Professional Shop Manual

25 cc Back Pack Blower

NOTE: These materials are for use by trained technicians who are experienced in the service and repair of outdoor power equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. These materials are intended to provide supplemental information to assist the trained technician. Untrained or inexperienced individuals should seek the assistance of an experienced and trained professional. Read, understand, and follow all instructions and use common sense when working on power equipment. This includes the contents of the product's Operators Manual, supplied with the equipment. No liability can be accepted for any inaccuracies or omission in this publication, although care has been taken to make it as complete and accurate as possible at the time of publication. However, due to the variety of outdoor power equipment and continuing product changes that occur over time, updates will be made to these instructions from time to time. Therefore, it may be necessary to obtain the latest materials before servicing or repairing a product. The company reserves the right to make changes at any time to this publication without prior notice and without incurring an obligation to make such changes to previously published versions. Instructions, photographs and illustrations used in this publication are for reference use only and may not depict actual model and component parts.

MTD Products Inc - Product Training and Education Department

FORM NUMBER - 769-02765

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Table of Contents

1. INTRODUCTION

The 25cc backpack blower is a full crank, piston ported, 2-cycle blower. It was introduced in the 2006 season under a variety of brand names. This blower has 25cc's of displacement and produces a maximum of 485cfm at 170 mph.

Figure 1.1

Disclaimer: This handbook was written using a prototype. The information contained in this handbook is correct at the time of writing. Both the product and the information about the product are subject to change without notice.

About the text format:

NOTE: is used to point-out information that is relevant to the procedure, but does not fit as a step in the procedure.

CAUTION: is used to point-out potential danger to the technician, operator, bystanders, or surrounding property.

- **Bullet points**: indicate sub-steps or points.

Disclaimer: This Professional Shop Manual is intended for use by trained, professional technicians.

- Common sense in operation and safety is assumed.
- In no event shall MTD be liable for poor text interpretation, or poor execution of the procedures described in the text.
- If the person using this manual is uncomfortable with any procedures they encounter, they should seek the help of a qualified technician.

Fasteners:

- Most of the fasteners used on the blower are sized in fractional **inches**. Some are **metric**. For this reason, wrench sizes are frequently identified in the text, and measurements are given in U.S. and metric scales.
- If a fastener has a **locking feature** that has worn, replace the fastener or apply a small amount of releasable thread locking compound such as Loctite® 242 (blue).
- Some fasteners like cotter pins are single-use items that are not to be reused.
  Other fasteners such as lock washers, retaining rings, and internal cotter pins (hairpin clips) may be reused if the do not show signs of wear or damage. This manual leaves that decision to the judgement of the technician.

Assembly:

Torque specifications may be noted in the part of the text that covers assembly, they may also be summarized in tables along with special instructions regarding locking or lubrication.

Whichever method is more appropriate will be used. In many cases, both will be used so that the manual is handy as a quick-reference guide as well as a step-by-step procedure guide that does not require the user to hunt for information.

The level of assembly instructions provided will be determined by the complexity and of reassembly, and by the potential for unsafe conditions to arise from mistakes made in assembly.

Some instructions may refer to other parts of the manual for subsidiary procedures. This avoids repeating the same procedure two or three times in the manual.

Model and serial numbers

There are two sets of model and serial numbers on this blower. The first is the engine model and serial number. These numbers can be ignored because they are not used. The model and serial number for this blower are on a little white sticker with bar code. These are the numbers needed when ordering parts. This sticker can be found on the starter housing by the spark plug. See Figure 1.2.

Figure 1.2

The model and serial number sticker will be next to the gray engine information tag. See Figure 1.3.

Figure 1.3

The model number and serial number are printed with a small type face, above the bar code. See Figure 1.4.

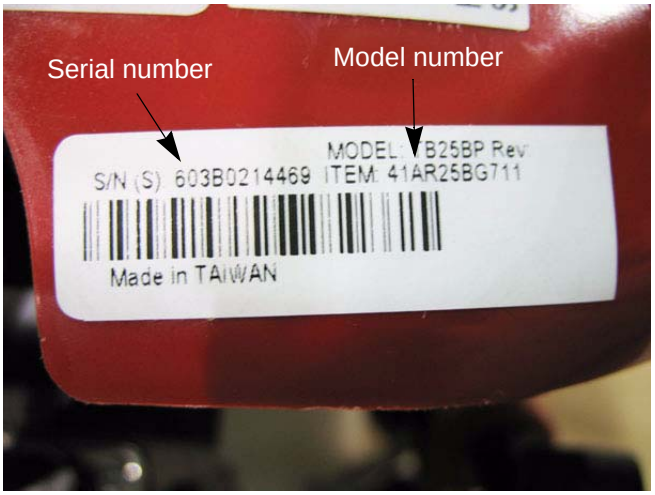

Figure 1.4

IMPORTANT: Engine disassemble and reassemble are not covered in this manual because it is not economical to rebuild the engine. No short block is available for this blower.

2. PERIODIC MAINTENANCE

Periodic maintenance consists of:

- Changing the spark plug.
- Cleaning the air filter.
- Cleaning the spark arrester
- Replacing the fuel filter.
- Cleaning the carburetor.

NOTE: The maintenance intervals listed in this manual are those specified in the owners manual. The time intervals should be adjusted to meet the local conditions.

The spark plug

The spark plug should be replaced every 20 hours of use.

When checking the spark plug, a dry, light colored residue on the plug is a sign of running lean. Check the fuel mixture and adjust the carburetor.

If there is a thick, wet, black residue on the plug the engine is running rich. Check the fuel mixture and adjust the carburetor.

There should be a dry tan coating on the plug. this would indicate the proper mixture.

1. To remove/replace the spark plug

   1a. Remove the spark plug wire . See Figure 2.1.

   NOTE: Do not use metal pliers on spark plug wires. Damage to the wire can result.

Figure 2.1

1b. Remove the spark plug with a 5/8” spark plug socket. See Figure 2.2.

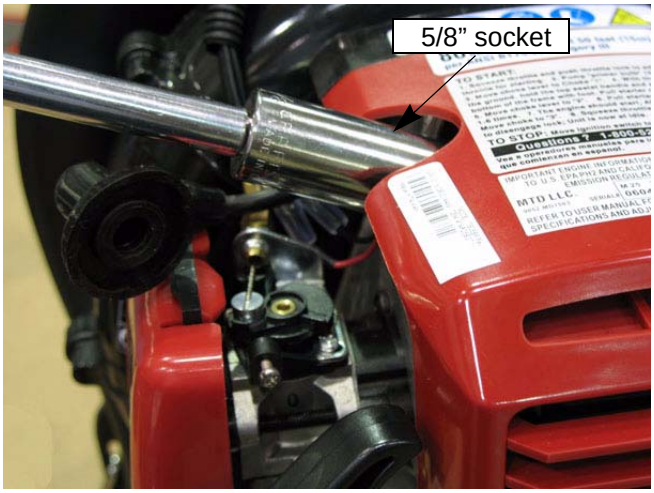

Figure 2.2

1c. Replace the spark plug with a RDY7Y spark plug.

NOTE: Do not clean the spark plug mechanically (sand blasting or scraping). This will damage the insulator.

1d. Gap the electrode to .025”(.635mm).

1e. Thread the spark plug into the spark plug hole.

NOTE: Tighten the spark plug to a torque of 120 in. lbs.(12 -15 Nm).

1f. Push the spark plug wire onto the spark plug until it snaps into place.

Air filter

A dirty air filter can reduce engine power, increase fuel consumption and make starting more difficult.

The air filter should be cleaned every 10 hours of use.

2. To clean/replace the air filter:

2a. Press down the tab on the air filter cover and swing the cover down. See Figure 2.3.

