RE-POWERING GUIDELINES

If replacing a Briggs & Stratton engine with another Briggs & Stratton engine, use the original engine's model and type numbers to assure the correct replacement. If replacing a competitor's engine with a Briggs & Stratton engine, let the power level and features of the original engine, plus the expected work cycle, guide you in selecting the correct replacement. Also consider these factors:

1. **Engine Selection**
   Match the engine's performance and cost to your specific application to get the optimum performance at an affordable price. That means better value for you.
   - **Vanguard™** OHV (overhead valve) engines are maximum performance, cast iron sleeved engines.
     - select for continuous heavy duty applications.
   - **INTEK™ PRO, Industrial Plus™, and I/C®** (Industrial/Commercial) engines are cast iron sleeved.
     - select for medium duty commercial, industrial and rental use.
   - **INTEK™, and PowerBuilt™** engines are aluminum cylinder bore OHV engines.
     - select for general consumer use.
   - **Standard** engines are aluminum cylinder bore, side valve engines.
     - select for general consumer use.

2. **Safety Points**
   For many safe hours of operation, it is important to maintain the original engine's power, starter type and position, fuel tank location, fuel line routing, muffler location, exhaust direction and muffler accessories (i.e., deflector, spark arrester, etc.). Reinstall all guards, shields and safety devices. Replace missing, worn or damaged parts.

3. **Horizontal Crankshaft Engines**
   - Compare the overall engine size to avoid possible mounting interference
   - Match the crankshaft
     - Diameter “A”
     - Height “B” (distance from base to crankshaft center line)
     - Length “C” (distance from oil seal/cover’s mounting face to end of crankshaft)
   - Match the crankshaft type, i.e., keyway, tapered or threaded
   - Match the crankcase cover’s tapped holes for mounting accessories (if applicable)
   - Match the base mounting dimensions and bolt hole spacing

4. **Vertical Crankshaft Engines**
   - Compare the overall engine size to avoid possible mounting interference
   - Match the starter type and starter grip position “A”
   - Match the crankshaft
     - Diameter “B”
     - Keyway type “C”
     - Length “D” (distance from mounting face of sump - not oil seal - to end of crankshaft)
   - Match the mounting base dimensions and bolt hole spacing

**WARNING**
Briggs & Stratton does not approve or authorize the use of these engines on 3-wheel All Terrain Vehicles (ATVs), motor bikes, fun/recreational go-karts, aircraft products or vehicles intended for use in competitive events. Use of these engines in such applications could result in property damage, serious injury (including paralysis), or even death.

Learn more at ENGINESMATTER.COM
**Vanguard™ 31.0 Gross HP**

**896 CC**

Bore 3.37 in. (85.5 mm)  
Stroke 3.07 in. (78.0 mm)  
Oil Capacity 79 fl. oz. (2.34 L)

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**Features:**

- Cast iron sleeve assures longer engine life and improved oil control
- Advanced Debris Management System allows the engine to run cleaner and cooler, which enhances durability and performance
- Foam pre-cleaner traps large debris before it can clog the filter element and rob the engine of needed air
- Industrial grade solenoid shift starter assures quick, reliable starts
- Full-pressure oil lubrication system with spin-on filter works to keep oil cleaner, which reduces maintenance and extends engine life
- Buyer protection package provides three-year commercial limited warranty

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### Vanguard™ 31.0 Gross HP Features:

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**Advanced Debris Management System** allows the engine to run cleaner and cooler, which enhances durability and performance.

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**Full-pressure oil lubrication system** with spin-on filter works to keep oil cleaner, which reduces maintenance and extends engine life.

**Buyer protection package** provides three-year commercial limited warranty.

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### Vanguard™ 31.0 Gross HP Specifications:

- **Model Type:** 543477
- **Shipping Weight:** 143 lbs.
- **Crankshaft:** 809982
- **Crankshaft (P.T.O.) Extension:** 1-1/8" dia., 1/4" Keyway & tapped 7/16-20
- **Oil Filler & Drain:** 4(c)
- **Governor:** M MF
- **Exhaust System:** X X X X 3600

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**Notes:**

- Exhaust manifold and muffler omitted.
- Oil fill and dipstick in cover; dual drain.
- Fuel tank omitted.
- Engine equipped with 12 Volt Gear Drive Starter and 20 Amp DC Alternator.

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**All power levels stated gross power per SAE J1940**

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**ThePowerPortal.COM**
## SPECIFICATIONS OF SERVICE ENGINES

### LEGEND OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>STARTER POSITION:</th>
<th>Number shown is “o’clock” position of rewind starter. Spark plug is considered to be the 12 o’clock position.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUND WIRE TERMINAL:</td>
<td>May be used with stop switch in remote location.</td>
</tr>
<tr>
<td>ACCESSORY MTG. BOSS or FLANGE MOUNTING:</td>
<td>Tapped holes in crankcase cover used to fasten clutch brackets, belt guards, etc.</td>
</tr>
<tr>
<td>DIMENSION:</td>
<td>Distance from end of crankshaft to one of the points listed below:</td>
</tr>
<tr>
<td></td>
<td>(a) Oil seal on plain bearing horizontal crankshaft engines.</td>
</tr>
<tr>
<td></td>
<td>(b) Mounting face of sump on vertical crankshaft engines.</td>
</tr>
<tr>
<td></td>
<td>(c) Flange mounting face on horizontal crankshaft engines.</td>
</tr>
<tr>
<td>SHIPPING WEIGHT:</td>
<td>Gross Domestic Shipping Weight.</td>
</tr>
</tbody>
</table>

Briggs & Stratton Corporation believes the specifications in this brochure to be correct at time of printing. However, specifications, standard equipment, options, and colors are subject to change without notice.

