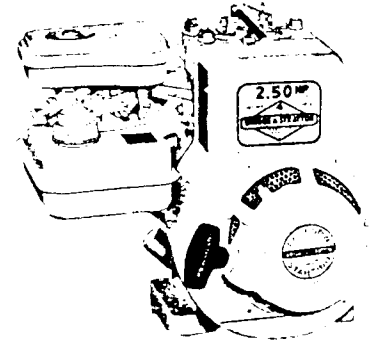




Briggs & Stratton OPERATING AND MAINTENANCE INSTRUCTIONS MODELS

60100 to 60152
80100 to 80192



IN THE INTEREST OF SAFETY: DO NOT RUN ENGINE AT EXCESSIVE SPEEDS. Operating an engine at excessive speeds increases the hazard of personal injury. **DO NOT TAMPER WITH PARTS WHICH MAY INCREASE THE GOVERNED SPEED.** For rotary lawnmower safety, USA Standard Safety Specifications for Power Lawn Mowers specify a maximum blade tip speed of 19,000 feet per minute, primarily to reduce the hazard from thrown objects.

Rotary lawnmower manufacturers select the governed top speed of the engine based on the length and design of the cutter blade and design of other mower parts.

All rotary lawnmowers should be checked for conformance to the USA Standard Safety Specifications for Power Lawn Mowers on blade tip speed, if the engine is repaired or replaced, or if mower parts are changed.

Dirt and grass clippings, or other debris, in cooling fins or governor parts can affect engine speed. See cleaning instructions in Section 3.

TO PREVENT ACCIDENTAL STARTING always remove the spark plug before working on the engine or equipment driven by the engine or remove cable from spark plug and insert terminal in V-notch in cylinder head cover.

DO NOT RUN THE ENGINE IN AN ENCLOSED AREA. Exhaust gases contain carbon monoxide, an odorless and deadly poison. **DO NOT FILL GASOLINE TANK WHILE ENGINE IS RUNNING.** Spilling gasoline on a hot engine may cause a fire or explosion.

IN THE INTEREST OF ENVIRONMENT: A muffler which leaks because of rust or damage can permit an increased exhaust noise level. Therefore, examine the muffler periodically to be sure it is functioning effectively. To purchase a new muffler see Section 6.

WARNING: If this engine is to be run in dry forest covered, brush covered or grassy areas which could catch fire from a spark leaving a muffler, we recommend that the engine be equipped with a spark arrester muffler. See your Briggs & Stratton dealer for spark arrester muffler options.

Section 1 BEFORE STARTING

READ THE OPERATING INSTRUCTIONS OF THE EQUIPMENT THIS ENGINE POWERS

- 1 **FILL CRANKCASE WITH OIL** — Use a high quality detergent oil classified "For service SC, SD, SE or MS". Nothing should be added to the recommended oil.

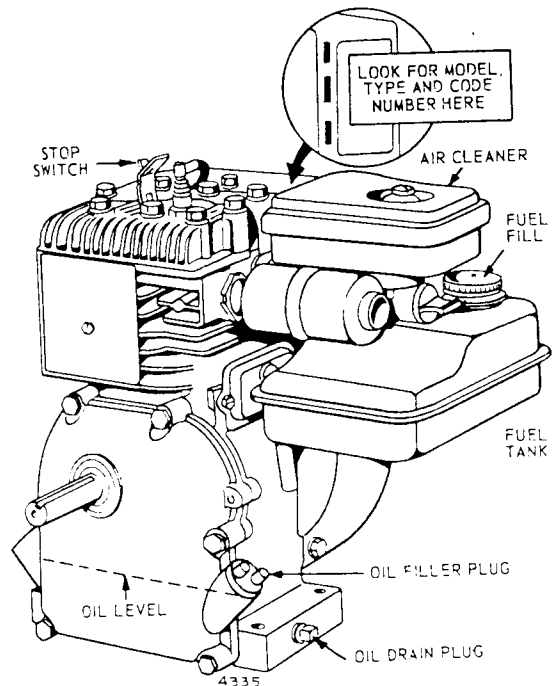
SUMMER - (Above 40° F.) Use SAE 30
If not available, Use SAE 10W-30 or SAE 10W-40
WINTER - (Below 40° F.) Use SAE 5W-20 or SAE 5W-30
If not available, Use SAE 10W or SAE 10W-30

DIRECTIONS: Place engine level. Use screw driver or bar to remove oil filler plug. Fill crankcase to point of overflowing. **POUR SLOWLY.** Capacity 1-1/4 pints.

