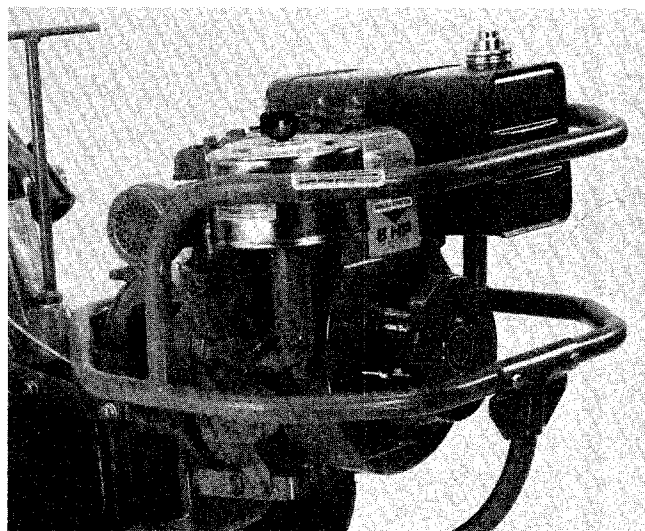


# Controls and Operation of 8 HP Briggs & Stratton Engines

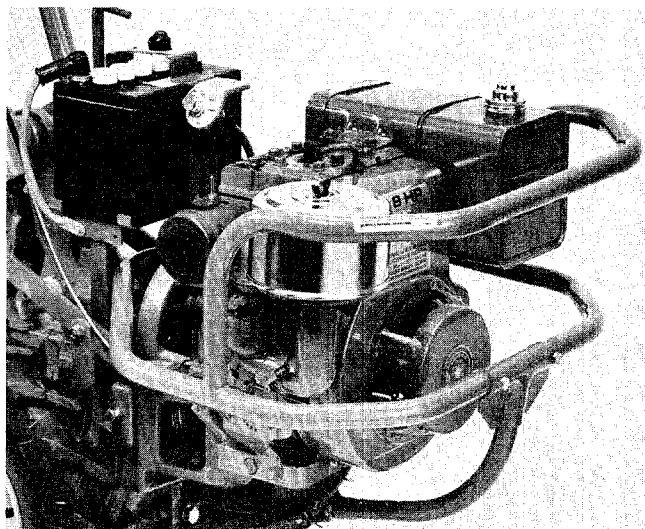
If you have an 8 HP Briggs & Stratton engine (shown in Photos 4/44 and 4/45), then please carefully read the following information about its controls and operation before attempting to start it. Also, be sure to consult the Engine Owner's Guide that came with your new engine.

Please note that your engine is a four-cycle, air-cooled, gasoline-powered engine. **DO NOT MIX OIL WITH YOUR GASOLINE.**

The engine comes equipped with a solid state electronic ignition that does not use breaker points or a condensor. This means you will never need a conventional tune-up (all you have to do is change the spark plug once a year).



**4/44—8 HP recoil-start engine.**



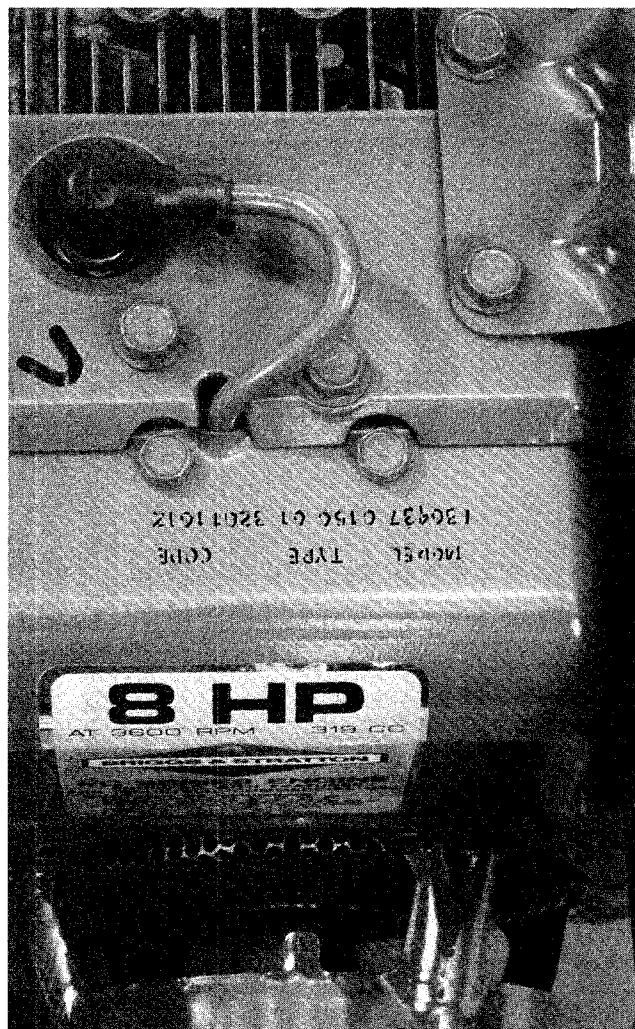
**4/45—8 HP electric-start engine.**

## RECORD YOUR ENGINE MODEL AND SPECIFICATION NUMBER

If you ever need engine service or parts, your Authorized Briggs & Stratton Engine Service Dealer will need to know your engine's model and type number. As shown in Photo 4/46, this information has been stamped into the top of the blower housing, midway between the chrome air cleaner and the fuel cap. To record this information, simply fill in the blank spaces below:

