



# Service Manual



## MCCULLOCH CHAIN SAW - MS1436NAV



MTD Products LLC - Product Training and Education Department

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# McCulloch Chain Saw

## MS1436NAV

### MCCULLOCH CHAIN SAW - MS1436NAV



### MCCULLOCH GASOLINE CHAIN SAWS

The MS are McCulloch brand. They are all 42cc engines even though we rate them as less in most cases. The only difference between the models is the NAV are Non Anti-Vibration and AV is Anti-Vibration.

Model: MS1436 NAV - 14" Bar and 36CC Engine

This product has been tested at a computed kickback angle (CKA) and conforms to ANSI B175.1-2000, Annex C.

This Service Manual is a supplement to the User Manual. Read, understand and follow all safety procedures before operating or servicing this chain saw. Refer to the Owners Manual for procedures for proper setup and operation.

Additional information can be found in the 2004 MTD Update Manual: Form number # 769-00960.

**IMPORTANT:** Prior to servicing the chain saw, remove the spark plug wire from the spark plug.

**WARNING:** Never perform maintenance when the engine is hot, to avoid any chance of burning hands or fingers.

#### 1. AIR FILTER

**CAUTION:** Never operate saw without the air filter. Dust and dirt will be drawn into engine and damage it. Keep the air filter clean!

- 1.1. Using a T-25 Torx driver, loosen the shroud retaining screws and lift of the top cover. See Figure 1.



Figure 1

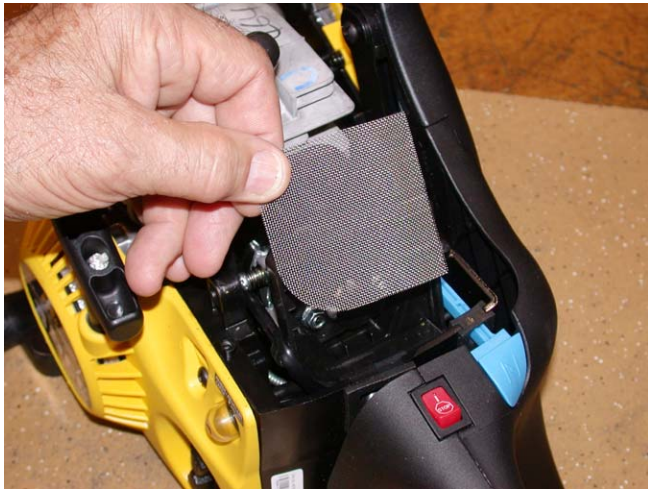
- 1.2. Lift the air filter out of air-box. See Figure 2.



Figure 2

- 1.3. Clean air filter. Wash filter in clean, warm, soapy water. Rinse in clear, cool water. Air dry completely.

- 1.4. Remove the wire screen from the air box. See Figure 3.



**Figure 3**

- 1.5. Wash screen in clean, warm, soapy water. Rinse in clear, cool water. Air dry completely.

**NOTE:** It is advisable to have a supply of spare filters and screens on hand.

- 1.6. Install air filter in reverse order of disassembly. Install engine/air filter cover. Make sure cover fits properly. Tighten the cover retaining screws securely.

## 2. FUEL FILTER

**CAUTION:** Never operate your saw without a fuel filter. The fuel filter should be replaced after each 20 hours of use.

- 2.1. Drain fuel tank completely before changing filter.
- 2.2. Remove the fuel tank cap.
- 2.3. Bend a piece of soft wire into a hook shape.
- 2.4. Reach into fuel tank opening and hook fuel line. Carefully pull the fuel line toward the opening until you can reach it with your fingers.

**NOTE:** Do not pull the hose completely out of tank.

- 2.5. Lift filter out of tank. See Figure 4.