- 2 **FILL FUEL TANK** — Use clean, fresh, lead-free, or leaded "regular" grade automotive gasoline. Do not mix oil with gasoline.

CAUTION: Gasoline is highly combustible. Do not store or use gasoline near an open flame or devices such as a stove, furnace, or water heater. Use gasoline only in well ventilated areas or outdoors.

Fill tank completely. Do not overfill or spill. Wipe up any spills immediately.



IMPORTANT SAFETY INFORMATION AND INSTRUCTIONS FOR ENGINE SELECTION ENGINE INSTALLATION ENGINE OPERATION

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

18002333723

Briggs & Stratton Corporation
Milwaukee, Wisconsin 53201

www.briggsandstratton.com

Keep these instructions for future reference.



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



Fire



Explosion



Moving Parts



Toxic Fumes



Hot Surface



Shock



Kickback

(OVER)

FORM MS-6445-01/03

ENGINE SELECTION

 WARNING

Failure to select the correct engine could result in fire or explosion.

- 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]

 WARNING	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]

 WARNING	Ensure all fuel lines and fittings are properly assembled and do not leak. Replacement parts must be the same model as the original.
	
- [6]

 WARNING	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]







 WARNING	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]

 WARNING	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]

 WARNING	When working on the engine or equipment, remove spark plug wire from spark plug. For electric start, remove negative wire from battery.
	
- [11]

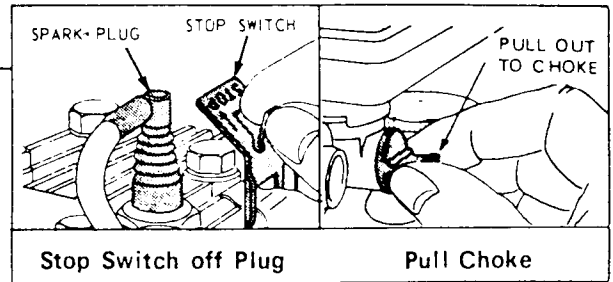
 WARNING	Do not check for spark with spark plug removed. Use Briggs & Stratton spark tester #19368.
	

ENGINE OPERATION

	 WARNING
	When adding fuel:
<p>Turn engine off and let engine cool at least 2 minutes before removing gas cap.</p> <p>Fill fuel tank outdoors or in well-ventilated area. Fill tank to about 1 inch below lowest portion of neck to allow for fuel expansion.</p> <p>Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.</p>	
	 WARNING
	When starting engine:
<p>Remove all external equipment/engine loads.</p> <p>Wait until spilled fuel is evaporated. Start engine outdoors.</p> <p>Pull cord slowly until resistance is felt, then pull rapidly.</p> <p>If engine floods, set choke to OPEN/RUN, place throttle in FAST and crank until engine starts.</p>	
	 WARNING
	When operating equipment:
<p>Do not tip engine or equipment at angle which causes gasoline to spill.</p> <p>Run engine outdoors. Do not run in enclosed area, even if doors or windows are open.</p> <p>Do not choke carburetor to stop engine.</p>	

1 **CHOKE ENGINE** – Engine may be equipped with either manual or Choke-A-Matic controls.

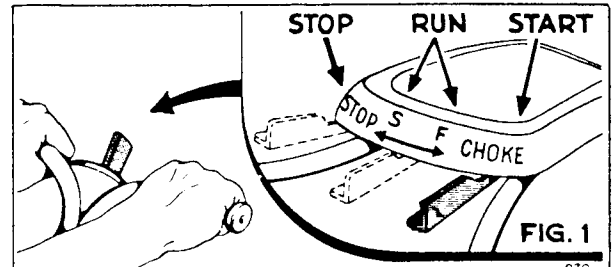
a. **Manual Choke and Stop** – Be sure stop switch is away from spark plug. Pull choke as illustrated.