**MODEL NUMBER:** \_\_\_\_\_

**TYPE NUMBER:** \_\_\_\_\_



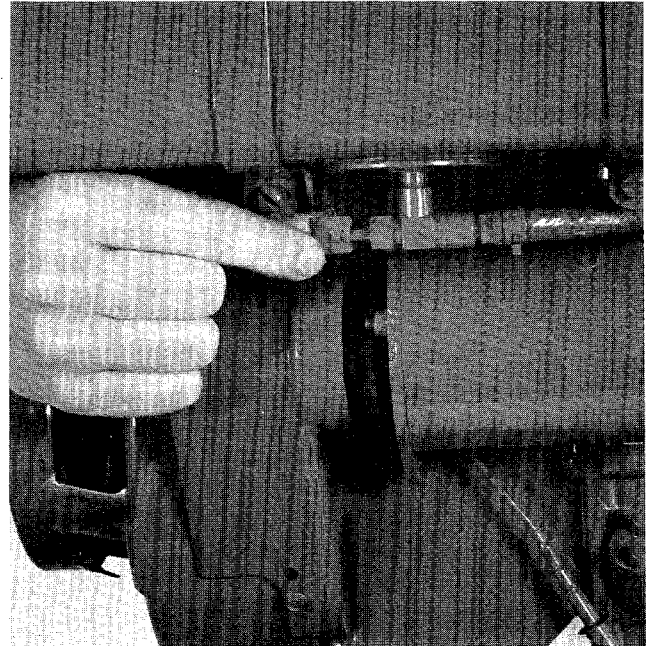
**4/46—8 HP model and type numbers.**

## Fuel Valve (8 HP)

Your engine has a fuel valve (Photo 4/47) that is located on the left side of the engine, just below the fuel tank.

This valve allows you to shut off the fuel supply to the carburetor when you are done using the engine. This prevents seepage of gasoline into the engine, which is especially important when you are going to store the machine for a long period of time. It also gives you some additional protection against unauthorized use of your machine . . . at least by anyone not familiar with this special feature.

Before starting the engine, be sure to open the valve by turning it in a counterclockwise direction.



**4/47**—Open fuel valve before starting 8 HP engine.

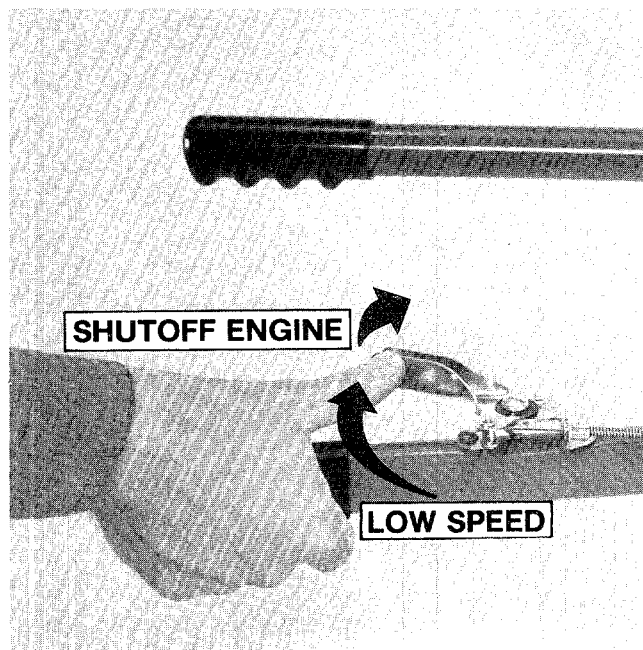
## Engine Throttle Lever (8 HP)

The engine throttle lever on your right handlebar (Photo 4/48) provides you with convenient remote control operation of engine speeds.

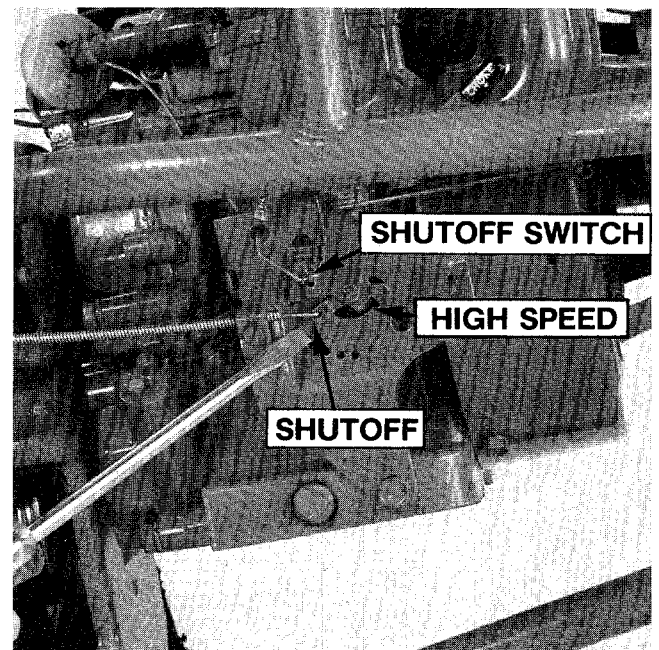
It also has a STOP position which allows you to shut off either the recoil start or the electric-start engine from the operator's position. This is another control (besides the Forward/Neutral/Reverse