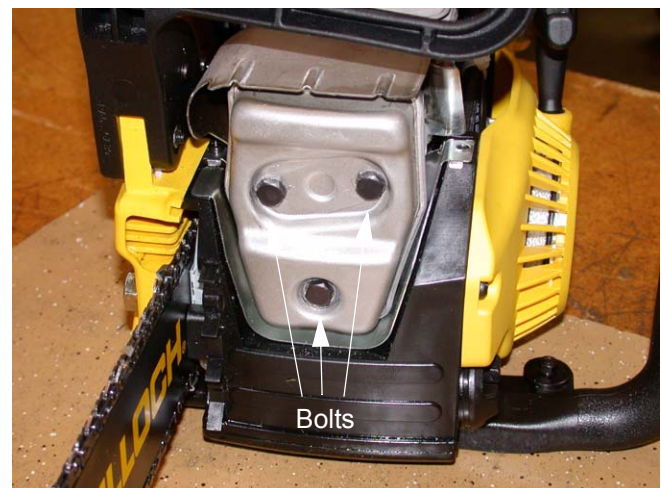
**Figure 4**

- 2.6. Pull filter off with a twisting motion. Discard filter.
- 2.7. Install new filter. Insert end of filter into tank opening. Make sure filter sits in bottom corner of tank. Use a long handle screwdriver to aid in filter placement if necessary.

## 3. SPARK ARRESTER SCREEN

**NOTE:** A clogged spark arrester screen will dramatically reduce engine performance.

- 3.1. Using a 10mm socket, remove the 3 bolts securing the muffler to the cylinder. Remove the muffler. See Figure 5.



**Figure 5**

- 3.2. Using a medium Phillips screwdriver, remove the 2 screws that hold the spark arrester cover to the muffler. See Figure 6.



**Figure 6**

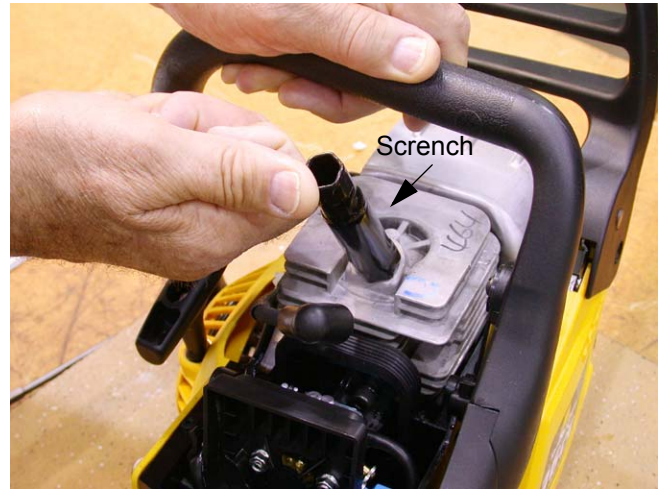
- 3.3. Discard the used spark arrester screen and replace it with a new one.
- 3.4. Reassemble the muffler components and install the muffler to the cylinder. Tighten securely.

#### 4. SPARK PLUG

**NOTE:** NOTE: For efficient operation of the saw engine, spark plug must be kept clean and properly gapped.

- 4.1. Push STOP switch down.
- 4.2. Remove the shroud. See AIR FILTER Section.
- 4.3. Disconnect the wire connector from the spark plug by pulling and twisting at the same time

- 4.4. Using the srench, remove the spark plug. See Figure 7.



**Figure 7**

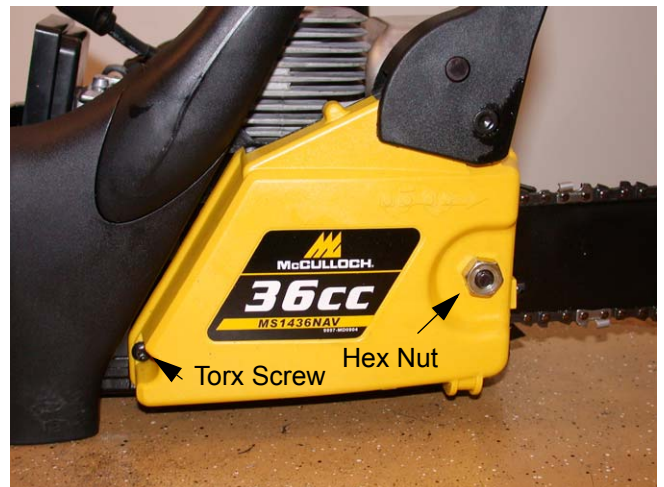
- 4.5. Check electrode gap with wire feeler gauge and set gap to .025" (.635mm) if necessary.
- 4.6. Reinstall a new spark plug.

**NOTE:** A resistor spark plug must be used for replacement (McCulloch part no. 9295-310502).

**NOTE:** This spark ignition system meets all requirements of the Canadian Interference-Causing Equipment Regulations.

#### 5. REMOVAL OF BRAKE ASSEMBLY

- 5.1. Disconnect the spark plug wire from the engine.
- 5.2. Using a 5/8" socket, remove the nut attaching the cover to the unit. See Figure 8.