Stop Switch off Plug

Pull Choke

b. **Choke-A-Matic Control** – Move control on equipment as far as possible toward "choke" or "start" position.

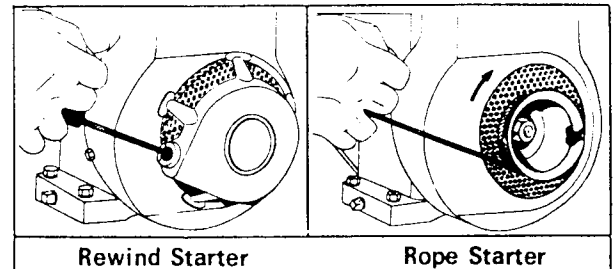


Control to "Start" or "Choke" Position

2 **START ENGINE** – Engine may be equipped with rewind or rope starter.

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

a. **Rewind Starter** – Grasp starter as illustrated and pull out cord rapidly. Repeat if necessary with choke opened slightly. When engine starts, open choke gradually.



Rewind Starter

Rope Starter

b. **Rope Starter** – Wind rope around pulley in direction shown by arrow.

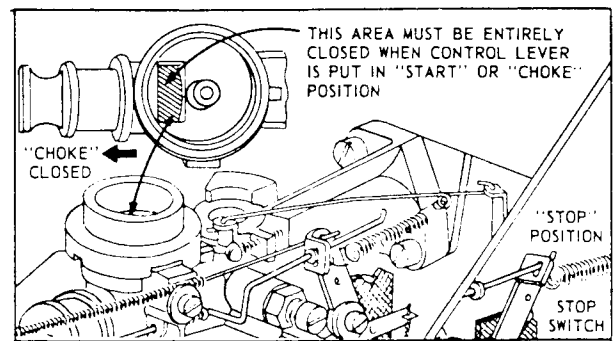
Pull the rope with a quick full arm stroke. Repeat if necessary with choke open slightly. When engine starts open choke gradually.

NOTE: ENGINE MAY NOT START if controls on powered equipment do not close choke fully. See Choke-A-Matic adjustment instructions in Section 4 of this manual.

3 **STOP ENGINE**

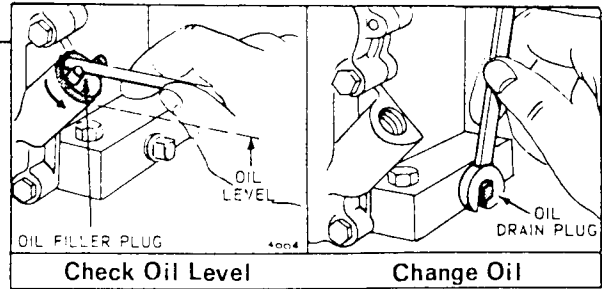
a. **Manual Control** – Push stop switch against end of spark plug.

b. **Choke-A-Matic Control** – Move control lever to "Stop" position.



Area Must be Closed to CHOKE

1 **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.



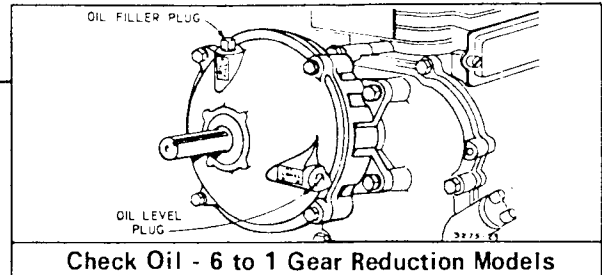
Check Oil Level

Change Oil

2 **CHANGE OIL** after first 5 hours of operation. Thereafter change oil every 25 hours of operation. Remove drain plug and drain oil while engine is warm. Replace drain plug. Remove oil filler cap and refill with new oil of proper grade. Replace filler cap.

CHECK OIL (6 to 1 Gear Reduction Models Optional) every 100 hours by removing the oil plug in lower half of gear cover. Add SAE 10W-30 oil at upper oil filler plug until oil runs out of lower hole. Replace both plugs.

