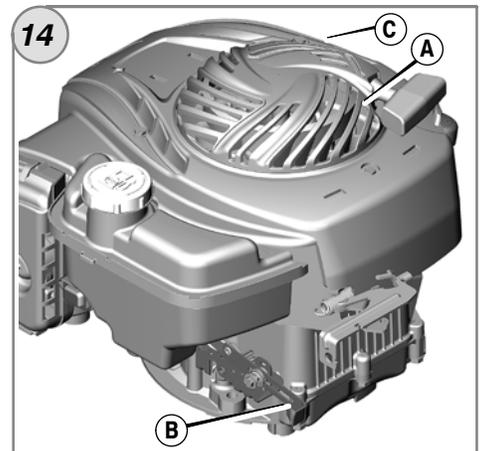
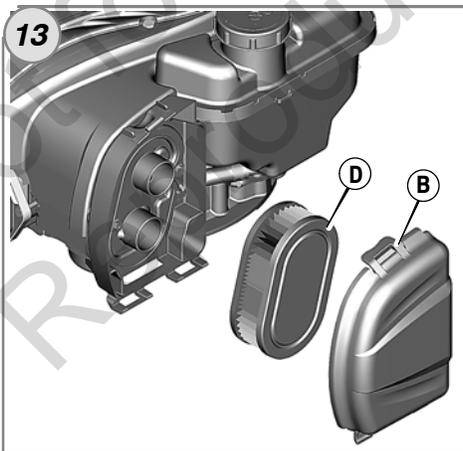
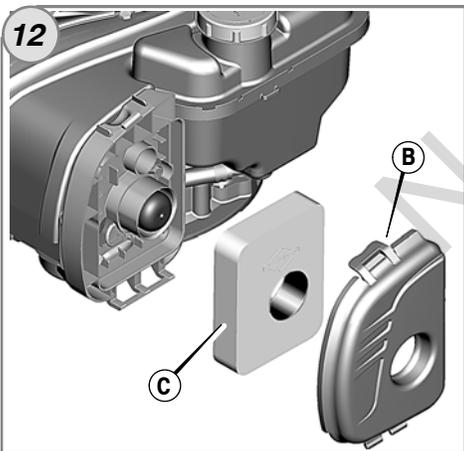
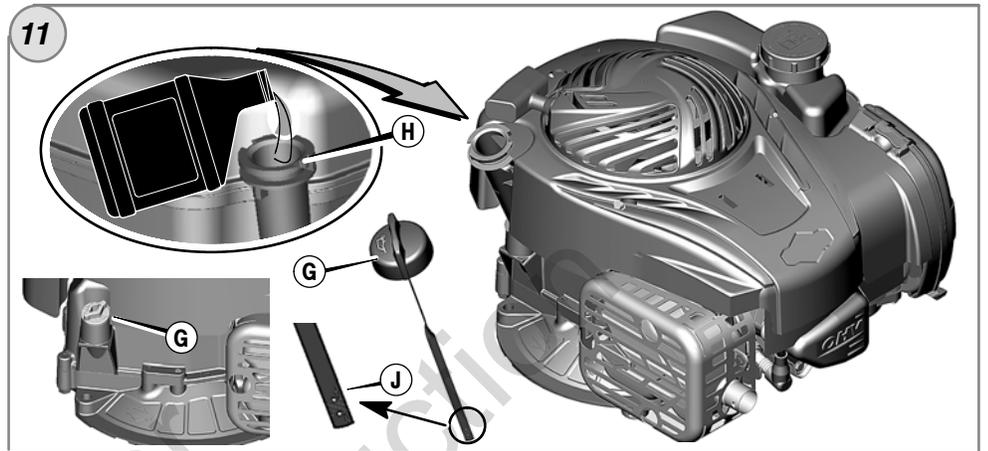
