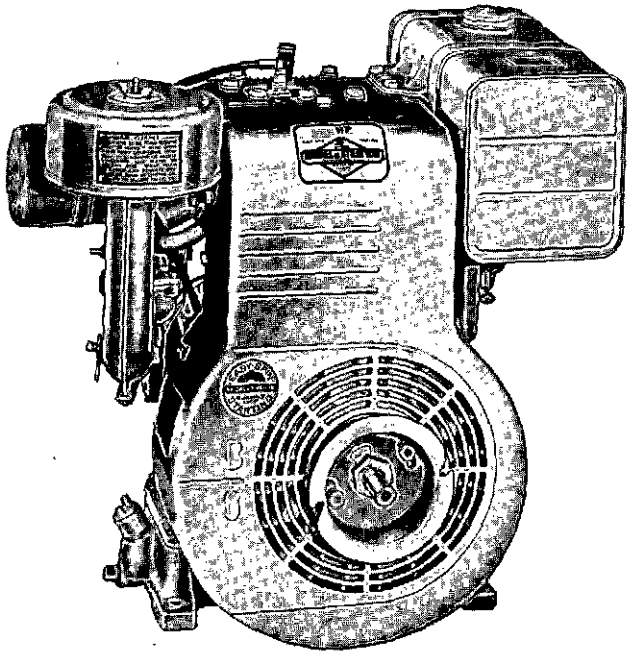


Briggs & Stratton

OPERATING AND MAINTENANCE INSTRUCTIONS

MODELS

200400 to 200454

233400 to 233454

CAUTION

TO PREVENT ACCIDENTAL STARTING always remove the spark plug before working on the engine or equipment driven by the engine.

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.

IMPORTANT: Read Operating Instructions (Section 1 & 2) Before Starting Your Engine.

SECTION 1
BEFORE STARTING

(1) **FILL CRANKCASE WITH OIL** – Use a high quality detergent oil classified "For Service MS". Nothing should be added to the recommended oil.

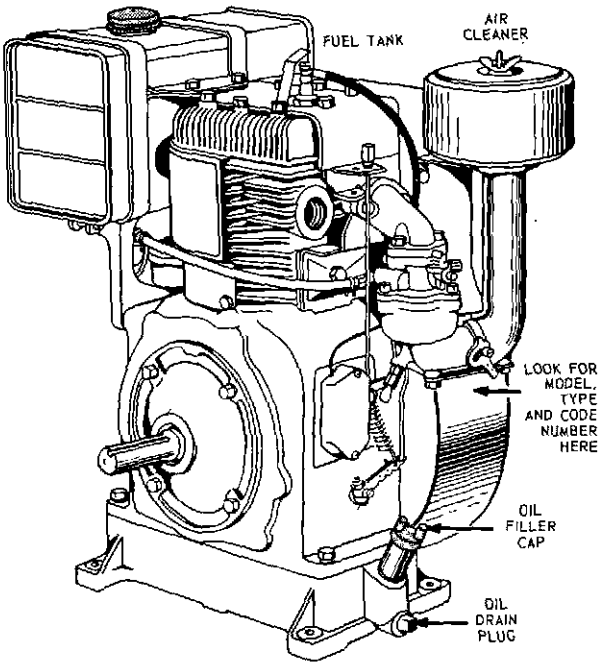
Summer	Winter (Below 40° F)
Use SAE 30	Use SAE 5W-20

DIRECTIONS: Place the engine level. Remove oil filler plug or Oil-Minder. FILL THE OIL SUMP TO OVERFLOWING or to the FULL mark on dipstick. Pour slowly. Capacity 3 Pints.

EXTENDED OIL FILL. (Optional) Remove cap and dipstick and fill to full mark on dipstick. When checking oil level push dipstick assembly firmly but slowly until cap bottoms on tube. Do not overfill. Dipstick assembly must be pushed fully into tube at all times when engine is operating.

(2) **FILL FUEL TANK** – Use clean, fresh "regular" grade gasoline. Fill tank completely.

DO NOT MIX OIL WITH GASOLINE.