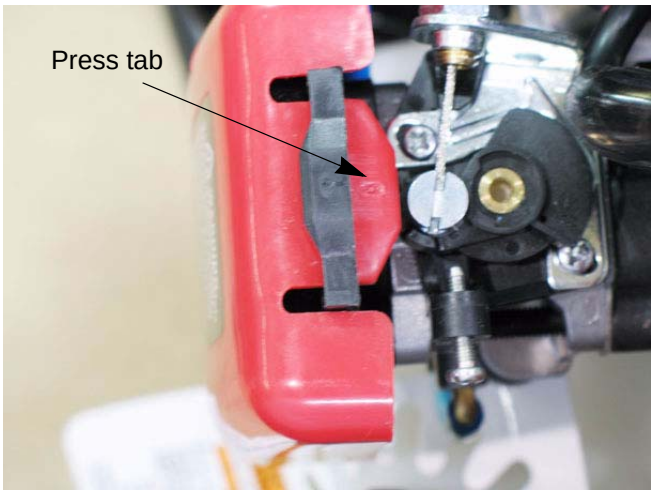

Figure 2.3

2b. Remove the foam air filter. See Figure 2.4.

Figure 2.4

2c. Wash the filter in warm soapy water, rinse and let it air dry.

IMPORTANT: Always replace a damaged filter.

2d. Apply a light coating of oil to the air filter.

2e. Fit the filter in the air filter base. See Figure 2.4.

2f. Swing the cover back in place. make sure the tab snaps into place.

Spark arrestor

The spark arrestor should be checked and/or cleaned every 10 hours of use.

NOTE: The spark arrestor also serves to keep blockages out of the exhaust system. Typical blockages include insect nests built during the dormant season.

3. To check/clean the spark arrestor:

3a. Remove the spark plug as describe in the spark plug section of this chapter.

3b. Remove the four screws holding the starter housing on. See Figure 2.5.

Figure 2.5

3c. Slide the starter housing off.

3d. Remove the two screws holding the heat shield on with a T-20 torx driver. See Figure 2.6.

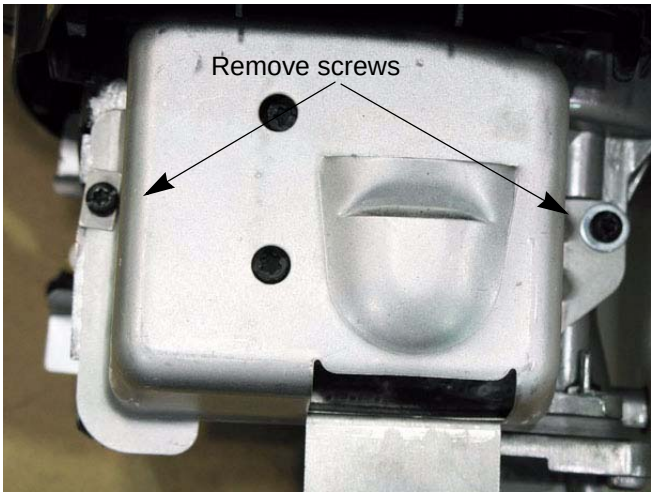

Figure 2.6

3e. Remove the three screws holding the spark arrestor cover on with a number 1 phillips screw driver. See Figure 2.7.

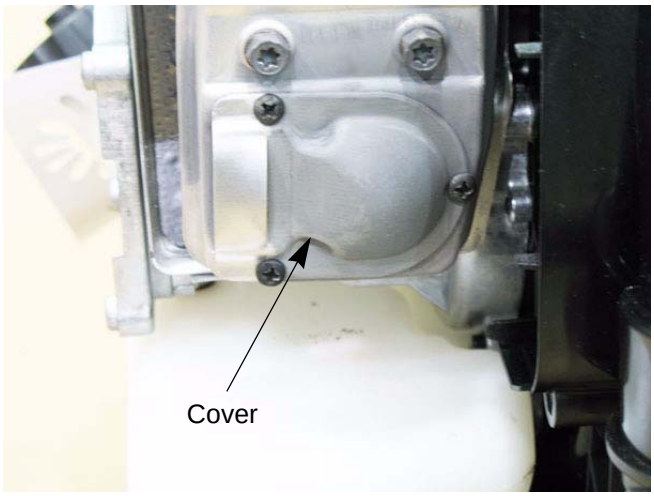

Figure 2.7

NOTE: The spark arrestor screen is part of the muffler and can not be replaced. If the screen is damaged, replace the muffler. See Figure 2.8.

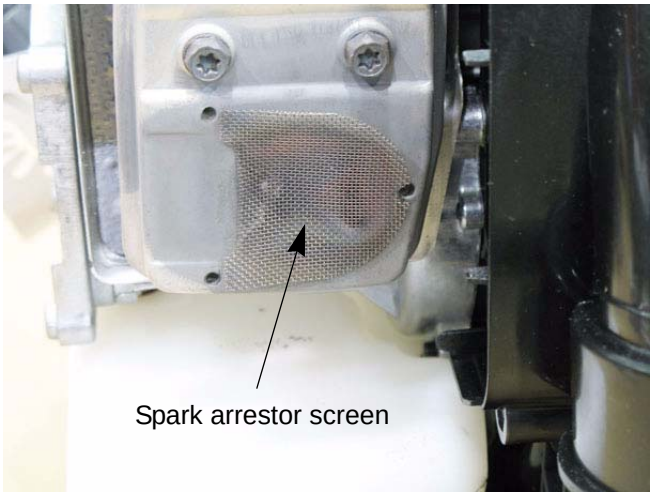

Figure 2.8

3f. The screen can now be inspected. If it is blocked with carbon, it may be:

- Replaced with a new muffler
- Cleaned by mechanical means
- Solvent cleaned
- Burned clean using a butane or propane torch.

NOTE: This is an air cooled engine. In order to work properly there must be good air flow over the fins of the engine. It is recommend to clean the cylinder fins of any debris while the starter is removed.

3g. Reassemble the blower following the steps just described in reverse order.

Fuel filter

A dirty fuel filter can result in a lean run condition. The fuel filter should be replaced every 10 hours of use.

NOTE: The weighted fuel filter (clunk) keeps the filter submerged in the fuel at any angle of operation. Running the blower without the filter may allow air to be entrapped in the fuel line creating a lean run condition at higher RPMs. This will cause a catastrophic failure of the engine.

4. To clean/replace the fuel filter:

4a. To service the fuel filter take a piece of wire and bend a hook on one end of it. See Figure 2.9.

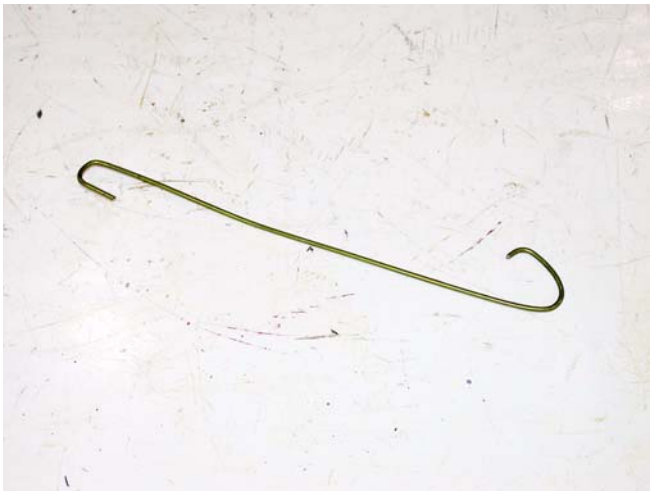

Figure 2.9

4b. Remove the gas cap.

4c. Stick the hook end of the wire into the fuel tank and fish out the fuel filter. See Figure 2.10.

Figure 2.10

4d. Carefully remove the fuel line from the barb on the fuel filter. Clean or discard the old fuel filter. See Figure 2.11.

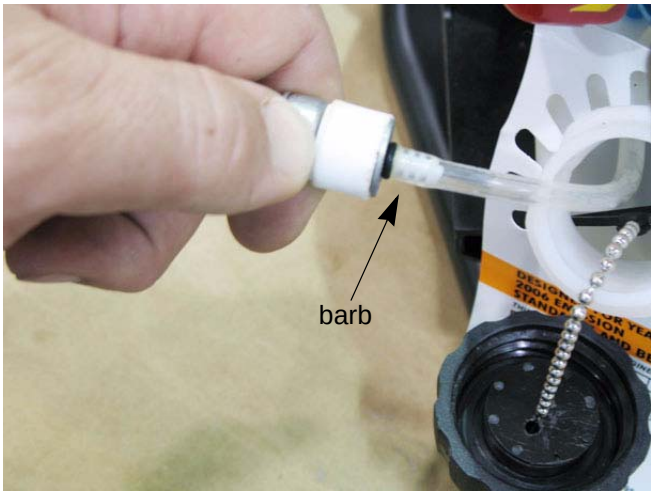

Figure 2.11

4e. Inspect the fuel lines. Replace if they are cracked.

