




BRIGGS STRATTON 210000 Power Built Intek Engine Instruction Manual

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BRIGGS STRATTON 210000 Power Built Intek Engine

MODELS

- **Model 210000**

- Power Built
- Intek
- I/C
- **Model 280000**
 - Intek
 - I/C
 - Extended Life Series
- **Model 310000**
 - Intek
 - I/C
 - Extended Life Series

BEFORE OPERATING ENGINE

- Read entire Operating & Maintenance Instructions AND the instructions for the equipment this engine powers.*
- Failure to follow instructions could result in serious injury or death.

THE OPERATING & MAINTENANCE INSTRUCTIONS CONTAIN SAFETY INFORMATION TO

- Make you aware of hazards associated with engines
- Inform you of the risk of injury associated with those hazards, and
- Tell you how to avoid or reduce the risk of injury

Briggs & Stratton does not necessarily know what equipment this engine will power. For that reason, you should carefully read and understand the operating instructions for the equipment on which your engine is placed. 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.

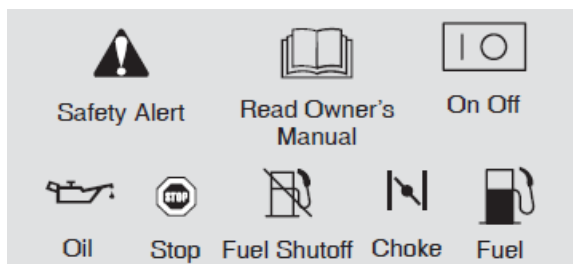
- **DANGER** indicates a hazard that, if not avoided, will result in death or serious injury.
- **WARNING** indicates a hazard which, if not avoided, could result in death or serious injury.
- **CAUTION** indicates a hazard which, if not avoided, might result in minor or moderate injury.
- **CAUTION**, when used without the alert symbol, indicates a situation that could result in damage to the engine.
- **WARNING** The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

HAZARD SYMBOLS

HAZARD SYMBOLS AND MEANINGS



THE INTERNATIONAL SYMBOLS USED ON THE ENGINE OR IN THIS MANUAL INCLUDE:



WARNING

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

WHEN FUELING

- Turn the engine OFF and let the engine cool for at least 2 minutes before removing the cap or refueling the engine.
- Fill the fuel tank outdoors or in a well-ventilated area.
- On GASOLINE-operated engines, do not overfill the fuel tank. Fill the tank to approximately 1-1/2 inches below the top of the neck to allow for fuel expansion.
- 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.

WHEN STARTING ENGINE

- Make sure the spark plug, muffler, fuel cap, and air cleaner are in place, and firmly secured by equipped fasteners.
- Do not crank the engine with a spark plug, air cleaner cartridge, or air cleaner cover removed.
- If fuel spills, wait until it evaporates before starting the engine.
- If the GASOLINE engine floods, set choke to OPEN/RUN position, place the throttle in FAST, and crank until the engine starts.

WHEN OPERATING EQUIPMENT

- Do not tip the engine or equipment at an angle that causes gasoline to spill.

- Do not choke the carburetor to stop the engine.

WHEN TRANSPORTING EQUIPMENT

- On a GASOLINE engine, transport with the fuel tank EMPTY or with the fuel shut-off valve OFF.
- On NATURAL / LIQUID PETROLEUM (LP) GAS engines transport with the fuel cylinder empty valve closed, or tank disconnected.

WHEN STORING GASOLINE OR EQUIPMENT WITH FUEL IN TANK

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

WARNING

- Gaseous fuels are extremely flammable and readily form explosive air-vapor mixtures at ambient temperatures.

IF YOU SMELL GAS:

- DO NOT start the engine.
- DO NOT actuate any electrical switches.
- DO NOT use the phone in the vicinity.
- Evacuate the area.
- Contact the gas supplier or fire department.

REMEMBER:

- LPG vapor is heavier than air and trends to collect in low areas. NG vapor is lighter than air and tends to collect in high areas. Both may travel to remote locations.
- Keep all flames, sparks, pilot lights, and other ignition sources away from the area where the engine is operated or repaired.
- DO NOT smoke when operating or repairing the engine.
- DO NOT store gasoline or other flammable vapors or liquids in the vicinity of the engine.
- BEFORE doing any service work to the engine, shut off the gas supply.
- After initial installation or servicing, check for gas leaks. DO NOT use an open flame. Apply very soapy water or leak test solution with a brush and look for bubbles.
- Keep the equipment and the area surrounding the engine free of debris.
- Install the fuel system according to applicable fuel/gas codes.

WARNING

- Wear eye protection when doing repair work.
- Frostbite can result from skin/eye contact with leaking LP liquid.
- Installation, adjustment, and repair work should be done by a qualified technician.

- Flexible supply lines should be checked regularly to make sure they are in good condition. Replace damaged or leaking components.

SAFETY

WARNING

- Starting the engine creates sparking.
- Sparking can ignite nearby flammable gases.
- Explosion and fire could result. If there is natural or LP gas leakage in the area, do not start the engine.
- Do not use pressurized starting fluids because vapors are flammable.

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 the engine, pull the cord slowly until resistance is felt, then pull rapidly.
- Remove all external equipment/engine loads before starting the engine.
- Directly 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

- Engines give off carbon monoxide, an odorless, colorless, poison gas.
- Breathing carbon monoxide can cause nausea, fainting, or death.
- Start and run the engine outdoors.
- Do not start or run the engine in an enclosed area, even if doors or windows are open.

WARNING

- Running engines produce heat. Engine parts, especially mufflers, become extremely hot.
- Severe thermal burns can occur on contact. Combustible debris, such as leaves, grass, brush, etc. can catch fire.
- Allow the muffler, engine cylinder, and fins to cool before touching.

- Remove accumulated combustibles from the muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.

WARNING

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

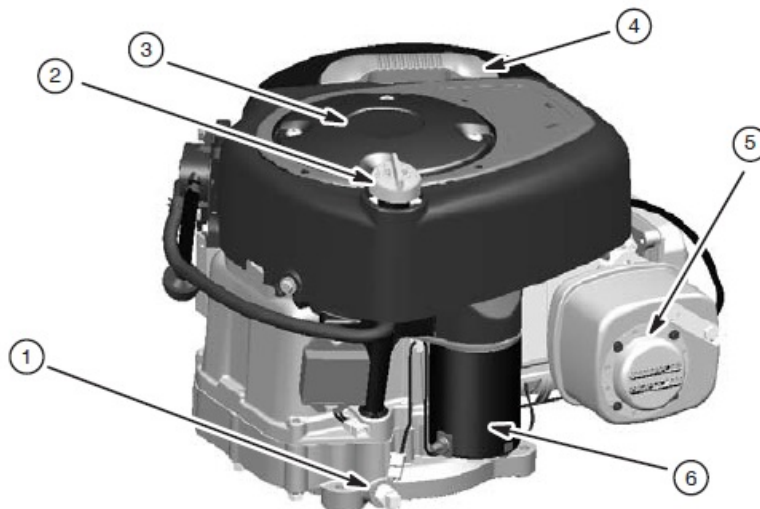
BEFORE PERFORMING ADJUSTMENTS OR REPAIRS

- Disconnect the spark plug wire and keep it away from the spark plug.
- Disconnect the battery at the negative terminal (only engines with electric start).

