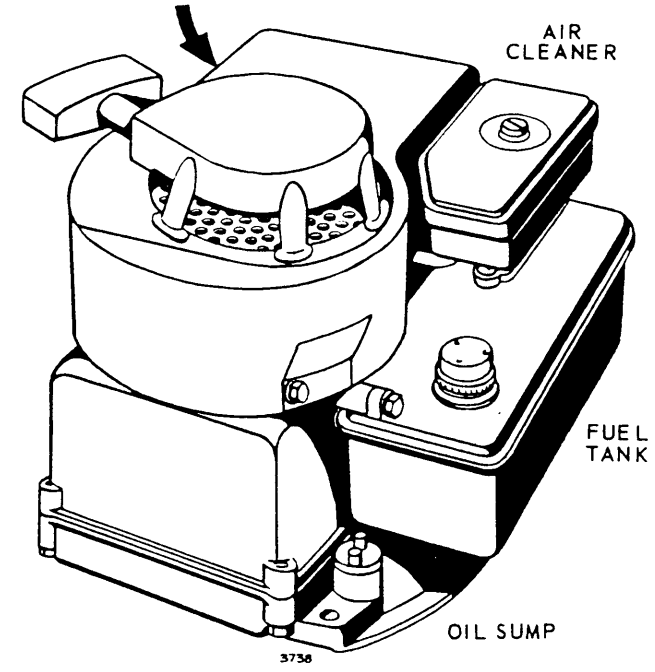
Briggs & Stratton

OPERATING AND MAINTENANCE INSTRUCTIONS

MODELS

82500 to 82596
82900 to 82996



IMPORTANT: Do not start this engine before reading Section I and Section II of this manual.

CAUTION

PROVIDE EFFICIENT VENTILATION. Exhaust gases contain carbon monoxide, an odorless and deadly poison. Do not operate engine in an enclosed area.

ROTARY LAWN MOWERS. Always disconnect spark plug wire from spark plug before removing mower blade, when cleaning under mower deck or sharpening blade.

SECTION I
BEFORE STARTING

"OIL-FOAM"© AIR CLEANER
"Oil-Foam"© air cleaners are oiled at the factory and do not require initial service.

FILL FUEL TANK
Use clean, fresh "regular" grade gasoline. Fill tank completely.

DO NOT FILL GASOLINE TANK WHILE ENGINE IS RUNNING. Avoid spilling gasoline on a hot engine – this may cause an explosion and serious injury.

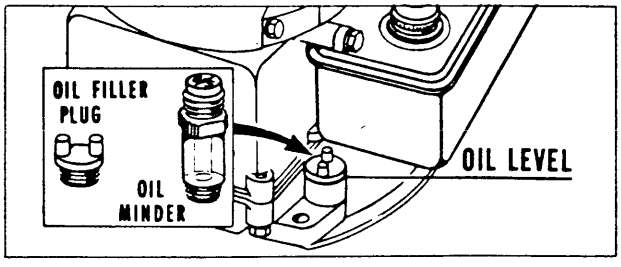
DO NOT MIX OIL WITH GASOLINE

OIL RECOMMENDATIONS

WINTER	SUMMER
(Below 40° F.)	(Above 40° F.)
Use SAE 5W-20	Use SAE 30
If not Available	If not Available
Use SAE 10W	Use SAE 10W-30
Above 10° F.	

Nothing should be added to the recommended oils.

FILL SUMP WITH OIL



Remove the oil filler plug or oil minder located on base of engine. Place the engine level. Fill the oil sump to overflowing. POUR SLOWLY. CAPACITY 1¼ PINTS. Replace the filler plug.

Any high quality detergent oil having the American Petroleum Institute classification "For Service MS" can be used in your Briggs & Stratton engine. Detergent oils keep the engine cleaner and retard the formation of gum and varnish deposits.

FORM NO. 270258-74
PRINTED IN U.S.A.