4f. Install a new filter by following the steps just covered in reverse order.

4g. Test run blower before returning to service.

3. INITIAL TROUBLE SHOOTING

The first step in diagnosing an engine problem is to perform the periodic maintenance. A majority of the poor run or no start conditions will be solved just by doing the required maintenance. After the periodic maintenance is done:

1. Drain and inspect the fuel from the fuel tank:

- Look for water.
- Look for dirt.
- Look for discoloration.
- Sniff carefully to see if it smells like varnish.
- Save to show to customer.

To check the fuel in the carburetor:

1a. Get a plain piece of paper.

1b. Divide it into four sections and label them:

- Plain gas
- Two cycle mix
- Gas from carburetor
- Straight oil

1c. Get a sample of fuel from the carburetor and pour it on the section of the paper labeled sample from carburetor. See Figure 3.1.

Figure 3.1

1d. Place a sample of two cycle mix where it says two cycle mix, straight gas with straight gas and straight oil with straight oil. See Figure 3.2.

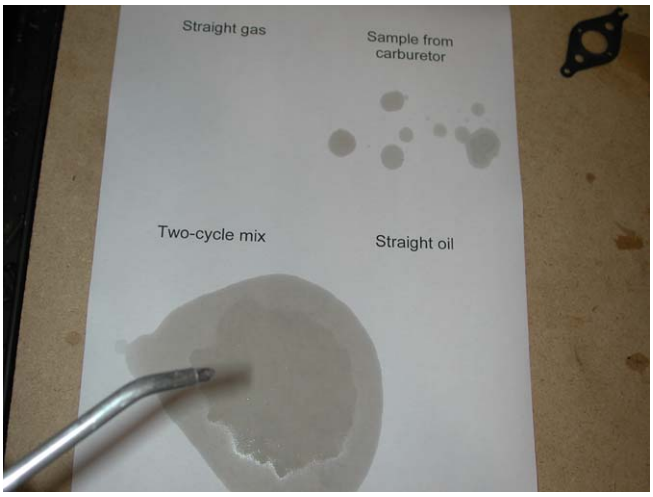

Figure 3.2

1e. Match the sample from the carburetor to the other three samples. This will show if the proper mix is being used or not. See Figure 3.3.

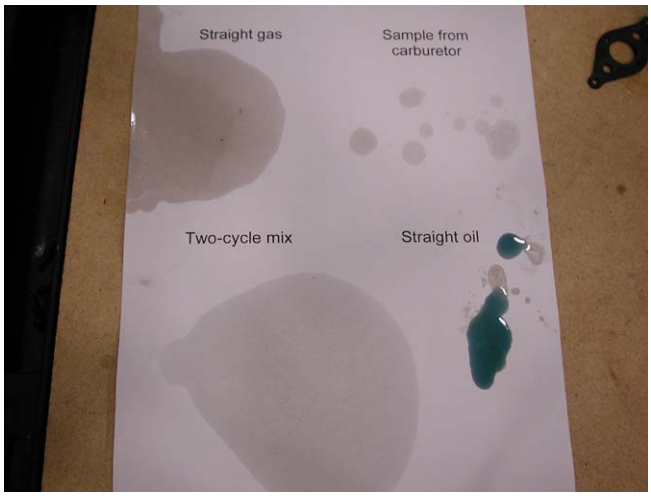

Figure 3.3

1f. Before returning to service, put fresh fuel/oil mix in the fuel tank.

2. Inspect the spark plug:

- What does the spark plug look like?
- A wet fowled plug indicates the engine is running rich
- A light colored coating on the plug would mean the engine is running lean.

3. Inspect the air filter:

- What does the air filter look like? Dirt-blocked, oil soaked, missing, wrong filter?
- Look for signs of dirt ingestion.
- A dirty air filter would restrict air flow.
- A missing air filter means that the engine has ingested dirt that could damage the piston and cylinder.

NOTE: Most gasoline engine diagnosis involves isolating problems in the four critical factors an engine needs to run properly:

Ignition- sufficient spark to start combustion in the cylinder, occurring at the right time.

Compression- enough pressure in the cylinder to convert combustion into kinetic motion. It also needs sufficient sealing to generate the vacuum needed to draw in and atomize the next intake charge.

Fuel- correct type and grade of fresh gasoline/oil mix; in sufficient quantity, atomized (tiny droplets) and in correct fuel mix/air proportions.

Flow- if all of the above conditions are met, but the flow of air is constricted on the inlet or exhaust side it will cause the engine to run poorly or not at all.

4. To isolate the ignition system and compression from the carburetor system:

4a. Prime the engine through the carburetor throat using a squirt bottle.

4b. Verify that the engine stop switch is in the engine run (1) position.

4c. Attempt to start the engine.

NOTE: If the engine starts and runs long enough to burn the prime, the problem is effectively isolated to the fuel system. proceed to the Troubleshooting the Fuel System section of this manual.

4d. If the engine fails to burn the prime, check the compression.

NOTE: If compression is OK, check ignition system as described in the Troubleshooting the Ignition System section of this manual.

5. To perform a compression test:

NOTE: If the engine will run, start the engine and let it warm up first for a better reading.

5a. Remove the spark plug.

5b. Screw the compression tester into the spark plug hole. See Figure 3.4.

Figure 3.4

5c. Pull the starter rope until the needle on the compression gauge stops moving.

5d. Read the gauge. See Figure 3.5.

Figure 3.5

NOTE: If the engine has less than 110 psi (7.6 bar) compression, the carburetor will not have enough vacuum to draw fuel into the engine.

- The engine will have to be torn down to determine the cause of the low compression.
- If the engine has more than 155 psi (10.7 bar), the engine will not breath properly.
- Check for restrictions in the exhaust.

6. Test run the engine before returning it to service.

4. TROUBLESHOOTING THE IGNITION SYSTEM

The purpose of the ignition system is to provide and deliver a spark to ignite the fuel/air charge in the cylinder at the proper time. The ignition system uses four components to accomplish this. They are the module, flywheel, spark plug and the engine run switch.

1. To test the ignition system:

   1a. Make sure the engine run switch is in the on (1) position.

   1b. Disconnect the spark plug wire.

   1c. Connect a spark tester to the spark plug wire.

   1d. Connect the other end of the spark tester to the engine block. See Figure 4.1.

Figure 4.1

CAUTION: Never remove the spark plug and hold it against the engine block to test for spark. The fuel/air mix coming out of the spark plug hole will catch on fire.

NOTE: The spark should be a minimum of 10 Kv (10,000 volts) at pull over speed.

1e. Pull the starter rope and watch the spark tester. If sparks are seen in the spark tester, the ignition system is working. Replace the spark plug.

1f. If no sparks are seen in the spark tester further testing is required.

2. To test the module:

   2a. Remove the blower housing as described in the blower housing chapter of this manual to expose the module.

   2b. Check the air gap for the module. Set it to .010 (.25 mm) by following the steps described in the chapter on the ignition system.

   2c. Disconnect both wires. See Figure 4.2.

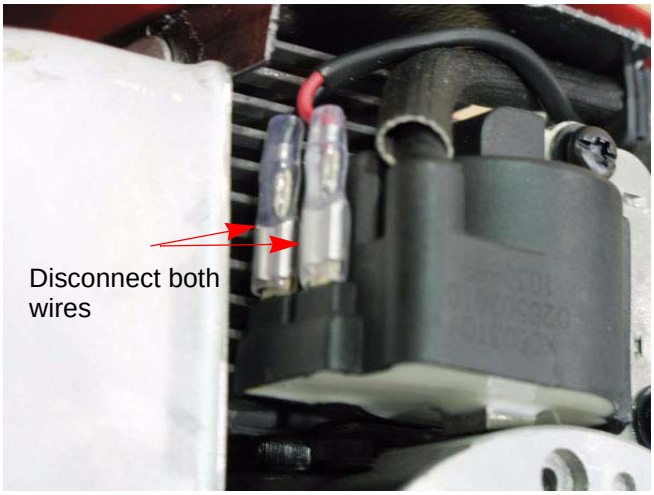

Figure 4.2

   2d. Try to start the engine with the spark tester still hooked up.