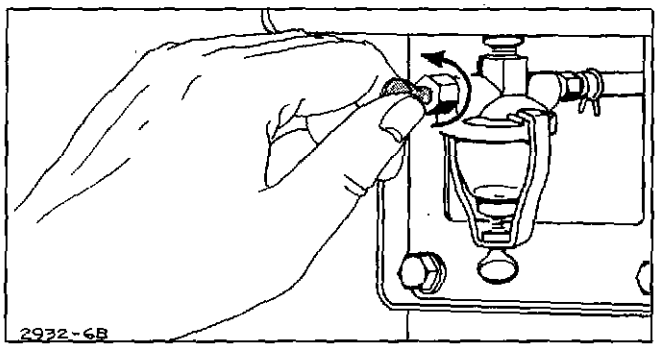


4 CYCLE BRIGGS & STRATTON GASOLINE ENGINE

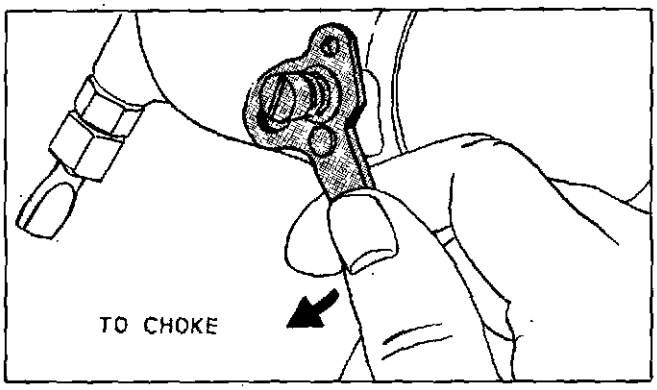
FORM NO. 270373-19
PRINTED IN U.S.A.

BRIGGS & STRATTON CORP.
Milwaukee, Wisconsin 53201

(1) OPEN FUEL VALVE



(2) CLOSE THE CHOKE

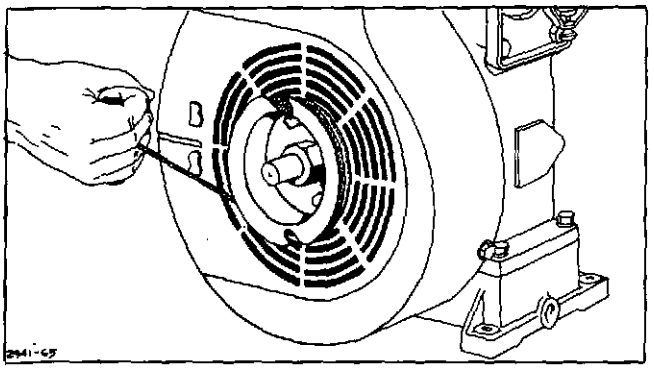


(3) **START ENGINE** – Engine may be equipped with rope or electric starter.

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

a. Rope Starter

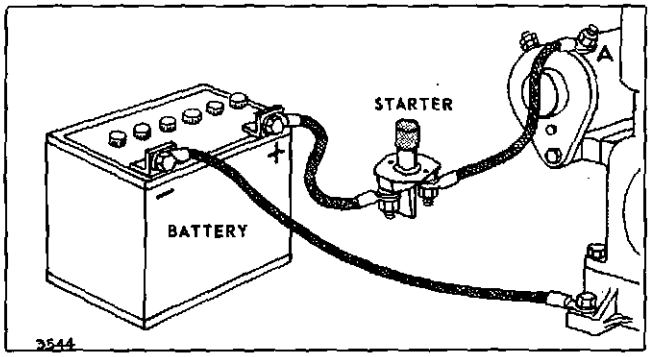
Place knot in pulley notch and wind rope around pulley in a clockwise direction. Pull rope with choke closed to prime the engine. Open choke slightly and repeat operation.