Lever) that can be used to stop all machine motion.

When the lever is pushed all the way back and to the Left (Photo 4/48), it will engage the engine shut-off switch, automatically stopping the engine. Photo 4/49 shows how the throttle arm connected to the end of the cable moves backwards until a tab behind the lever comes over and touches a grounding point on the bracket, which is connected to the shutoff switch.



**4/48**—Push left for engine shut-off—8 HP.



**4/49**—Shut-off position at engine—8 HP.

If you open the throttle lever by moving it to the Right (Photo 4/50), you obtain the full range of engine speeds from idle to full engine speed.

When starting a cold engine, place the lever at the Start position, which is just a slight distance away from the Stop position. This setting provides a sufficient flow of gasoline to the carburetor to start the engine. Of course, starting a cold engine also requires the use of the manual choke (discussed next), which provides the engine with a richer fuel-to-air mixture for starting.

Allow the engine to warm up at a slow throttle speed setting, which helps prevent damage to the engine parts until they are thoroughly lubricated. NOTE: When restarting a warm engine, the throttle lever should also be placed at the start position, but use of the manual choke will probably not be required.

Your throttle cable was attached to the engine at the factory and should be properly adjusted at this time. As you practice using the lever, check to make sure that it moves to the positions shown in Photo 4/49. If it doesn't, then you should readjust the throttle cable settings, as explained in Section 7.

## Manual Choke (8 HP)

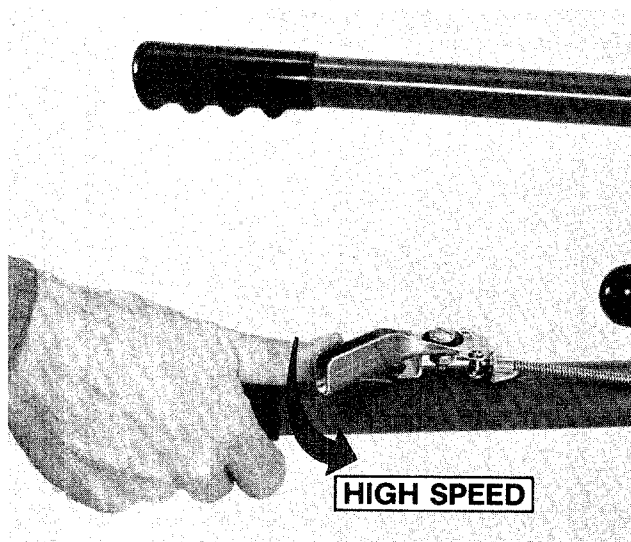
The manual choke is located on the pipe (air horn) that connects the air cleaner to the carburetor—see Photo 4/51.

When the choke lever is pushed all the way down for Full Choke, it cuts off most of the air supply to the carburetor to provide the rich fuel mixture required for starting the engine. This position should be used when starting a cold engine.

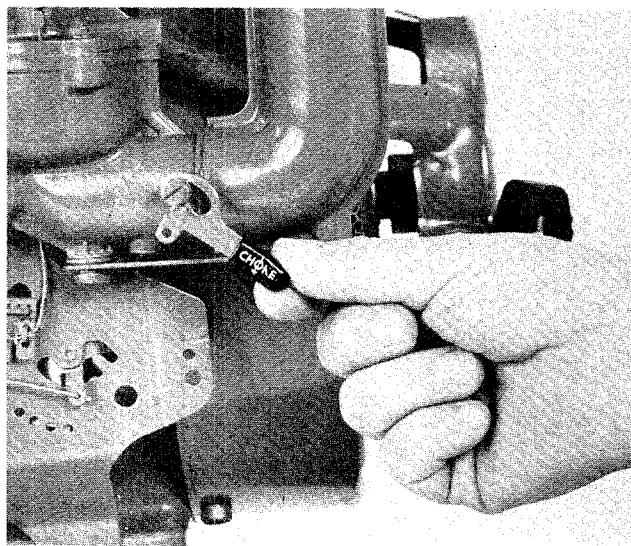
Once the engine starts, move the lever to a halfway position. This increases the air supply to the carburetor for a leaner running mixture. As the engine warms, return the lever all the way up to the Choke Off position (Photo 4/52).

When restarting a warm engine, you may not have to choke at all. However, if the engine falters, then try using Half Choke until it runs smoothly, and then return to Choke Off.