- If there is spark now, test the engine kill switch and check the black wires for a short to ground.
- If there is still no spark, hold a screwdriver against the magnets on the flywheel to feel if they are magnetic.
- If the magnets are good, replace the module. If not replace the flywheel.

3. To test the engine stop switch:

   3a. Open the grip by removing the six screws with a T-20 driver.

   NOTE: The bottom screw needs a T-25 torx driver.

3b. Disconnect the wires from the engine kill switch. See Figure 4.3.

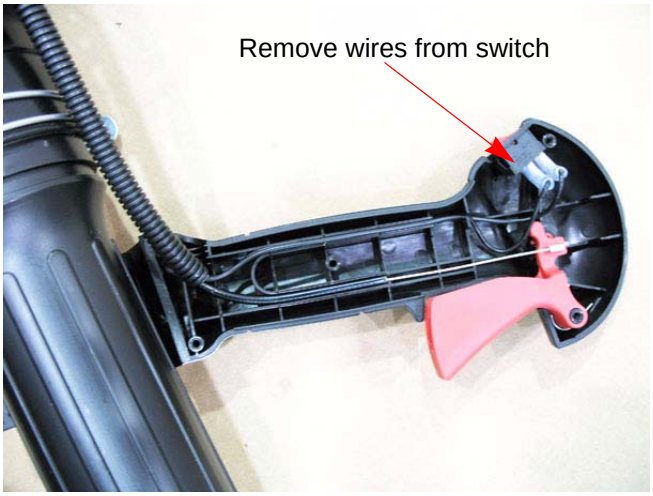

Figure 4.3

3c. Connect an ohm meter or continuity light to the switch.

3d. With the switch in the engine run position (I), the meter should indicate no continuity. See Figure 4.4.

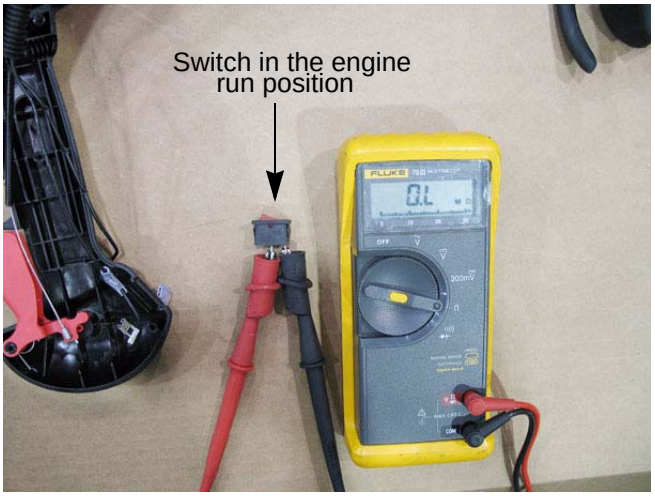

Figure 4.4

NOTE: Most stop switches are spring loaded to the run position when it is released. This prevents no-start situations caused by the customer failing to turn the switch on.

3e. Hold the switch in the stop position (0). The meter should indicate continuity. See Figure 4.4.

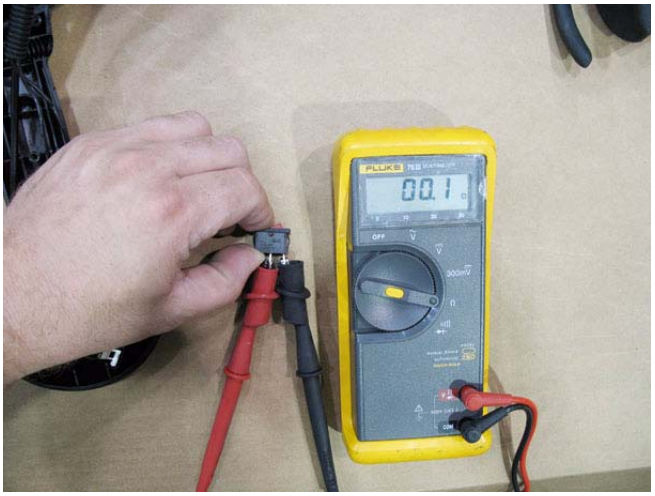

Figure 4.5

- If the results are not as described, the switch is bad and should be replaced.
- If the switch is working properly, there is a short in the wires.

4. If there is reason to suspect that the ignition timing is off:

   4a. Remove the blower housing by following the steps described in the section on the blower housing.

   4b. Make sure the module air gap is correct by following the steps described in the chapter on the ignition system.

   4c. Inspect the flywheel. If the flywheel is damaged, replace the flywheel.

   4d. Remove the flywheel by following the steps in the chapter on the ignition system.

   4e. Inspect the flywheel key, If damaged replace the key.

   4f. Inspect the key way on the crank shaft for damage, if damaged short block the engine.

5. Assemble and test run the engine before returning it to service.

5. TROUBLESHOOTING THE FUEL SYSTEM

The function of the fuel system is to store, mix the fuel/oil mixture with air and deliver it to the engine. The fuel system consists of the following components:

- Fuel tank
- Fuel lines
- Fuel filter
- Carburetor (will be covered in a separate chapter)

When troubleshooting the fuel system follow these steps:

1. Drain and inspect the fuel:
   - 1a. Look for water.
   - 1b. Look for dirt.
   - 1c. Look for discoloration.
   - 1d. Sniff carefully to see if it smells like varnish.
   - 1e. Verify the fuel is the proper mix by following the steps described in the chapter on initial troubleshooting.
   - 1f. Save the fuel to show to customer.
2. Inspect the fuel filter. If it is dirty, replace it following the steps described in the section on Fuel System Repair in this manual. See Figure 5.1.

Figure 5.1

3. Inspect the fuel lines:
   - 3a. Are they cracked?
   - 3b. Are they clogged?
   - 3c. Are they brittle?

   NOTE: If the answer to any of the above is yes, replace the fuel lines following the procedure described in the chapter on the Fuel System Repair.
4. The fuel cap is vented. Ensure that the vent is clean and working properly. See Figure 5.2.

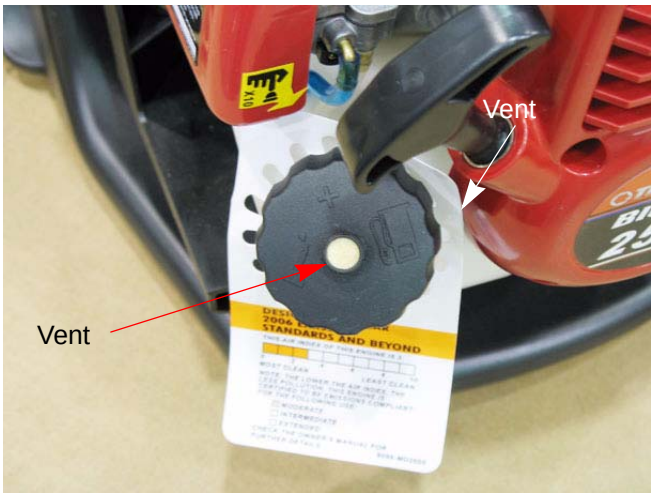

Figure 5.2

5. Test and inspect the primer bulb:
   - 5a. Is it leaking or is it brittle?
   - 5b. If so, replace the primmer bulb.
   - 5c. Does it circulate fuel when pumped?
   - 5d. If not, replace the primer.
6. If compression, ignition and fuel supply are OK, but it does not run with fresh fuel repair/replace the carburetor as described in the Carburetor Repair section.
7. Test run the engine before returning it to service.

6. TROUBLESHOOTING/REPAIRING THE CARBURETOR

Typically, troubleshooting the carburetor is the last step in the diagnostic process. The other factors are more readily identified; spark vs. no spark, specific pressure readings on a compression gauge, or a visible blockage in the muffler. Carburetor function is more subtle. While specific problems with a carburetor can be identified on tear-down, identification of the carburetor as the location of the problem is usually done by process of elimination.

1. To troubleshoot the carburetor:

1a. Remove the air filter cover as described in the chapter on Periodic Maintenance.