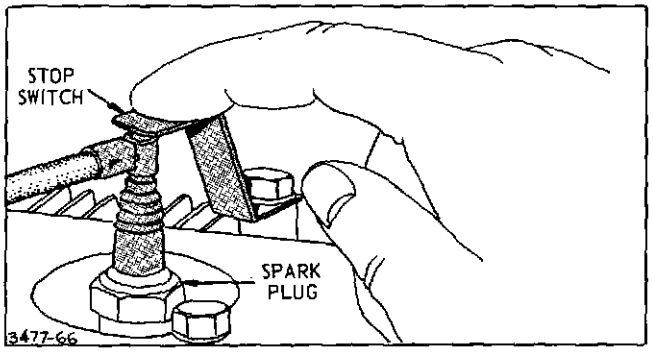
After engine warms up open choke gradually until engine runs smoothly with choke wide open (counter-clockwise position).

b. 12 Volt D.C. Electric Starter

Press starter button on powered equipment. When engine starts, open choke gradually.



(4) **TO STOP ENGINE** – Push the stop switch against end of spark plug.



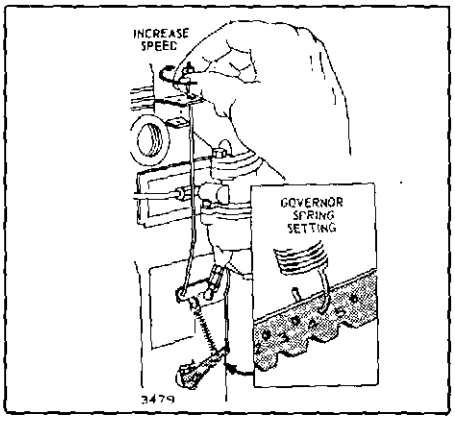
Thumb Nut Adjustment

To increase speed, turn nut (clockwise) or move lower end of governor spring farther away from governor lever shaft.

To reduce speed, turn nut (counterclockwise) or move lower end of spring closer to governor lever shaft.

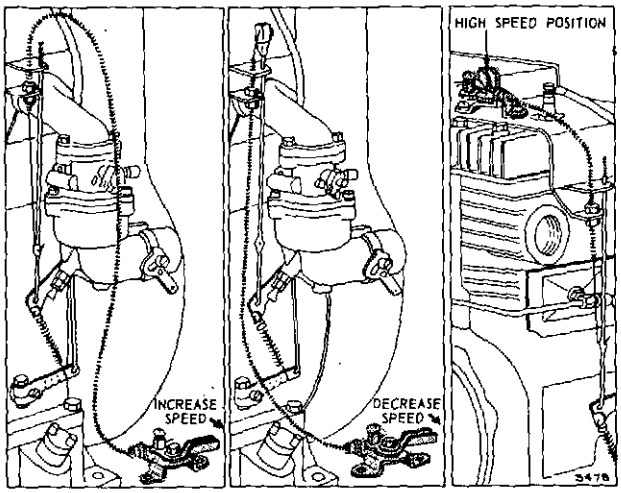
If the speed of the engine is not steady although the carburetor has been properly adjusted, move the spring farther away from the governor lever shaft.

If the speed variation between no load and full load is too great, move spring closer to governor lever shaft.



REMOTE GOVERNOR SPEED CONTROL ADJUSTMENT

Engine speed is controlled by movement of the control lever. To adjust: Move control lever to HIGH speed position. Loosen screw on swivel. Move wire through swivel until desired operating speed is obtained. Retighten swivel screw; bend loose end of wire around swivel. Cut off excess wire. Be sure to remove or loosen thumb screw on governor control rod.



SECTION 5
GENERAL INFORMATION

Your engine is 4 cycle, single-cylinder and L-head. It is air cooled.

MODEL SERIES 200400

Bore	3"
Stroke	2 7/8"
Displacement	20.32 cu. in.
Horsepower	8.0 HP max. @ 3600 RPM
Torque (Ft.-Lbs.)	13.45 max. @ 2600 RPM

MODEL SERIES 233400

Bore	3"
Stroke	3 1/4"
Displacement	22.97 cu. in.
Horsepower	9.0 HP max. @ 3600 RPM
Torque (Ft.-Lbs.)	15.75 max. @ 2400 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.