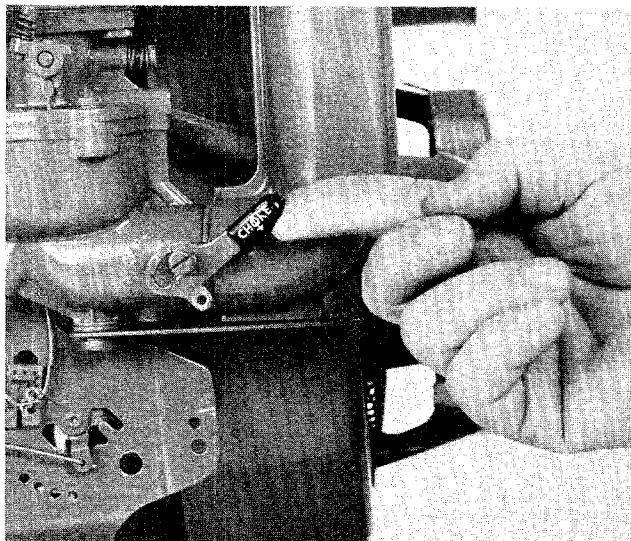
Never operate the engine under a load without having the lever at the Choke Off position. Failure to do so can quickly build up deposits that are harmful to the engine.



**4/50—Push right for higher speeds—8 HP.**



**4/51—Full Choke position—8 HP.**



**4/52—Choke Off position—8 HP.**



## Engine Oil (8 HP)

Nothing is more important to good engine performance and long life than using fresh, clean motor oil of the proper grade and viscosity.

Check the engine oil level prior to each day's operation and at least after every five hours of operation. Doing so can prevent a ruined engine due to a lack of sufficient oil.

The oil level must always be maintained up to the point of OVERFLOWING, as shown in Photo 4/53. See Section 1 for instructions on how to check and add oil.

Always use a good quality oil that is classified SF or SE. Straight #30 weight oil should be used in temperatures above 40°F. (If #30 weight oil is unavailable, then #10W-30 can be substituted.) For colder temperatures, please see the oil recommendations in Section 6 of this manual.

With a new engine, change the oil after the first 5 operating hours. Thereafter, change the oil after every 10 operating hours. If operating in extremely dusty, dirty or dry conditions, change the oil more often—even every 5 hours should not be considered excessive. See Section 6 for oil changing instructions.

## Carburetor (8 HP)

The carburetor (Photo 4/54) provides the combustion chamber with the proper air/fuel ratio for a wide range of operating conditions. Factory settings should be correct for average operating conditions—do not make unnecessary adjustments.

If an adjustment is ever needed (due to differences in fuel, altitude or temperature), please see the carburetor setting instructions in Section 7 of this manual.

## Air Cleaner (8 HP)

Your engine has a dual element air cleaner that filters the air twice before it enters the carburetor (see Photo 4/55).

The outer, polyurethane foam ring is a pre-cleaner that filters the air first. The inner, dry paper fiber cartridge then filters the air a second time.

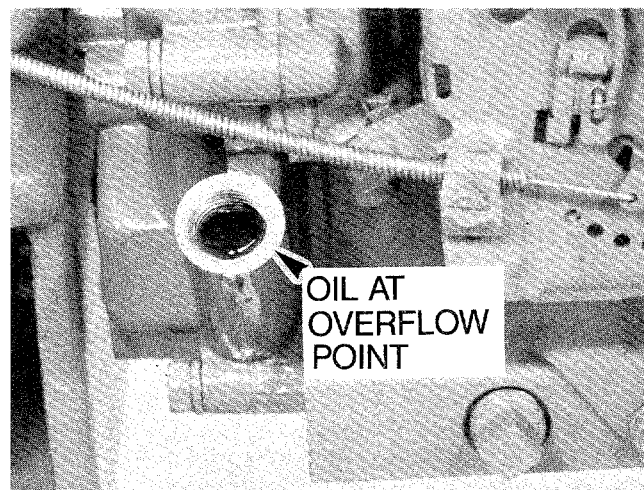
At every 25 hours of operation or every three months, whichever comes sooner, clean and re-oil the foam ring. At every 100 hours of operation or annually, whichever comes sooner, inspect the paper cartridge for damage or dirt and clean or replace it if necessary.

**IMPORTANT:** Inspect and service filters more often if used in extremely dusty or dirty conditions.

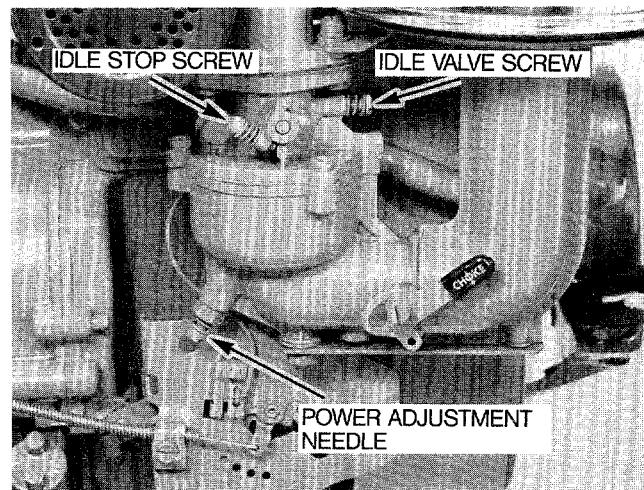
Always make sure that the entire air cleaner assembly is snug and tight and never operate the

engine without the complete assembly in place.