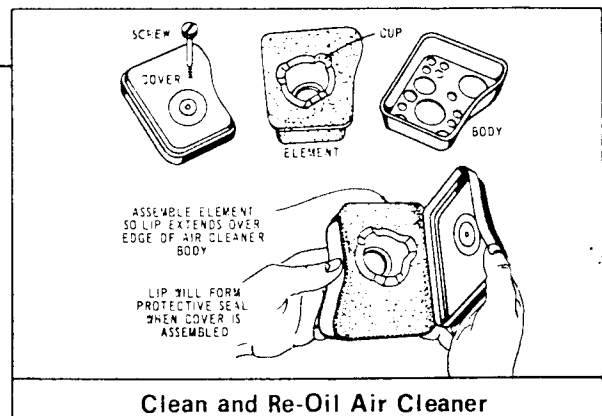
NOTE: Filler plug has vent hole and must be placed in top opening.



Check Oil - 6 to 1 Gear Reduction Models

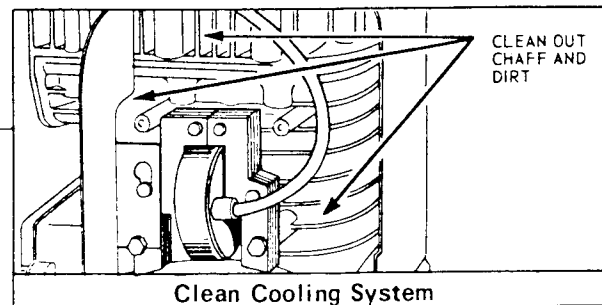
3 **CLEAN AND RE-OIL AIR CLEANER** and element every 25 hours under normal conditions. The capacity of the "Oil-Foam" air cleaner is adequate for a full season's use without cleaning in average homeowner lawn mower service. (Clean every few hours under extremely dusty conditions).

1. Remove screw
2. Remove air cleaner carefully to prevent dirt from entering carburetor
3. Take air cleaner apart
 - A – Wash foam element in kerosene or liquid detergent and water to remove dirt.
 - B – Wrap foam in cloth and squeeze dry
 - C – Saturate foam in engine oil. Squeeze to remove excess oil
 - D – Assemble parts – fasten to carburetor with screw.



Clean and Re-Oil Air Cleaner

4 **CLEAN COOLING SYSTEM** – Grass or chaff may clog 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. Remove blower housing and clean regularly.

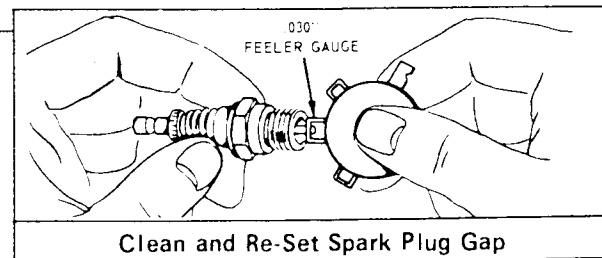


Clean Cooling System

5 **SPARK PLUG** – Clean and reset gap at .030" every 100 hours of operation.

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.

6 **REMOVE CARBON DEPOSITS** – Clean combustion chamber, top of piston and around both valves every 100-200 hours of operation.



Clean and Re-Set Spark Plug Gap

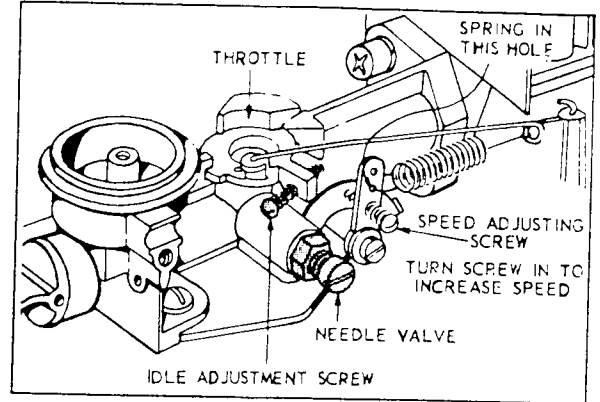
CARBURETOR ADJUSTMENTS

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude and load.