TUNE-UP SPECIFICATIONS

Spark Plug Gap	.030"
Ignition Point Gap	.020"
Intake Valve Clearance	.007" - .009"
Exhaust Valve Clearance	.017" - .019"

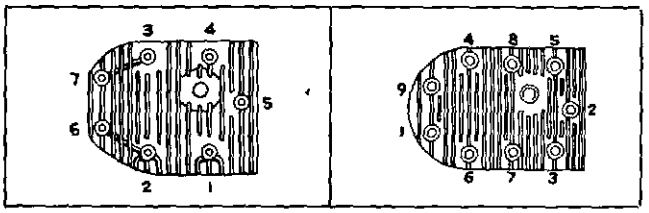
STORAGE INSTRUCTIONS

Engines stored for 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. Remove filter bowl, open shut-off valve and drain tank completely.
b. Replace filter bowl. Leave fuel valve open.
c. Operate engine until it stops from lack of fuel.
d. While engine is still warm, drain and clean the oil sump. Refill with fresh oil.
e. Remove spark plug, pour one ounce (2 or 3 tablespoons) of SAE 30 oil into cylinder and crank slowly to spread oil. Replace spark plug.
f. 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.

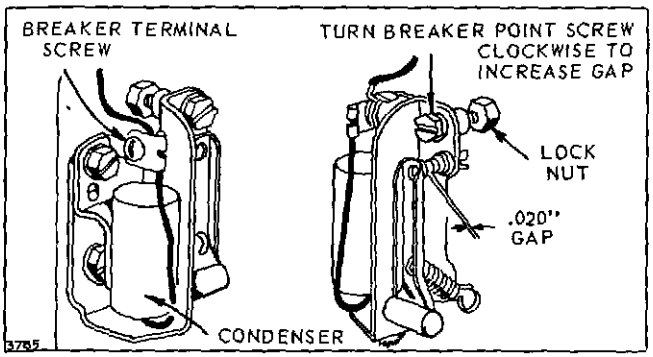
This causes the engine to lose power and prevents the valves from seating properly. Removing the deposits is easy and will pay big dividends in reliability and increased valve life.



SERIES 200400 SERIES 233400

1. Remove cylinder head screws. Be sure to note if screws are of different length and have steel washers as they must be replaced in original position.
2. Turn crankshaft until piston is at top of cylinder bore and both valves are closed. Scrape and wire brush the lead and carbon deposits from cylinder head and combustion chamber.
3. Re-use cylinder head gasket only if in good condition. Replace cylinder head. Turn each screw in with wrench until screw head is lightly seated.
4. Use socket wrench with 6 inch handle and turn all screws 1/4 turn. Tighten screws in sequence illustrated. Run engine approximately 5 minutes and retighten all screws approximately 1/4 turn.

CLEAN AND ADJUST CONTACT POINTS



Remove cover.

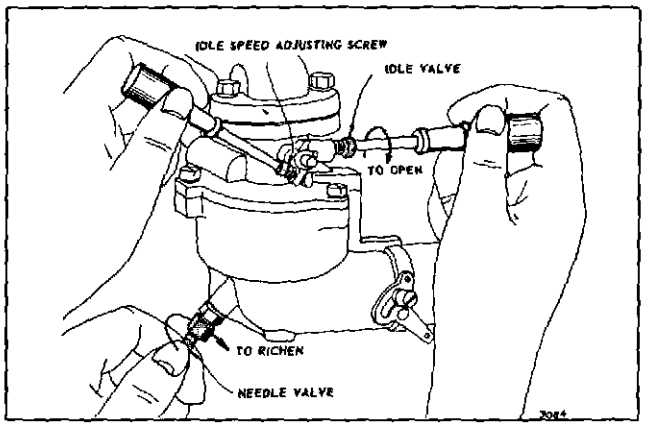
Clean points with a carborundum contact point stone. Then insert a hard finished card or piece of paper and close and open points. The paper will absorb any dirt or filings on the points. Adjust breaker points as follows:

a. Rotate crankshaft until points open to widest gap.
b. Loosen lock nut illustrated above until it is just snug.
c. Rotate breaker point screw to obtain .020" gap.
d. When gap is .020" tighten locknut.
e. Replace breaker box cover.