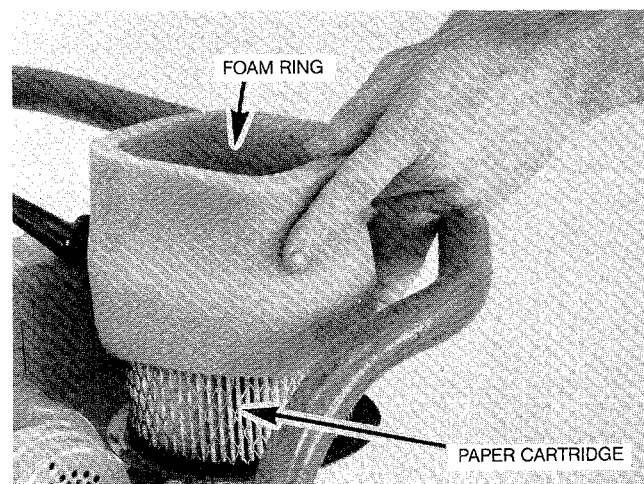
See Section 6 for air cleaner servicing instructions.



**4/53—Maintain oil at overflowing point—8 HP.**



**4/54—Carburetor on 8 HP engine.**



**4/55—Check air cleaner often for dirt—8 HP.**

## Governor (8 HP)

Your engine has a governor that prevents the engine from exceeding safe operating limits and also adjusts engine speeds according to varying load conditions.

The governor is set at the factory and adjustments should not be necessary. If you think the governor is not working correctly, it should be checked by an Authorized Briggs & Stratton Engine Service Dealer, who has the proper equipment and experience to do so.

**CAUTION:** Do not attempt to gain more power by tampering with the governor setting. Doing so can cause personal injury, as well as serious damage to the engine.

## Spark Plug (8 HP)

The spark plug (Photo 4/56) provides the spark to the engine to ignite the fuel mixture in the combustion chamber. The spark plug wire must be securely attached to the plug before attempting to start the engine.

To obtain full engine performance, the spark plug must be in good condition. Although a plug can usually be cleaned (do not sandblast) and reused, they are so inexpensive that we recommend a new one be installed at the beginning of each year, or at least after every 50 hours of use.

See Section 6 for spark plug servicing instructions.

**IMPORTANT:** To prevent accidental starting, always remove the cable from the spark plug and place it safely away from the plug and fuel tank area. Be careful not to touch the wire while the engine is running!

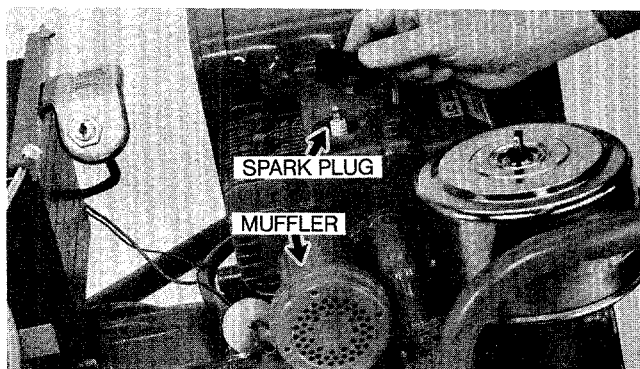
## Muffler (8 HP)

The muffler (shown in Photo 4/56) reduces the noise level of the engine exhaust.

Please be careful never to touch the muffler while it is hot. The temperature of the muffler and nearby areas may exceed 150°F. Keep hands and face away from muffler!

During the first few hours of operation, the paint on the muffler may melt, resulting in a burning smell. This is not harmful to the muffler, and the smell will soon go away.

**CAUTION:** Always wait until the engine and muffler are **COOL** before refueling the engine. Accidental spilling of gasoline on a hot engine or muffler can cause a fire or explosion. Replace corroded mufflers whenever there is a hole in the muffler.



**4/56—Remove spark plug wire to prevent accidental starting. Always avoid touching hot muffler.**

## Fuel Specifications (8 HP)

Fresh, clean, "regular grade leaded or low-lead" gasoline is recommended for your engine. (Unleaded gasoline is an acceptable substitute if leaded or low-lead is not available). **DO NOT MIX OIL WITH GASOLINE.**

The fuel tank has a 1½ gallon capacity and is side-mounted to provide a full flow of fuel at just about all angles of operation—see Photo 4/57. In addition, there is a fuel filter (discussed next) between the tank and the carburetor.