NOTE: Adjust carburetor with fuel tank half full of regular grade gasoline.

Initial Adjustment:

Close needle valve (turn clockwise) then open 1-1/2 turns (turn counterclockwise). 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 RPM without load) close the needle valve (turn clockwise) until engine starts to lose speed (lean mixture). Then slowly open needle valve (turn counterclockwise) past the point of smoothest operation, until engine just begins to run unevenly. This mixture should be rich enough for best performance under load. Hold throttle in idling position. Turn idle speed adjusting screw until fast idle is obtained. (1750 RPM). 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.

CHOKE-A-MATIC CONTROL ADJUSTMENTS

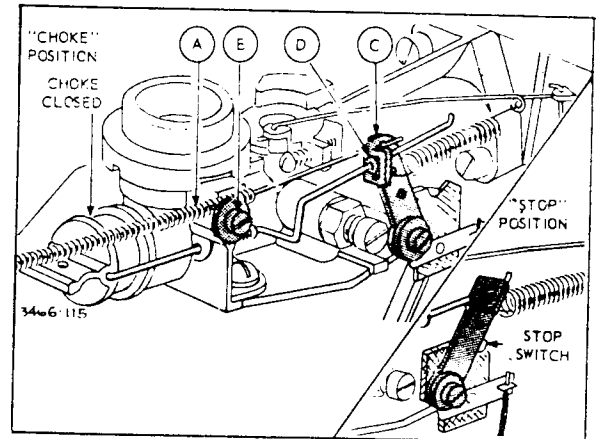
Proper choke and stop switch operation is dependent upon proper adjustment of remote controls on the powered equipment.

To Check Operation:

Remove Air Cleaner. Move remote control lever to CHOKE position. The carburetor choke should then be closed. Move the remote control lever to STOP. Speed lever on carburetor should then make good contact with stop switch to short out ignition.

To Adjust:

Place remote control lever on equipment in FAST (high speed) position. Loosen control casing clamp screw (B) on carburetor. Move control casing (A) and wire forward or backward until speed lever (C) just touches the choke operating link at (D). Tighten casing clamp screw (B) on carburetor. Recheck operation of controls after adjustment. Replace air cleaner.



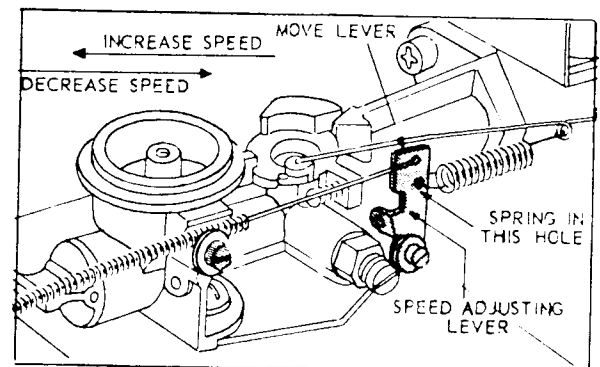
SPEED CONTROL ADJUSTMENTS

Remote Control

Controls on powered equipment should move speed lever in a direction that will elongate governor spring to increase speed.

To Adjust:

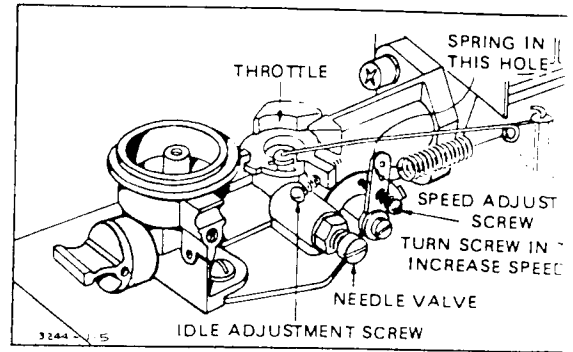
Loosen clamp screw on carburetor or fuel tank bracket and move casing in or out to obtain proper speed. Maximum recommended speed is 3600 RPM.