BRIGGS & STRATTON CORP.
Milwaukee, Wisconsin 53201

IMPORTANT SAFETY INFORMATION AND INSTRUCTIONS FOR

ENGINE SELECTION
ENGINE INSTALLATION
ENGINE OPERATION

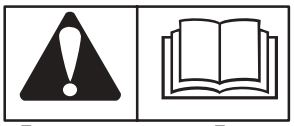
Keep these instructions for future reference.

In the USA and Canada,
our 24 hour hotline is:

18002333723

Briggs & Stratton Corporation
Milwaukee, Wisconsin 53201

www.briggsandstratton.com



Before installing and operating this engine read and observe all warnings, cautions and instructions on both sides of this sheet, on the engine, and in the operating & maintenance instructions.

NOTE: This sheet of instructions and safety information is not meant to cover all possible conditions and situations that may occur. Read entire Operating & Maintenance Instructions for this engine AND the instructions for the equipment this engine powers. Failure to follow instructions and safety information could result in serious injury or death.

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.

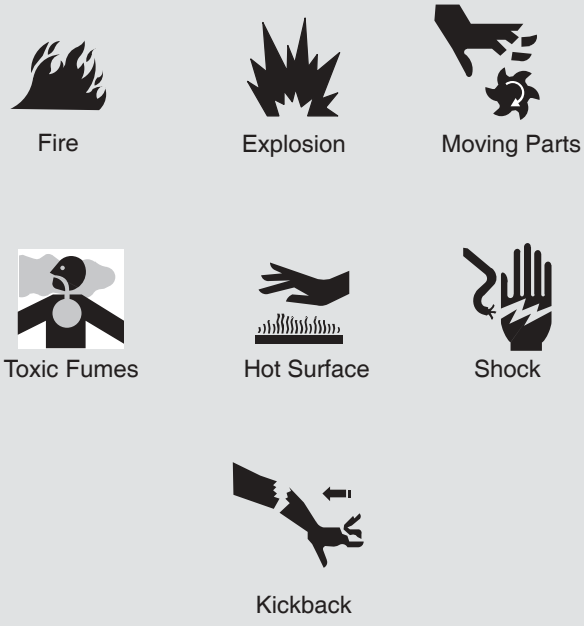
⚠ **DANGER** indicates a hazard which, if not avoided, **will result in death or serious injury.**

⚠ **WARNING** indicates a hazard which, if not avoided, **could result in death or serious injury.**

⚠ **CAUTION** indicates a hazard which, if not avoided, **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.**

HAZARD SYMBOLS AND MEANINGS



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FORM MS-6445-01/03

ENGINE SELECTION

- Some engines are unique and designed for specific applications or types of equipment. If this engine will be used to build new equipment, contact Briggs & Stratton to ensure that the engine is appropriate for the intended use.

  Note: For all Go-karts use only a model 136200 series engine, which offers improved safety and performance.
- Replacement engines should be the same model as the original engine, or be the Briggs & Stratton designated replacement engine. Refer to the Operation & Maintenance Instructions for engine identification information.

  Note: For all Go-karts use only a model 136200 series engine, which offers improved safety and performance.
- Do not use Briggs & Stratton engines on 3-wheel All-Terrain Vehicles (ATVs), motor bikes, air craft products, or vehicles intended for use in competitive events. Briggs & Stratton does not approve of or authorize such uses.

ENGINE INSTALLATION

[1] Do not attempt to install this engine if you do not have the appropriate tools and knowledge of small engine installation procedures. Use only Briggs & Stratton parts. Contact your Authorized Service Dealer for assistance.

[2] Do not modify the engine in any way without Briggs & Stratton factory approval. Any such modification is at the owner's sole risk.

[3] If the exhaust system on the old engine was supplied by the equipment manufacturer, you must transfer the exhaust system and related components (original muffler and related pipes, brackets, clamps, and shields) to the new engine. All components must be in good condition.