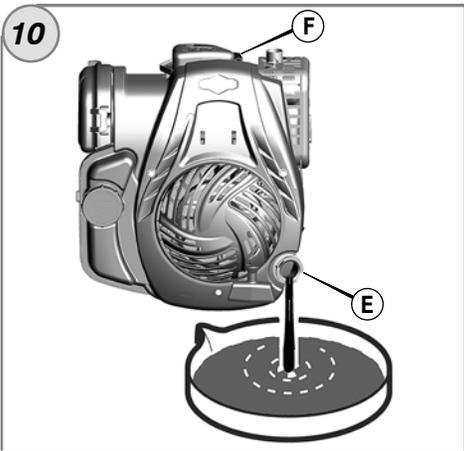
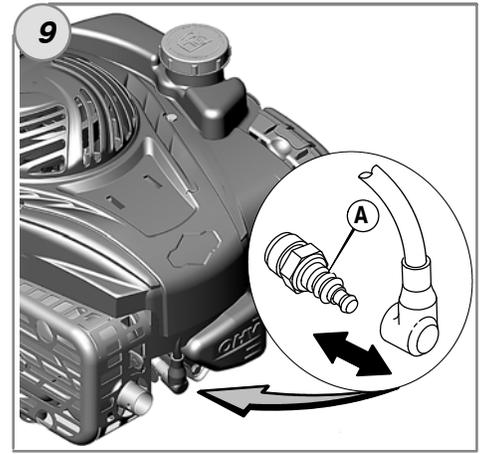
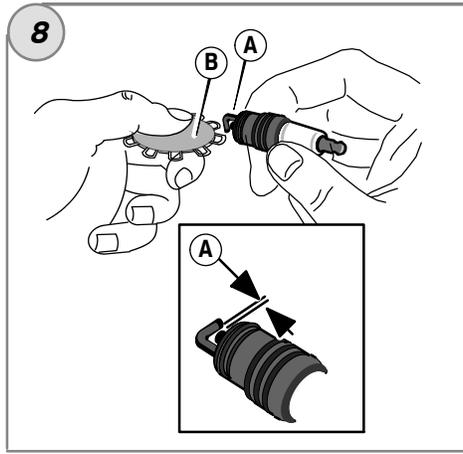
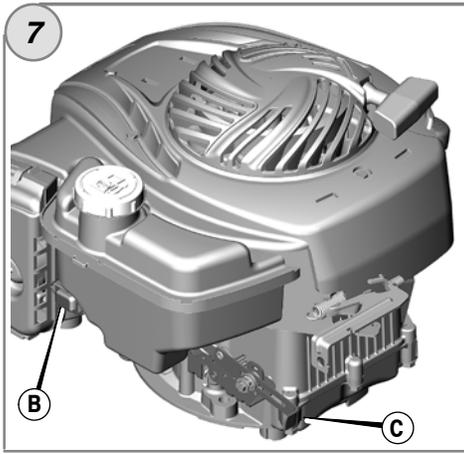
Español