1b. Remove the two screws in the air filter housing with a T-25 torx driver. See Figure 6.1.

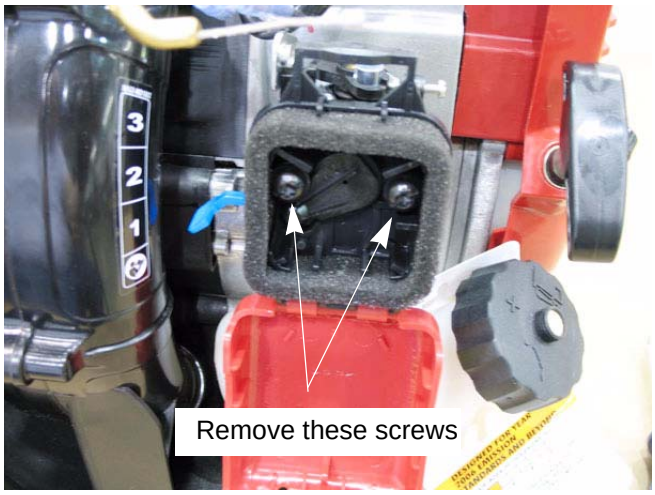

Figure 6.1

1c. Disconnect the fuel lines.

1d. Unhook the throttle cable end from the carburetor and slide it out of the bracket.

NOTE: It is easier for reassembly to leave the threaded ferrule in place and slide the cable out.

1e. Inspect and clean the vent under the primer body for debris. See Figure 6.2.

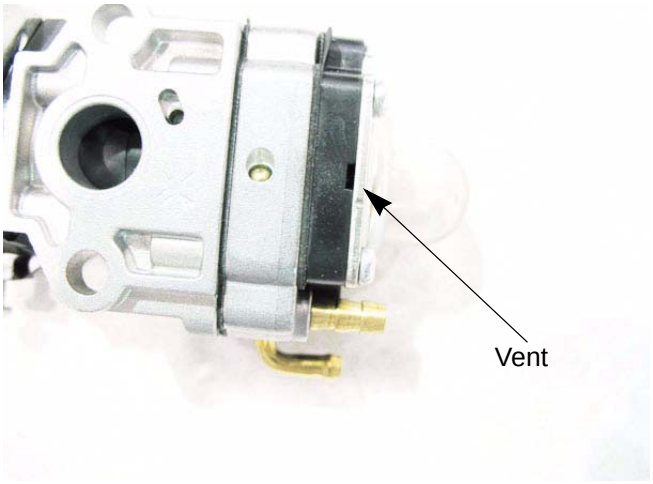

Figure 6.2

1f. If the carburetor is running lean:

- Inspect the carburetor spacer for cracks.
- Inspect the spacer gasket.

NOTE: A cracked spacer or a leaking gasket between the spacer and the cylinder could result in a lean run or prevent the impulses from the engine from driving the fuel pump. To remove the spacer, remove the two screws with a T-25 torx driver and swing the spacer with the heat shied away. See Figure 6.3.

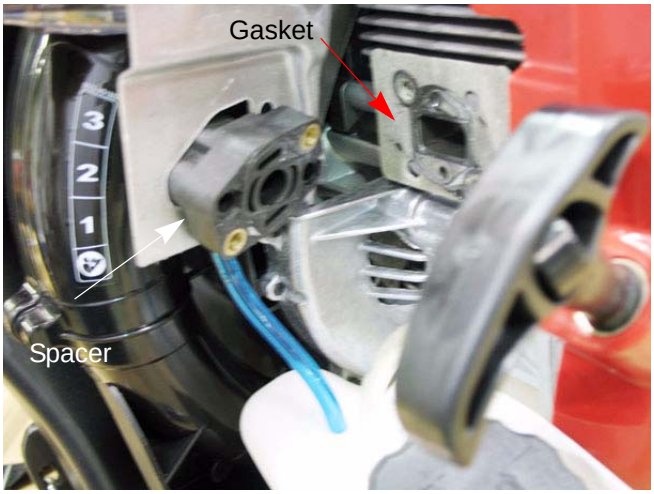

Figure 6.3

1g. Inspect the throttle valve assemble for debris and freedom of movement. See Figure 6.4.

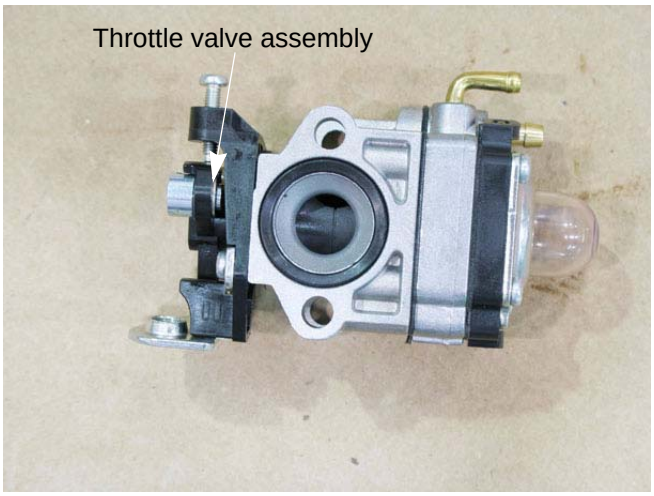

Figure 6.4

1h. If there is a problem with the throttle valve assembly, check on availability and price of parts to determine if the carburetor should be repaired or replaced.

2. Disassemble the carburetor:

2a. Remove the for screws in the carburetor.

2b. Inspect the diaphragms. If torn, damaged or brittle install a diaphragm kit.

2c. Inspect for dirt or varnish build up inside the carburetor. If there is a lot of dirt/varnish in the carburetor, replace it.

2d. Check that the needle valve is set to the right height. See the carburetor manufacturer for the proper procedure.

2e. Inspect the needle valve and seat.

2f. If the seat is damaged, replace the carburetor.

NOTE: If there is a minor amount of dirt/varnish in the carburetor or debris and/or damage to the needle valve, install a rebuild kit.

3. To rebuild/repair a carburetor:

3a. Place the carburetor in a clean area on the work bench.

3b. Remove the four screws going through the primer bulb housing with a #0 phillips screwdriver.

3c. Separate the carburetor, placing each part on the bench in the order they came apart.

3d. Inspect the metering valve and the metering valve seat for dirt and/or pitting. See Figure 6.5.

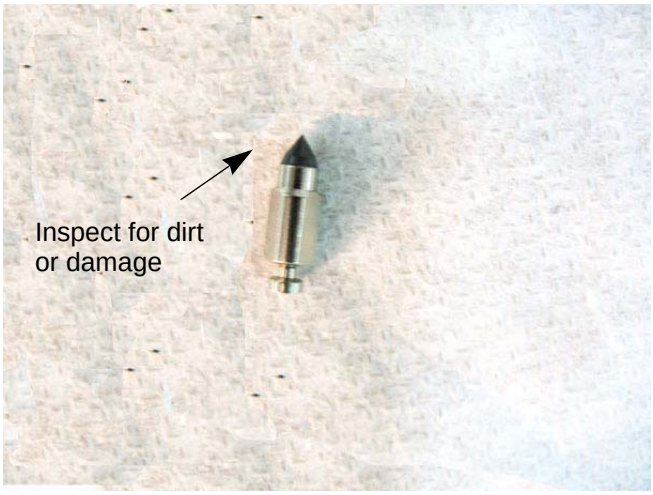

Figure 6.5

3e. If the metering valve seat is damaged replace the carburetor. See Figure 6.6.

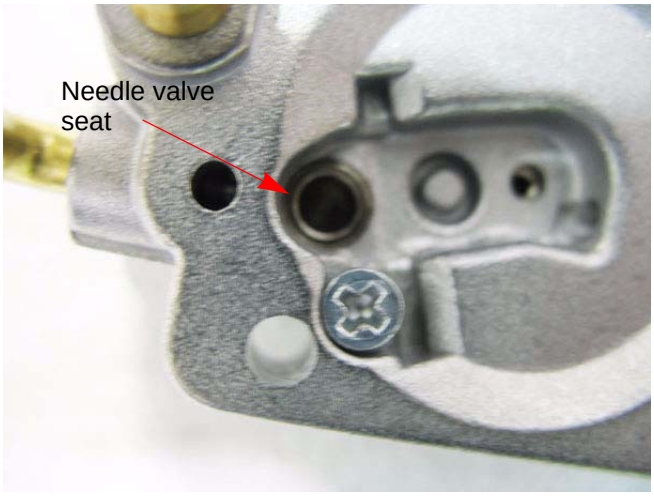

Figure 6.6

3f. Inspect the metering valve body, primer pump body and the venturi housing for dirt and/or varnish.