[4] 

Install muffler (and muffler deflector if used) so outlet points away from operator, fuel tank, and equipment, and so muffler heat will not damage or deform engine and components.

[5] 

Ensure all fuel lines and fittings are properly assembled and do not leak. Replacement parts must be the same model as the original.

[6] 

Ensure all wiring, including safety switches and engine shut-off components are completely installed and functioning properly.

[7] Set engine speed to equipment manufacturer's specification. Refer to equipment manufacturer's manual. Do not tamper with governor springs, or other parts that will increase engine speed above specification.

[8] 

All engine parts, including fuel cap, spark plug, muffler, air cleaner, and covers and guards for drive components (gears, belts, shafts, couplings, etc.) must be in place before attempting to start engine.

[9] 

If engine is installed on walk behind lawn mower, all mower components, including cutting blade, must be correctly installed before attempting to start engine.

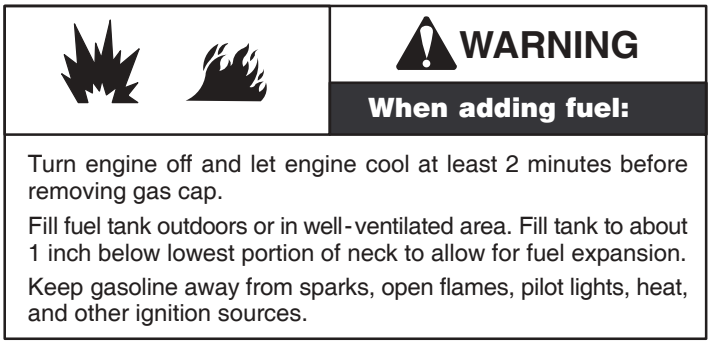
[10] 

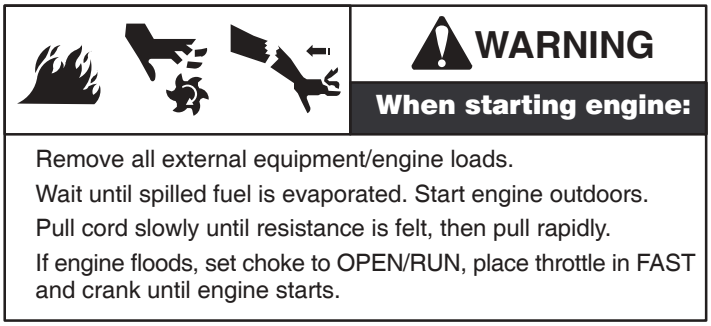
When working on the engine or equipment, remove spark plug wire from spark plug. For electric start, remove negative wire from battery.

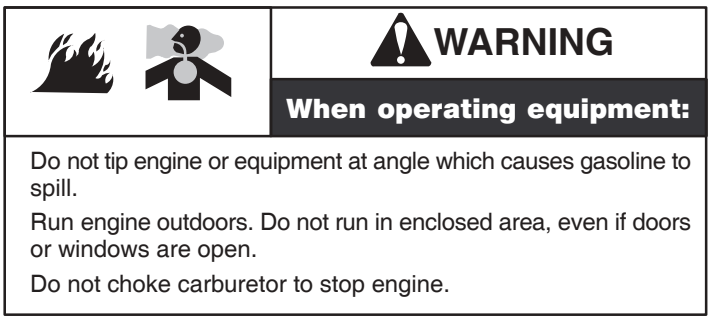
[11] 

Do not check for spark with spark plug removed. Use Briggs & Stratton spark tester #19368.