WHEN TESTING FOR SPARK

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

ENGINE INFORMATION



1. Oil drain
2. Oil fill/Dipstick
3. Rotating screen
4. Air cleaner handle
5. Muffler/(Muffler guard (if equipped))/ (Spark arrester, if equipped)
6. 12 V electric starter (if equipped)
7. Rewind the starter handle (if equipped)
8. Fuel pump (if equipped)
9. In-line fuel filter (if equipped)
10. Carburetor or LPG / NG Mixer

11. The oil filter (if equipped)
12. Air cleaner cover
13. Spark plug wire
14. Engine
 - **Model** xxxxx
 - **Type** xxxx xx
 - **Code** xxxxxxxx

GENERAL INFORMATION

ENGINE MODEL: This is a single-cylinder, overhead valve (OHV), air-cooled engine. It is a low emissions engine. In the state of California, OHV Models 210000, 280000, and 310000 engines are certified by the California Air Resources Board to meet emissions standards for 250 hours. Such

SPECIFICATIONS

TUNE-UP SPECIFICATIONS

- Armature air gap 0.010 – 0.014 in. (0.25 – 0.36 mm)
- Spark plug gap 0.030 in. (0.76 mm) Valve clearance with valve springs installed and piston 1/4 in. (6 mm) past top dead center (check when the engine is cold). See Repair Manual P/N 272147.
- Intake 0.003 – 0.005 in. (0.08 – 0.13 mm)
- Exhaust 0.005 – 0.007 in. (0.13 – 0.18 mm) MODEL 210000
- Bore 3.44 in. (87.31 mm)
- Stroke 2.27 in. (57.66 mm)
- Displacement 21 cu. in. (344 cc)

TECHNICAL INFORMATION

Engine Power Rating Information

- The gross power rating for individual gas engine models is labeled following SAE (Society of Automotive Engineers) code J1940 (Small Engine Power & Torque Rating Procedure), and rating performance has been obtained and corrected following SAE J1995 (Revision 2002-05).
- Torque values are derived at 3060 RPM; horsepower values are derived at 3600 RPM. Actual gross engine power will be lower and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given both the wide certification does not grant the purchaser, owner, or operator of this engine any additional warranties for the performance or operational life of this engine.
- This engine is warranted solely according to the product and emissions warranties stated elsewhere in this manual.

MODEL 280000

- Bore 3.44 in. (87.31 mm)

- Stroke 3.06 in. (77.78 mm)
- Displacement 28.42 cu. in. (466 cc)
- MODEL 310000
- Bore 3.56 in. (90.60 mm)
- Stroke 3.06 in. (77.78 mm)
- Displacement 30.59 cu. in. (501 cc)

Note: For practical operation, the horsepower loading should not exceed 85% of rated horsepower. Engine power will decrease 3-1/2% for each 1,000 feet (300 meters) above sea level and 1% for each 10° F (5.6° C) above 77° F (25° C). Engine will operate satisfactorily at an angle of up to 15°. an array of products on which engines are placed and the variety of environmental issues applicable to operating the equipment, the gas engine will not develop the rated gross power when used in a given piece of power equipment (actual “on-site” or net power). This difference is due to a variety of factors including, but not limited to, accessories (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 Series engine.

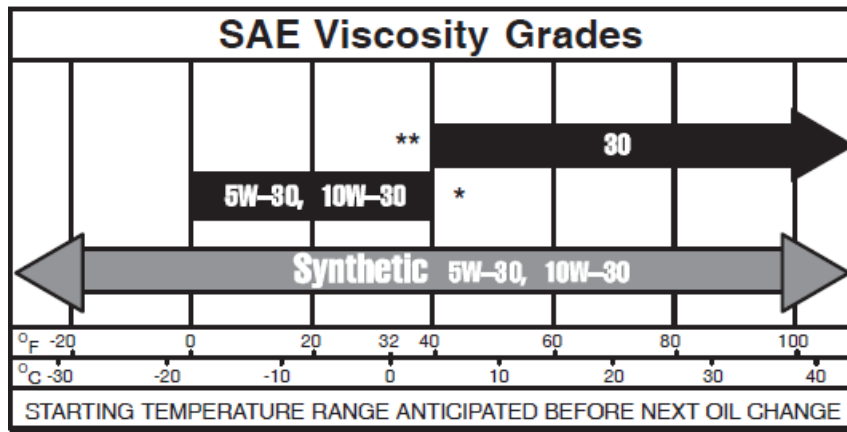
OIL

CAUTION: This engine is shipped from Briggs & Stratton without oil. Check the oil level before starting the engine. If you start the engine without oil, the engine will be damaged beyond repair and will not be covered under warranty.

OIL CAPACITY

- **Engine without oil filter:**
 - Approximately 44 ounces (1.30 liters)
- **Engine with oil filter:**
 - Approximately 48 ounces (1.42 liters)
- **TYPE OF OIL TO USE**
 - Use a high-quality detergent oil classified “For Service SF, SG, SH, SJ” or higher, such as Briggs & Stratton 30W, Part Number 100005 (20 oz) or 100028 (48 oz).
 - Do not use special additives.
 - Choose a viscosity according to the table opposite.

Note: Synthetic oil meeting ILSAC GF-2, API certification mark, and API service symbol (shown at left) with “SJ/CF ENERGY CONSERVING” or higher, is an acceptable oil at all temperatures. Use of synthetic oil does not alter required oil change intervals.

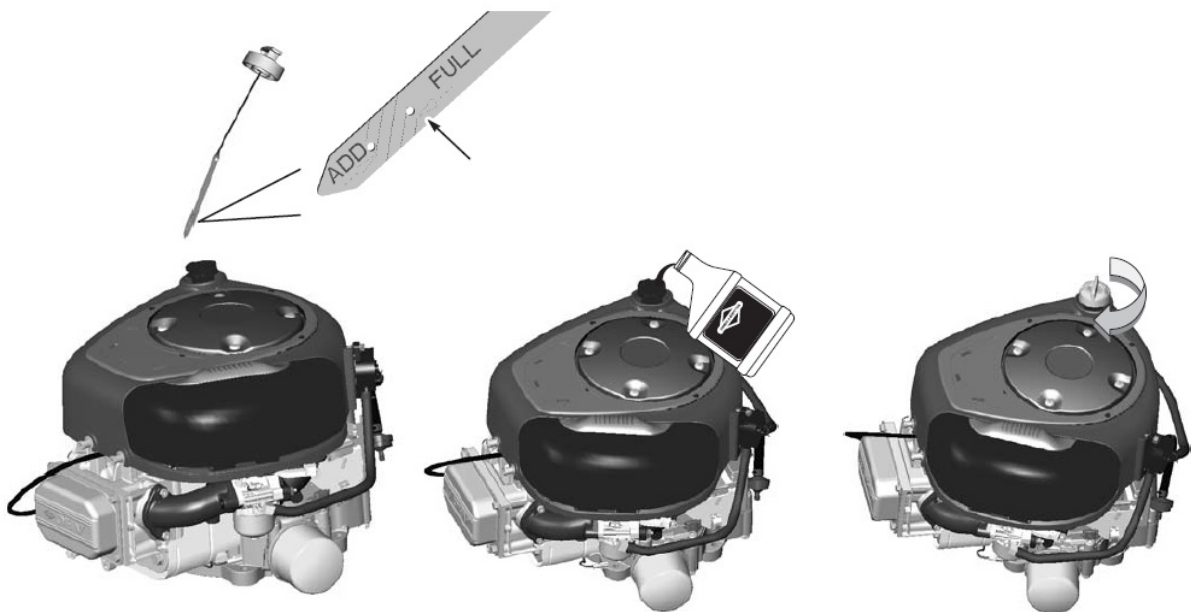


CAUTION: Air-cooled engines run hotter than automotive engines. The use of non-synthetic multi-viscosity oils (5W-30, 10W-30, etc.) in temperatures above 40° F (4° C) will result in higher than normal oil consumption. When using a multi-viscosity oil, check oil level more frequently.