**es**

Français

**fr**





## 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](http://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](http://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



**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



**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



**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 **1** with your engine to familiarize yourself with the location of various features and controls.

- A. Engine Identification  
**Model Type Code**
- B. Spark Plug
- C. Primer (optional)
- D. Fuel Tank and Cap
- E. Air Cleaner
- F. Starter Cord Handle
- G. Dipstick
- H. Muffler  
Muffler Guard (optional)  
Spark Arrester (optional)
- I. Throttle Control (optional)
- J. Finger Guard
- K. Stop Switch (optional)

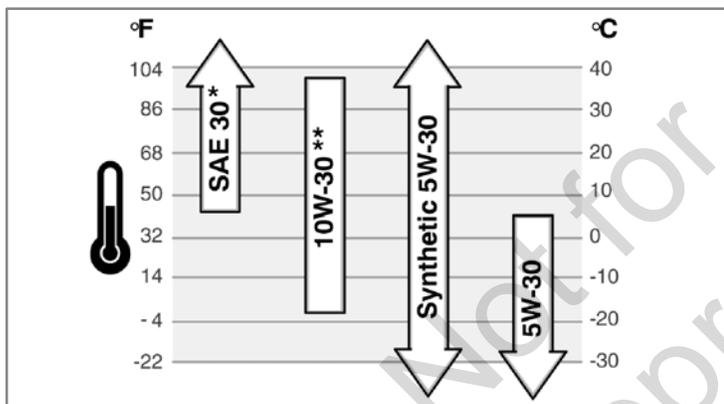
## Operation

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 2

#### 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 (Figure 2).
  2. Insert and tighten the dipstick.
  3. Remove the dipstick and check the oil level. It should be at the top of the full indicator (B) on the dipstick.
  4. If low, add oil slowly into the engine oil fill (C). **Do not overfill.** After adding oil, wait one minute and then recheck the oil level.
  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 damage the engine components and **void the engine 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 the high altitude kit is not recommended.

### How To Add Fuel - Figure 3



#### 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



#### 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.

## Determine The Starting System

Before starting the engine, you must determine the type of starting system that is on your engine. Your engine will have one of the following types.

- **ReadyStart® System:** This features a temperature controlled automatic choke. It does not have a manual choke or a primer.
- **Primer System:** This features a red primer to be used for starting in cool temperatures. It does not have a manual choke.

To start your engine, follow the instructions for your type of starting system.

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

## ReadyStart® System - Figure 4 5

1. Check the oil level. See the **How To Check/Add Oil** section.
2. Make sure equipment drive controls, if equipped, are disengaged.
3. Push the stop switch (A, Figure 4), if equipped, to the on position.
4. Move the throttle control (C, Figure 4), if equipped, to the fast  position.  
Operate the engine in the fast  position.
5. If the product is equipped with an engine stop lever (D), hold the engine stop lever against the handle (Figure 5).

6. Firmly hold the starter cord handle (E). Pull the starter cord handle slowly until resistance is felt, then pull rapidly (Figure 4).

**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.

## Primer System - Figure 5 6

1. Check the oil level. See the **How To Check/Add Oil** section.
2. Make sure equipment drive controls, if equipped, are disengaged.
3. Push the stop switch (A, Figure 6), if equipped, to the on position.
4. Move the throttle control (C, Figure 6), if equipped, to the fast  position.  
Operate the engine in the fast  position.

5. Push the red primer (F) three times.

**Note:** Priming is usually unnecessary when restarting a warm engine.

**Note:** If you push the primer too many times, excessive fuel will flood the carburetor and the engine will be difficult to start.

6. If the product is equipped with an engine stop lever (D), hold the engine stop lever against the handle (Figure 5).
7. Firmly hold the starter cord handle (E). Pull the starter cord handle slowly until resistance is felt, then pull rapidly (Figure 6).

**Note:** If the engine does not start after repeated attempts, repeat Steps 5, 6, and 7. If it still does not start, 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.

## How To Stop The Engine - Figure 5 7

Release the engine stop lever (A, Figure 5)

**Engine with Stop Switch:** Push the stop switch (B, Figure 7) to the off position  
or

**Engine with Throttle Control:** Move the throttle control (C, Figure 7) to the stop  position.

## Maintenance

**NOTICE:** If the engine is tipped during maintenance, the fuel tank **must be empty** and the spark plug side **must be up**. If the fuel tank is not empty and if the engine is tipped in any other direction, it may be difficult to start due to oil or gasoline contaminating the air filter and/or the spark plug.



**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.

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.

## 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

- Change oil

### Every 8 Hours or Daily

- Check engine oil level
- Clean area around muffler and controls
- Clean finger guard

### Every 25 Hours or Annually

- Clean air filter \*

### Every 50 Hours or Annually

- Change engine oil
- Check muffler and spark arrester

### Annually

- Replace air filter
- 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.

## Inspect Muffler And Spark Arrester - Figure 1



### 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 (H, Figure 1) for cracks, corrosion, or other damage. Remove the spark arrester, 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 Replace The Spark Plug - Figure 8

Check the gap (A, Figure 8) 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.