ENGINE OPERATION

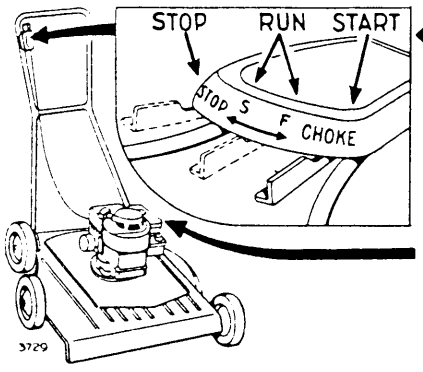






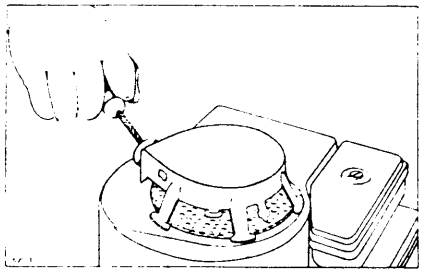
SECTION II
STARTING

CHOKE-A-MATIC CARBURETOR CONTROL



The Choke-A-Matic Carburetor permits choking, varying the engine speed, and stopping the engine by moving a single control lever.

"EASY-SPIN" © REWIND STARTER

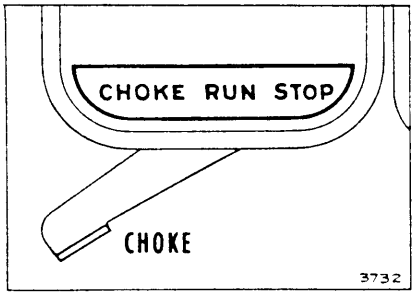


Grasp starter grip as illustrated and pull out cord two to three feet.

Repeat if necessary with choke opened slightly. When engine starts open choke gradually.

REMOTE CONTROL TYPE – Move control on equipment as far as possible toward "choke" or "start" position.

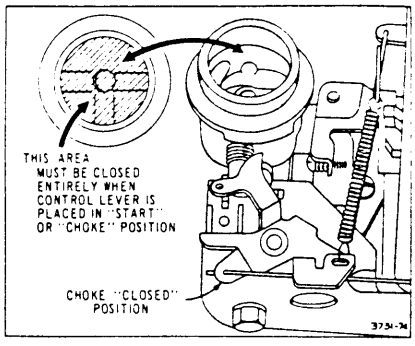
DIRECT CONTROL TYPE – Move lever under air cleaner as far as possible toward "choke" position.



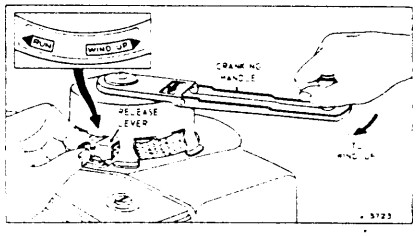
CAUTION: NEVER WORK ON MOWER BLADES WHEN WIND-UP STARTER IS WOUND UP. IF BLADE BECOMES JAMMED SO THAT STARTER WILL NOT CRANK ENGINE, REMOVE BLOWER HOUSING AND STARTER ASSEMBLY FROM ENGINE BEFORE DOING ANY WORK ON MOWER OR ENGINE.

CAUTION: ALWAYS KEEP HANDS AND FEET CLEAR OF MOWER BLADE OR OTHER ROTATING MACHINERY.

NOTE: ENGINE MAY NOT START IF CONTROLS ON POWERED EQUIPMENT DO NOT CLOSE CHOKE FULLY. See Choke-A-Matic adjustment instructions in Section IV of this manual if controls on equipment do not fully close choke as illustrated below.



"EASY-SPIN" © WIND-UP STARTER



1. Place release lever in "wind-up" position.
2. Lift handle and extend to cranking position.
3. Turn handle in direction of arrow. Fold cranking handle to retracted position.
4. Move release lever to "run" position. As engine starts, gradually move choke control to open (run) position.

CAUTION: Leave release lever in "run" position while operating engine.

STOPPING

A. REMOTE CONTROL TYPE

Move control lever on equipment to "STOP" position.

B. DIRECT CONTROL TYPE

Move lever on carburetor to "STOP" position.

SECTION III
REGULAR MAINTENANCE

CHECK OIL

Check oil level regularly - at least after each 5 hours of operation. (Take care to remove dirt around filler plug.) Be sure oil level is maintained FULL TO POINT OF OVERFLOWING.