Avoid using gasoline that is not fresh, as stale fuel can cause gum deposits to form in the carburetor and fuel lines. Fuel should not be stored for more than six months. If the engine is not to be used for some time, be sure to see the off-season storage instructions in Section 6.

When adding gasoline, fill to within ½-inch of the top to prevent spillage and to allow for fuel expansion. Wipe off any spilled gasoline and move machine away from gasoline fumes before starting engine.

**WARNING: USE EXTREME CAUTION WHEN HANDLING, STORING AND USING GASOLINE. IT IS HIGHLY VOLATILE AND EXPLOSIVE IN VAPOR STATE.** Keep lighted cigarettes or other open flames away from the fuel tank or storage container. Never fill fuel tank when engine is running or hot, as spilled fuel can ignite on hot parts or from ignition spark. Fill fuel tank outdoors, never in an enclosed area. Store gasoline only in an approved container and safely out of reach of children. Store in a well-ventilated area away from any flame or spark-producing equipment. Do not store tiller with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing indoors. Never run engine indoors or in enclosed, poorly ventilated areas. Engine exhaust contains carbon monoxide, an odorless and deadly gas. When adding gasoline to electric start engines, avoid contacting any portion of the battery or its cables with a gas can. If a spark should occur, it could cause an explosion.

## Fuel Filter (8 HP)

Your engine is equipped with a fuel line filter (see Photo 4/58) that strains impurities out of the gasoline before it reaches the carburetor.

You should not have to replace the filter for perhaps several years and regular maintenance is not required.

If for some reason the filter has to be removed or replaced, instructions for doing so can be found in Section 7 of this manual.

## 8 HP Electric Start Engine Information

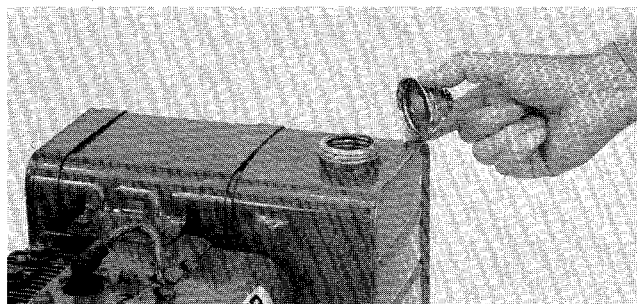
The 8 HP Electric Start engine has a 12-volt battery that provides easy engine starting, even in cold weather.

When you turn the key to the Start position, the battery supplies current to the engine's starter motor, which then cranks the engine over to start it.

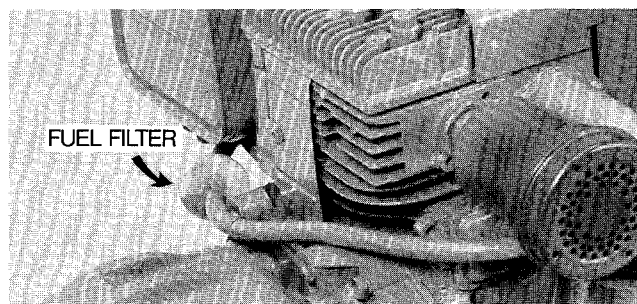
During engine operation, the engine sends a small current back to the battery, which automatically recharges the battery. This is accomplished by a solid state, single diode that allows the current coming from the engine to pass as direct current into the battery, at a very low amperage (see Sketch 4/59). Always keep the recharging line connected to insure a fully charged battery.

Remember when starting the engine that you must first set the manual choke and the throttle lever at the Start positions, so that the engine receives the proper fuel mixture when you then turn the key to Start (complete starting instructions follow this information). When the engine starts, release the key and it will return to the Run position.

To stop the engine, simply push the throttle control on the handlebar all the way to the left. Then, turn the key to OFF. You can also stop the engine with the key alone, but you may want to first slow down the engine speed to avoid an abrupt stop.



**4/57—Engine must be off, and cool, before adding gasoline.**

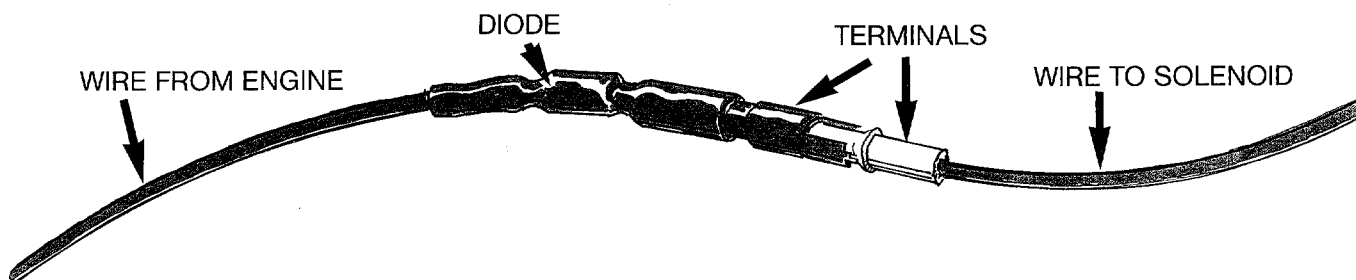


**4/58—8 HP fuel line filter.**

Be sure to always remove the key when leaving the machine unattended and to keep the key (and its spare) in a secure, but easily remembered place.