CAUTION: SAE 30 oil, if used below 40° F (4° C), will result in hard starting and possible engine bore damage due to inadequate lubrication.

CHECKING AND ADDING OIL

- Check the oil level before starting the engine.
- Check the level daily or after every eight (8) hours.
- Keep oil level at FULL.
- Do not overfill.
 1. Place engine level and clean around the oil fill area.
 2. Remove dipstick and wipe clean with a cloth.
 3. Replace and tighten the dipstick. Remove and check the oil level.
 4. The oil level should be at the FULL line on the dipstick.
 5. If needed, add oil slowly – recheck. Do not overfill.
 6. Replace and tighten the dipstick



TYPE OF FUEL TO USE

GASOLINE POWERED ENGINES

- Use clean, fresh, regular unleaded gasoline with a minimum of 85 octane. Fresh fuel prevents the gum from forming in the fuel system or on essential carburetor parts. Purchase fuel in quantity that can be used within 30 days.
- Do not use gasoline which contains Methanol.
- Do not mix oil with gasoline.
- For engine protection use Briggs & Stratton Gasoline Additive available from your Authorized Briggs & Stratton Dealer (P/N 5041 or single-use pouch).
- The gasoline engine is certified to operate on gasoline. Exhaust Emission Control System: EM (Engine Modifications).

CAUTION: Some fuels, called oxygenated or reformulated gasoline, are gasoline blended with alcohols or ethers. Excessive amounts of these blends can damage the fuel system or cause performance problems. If any undesirable operating symptoms occur, use gasoline with a lower percentage of alcohol or ether.

NATURAL / LIQUID PROPANE GAS-POWERED ENGINES

- Use clean, dry fuel, free of moisture or any particulate material. Using fuels outside the following recommended values may cause performance problems.
- In engines set up to run on LPG, commercial grade HD5 LPG is recommended. Recommended fuel composition is a fuel with a minimum fuel energy of 2500 BTUs/ft³ with a maximum propylene content of 5% and butane and heavier gas content of 2.5% and minimum propane content of 90%.
- NG or LPG engines are certified to operate on natural or liquid propane gas.

WARNING

- The equipment on which this engine is mounted is equipped with an automatic safety gas “fuel lock-off” valve.
- DO NOT operate the equipment if the “fuel lock-off” valve is missing or inoperative.

ADDING FUEL

GASOLINE POWERED ENGINES

• WARNING

- Turn the engine OFF and let the engine cool for at least 2 minutes before removing the gas cap.
- Fill the fuel tank outdoors or in a well-ventilated area.
- Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
- If fuel spills, wait until it evaporates before starting the engine.
 1. Remove cap. Fill the tank to approximately 1-1/2 inches below the top of the neck to allow for fuel expansion. Be careful not to overfill.
 2. Replace the cap before starting.

NATURAL / LIQUID PROPANE GAS-POWERED ENGINES

Read the operating instructions supplied by the equipment manufacturer for information on refueling natural or LP gas engines.

STARTING

WARNING

- Do not use pressurized starting fluids.
- Vapors are flammable.

WARNING

- DO NOT start the engine with the air filter or cover not properly installed. Serious injury or death could result from backfire.

OIL PRESSURE SWITCH

- If the engine is equipped with an oil pressure switch, the switch will either activate a warning light or stop the engine when the engine runs low on oil.
- (Read the operating instructions supplied by the equipment manufacturer to determine which way your engine is equipped because the equipment manufacturer supplies the oil pressure gauge.)

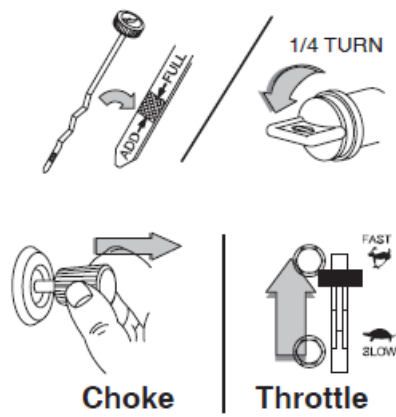
STARTING AND OPERATING TIPS

- Store and fuel equipment in a level position.
- Use fresh fuel. (See Fuel.)
- Use the correct type of oil for the expected starting temperature. (See Oil.)
- Remove external equipment/engine loads. (See equipment operating instructions.)
- Start the lawn mower on a hard surface or over previously cut grass. Periodically remove grass buildup under the mower deck. (See Maintenance.)
- After the engine has started, let it warm up for several seconds to several minutes, depending on the outside temperature.
- For maximum performance and life, operate the engine with a choke in RUN and throttle in FAST.

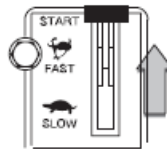
BEFORE STARTING

GASOLINE POWERED ENGINES

1. Check the oil level.
2. Open the fuel shut-off valve (if equipped).
3. If choke and throttle controls are separate, move the choke control to CHOKE. Move the throttle to FAST.
4. If the choke and throttle are on the same control, move the control to CHOKE or START.

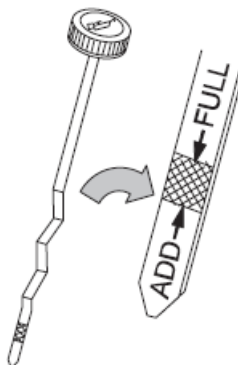


Combined Choke/Throttle control



NATURAL / LIQUID PROPANE GAS-POWERED ENGINES

1. Check the oil level.



ELECTRIC (KEY) STARTER

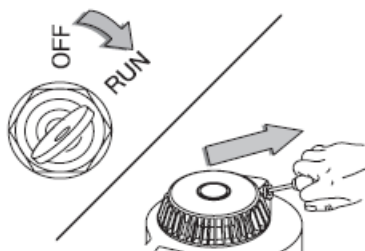
1. Insert key and turn to START.
2. Let the engine warm up. If choke equipped: Slowly adjust toward the RUN position. Wait until the engine runs smoothly before each choke adjustment.
 - **CAUTION:** To prolong starter life, use short starting cycles (5 seconds maximum, then wait one minute). Follow the equipment manufacturer's recommendations for charging the battery.



REWIND (MANUAL) STARTER (auxiliary)

1. Insert key (if equipped) and turn to RUN.

2. Grasp the rope handle. Pull slowly until resistance is felt, then pull rapidly to start the engine and avoid kickback.
3. Let the engine warm up. If choke equipped: Slowly adjust toward the RUN position. Wait until the engine runs smoothly before each choke adjustment.