Standard Control

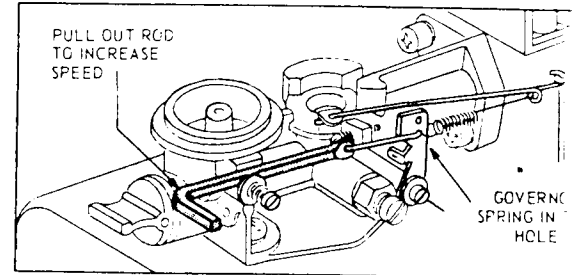
To increase engine speed, turn speed adjusting screw clockwise.

To decrease engine speed, turn speed adjusting screw counterclockwise.



Manual Friction Control

To increase or decrease engine speed, move speed adjusting rod as shown.



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

MODEL SERIES 60100 to 60152

Bore	2 3/8"
Stroke	1 1/2"
Displacement	6.65 cu. in.
Horsepower	2.0 max. @ 3600 RPM
Torque (Ft. Lbs.)	3.14 max. @ 3000 RPM

80100 to 80192

Bore	2 3/8"
Stroke	1 3/4"
Displacement	7.75 cu. in.
Horsepower	2.5 max. @ 3600 RPM
Torque (Ft. Lbs.)	4.04 max. @ 2900 RPM

The horsepower ratings listed above are established in accordance with the Society of Automotive Engineers Test Code - J607. For practical operation, the horsepower loading should not exceed 85% of these ratings. Engine power will decrease 3½% for each 1,000 feet above sea level and 1% for each 10° above 60° F.

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

TUNE-UP SPECIFICATIONS

	A.C.	Autolite	Champ
Spark Plug Type	CS-45	A7N	CJ-8
Short Plug	GC-46	A71	J-8
Long Plug			
Spark Plug Gap03		
Ignition Point Gap02		
Intake Valve Clearance005" - .00		
Exhaust Valve Clearance009" - .01		

STORAGE INSTRUCTIONS

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

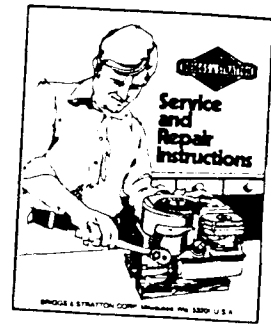
- a. All fuel should be removed from fuel tank. Run t engine until it stops from lack of fuel. The sma amount of fuel that remains in the sump of the ta should then be removed by absorbing it with a cle dry cloth.
- b. While engine is still warm, drain oil from crankcas Refill with fresh oil.
- c. Remove spark plug, pour one ounce (2 or 3 tab spoons) of engine oil into cylinder and crank slov to distribute oil. Replace spark plug.
- d. Clean dirt and chaff from cylinder, cylinder he fins and blower housing.

6 SERVICE & REPAIR INFORMATION

If service or repair is needed, contact an Authorized Briggs & Stratton Service Center. To serve you promptly and efficiently, the Service Center will need the model, type and code number on your engine. (See Section 7).

Each Authorized Service Center carries a stock of original Briggs & Stratton repair parts and is equipped with special service tools. Trained mechanics assure expert repair service on all Briggs & Stratton engines.

Your nearest service center is listed in the "Yellow Pages" under "Engines, Gasoline" or "Gasoline Engines". He is one of over 15,000 authorized dealers available to serve you.



This illustrated book includes "Theories of Operation" common specifications, and detailed information covering the adjustment, tune-up and repair procedures for 2 through 16 H.P. models. It is available from any Authorized Briggs & Stratton Service Center. Order Part Number 270962.

BRIGGS & STRATTON ENGINES ARE MADE UNDER ONE OR MORE OF THE FOLLOWING PATENTS:

2,669,322	2,798,453	3,114,851	3,149,618	3,194,224	3,252,449
2,693,789	2,999,491	3,118,433	3,165,094	3,236,937	3,276,439
2,693,791	2,999,562	3,144,097	3,168,936	3,242,741	3,378,099
					3,415,237

DESIGN
D-191,806 D-196,017 D-197,175 D-213,476
OTHER PATENTS PENDING