SECTION 4
ADJUSTMENTS

CARBURETOR ADJUSTMENT

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



Initial Adjustment:

Turn needle valve clockwise until it just closes. CAUTION: Valve may be damaged by turning it in too far.

Now open needle valve 1-1/2 turns counterclockwise.

Close idle valve in same manner and open it 1/2 to 3/4 turns. This initial adjustment will permit the engine to be started and warmed up prior to final adjustment.

Final Adjustment:

Turn needle valve in until engine misses (lean mixture), then turn it out past smooth operating point until engine runs unevenly (rich mixture). Now turn needle valve to the mid-point between rich and lean so the engine runs smoothly.

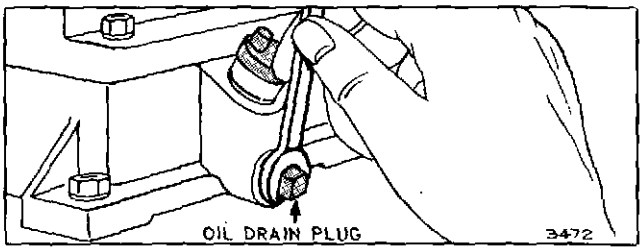
Hold throttle at idle position, set idle speed adjusting screw until fast idle is obtained (1200 RPM). Hold throttle in idle position and turn idle valve in (lean) and out (rich) until engine idles smoothly. Then reset idle speed so that engine idles at 1200 RPM. Release throttle – engine should accelerate without hesitation or sputtering. If engine does not accelerate properly, re-adjust carburetor to a slightly richer mixture.

SPEED CONTROL ADJUSTMENTS

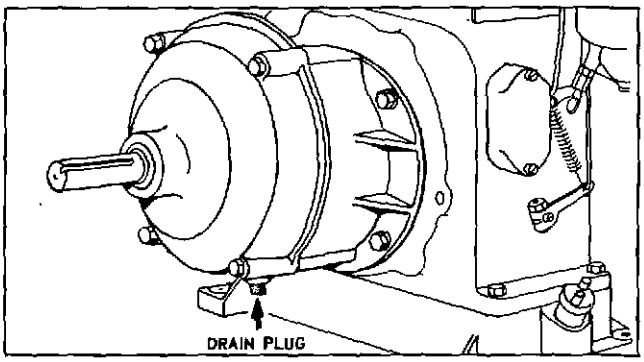
The correct operating speed range is 1800 to 3600 RPM. The standard speed setting (no load) is 2900 RPM. Idle speed is 1200 RPM.

CHECK OIL LEVEL before starting and after every 5 hours of operation. BE SURE OIL LEVEL IS MAINTAINED.

CHANGE OIL (Crankcase) after 5 hours of operation. Remove the oil drain plug. Drain oil while engine is warm. Replace drain plug. Remove oil filler cap or plug and refill with new oil. Replace oil filler cap or plug. Add oil regularly after each 5 hours of operation. Thereafter change oil every 25 hours of operation.

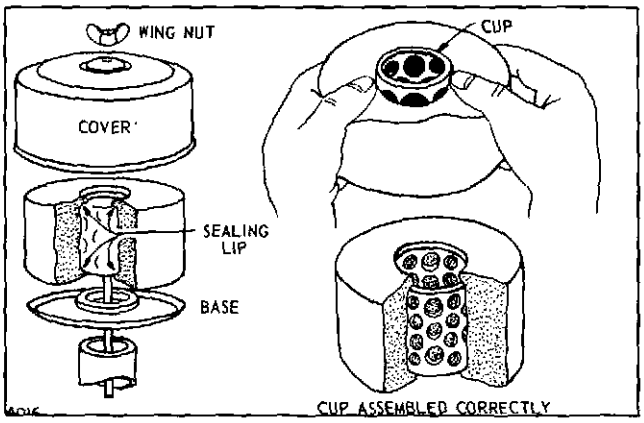


CHANGE OIL (Gear Reduction - Optional) The reduction gears are lubricated by engine crankcase oil. Remove drain plug from gear case cover to drain oil remaining in gear case when crankcase oil is changed.