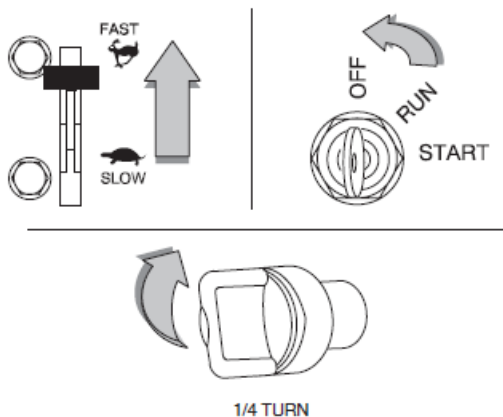


STOPPING

CAUTION: Do not stop the engine by moving the choke control to CHOKE. Backfire, fire, or engine damage could occur.



1. With throttle in FAST, turn the key to OFF.
2. Remove the key and store it out of reach of children.
3. Close the fuel shut-off valve (if equipped).



MAINTENANCE

- Regular maintenance will improve the performance and extend the life of the engine.
- See any Authorized Briggs & Stratton Dealer for service.
- Use only genuine Briggs & Stratton parts.
- Other parts may not perform as well, may damage the engine, and may result in injury.
- In addition, the use of other parts may void your warranty.

EMISSION CONTROL

- Maintenance, replacement, or repair of the emission control devices and systems may be performed by any

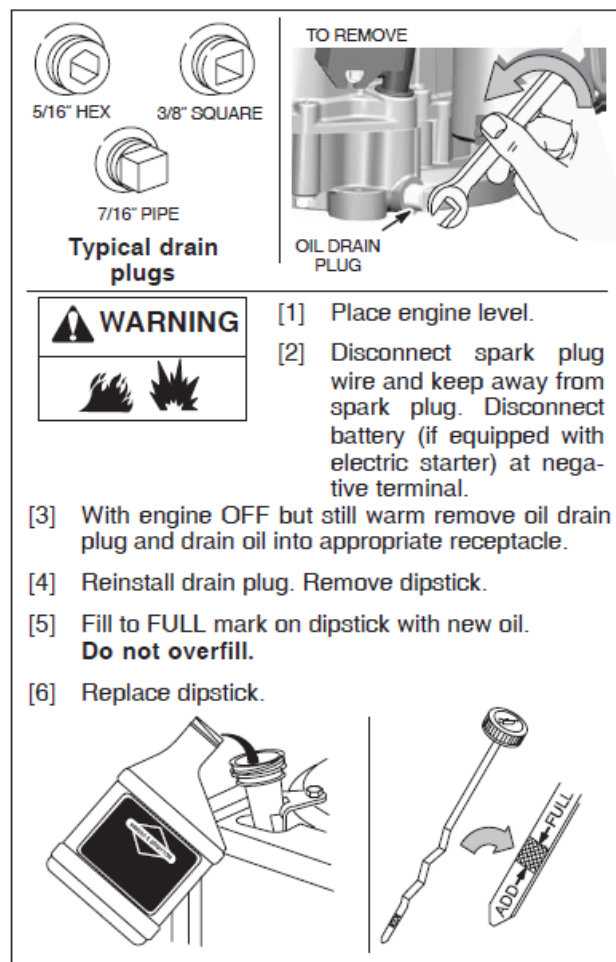
nonroad engine repair establishment or individual.

- However, to obtain no charge repairs under the terms and provisions of the Briggs & Stratton warranty statement, any service or emission control part repair or replacement must be performed by a factory-authorized dealer.

Task <i>Perform task at hourly or calendar interval, whichever comes first.</i>	Every 8 Hours or Daily	25 Hours or Every Season	50 Hours or Every Season	100 Hours or Every Season	200 Hours or Every Season	Yearly
Check Oil Level	✓					
Change Oil			✓*			
Change oil filter (if equipped)				✓*		
Service air cleaner pre-cleaner (if equipped)		✓**				
Replace air cleaner cartridge (if not equipped with pre-cleaner)		✓**				
Replace air cleaner cartridge (if equipped with pre-cleaner)				✓**		
Clean Extended Life Series™ air cleaner cartridge			✓**			
Replace Extended Life Series™ air cleaner cartridge					✓**	
Inspect spark arrester (if equipped)			✓			
Replace spark plug				✓		
Replace in-line fuel filter (if equipped)				✓		
Clean cooling system				✓**		
Check valve clearance						✓
Check valve clearance on NG / LPG Engines				✓		

- Change oil after the first 5 to 8 hours of use, then every 50 hours or every season. Change oil every 25 hours when operating the engine under heavy load or in high temperatures.
- Clean more often under dusty conditions or when airborne debris is present. Replace air cleaner parts, if very dirty.

CHANGING OIL



CAUTION: Used oil is a hazardous waste product. Dispose of used oil properly. Do not discard household waste. Check with your local authorities, service center, or dealer for safe disposal/recycling facilities.

AIR CLEANER

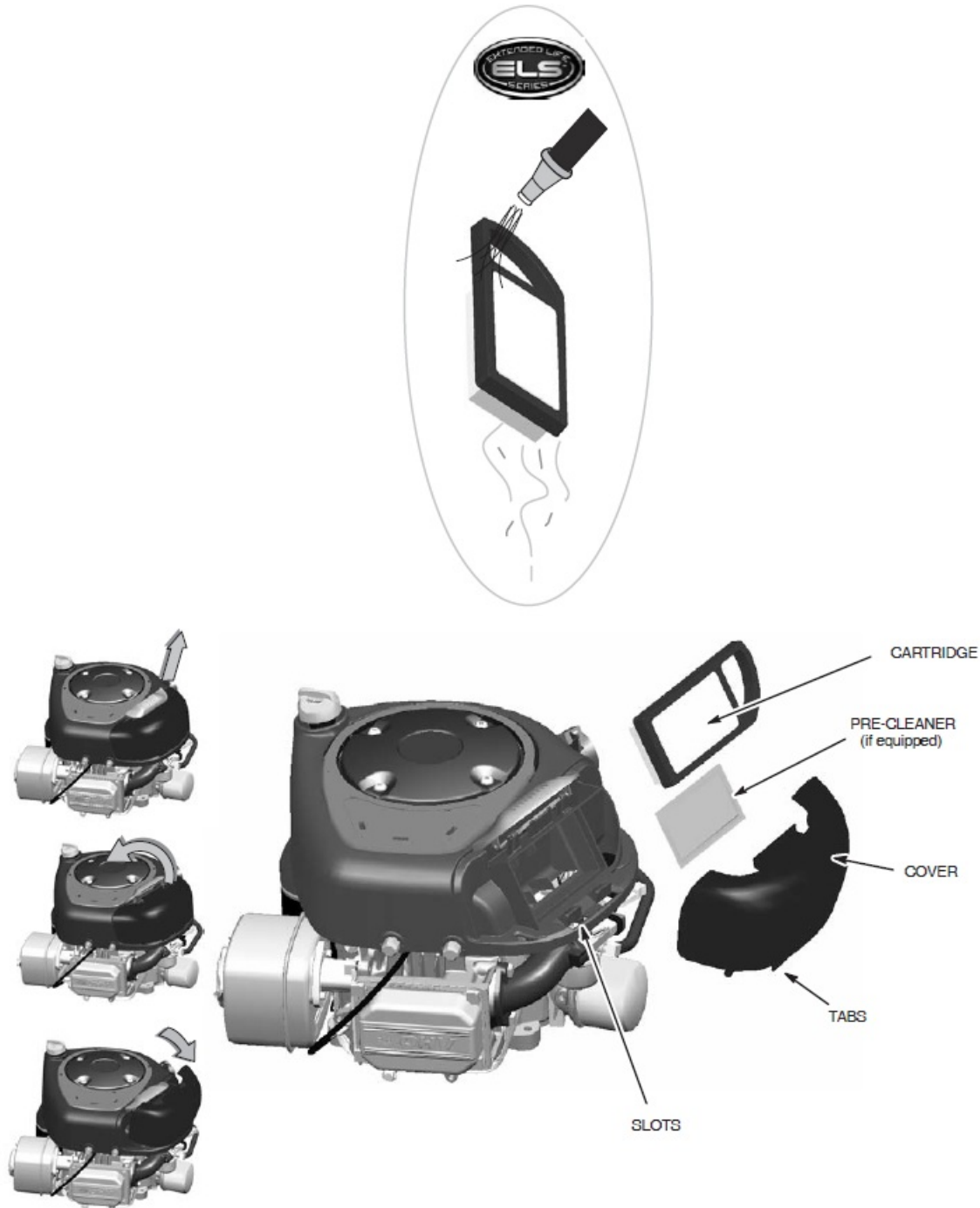
CAUTION: Do not use pressurized air or solvents to clean the cartridge. Pressurized air can damage the cartridge; solvents will dissolve the cartridge.