CHANGE OIL (Oil Sump)

Change oil after first 5 hours of operation while engine is warm. Thereafter change oil every 25 hours of operation while engine is warm. Drain plug is on bottom of oil sump.

Engine may be drained through oil drain Fig. 1, or oil filler opening shown in Fig. 2. Be sure to replace drain plug and oil filler cap.

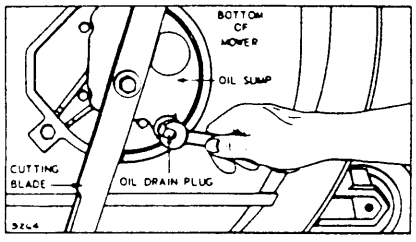


Fig. 1

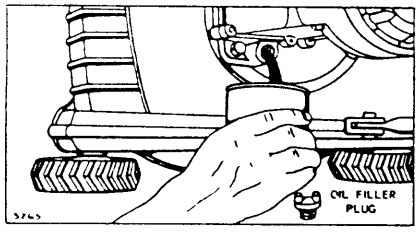


Fig. 2

COOLING SYSTEM

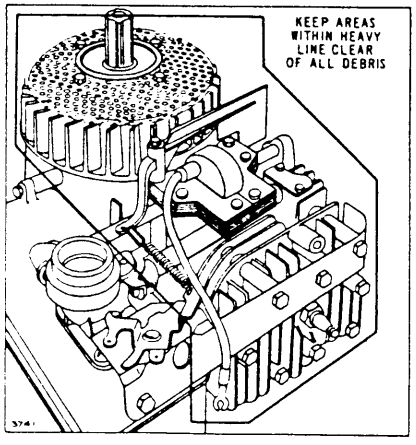


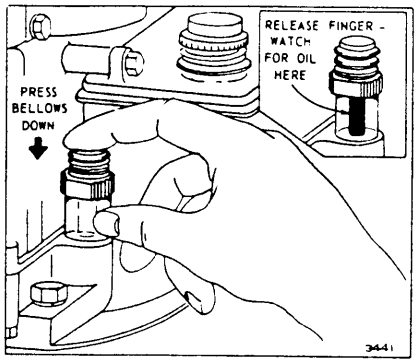
Fig. 3

CLEAN COOLING SYSTEM

Grass particles or chaff may clog the air cooling system after prolonged service in cutting tall dry grasses or hay. Continued operation with a clogged cooling system causes severe overheating and possible engine damage. Fig. 3 shows the blower housing removed and area to be cleaned. This should be a regular maintenance operation.

OIL-MINDER

Special accessory furnished on some vertical crankshaft models. This visual gauge permits checking the oil level without removing oil filler plug.

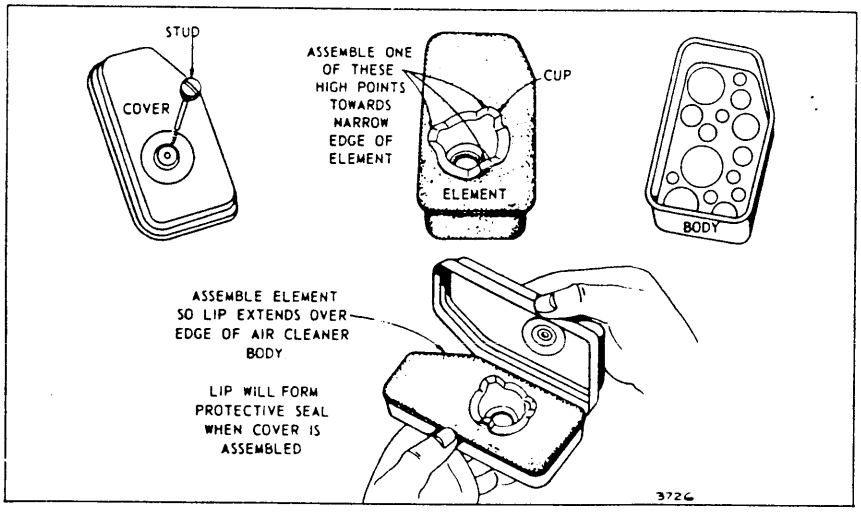


1. Position engine level (Not Running.)
2. Press and release bellows several times.

If plastic tube fills with oil, it is safe to operate engine.