### ALL POWER RATINGS SHOWN IN THIS CATALOG ARE SUBJECT TO THE FOLLOWING:

The gross power rating for individual gas engine models is labeled in accordance with SAE (Society of Automotive Engineers) code J1940 (Small Engine Power & Torque Rating Procedure), and rating performance has been obtained and corrected in accordance with SAE J1995 (Revision 2002-05). Torque values are derived at 3060 RPM; horsepower values are derived at 3600 RPM. The gross power curves can be viewed at www.BRIGGSandSTRATTON.COM. Net power values are taken with exhaust and air cleaner installed whereas gross power values are collected without these attachments. Actual gross engine power will be higher than net engine power and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given the wide array of products on which engines are placed, the gas 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 Series engine.
YOUR KEY TO THE WORLD'S FINEST ENGINES

This chart explains the unique Briggs & Stratton numerical model designation system. It is possible to determine most of the important mechanical features of the engine by merely knowing the model number. Here is how it works:

A. The first one or two digits indicate the approximate CUBIC INCH DISPLACEMENT.
B. The first digit after the displacement indicates the BASIC DESIGN SERIES, relating to cylinder construction, ignition, general configuration, etc.
C. The second digit after the displacement indicates ORIENTATION OF CRANKSHAFT.
D. The third digit after the displacement indicates TYPE OF BEARINGS, and whether or not the engine is equipped with REDUCTION GEAR or AUXILIARY DRIVE.
E. The last digit indicates the TYPE OF STARTER.

BRIGGS & STRATTON MODEL NUMBERING SYSTEM

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUBIC INCH DISPLACEMENT</td>
<td>BASIC DESIGN SERIES</td>
<td>CRANKSHAFT ORIENTATION</td>
<td>PTO BEARING, REDUCTION GEAR, AUXILIARY DRIVE, LUBRICATION</td>
<td>TYPE OF STARTER</td>
</tr>
<tr>
<td>2-61</td>
<td>0 - 9</td>
<td>0 to 4 - Horizontal Shaft</td>
<td>0 - Plain Bearing</td>
<td></td>
</tr>
<tr>
<td>A - Z</td>
<td>5 to 9 - Vertical Shaft</td>
<td>3 - Ball Bearing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A to G</td>
<td>A to G - Horizontal Shaft</td>
<td>4 - Ball Bearing Pressure Lubrication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H to Z</td>
<td>H to Z - Vertical Shaft</td>
<td>5 - Plain Bearing Gear Reduction (6 to 1) CCW Rotation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EXAMPLE - To identify Model 303447:

30 Cubic Inch 3 Design Series 3 Horizontal Shaft 4 Ball Bearing Pressure Lubrication 7 Electric Starter with Alternator

TYPE 123401, The type number identifies the engines mechanical parts, color of paint, decals, governed speed, and Original Equipment Manufacturer.

CODE 01061201, The code is the manufacturing date and is read as follows:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MONTH</th>
<th>DAY</th>
<th>ASSEMBLY LINE AND MANUFACTURING PLANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>06</td>
<td>12</td>
<td>01</td>
</tr>
</tbody>
</table>

Column D historical numbers that have been discontinued include: 1- Plain Bearing/DU, 2- Sleeve Bearing Flange Mounting Splash Lube, 8- Plain Bearing Auxiliary Drive (PTO) Perpendicular to Crankshaft

Column E historical numbers that have been discontinued include: 1- Rope Starter, 3- Electrical Starter Only 110 or 230 Volt Gear Drive, 4- Electrical Starter/110 or 230 Volt Gear Drive with Alternator, 7- Electrical Starter Only 12 or 24 Volt Gear Drive, 8- Vertical Pull Starter or Side Pull Starter, 9- Mechanical Starter and A- Electrical Starter 12 or 24 Volt Gear Drive with Alternator & Inverter

Revised 2/11

All power levels stated gross power per SAE J1940
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. 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. Warranty will not cover repair when normal use has exhausted the life of a part or an engine. Warranty would not apply if engine damage occurred because of misuse, lack of routine maintenance, shipping, handling, warehousing or improper installation. Similarly, warranty is void if the serial number of the engine has been removed or the engine has been altered or modified.

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 can be 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.
4. Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (check and refill when necessary, and change at recommended intervals). OIL GARD may not shut down running engine. Engine damage may occur if oil level is not properly maintained.
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/or replace the filter as stated in the Operator's Manual.
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 engine debris at recommended intervals as stated in the Operator's Manual.
8. Engine or equipment parts 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 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, gasoline formulated with ethanol greater than 10%, etc.

Warranty service is available only through Briggs & Stratton Authorized Service Dealers. Locate your nearest Authorized Service Dealer in your dealer locator map at BRIGGSsandSTRATTON.COM or by calling 1-800-233-3723. 272204

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All power levels stated gross power per SAE J1940

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