FLAT AIR CLEANER REMOVAL/ INSTALLATION

1. Pull up on the air cleaner cover handle, and rotate toward the engine.
2. Remove the air cleaner cover.
3. Carefully lift the air cleaner cartridge and pre-cleaner, if equipped, from the blower housing.
 - **Note:** To clean the pre-cleaner, wash in soapy water. Squeeze dry in a clean cloth. DO NOT OIL.
4. Clean the base of the air cleaner cartridge area carefully to prevent debris from entering the engine.
5. Place air cleaner pre-cleaner, if equipped, and cartridge into the blower housing. The cartridge must fit securely in the base.
6. Align tabs on the cover with slots of blower housing and replace the cover.
7. Hook handle and close cover.
 - **WARNING:** If filters or covers are not installed correctly serious injury or death could result from backfire. Do not attempt to start your engine with them removed.

EXTENDED LIFE SERIES CARTRIDGE ONLY

- This filter, IF STAMPED 'WASHABLE', can be washed with warm water and mild soap.
- **IMPORTANT:** Rinse in tap water with SCREEN side up allowing dirt and debris to filter out.
- Leave the filter to dry overnight before reinstalling.

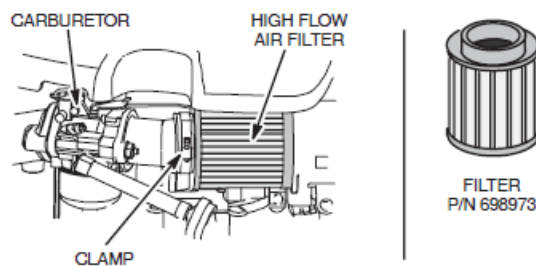


HIGH FLOW AIR CLEANER MAINTENANCE

Perform this maintenance every 25 hours or every season, and clean more often under dusty conditions or when airborne debris is present. This filter is made of cotton, which is different from a standard paper filter, therefore it **MUST** be oiled.

1. Remove the clamp and pull the air cleaner from the intake manifold.
2. Remove as much dirt from the filter as possible.
3. Using the High Flow Air Filter Cleaner Kit, Briggs & Stratton part no. 5089D, spray the filter with cleaner. Allow the solution to soak into the filter for about 15 minutes.
 - **CAUTION:** Never use strong detergents, high-pressure water, or gasoline to clean this filter.

4. Rinse the filter with warm water, inside first and then outside. (Let the water run from the clean side to the dirty side.)
5. Allow the filter to dry completely. It is best to allow the filter to dry naturally. Don't use heat, this might shrink the cotton.
6. Use only air filter oil, such as the oil included in the cleaning kit (P/N 5089D), to re-oil the filter.
 - **WARNING:** Never use motor oil, transmission fluid, WD40, or other oils. Failure to follow instructions can cause fires resulting in death or serious injury. Use only air filter oil designed specifically for air filters.
7. Spray the filter with oil, or pour a small amount onto each pleat and allow the filter to stand for 20 minutes. The filter is correctly oiled when the cotton changes from white to the color of the oil.
 - **CAUTION:** DO NOT over-oil the air filter, it will interfere with engine performance and may cause engine damage. If the filter is placed on cardboard for 10 minutes and leaves a stain, it is over-oiled. Wash/clean and re-oil per the above instructions.
8. Re-install the air filter.



OIL FILTER (IF EQUIPPED)

Replace the oil filter every 100 hours of operation.

1. Drain engine oil and remove the oil filter.
2. Before installing the new filter, lightly oil the filter gasket with fresh, clean engine oil.
3. Screw the filter on by hand until the gasket contacts the oil filter adapter. Tighten 1/2 to 3/4 turn more.
4. Add fresh oil. Fill to the FULL line on the dipstick.
5. Start and run the engine at idle to check for oil leaks.
6. Stop engine. Recheck the oil level and add oil if required.

OIL PRESSURE

- If the oil pressure drops too low, an oil pressure switch (if the engine is equipped) will either activate a warning light or stop the engine.
- Check the oil level with a dipstick. If the oil level is between the ADD and FULL mark on the dipstick, Do not try to restart the engine. Contact an Authorized Briggs & Stratton
- Service Dealer. Do not operate the engine until the oil pressure is corrected.
- If the oil level is below the ADD mark on the dipstick, add oil to bring the level to the FULL mark. Restart the engine and check the oil pressure.
- If pressure is normal, continue to operate the engine.
 - **Note:** The oil pressure gauge, if the engine is equipped, is supplied by the manufacturer of equipment.

ENGINE PARTS

ENGINE AND ENGINE PARTS

- We recommend that you see an authorized Briggs & Stratton Service Dealer for all maintenance and service of the engine and engine parts. Use only genuine Briggs & Stratton parts.

WARNING

- If you perform any maintenance on the engine, first disconnect the spark plug wire from the spark plug, and disconnect the battery at the negative terminal (electric starter engines only) to prevent unintentional sparking.
- Unintentional sparking can result in fire or electric shock. Unintentional start-up can result in entanglement, traumatic amputation, or laceration. Use only the correct tools.

WARNING

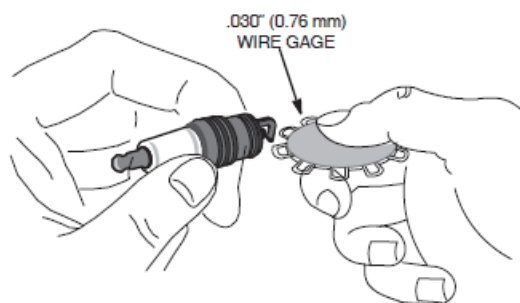
- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.
- Do not tamper with the governor spring, links, or other parts to increase engine speed.