If plastic tube does **not** fill with oil, engine oil is low. Remove OIL-MINDER and fill crankcase to point of overflowing.

SERVICE AIR CLEANER REGULARLY



Clean and re-oil air cleaner element every 25 hours under normal conditions. The capacity of the "Oil-Foam" air cleaner is adequate for a full season's use without cleaning in average homeowner lawn mower service. (Clean every few hours under extremely dusty conditions.

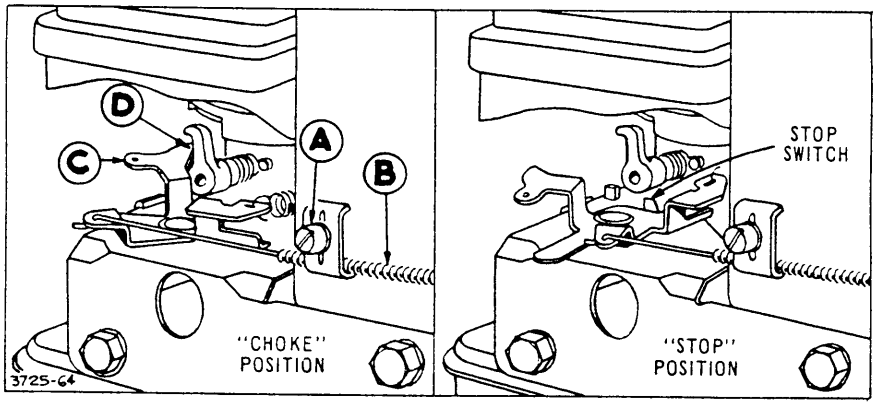
1. Remove thumb screw.
2. Remove air cleaner carefully to prevent dirt from entering carburetor.
3. Take air cleaner apart.
4. A - Wash element in kerosene or petroleum solvent.
   B - Squeeze dry and re-oil with 3 tablespoons of engine oil.
   C - Squeeze again to spread oil throughout foam.
   D - Assemble parts – fasten to carburetor with screw.

CHOKE-A-MATIC REMOTE CONTROL ADJUSTMENTS

Hard starting or failure of engine to stop when remote control is placed in these respective positions may be due to mis-adjustment between engine and remote controls on powered equipment.

TO CHECK OPERATION:

Remove air cleaner. Move remote control lever to CHOKE position. The carburetor choke should then be closed as illustrated on page 2. Move the remote control lever to STOP. Control lever on carburetor should then make contact with stop switch as illustrated below – – right.



TO ADJUST:

Place remote control lever on equipment in FAST (high speed) position.

Lever C on carburetor should be just touching choke arm at D. To adjust, loosen casing clamp screw A on blower housing. Move control casing B forward or backward until correct position is obtained. Tighten screw A.

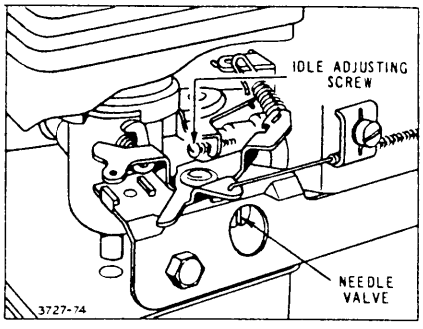
Recheck operation of controls after adjustment. Replace air cleaner.

CARBURETOR ADJUSTMENTS

All carburetor adjustments should be made with air cleaner on engine. 2-1/2 H.P., 82500 series engines should be adjusted with fuel tank half full of gasoline.