## How To Change The Oil - Figure 9 10 11



### WARNING



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



- 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.

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

The oil must be drained from the top oil fill tube (E, Figure 10).

1. With engine off but still warm, disconnect the spark plug wire (A) and keep it away from the spark plug (Figure 9).
2. Remove the dipstick (G, Figure 11).
3. When you drain the oil from the top oil fill tube (E), keep the spark plug end of the engine (F) up (Figure 10). Drain the oil into an approved container.



**WARNING:** 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. To empty the fuel tank, run the engine until it stops from lack of fuel.

### Add Oil

- Place engine level.
  - Clean the oil fill area of any debris.
  - See the **Specifications** section for oil capacity.
1. Remove the dipstick (G) and wipe with a clean cloth (Figure 11).
  2. Pour the oil slowly into the engine oil fill (H). **Do not overfill.** After adding oil, wait one minute and then check the oil level.
  3. Install and tighten the dipstick.
  4. Remove the dipstick and check the oil level. It should be at the top of the full indicator (J) on the dipstick.
  5. Install and tighten the dipstick.

## How To Service The Air Filter - Figure 12 13



### 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 12

The air cleaner system uses a foam element that can be washed and reused.

1. Open the cover (B, Figure 12).
2. Remove the foam element (C).
3. Wash the foam element in liquid detergent and water. Squeeze dry the foam element in a clean cloth.
4. Saturate the foam element with clean engine oil. To remove the excess engine oil, squeeze the foam element in a clean cloth.
5. Install the foam element (C).
6. Close the cover (B).

### High Capacity Air Filter - Figure 13

The air cleaner system uses a pleated filter.

1. Open the cover (B, Figure 13).
2. Remove the filter (D).
3. To loosen debris, gently tap the filter on a hard surface. If the filter is excessively dirty, replace with a new filter.
4. Install the filter (D).
5. Close the cover (B).

## How To Clean The Air Cooling System - Figure 14



### 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). Keep linkage, springs and controls (B) clean. Keep the area around and behind the muffler (C) free of any combustible debris (Figure 14).

## 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 lights or other ignition sources 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.

**NOTICE:** Store the engine level (normal operating position). If the engine is tipped for storage, the fuel tank **must be empty** and the spark plug side **must be up**. If the fuel tank is not empty and if the engine is tipped in any other direction, it may be difficult to start due to oil or gasoline contaminating the air filter and/or the spark plug.

## Troubleshooting

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

## Specifications

### Engine Specifications

Model	80000
Displacement	7.63 ci (125 cc)
Bore	2.362 in (60 mm)
Stroke	1.750 in (44.45 mm)
Oil Capacity	15 oz (0.44 L)

### Engine Specifications

Model	90000
Displacement	8.64 ci (140 cc)
Bore	2.495 in (63.40 mm)
Stroke	1.750 in (44.45 mm)
Oil Capacity	15 oz (0.44 L)

### Engine Specifications

Model	093J00
Displacement	9.15 ci (150 cc)
Bore	2.583 in (65.60 mm)
Stroke	1.750 in (44.45 mm)
Oil Capacity	15 oz (0.44 L)

### Tune-up Specifications \*

Model	80000, 90000, 093J00
Spark Plug Gap	0.020 in (0.51 mm)
Spark Plug Torque	180 lb-in (20 Nm)
Armature Air Gap	0.006 - 0.014 in (0.15 - 0.36 mm)
Intake Valve Clearance	0.004 - 0.008 in (0.10 - 0.20 mm)
Exhaust Valve Clearance	0.004 - 0.008 in (0.10 - 0.20 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
Air Filter, Standard	799579
Air Filter, High Capacity	798452
Oil - SAE 30	100113
Fuel Additive	5041, 5058
Resistor Spark Plug	692051
Spark Plug Wrench	19576
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).**