If your electrical system should ever fail to start or stop the engine, then you should refer to the "Electric Start Troubleshooting" information found in Section 7. There you will also find instructions on how to start your engine with the recoil rope (after first taking the necessary steps to protect the electrical system from harm).

To keep your battery in top-notch condition, be sure to see the "Battery Maintenance" and "Off-Season Storage" instructions in Section 6. Before working on or near the battery, be sure to heed all of the battery safety cautions and warnings that accompany the instructions in this manual.



**4/59—To recharge the battery automatically, a small current from the engine flows through the diode to the solenoid terminal and into the battery, via the battery's positive cable.**

# Starting the 8 HP Briggs & Stratton Engine

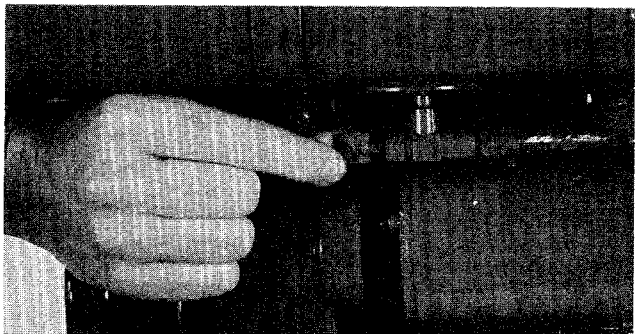
**CAUTION:** Do not run engine in an enclosed or poorly vented area. Exhaust gases contain carbon monoxide, an odorless and deadly poison!

If you have followed all of the instructions up to here, then you're ready to start the engine for the first time.

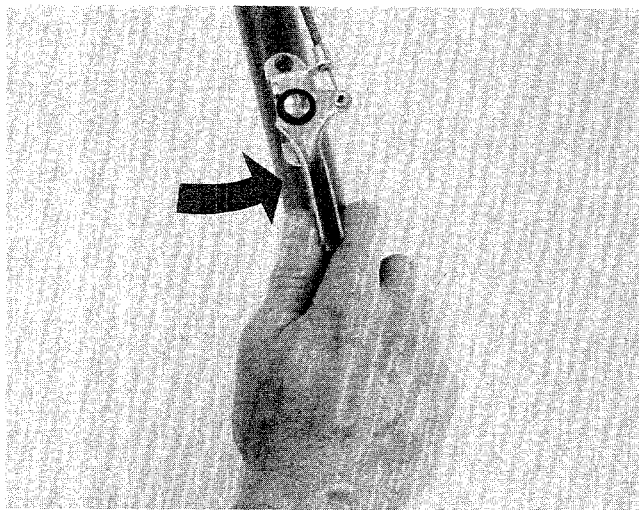
First, make sure that you have gasoline in the fuel tank and that the spark plug wire is attached to the spark plug. Also, remember to always check the oil level prior to each day's operation.

**NOTE:** At this time, practice starting and stopping the **ENGINE ONLY**. Please don't try to drive the tiller until you see the step-by-step operating instructions in Section 5 of this manual.

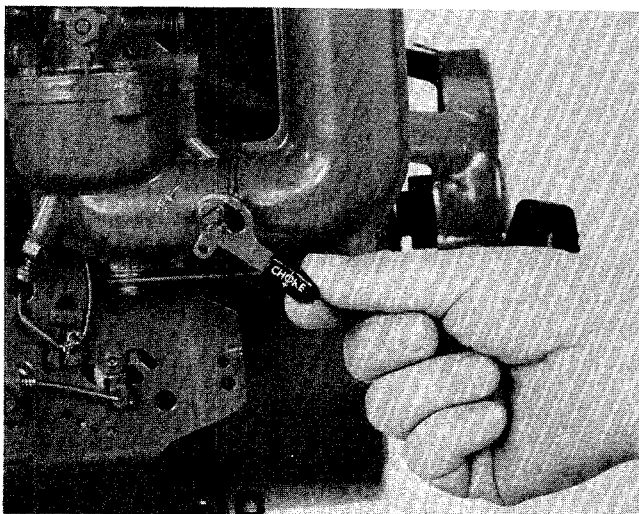
1. Place the Forward/Neutral/Reverse Lever in NEUTRAL.
2. Engage the wheels by pushing the Wheel Speed Shift Lever DOWN for Slow Wheel Speed. Roll tiller back and forth a few inches to fully engage lever.
3. Move the Depth Regulator Lever all the way DOWN, so that the tines are clear of the ground.
4. Open the fuel valve under the gas tank by turning it in a counterclockwise direction (Photo 4/60).
5. Open the throttle lever on the handlebar a short distance to the right from the stop position—see Photo 4/61.
6. Move the choke lever down to the Full Choke position (Photo 4/62).
7. **RECOIL START MODEL**—Grasp the starter rope handle and slowly pull the cord until you feel resistance (Photo 4/63). Then pull the cord out rapidly . . . but let it back in slowly. You may have to try this several times until the engine catches. (Be sure there is nothing behind you when you pull the cord.)