MUFFLER

WARNING: Replacement parts for the muffler must be the same and installed in the same position as the original parts, otherwise fire can occur. If the muffler is equipped with a spark arrester screen, remove the screen for inspection. Replace the screen if damaged or plugged.

SPARK PLUG

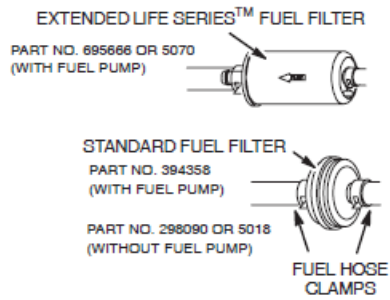
- Use only Briggs & Stratton Spark Tester (part number 19368) to check for sparks.
- Check the spark plug every season. Replace the spark plug if upon inspection the electrodes are burned or worn.
- Ensure the spark plug is clean. Check the gap with a feeler gauge and reset to 0.030 in. (0.76 mm) if necessary.



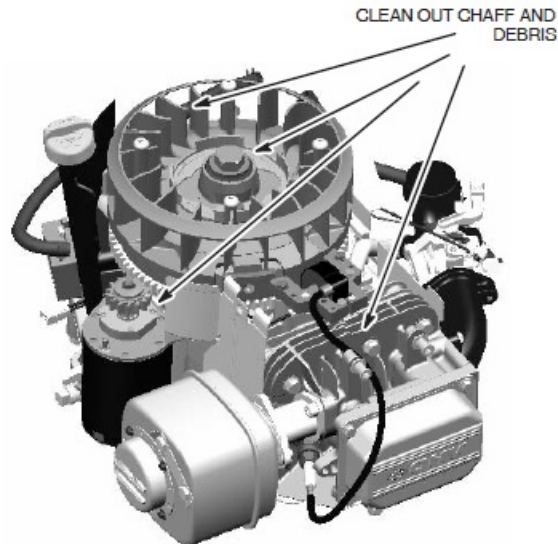
- **Note:** In some areas, local law requires using a resistor spark plug to suppress ignition signals. If this engine was originally equipped with a resistor spark plug, use the same type for replacement.

REPLACE FUEL FILTER (if equipped)

WARNING: Drain the fuel tank or close the fuel shut-off valve before replacing the fuel filter. Otherwise, fuel can leak out, creating a fire/explosion hazard.



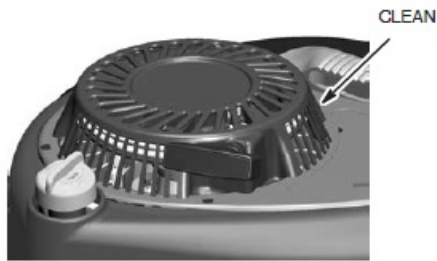
AIR COOLING SYSTEM



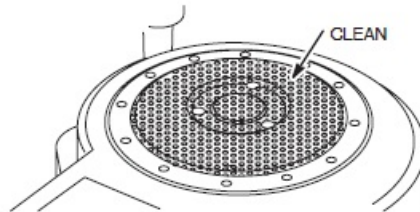
Debris may clog the engine's air cooling system. Remove the blower housing and clean the area shown to prevent overheating and engine damage.

CLEANING DEBRIS

- **WARNING:** Engine parts should be kept clean to reduce the risk of overheating and ignition of accumulated debris. This is especially important if cutting tall grass.
- **CAUTION:** Do not use water to clean engine parts. Water could contaminate the fuel system. Use a brush or dry cloth.

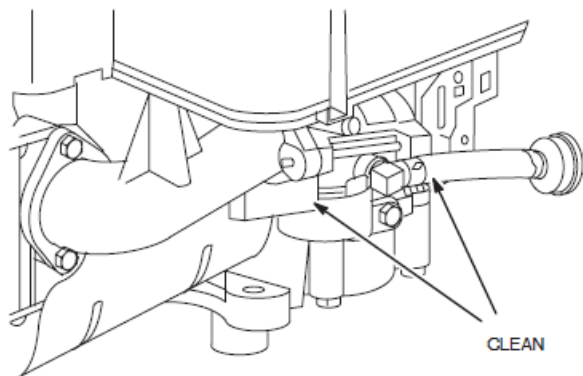


Finger Guard

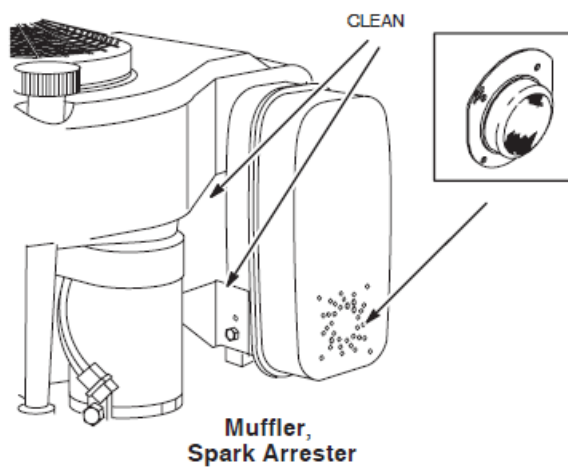


Rotating Screen

- Daily or before every use, clean grass, chaff, or accumulated debris from the engine.
- Keep linkage, spring, and controls clean. Keep the area around and behind muffler free of any combustible debris.



**Linkage, Springs,
Controls**



**Muffler,
Spark Arrester**

PARTIAL LIST OF BRIGGS & STRATTON PARTS Models 280000, 310000 AVS series

- Extended Life Series flat air cleaner cartridge 697153

- (washable, no pre-cleaner required)

- **Extended Life Series Maintenance Kit 5128**

- (Includes oil, A/C filter, spark plug, gas additive)
- Flat air cleaner cartridge and pre-cleaner kit 5077
- Flat air cleaner cartridge 698083
- Flat air cleaner pre-cleaner 697015
- Maintenance Kit 5127
- (Includes oil, A/C filter, spark plug, gas additive)
- UL Approved flat air cleaner cartridge 790263
- (For NG/LPG Gaseous Fuel engines.)

- **Model 210000 AVS series**

- Flat air cleaner cartridge and pre-cleaner kit 5079
- Flat air cleaner cartridge 698413
- Flat air cleaner pre-cleaner 697292
- Maintenance Kit 5126
- (Includes oil, A/C filter, spark plug, gas additive)
- Oval air cleaner cartridge and pre-cleaner kit 5053
- Oval air cleaner cartridge 496894
- Oval air cleaner pre-cleaner 272403
- High Flow Air Filter (cylinder) 698973
- High Flow Air Filter Cleaning Kit 5089D
- Synthetic Oil (32 oz.) 100074
- Oil (20 oz.) 100005
- Oil (48 oz.) 100028
- Oil filter (3-1/2 in. long) 491056
- Oil filter (2-1/4 in. long) 492932
- Fuel filter 298090 -or- 5018
- (for engines without fuel pump installed)
- Extended Life Series™ fuel filter 695666 -or- 5070
- (for engines equipped with fuel pump)
- Fuel filter 394358
- (for engines equipped with fuel pump)
- Gas additive 5041
- Resistor spark plug 491055
- Long life platinum spark plug 5066
- (used on most OHV engines)
- Spark plug wrench 89838 -or- 5023
- Spark tester 19368
- Oil pump kit 5056
- (uses standard electric drill to remove oil from engine quickly)

SERVICE

- See an Authorized Briggs & Stratton Service Dealer.