NOTE: If there is a minor amount of dirt/varnish in the carburetor it would be worth while to clean and rebuild the carburetor by following the procedures recommended by the carburetor manufacturer.

NOTE: If there is a lot of dirt/varnish in the carburetor, replace the carburetor.

3g. Clean the ventri and the metering valve housings.

3h. Inspect the diaphragms for brittleness and/or damage.

NOTE: The carburetor used in this manual is a Walbro. Depending on the application the engine may have a different carburetor. All carburetors have a manufacturer name cast on them. It is advisable to contact the carburetor manufacturer for the proper rebuild procedure.

3i. Clean the metering orifice with carb cleaner.

CAUTION: Do not insert anything into the orifice to clean it. That will damage the orifice resulting in the carburetor being unrepairable.
See Figure 6.7.

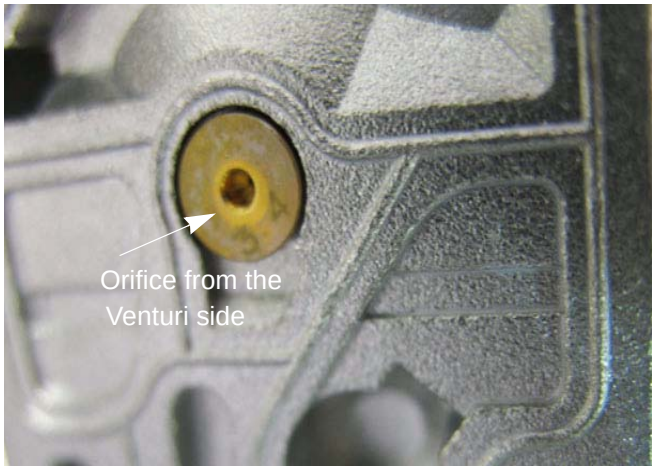

Figure 6.7

3j. The fuel pump in the carburetor is driven by vacuum pulses in the intake port. The impulse port from the spacer lets the vacuum pulses into the pump camber.
See Figure 6.8.

Figure 6.8

3k. Make sure this port is clean and free of debris.

3l. Set the needle valve lever as per the carburetor manufacturer's recommendations using a W-tool. See Figure 6.9.

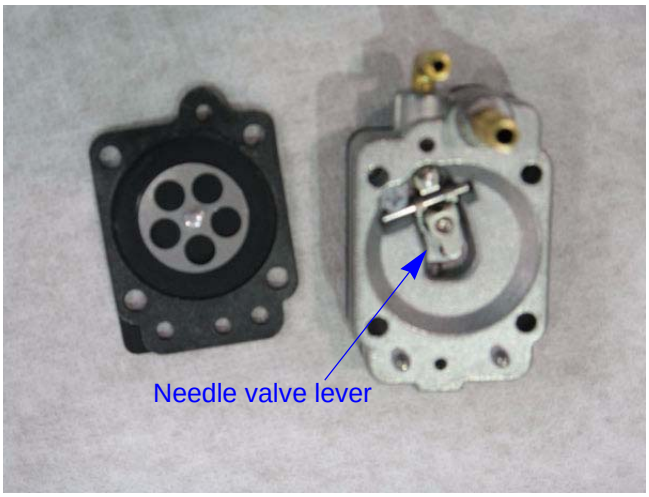

Figure 6.9

3m. There are ports in the metering valve body. it is important to make sure they are clean and free of debris.

3n. Follow steps in reverse order to rebuild the carburetor.

4. Perform a needle valve pop off test by following the carburetor manufacturer's recommendations.

5. Install the carburetor on the engine.

6. Test run the engine before returning it to service.

7. BLOWER HOUSING AND IMPELLER

1. Remove the back pack

1a. Remove the nut at the top of the back pack. See Figure 7.1.

Figure 7.1

1b. Remove the two nuts on the bottom of the back pack. See Figure 7.2.

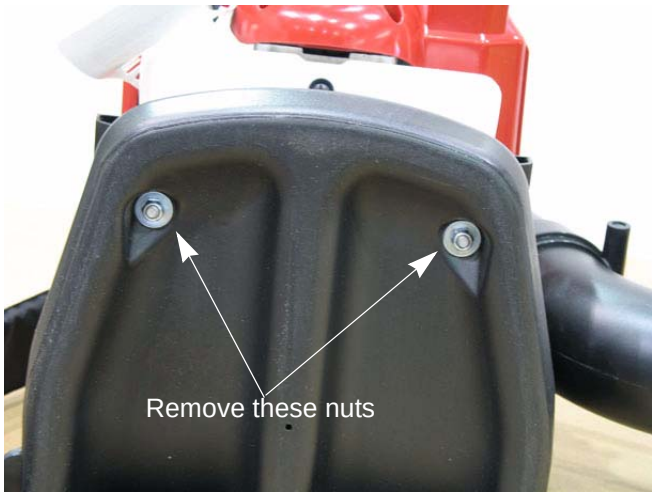

Figure 7.2

1c. Disconnect the two wires by the carburetor. See Figure 7.3.

Figure 7.3

1d. Disconnect the throttle cable from the carburetor by following the steps described in the chapter on the Carburetor.

NOTE: If the impeller is the only part to be worked on, it is not necessary to disconnect the two wires or the throttle cable.

1e. Slide back pack off of the blower.

1f. If the throttle cable is wire tied to the back pack mount, cut the wire tie.

2. Remove the blower cover.

2a. Remove the six perimeter screws with a T-25 torx driver. See Figure 7.4.

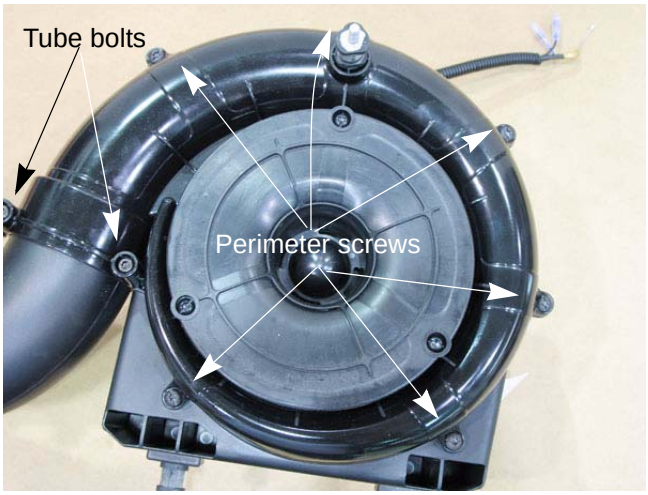

Figure 7.4

2b. Remove the two tube bolts with a 4mm allen wrench. See Figure 7.4.

2c. Lift the blower cover off.

3. Remove the impeller:

3a. Remove the spark plug.

3b. Stuff a length of starter rope in the spark plug hole to block the piston.

3c. Remove the impeller nut with a 13mm wrench. See Figure 7.5.

Figure 7.5

3d. Slide the impeller off of the impeller shaft.

NOTE: Inspect the impeller for any signs of cracks or damage. Replace if any is found. A damaged or cracked impeller will turn into shrapnel when the blower is running.

4. Remove the blower housing:

4a. Remove the four screws with a 4mm allen wrench. See Figure 7.6.

Figure 7.6

5. Reassemble by following the previous steps in reverse order.

NOTE: Tighten the impeller nut to a torque of 180-200 in lbs (20 - 22.5 Nm).

6. Test run the blower before returning to service.

8. STARTER

The 25cc back pack blowers are equipped with spring assist starters. At the time of writing this manual there are no service parts for the starter. The starter is available as a complete assembly.

CAUTION: There are two clock springs in the starter. Use caution while working on the starter.