INITIAL ADJUSTMENT:

Turn needle valve clockwise to close it. Then open 1-1/2 turns. This initial adjustment will permit the engine to be started and warmed up before making final adjustment.



FINAL ADJUSTMENT:

With engine running at normal operating speed (approximately 3000 R.P.M. without load) turn needle valve clockwise until engine starts to lose speed (lean mixture). Then slowly turn needle valve counterclockwise past the point of smoothest operation, until engine just begins to run unevenly. This mixture will give best performance under load.

Hold throttle in idling position. Turn idle speed adjusting screw until fast idle is obtained (1750 R.P.M.).

Test the engine under full load. If engine tends to stall or die out, it usually indicates that the mixture is slightly lean and it may be necessary to open the needle valve slightly to provide a richer mixture. This richer mixture may cause a slight unevenness in idling.

SECTION V
GENERAL INFORMATION

These engines are single-cylinder, L-head, air-cooled type.

MODEL SERIES 82500 to 82596		MODEL SERIES 82900 to 82996	
Bore	2 3/8"	Bore	2 3/8"
Stroke	1 3/4"	Stroke	1 3/4"
Displacement	7.75 cu. in.	Displacement	7.75 cu. in.
Horsepower 2.5 HP max.@	3600 RPM	Horsepower 3.0 HP max. @	3600 RPM

The horsepower ratings listed above are established by standard I.C.E.I. procedures. For practical operation, the horsepower loading should not exceed 85% of these ratings. Engine power will decrease 3½% for each 1,000 ft. above sea level and 1% for each 10 degrees above 60 degrees F.

TUNE-UP SPECIFICATIONS

Spark Plug Type	AC-GC-46; AL-A71; Champ. J8.
Spark Plug Gap	.025"
Ignition Point Gap	.020"
Intake Valve Clearance	.005"-.007"
Exhaust Valve Clearance	.009"-.011"

CAUTION: Blast Cleaning of spark plugs in machines that use abrasive grit is not recommended. Spark plugs should be cleaned by scraping or wire brushing and washing with a commercial solvent or gasoline.

STORAGE INSTRUCTIONS

Engines to be stored over 30 days should be completely drained of fuel to prevent gum deposits forming on essential carburetor parts, fuel filter, fuel lines and tank.

a. All fuel should be removed from fuel tank. Run the engine until it stops from lack of fuel. The small amount of fuel that remains in the sump of the tank should then be removed by absorbing it with a clean dry cloth.

b. Remove spark plug, pour 1 ounce of SAE-30 oil into cylinder and crank slowly to distribute oil. Replace spark plug.

c. Clean dirt and chaff from cylinder, cylinder head fins and blower housing.

Major engine repairs should not be attempted unless you have the proper tools and a thorough knowledge of internal combustion engines.

Briggs & Stratton's policy of continual product improvement is evidenced by the many patents issued to the corporation covering engine improvements, some of which are listed below.

2,431,329	2,510,825	2,564,787	2,693,789	2,717,916	2,954,506	3,040,853
2,438,585	2,529,242	2,573,116	2,693,791	2,781,280	2,999,489	3,044,238
2,459,428	2,529,243	2,605,753	2,696,577	2,796,453	2,999,491	3,044,239
2,491,070	2,529,244	2,649,488	2,699,636	2,796,454	2,999,562	3,114,851
2,496,688	2,548,334	2,669,322	2,717,589	2,908,263	3,028,848	3,118,433

DESIGN PATENTS

173,072 191,806

SECTION V
GENERAL INFORMATION

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Horsepower	2.5 HP max.@ 3600 RPM

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2,459,428	2,529,243	2,605,753	2,696,577	2,796,453	2,999,491	3,044,239
2,491,070	2,529,244	2,649,488	2,699,636	2,796,454	2,999,562	3,114,851
2,496,688	2,548,334	2,669,322	2,717,589	2,908,263	3,028,848	3,118,433

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