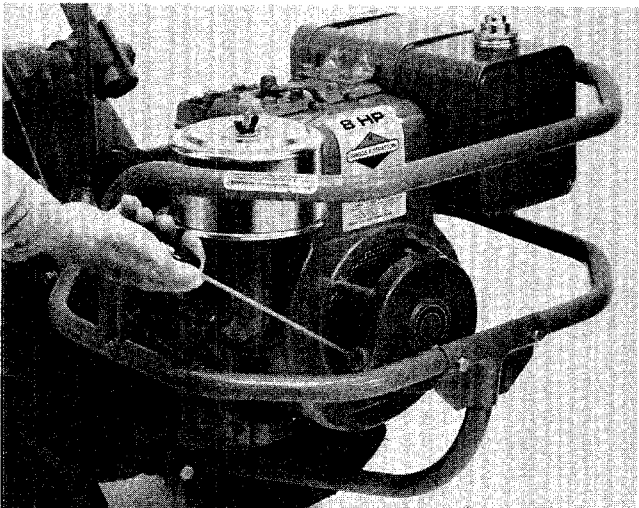
**4/60—Open fuel valve—8 HP.**



**4/61—Move lever to right to start—8 HP.**



**4/62—Full choke position—8 HP.**



**4/63—Pull recoil rope to start—8HP.**



**ELECTRIC START MODEL**—Insert your key all the way in the slot and turn it to START (Photo 4/64). Hold it at Start for no more than 10 seconds. You may have to try this several times before the engine catches. (Allow the engine to come to a complete halt before each restart attempt.) When the engine starts, release the key . . . it will automatically return to the RUN position. (You can also start the electric model with the recoil rope, but only after you follow the steps described in “In Case of a Dead Battery” in Section 7.)

**8.** When the engine starts and is running, keep the throttle lever at a slow running position and move the choke lever to Half Choke. Then, as the engine warms, move the choke to Choke Off. (After the engine has been operating for ten minutes or more, it probably won't be necessary to choke the engine to restart it).



**4/64—Turn key to Start position—8 HP.**

## Stopping the 8 HP Engine

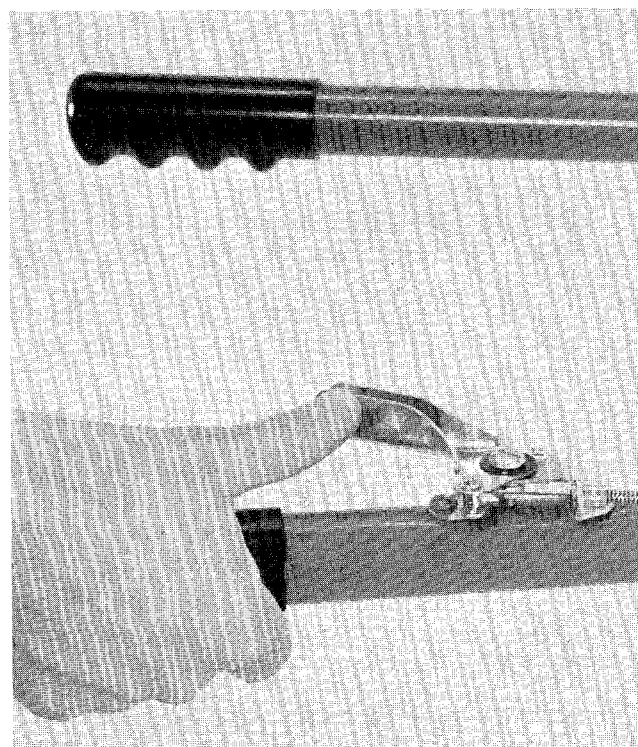
**1.** To stop wheels, tines, or attachments any-time, place the Forward/Neutral/Reverse Lever in NEUTRAL.

**2. RECOIL START MODEL**—Push the Throttle Lever all the way to the Left (Photo 4/65). If the engine doesn't shut off automatically, push the choke lever down to Full Choke to stop the engine. Then see “Throttle Cable Hookup and Adjust-ments” in Section 7 to correct the problem. Important: Only stop the engine with the choke in emergencies, since repeated use of it can be harmful to your engine.

**ELECTRIC START MODEL**—You can shut off the engine two ways, with the throttle lever or with the key switch.

**a.** Push the Throttle Lever all the way to the Left, as explained in Step 2, above. Then turn the key to OFF.

**b.** Or, turn the key to OFF. (Remove the key for safe-keeping. We suggest you keep the key in an easily found place, but secure from children, who shouldn't be allowed to use the engine.) If the key switch won't stop the engine when you turn it to “OFF”, please see “Electric Start Troubleshooting” in Section 7.



**4/65—Push left to stop engine—8 HP.**

**PLEASE SEE SECTION 5 OF THIS MANUAL FOR COMPLETE DETAILS ON HOW TO  
OPERATE YOUR TROY-BILT HORSE MODEL!**