- Each one carries a stock of Genuine Briggs & Stratton Parts and is equipped with special service tools.
- Trained mechanics assure expert repair service on all Briggs & Stratton engines.
- Only dealers advertising as “Authorized Briggs & Stratton” are required to meet Briggs & Stratton standards.

SERVICE & STORAGE

- When you purchase equipment powered by a Briggs & Stratton engine, you are assured of highly skilled, reliable service at more than 30,000 Authorized Service Dealers worldwide, including more than 6,000 Master Service Technicians. Look for these signs wherever Briggs & Stratton service is offered.



- You may locate your nearest Authorized Briggs & Stratton Service Dealer in our dealer locator map on our website www.briggsandstratton.com, or in the “Yellow Pages™” directory under “Engines, Gasoline” “Gasoline Engines,” “Lawn Mowers” or similar category.
- **Note:** Walking Fingers logo and “Yellow Pages” are registered trademarks in various jurisdictions.
 ™ An illustrated shop manual includes common specifications and detailed information covering adjustment, tune-up, and repair of Briggs & Stratton single cylinder, OHV, 4 cycle engines. It is available for purchase from an Authorized Briggs & Stratton
 • Service Dealer or you can order it from the factory.
- **Write:** Briggs & Stratton Corporation Attn: Service Division P. O. Box 1144 Milwaukee, WI 53201



Part No. 272147

STORAGE

Engines stored over 30 days need special attention.

1. To prevent gum from forming in the fuel system or on essential carburetor parts: a) if the fuel tank contains oxygenated or reformulated gasoline (gasoline blended with an alcohol or an ether), run the engine until it stops from lack of fuel, or b) if fuel tank contains gasoline, either run engine until it stops from lack of fuel, or add a gasoline additive to the gas in the tank. (See parts list. Single-use pouches of gas additive are available from your service dealer.)
2. If you use a gas additive, run the engine for several minutes to circulate the additive through the carburetor.

Then, the engine and fuel can be stored for up to 24 months.

3. While the engine is still warm, change the oil.
4. Remove the spark plug and pour about 1 oz. (30 ml) of engine oil into the cylinder. Replace the spark plug and crank slowly to distribute oil.
5. They clean the engine of surface debris, chaff, or grass.
6. **WARNING:** Store in a clean, dry area. Do not store in the same area as a stove, furnace, water heater, or other appliance that uses a pilot light or has a device that can create a spark.

WARRANTY POLICY

BRIGGS & STRATTON ENGINE OWNER WARRANTY POLICY LIMITED WARRANTY

- Briggs & Stratton Corporation will repair or replace, free of charge, any part(s) of the engine that is defective in material or workmanship or both.
- Transportation charges on products submitted for repair or replacement under this warranty must be borne by the purchaser.
- This warranty is effective for and is subject to the periods and conditions stated below.
- For warranty service, find the nearest Authorized Service Dealer in our dealer locator map at www.briggsandstratton.com, or by calling (800) 233-3723, or as listed in the 'Yellow Pages™'.
- There is no other express warranty, implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year from purchase, or the extent permitted by law any implied warranties are excluded.
- Liability for incidental or consequential damages is excluded to the extent that 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.

WARRANTY TERMS **

- Brand/ Product Type Consumer Use Commercial Use
- Vanguard 2 years 2 years
- Extended Life Series, I /C, Intek I /C, Intek Pro 2 years 1 year
- Kerosene Fuel Operated Engines 1 year 90 days
- All Other Briggs & Stratton Engines 2 years 90 days

Engines used on Home Standby Generator applications are warranted under consumer use only. This warranty does not apply to engines on equipment used for prime power in place of a utility. Engines used in competitive racing or on commercial or rental tracks are not warranted. The warranty period begins on the date of purchase by the first retail consumer or commercial end user and continues for the period stated in the table above. "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. No warranty registration is necessary to obtain a warranty on Briggs & Stratton Products. 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.

ABOUT YOUR WARRANTY

Briggs & Stratton welcomes warranty repair and apologizes to you for being inconvenienced. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. For example, a warranty would not apply if engine damage occurred because of misuse, lack of routine maintenance, shipping, handling, warehousing, or improper installation. Similarly, a warranty is void if the serial number of the engine has been removed or the engine has been altered or modified. If a customer differs from the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the Factory for review. If the Distributor or the Factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding which might occur between the customer and the Dealer, listed below are some of the causes of engine failure that the warranty does not cover.

Normal wear:

Engines, like all mechanical devices, need periodic parts service and replacement to perform well. The warranty will not cover repair when normal use has exhausted the life of a part or an engine.

Improper maintenance:

- The life of an engine depends upon the conditions under which it operates, and the care it receives.
- Some applications, such as tillers, pumps, and rotary mowers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear.
- Such wear, when caused by dirt, dust, spark plug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance, is not covered by warranty.

This warranty covers engine-related defective material and/or workmanship only and not replacement or refund of the equipment to which the engine may be mounted. Nor does the warranty extend to repairs required because of:

1. Problems caused by parts that are not original Briggs & Stratton parts.
2. Equipment controls or installations that prevent starting, cause unsatisfactory engine performance or shorten engine life. (Contact equipment manufacturer.)
3. Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel. (Use clean, fresh, lead-free gasoline and Briggs & Stratton Fuel Stabilizer, Part No. 5041.)
4. Parts that are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (check oil level daily or after every 8 hours of operation. Refill when necessary and change at recommended intervals.) OIL GARD may not shut down the running engine. Engine damage may occur if oil level is not properly maintained. Read Operating & Maintenance Instructions.
5. Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Briggs & Stratton.
6. Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a non-original air cleaner element or cartridge. (At recommended intervals, clean and re-oil the oil foam element or the foam pre-cleaner, and replace the cartridge.) Read Operating & Maintenance Instructions.
7. Parts damaged by over-speeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation. (Clean fins on the cylinder, cylinder head, and flywheel at recommended intervals.) Read Operating

& Maintenance Instructions.

8. Engine or equipment parts are broken by excessive vibration caused by a loose engine mounting, loose cutter blades, unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to the engine crankshaft, over-speeding or other abuse in operation.
9. A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
10. Routine tune-up or adjustment of the engine.
11. Engine or engine component failure, i.e., combustion chamber, valves, valve seats, valve guides, or burned starter motor windings, caused by the use of alternate fuels such as, liquified petroleum, natural gas, altered gasoline, etc. Warranty service is available only through service dealers which have been authorized by Briggs & Stratton Corporation. Your nearest Authorized Service Dealer is listed in the "Yellow Pages™" of your telephone directory under "Engines, Gasoline" or "Gasoline Engines," "Lawn Mowers," or similar category.