Removing the starter housing:

1. Unplug the spark plug wire.
2. Remove the four starter housing screws.
3. Slide the starter housing off of the blower.
4. Follow the steps just described in reverse order to install the starter housing.

   NOTE: Tighten the starter housing screws to a torque of 20 - 25 in lbs (2.25 - 2.8 Nm).

Replacing the starter rope:

1. Remove the starter housing as described above.
2. Pull the starter rope out about half way and tie a knot in the rope to keep it from retracting into the starter. See Figure 8.1.

Figure 8.1

3. Untie the knot in the pull handle and remove the pull handle. See Figure 8.2.

   NOTE: when re-installing the pull handle, make sure to tie knot on the ring.

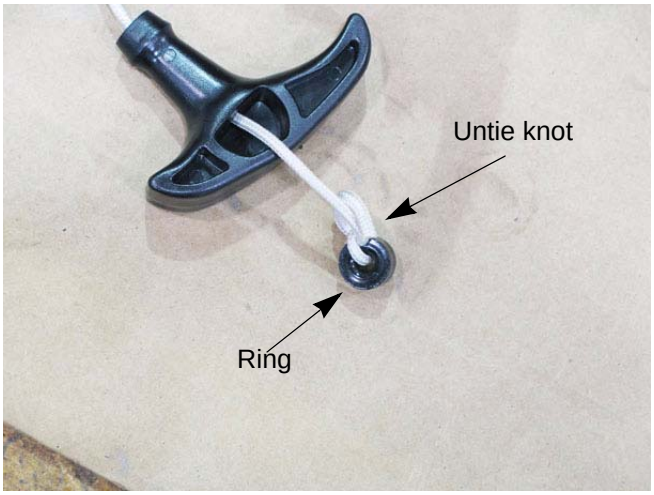

Figure 8.2

4. Untie the knot tied previously in the starter rope and let the rope retract into the starter.
5. Remove the screw in the starter pulley with a T-25 torx driver. See Figure 8.3.

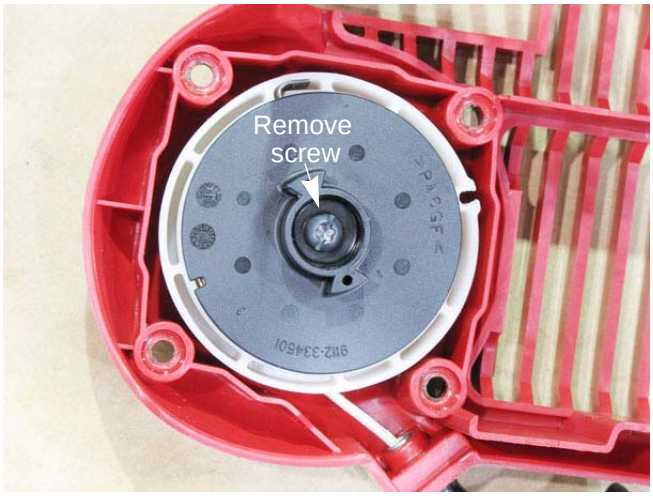

Figure 8.3

6. Carefully slide the starter pulley out of the housing.

   CAUTION: Use caution sliding the pulley out of the housing. The clock springs will still have tension on them. If they come out of the pulley, injury could result.

7. Carefully slide the bottom clock spring (the one in the metal retainer) off of the pulley.

8. Pull the knot out of the pulley and untie it. See Figure 8.4.

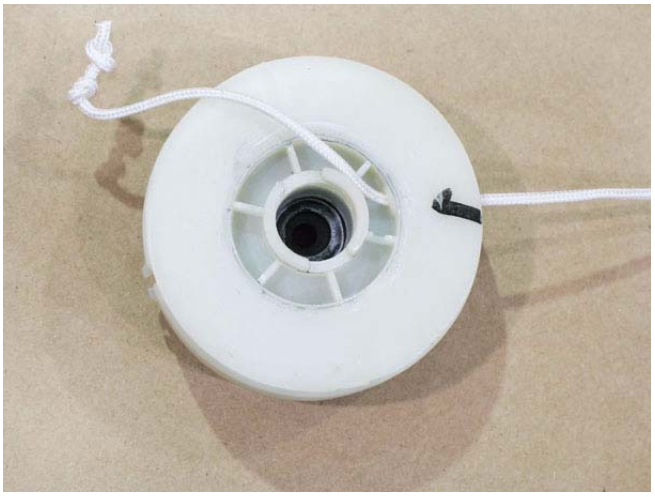

Figure 8.4

9. Install new rope by following the steps just described in reverse order.

   NOTE: When installing the starter pulley, care should be taken to make sure that the hook of the bottom clock spring is pressed into the grove in the starter housing. See Figure 8.5.

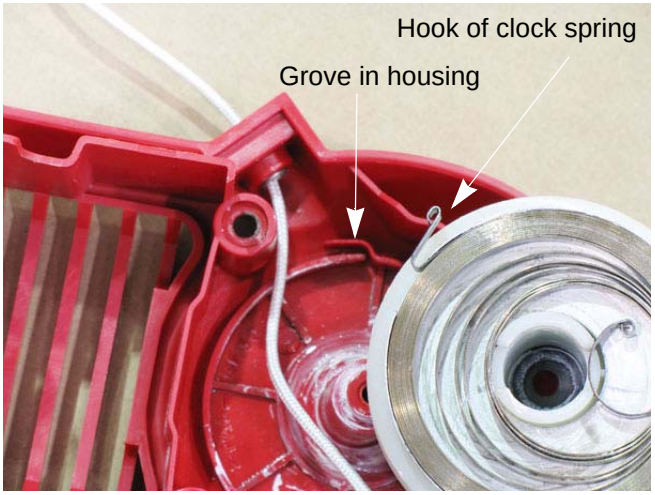

Figure 8.5

Tensioning the clock springs:

NOTE: The tension of the clock spring is tightened while the pulley is installed in the starter housing.

1. Pull the rope all the way out.

2. Tie a knot in the rope about in the middle of the rope.

3. Hook the rope into the slot in the pulley. See Figure 8.6.

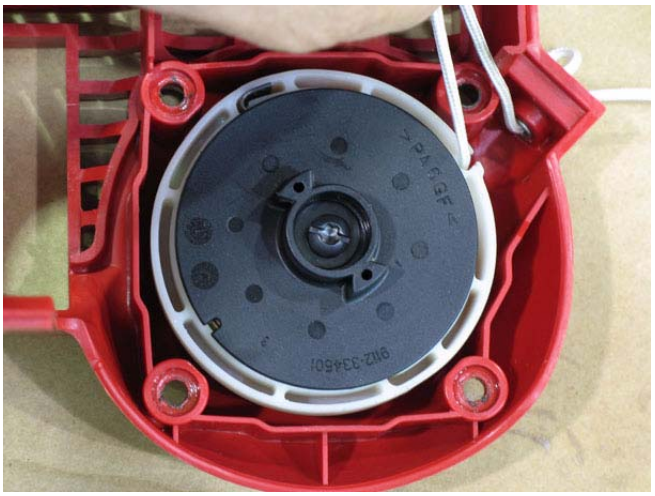

Figure 8.6

4. Wind the pulley counter clockwise.

5. Unhook the rope.

6. Untie the knot.

7. Test run the blower before returning to service.

9. FUEL SYSTEM

1. Remove the fuel tank:

   CAUTION: Drain all fuel out of the blower before attempting to work on the fuel system.

   1a. Disconnect the fuel lines from the carburetor. See Figure 9.1.

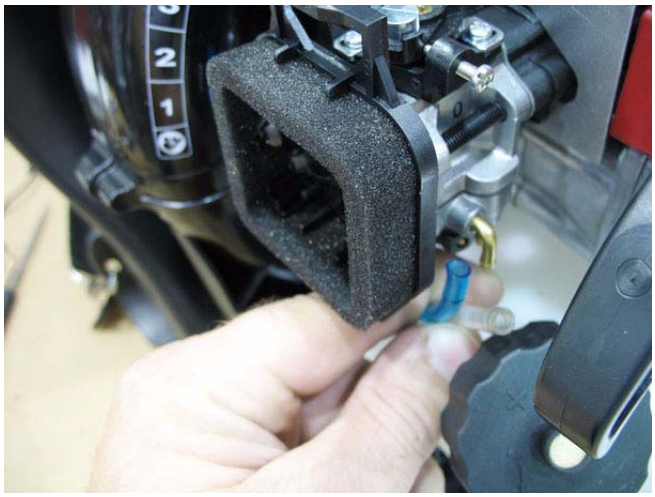

Figure 9.1

   1b. Remove the blower housing by following the steps described in the chapter on the Blower Housing.