SERVICING "OIL-FOAM" ® AIR CLEANER

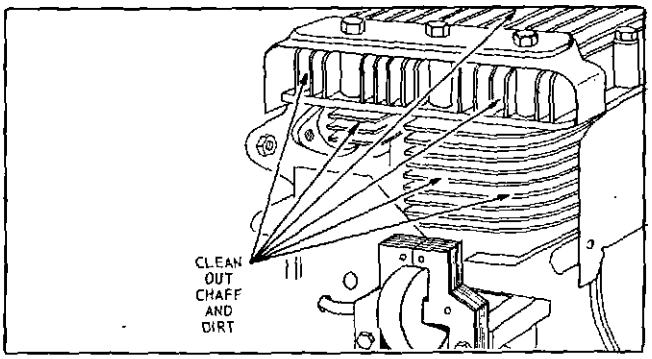
Clean and re-oil the air cleaner frequently (every few hours under extremely dusty conditions). Clean and re-oil at least every 25 hours under normal conditions.



1. Remove wing nut and cover.
2. Lift off foam element from base.
3. Push down foam element as shown and pull out screen.
4. 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 – Put screen inside element. Be sure sealing lip is over end of screen (top and bottom).
5. Reassemble parts as shown. Fasten to engine. Screw wing nut down tight.

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.



DRAIN FUEL TANK AND CLEAN FUEL FILTER

Loosen thumb screw below filter bowl.

Remove and clean filter bowl and screen.

Open shut-off valve to see if fuel flows freely from the tank. IMPORTANT: If you find a gummy, varnish-like substance use alcohol or acetone to dissolve it.

CLEAN SPARK PLUG

Clean spark plug and reset gap at .030" every 100 hours of operation. When worn out replace with AC GC 46, Autolite A71 or Champion J-8.

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.

CLEAN COMBUSTION CHAMBER every 100-300 hours of operation. If the engine operates at constant speed and at relatively constant load, the use of regular automotive fuels results in a gradual build-up of tetra-ethyl lead deposits in the combustion chamber.

SAVE THIS SECTION FOR YOUR RECORD

BRIGGS & STRATTON ENGINE WARRANTY

For ONE YEAR from purchase date, Briggs & Stratton Corp. will replace for the original purchaser, FREE OF CHARGE, any part, or parts, found upon examination by any Factory Authorized Service Center, or by the Factory at Milwaukee, Wisconsin, to be DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP.

All transportation charges on parts submitted for replacement under this Warranty must be borne by purchaser.

There is no other Warranty express or implied. Briggs & Stratton Corp. shall in no event be liable for consequential damages.

BRIGGS & STRATTON CORP.

C. L. COUGHLIN – PRESIDENT

NOTE: The Briggs & Stratton Engine Warranty does not cover breakage of parts or damage to parts due to abuse or failure to follow the recommended maintenance procedures. The warranty also excludes any accessories, controls or equipment which are not manufactured by Briggs & Stratton Corporation.

If warranty service is needed contact your nearest Authorized Service Center. For Prompt Attention your center will need to know the engine model, type and code number, the trouble experienced and the total number of hours the engine has run. If you differ with the decision of a Service Center on a warranty claim, ask the Service Center to submit all supporting facts to the Factory for review. If the Factory decides that your claim is justified, you will be fully reimbursed for those items accepted as defective.

FILL IN THE REQUIRED INFORMATION:

Engine Model No. _____ *Type No.* _____ *Code No.* _____

Dealer Purchased From _____ Date _____

Type of Equipment _____

Name or Trademark of Equipment Manufacturer _____

(See Illustration on Page 1 to locate Model, Type and Code Number)

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 6).

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 12,000 authorized dealers available to serve you.

FOR REPAIRS AND SERVICE CONTACT THE DEALER DISPLAYING THIS SIGN

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

2,669,322	2,796,453	3,114,851	3,149,618	3,194,224	3,252,449	DESIGN		
2,693,789	2,999,491	3,118,433	3,165,094	3,236,997	3,276,439	D-191,806	D-196,017	D-197,175
2,693,791	2,999,562	3,144,097	3,168,936	3,242,741	3,378,099	OTHER PATENTS PENDING		