Emissions Control System Warranty Statement

Briggs & Stratton Corporation (B&S), the California Air Resources Board (CARB), and the United States Environmental Protection Agency (U.S. EPA) Emissions Control System Warranty Statement (Owner's Defect Warranty Rights and Obligations)

California, United States, and Canada Emissions Control Defects Warranty Statement

- The California Air Resources Board (CARB), U.S. EPA, and B&S are pleased to explain the Emissions Control System Warranty on your small off-road engine (SORE). In California, new small off-road engines model year 2006 and later must be designed, built, and equipped to meet the State's stringent anti-smog standards.
- Elsewhere in the United States, new non-road, spark-ignition engines certified for model year 1997 and later must meet similar standards set forth by the U.S. EPA. B&S must warrant the emissions control system on your engine for the periods listed below, provided there has been no abuse, neglect or improper maintenance of your small off-road engine.
- Your emissions control system includes parts such as the carburetor, air cleaner, ignition system, fuel line, muffler, and catalytic converter. Also included may be connectors and other emissions-related assemblies.
- Where a warrantable condition exists, B&S will repair your small off-road engine at no cost to you including diagnosis, parts, and labor.

Briggs & Stratton Emissions Control Defects Warranty Coverage

- Small off-road engines are warranted relative to emissions control parts defects for two years, subject to provisions set forth below.
- If any covered part on your engine is defective, the part will be repaired or replaced by B&S.

Owner's Warranty Responsibilities

- As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Operating and
- Maintenance Instructions. B&S recommends that you retain all your receipts covering maintenance on your small off-road engine, but B&S cannot deny warranty solely for the lack of receipts or for your failure to ensure

the performance of all scheduled maintenance.

- As the small off-road engine owner, you should however be aware that B&S may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- You are responsible for presenting your small off-road engine to an Authorized B&S Service Dealer as soon as a problem exists. The undisputed 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 a B&S Service Representative at (414) 259-5262.
- The emissions warranty is a defects warranty. Defects are judged on normal engine performance. The warranty is not related to an in-use emissions test.

Briggs & Stratton Emissions Control Defects Warranty Provisions

The following are specific provisions relative to your Emissions Control Defects Warranty Coverage. It is in addition to the B&S engine warranty for non-regulated engines found in the Operating and Maintenance Instructions.

1. Warranted 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 engine purchased.
- **a. 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
- **b. Air Induction System**
 - Air cleaner
 - Intake manifold
 - Purge and vent line
- **c. Ignition System**
 - Spark plug(s)
 - Magneto ignition system
- **d. Catalyst System**
 - Catalytic converter
 - Exhaust manifold
 - Air injection system or pulse valve
- **e. Miscellaneous Items Used in Above Systems**
 - Vacuum, temperature, position, time-sensitive valves, and switches
 - Connectors and assemblies

2. Length of Coverage

- B&S warrants to the initial owner and each subsequent purchaser that the Warranted Parts shall be free from defects in materials and workmanship that caused the failure of the Warranted Parts for two years

from the date the engine is delivered to a retail purchaser.

3. No Charge

- Repair or replacement of any Warranted Part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a Warranted Part is defective if the diagnostic work is performed at an Authorized B&S Service Dealer.
- For emissions warranty service contact your nearest Authorized B&S Service Dealer as listed in the "Yellow Pages" under "Engines, Gasoline," "Gasoline Engines," "Lawn Mowers," or a similar category.

4. Claims and Coverage Exclusions

- Warranty claims shall be filed by the provisions of the B&S Engine Warranty Policy. Warranty coverage shall be excluded for failures of Warranted Parts which are not original B&S parts or because of abuse, neglect, or improper maintenance as outlined in the B&S Engine Warranty Policy. B&S is not liable to cover failures of Warranted Parts caused by the use of add-on, non-original, or modified parts.

5. Maintenance

- Any Warranted Part which is not scheduled for replacement as required maintenance or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period.
- Any Warranted Part that is scheduled for replacement as required maintenance shall be warranted as to defects only for the period up to the first scheduled replacement for that part. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs.
- The owner is responsible for the performance of all required maintenance, as defined in the B&S Operating and Maintenance Instructions.

6. Consequential Coverage

- Coverage hereunder shall extend to the failure of any engine components caused by the failure of any Warranted Part still under warranty.

Look For Relevant Emissions Durability Period and Air Index Information On Your Engine Emissions Label

- Engines that are certified to meet the California Air Resources Board (CARB) Tier 2 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 by the Operating & Maintenance Instructions.

The following categories are used:

• Moderate:

- The engine is certified to be emissions-compliant for 125 hours of actual engine running time.

• Intermediate:

- The engine is certified to be emissions-compliant for 250 hours of actual engine running time.

• Extended:

- The engine is 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

- The period of an engine with an intermediate rating would equate to 10 to 12 years. Certain Briggs & Stratton engines will be certified to meet the United States Environmental Protection Agency (USEPA) Phase 2 emissions standards. For Phase 2 certified engines, 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 with 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

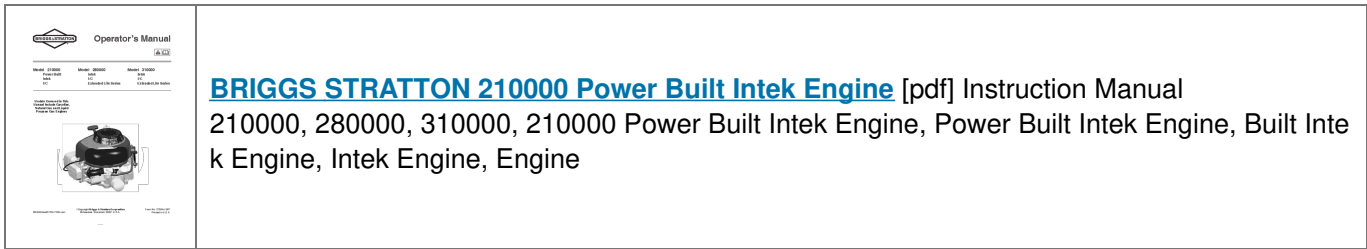
Briggs & Stratton Engines Are Made Under One Or More Of The Following Patents: Design D-247,177 (Other Patents Pending)

- 6,691,683
- 6,647,942
- 6,622,683
- 6,615,787
- 6,617,725
- 6,603,227
- 6,595,897
- 6,595,176
- 6,584,964
- 6,557,833
- 6,542,074
- 6,520,141
- 6,495,267
- 6,494,175
- 6,472,790
- 6,460,502
- 6,456,515
- 6,382,166
- 6,369,532
- 6,356,003
- 6,349,688
- 6,347,614
- 6,325,036
- 6,311,663

- 6,284,123
- 6,263,852
- 6,260,529
- 6,242,828
- 6,239,709
- 6,237,555
- 6,230,678
- 6,213,083
- 6,202,616
- 6,145,487
- 6,142,257
- 6,135,426
- 6,116,212
- 6,105,548
- 6,347,614
- 6,082,323
- 6,077,063
- 6,064,027
- 6,040,767
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- 6,012,420
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BRIGGS STRATTON 210000 Power Built Intek Engine [pdf] Instruction Manual
210000, 280000, 310000, 210000 Power Built Intek Engine, Power Built Intek Engine, Built Intek Engine, Intek Engine, Engine

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