   1c. Remove the three screws on the bottom of the fuel tank with a T-25 torx driver. See Figure 9.2.

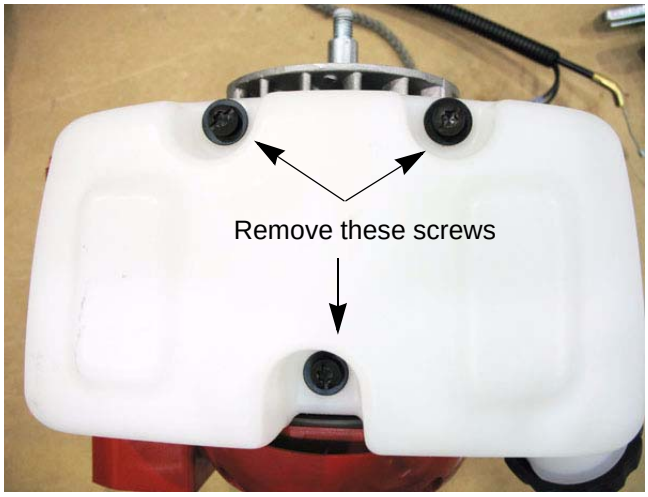

Figure 9.2

   1d. Follow the steps just described in reverse order to install the fuel tank.

2. Remove the fuel lines:

   2a. Disconnect the fuel lines from the carburetor.

   2b. Pull the blue fuel line out of the tank.

   2c. Remove the fuel filter by following the steps described in the chapter on Periodic Maintenance.

   2d. Pull the clear line out of the fuel tank.

3. Install the fuel lines:

   3a. Cut a point on the new fuel lines.

   3b. Push the pointed end of the fuel lines into the holes in the tank.

   3c. Attach the fuel lines to the carburetor.

   3d. Install the fuel filter following the steps described in the chapter on Periodic Maintenance

4. Test run the blower before placing back into service.

10. IGNITION SYSTEM REPAIR

The ignition system consists of:

- The flywheel
- The module
- The spark plug
- The engine run switch and wires

NOTE: To service the spark plug see the section on Periodic Maintenance.

To service the Ignition system (excluding the spark plug) the blower housing must first be removed. To remove the blower housing please refer to the chapter on the Blower Housing.

1. Remove the ignition module:

   1a. Disconnect the two wires from the module. See Figure 10.1.

Figure 10.1

   1b. Remove the module by removing the two screws.

   1c. To install the module, turn the flywheel so that the magnets are away from the module.

   1d. Install the two screws half way. Do not tighten them down.

   1e. Place a brass .010” feeler gauge on the flywheel magnets and rotate the flywheel until the magnets line up with the module. Let the magnets draw the module against the flywheel with the feeler gauge trapped between them. See Figure 10.2.

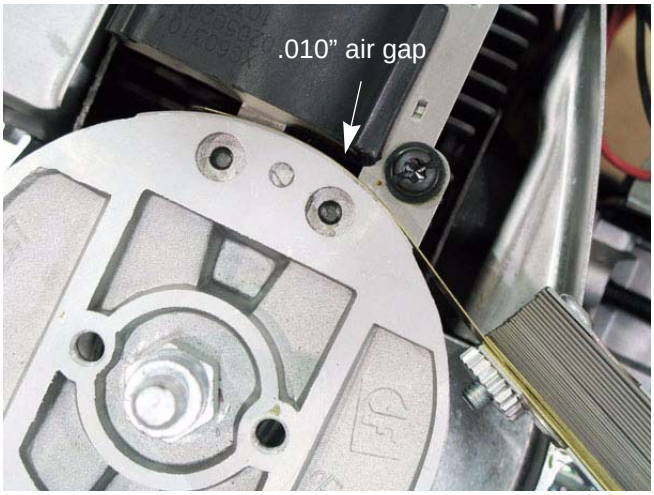

Figure 10.2

   1f. Torque the module screws to 30 - 35 in lbs (13 - Nm).

   1g. Reassemble and test run the engine.

2. Remove the flywheel:

   2a. Remove the impeller shaft. See Figure 10.3.

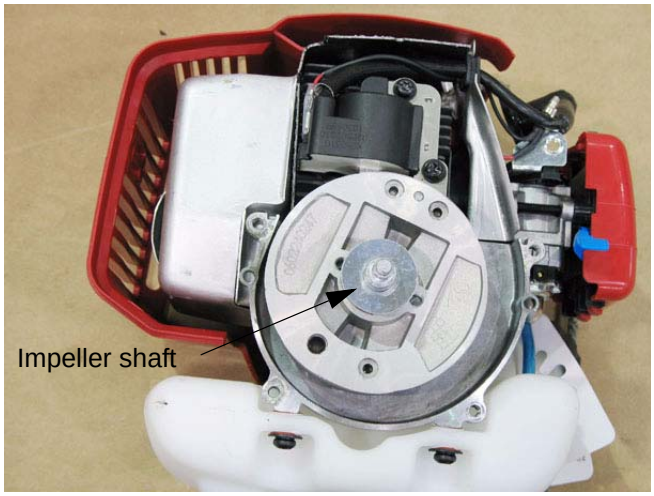

Figure 10.3

2b. Remove the flywheel by gently prying on the flywheel while striking the crankshaft with a brass punch. See Figure 10.4.

NOTE: It is not necessary to remove the module to remove the flywheel.

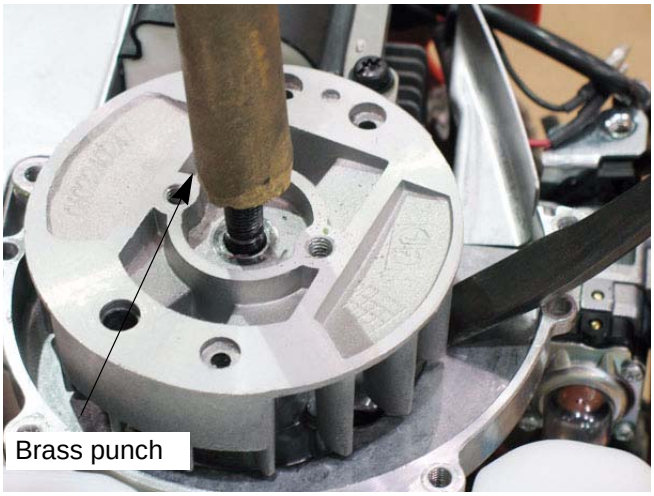

Figure 10.4

2c. Inspect the flywheel and key for any signs of damage. See Figure 10.5.

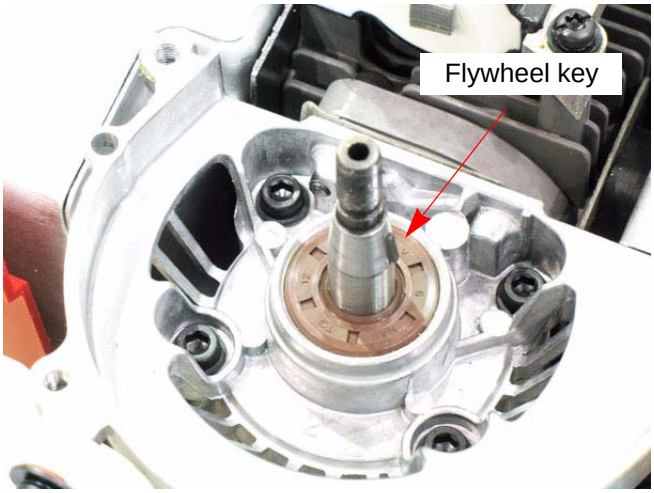

Figure 10.5

2d. Install the flywheel by following the previous procedure in reverse order.

NOTE: Tighten the Impeller shaft to a torque of 180 - 200 in lbs (20 - 22.5 Nm).

2e. Test run the engine before returning it to service.