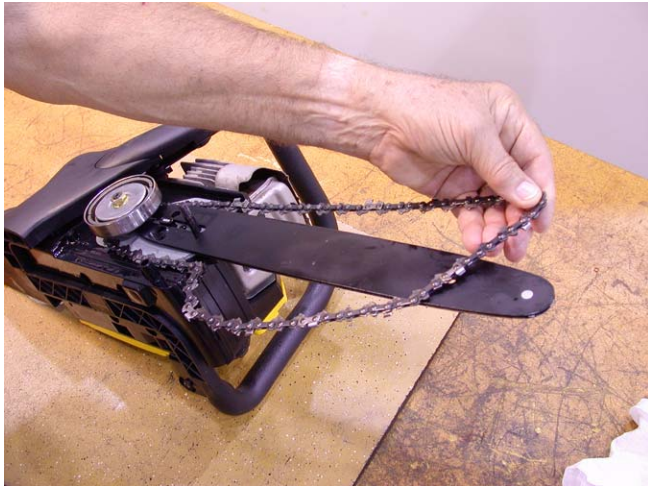


**Figure 8**

- 5.3. Using a T-25 Torx wrench, remove the screw securing the cover to the unit. See Figure 8.
- 5.4. Remove the cover.

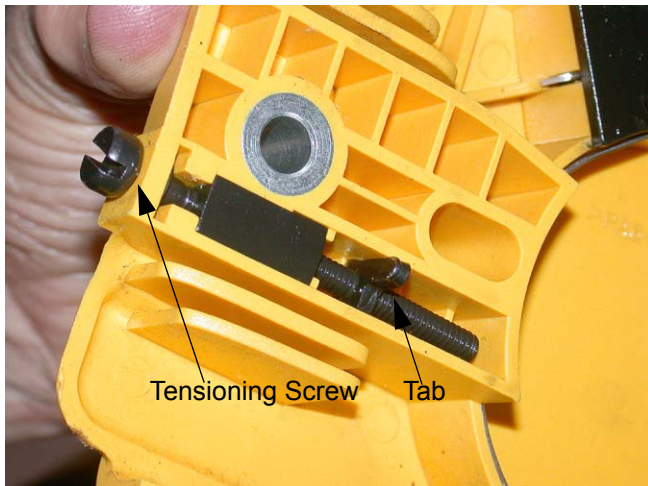
**6. REMOVING THE CHAIN AND BAR**

- 6.1. Remove the brake assembly cover. See REMOVAL OF BRAKE ASSEMBLY Section.
- 6.2. Remove the chain from the bar. See Figure 9.

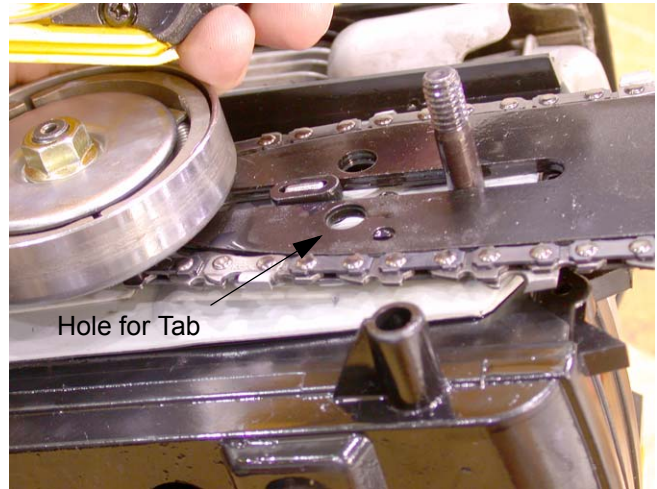


**Figure 9**

- 6.3. Lift the bar from the mounting stud and guide.
- 6.4. During assembly make certain that the tab from the tensioning screw fits into the hole in the chain bar. See Figure 10. See Figure 11.



**Figure 10**



**Figure 11**

**7. REMOVAL OF CLUTCH AND DRUM ASSEMBLY**

- 7.1. Remove the spark plug from the unit.
- 7.2. Remove the brake assembly kit cover.
- 7.3. Remove the chain and bar.
- 7.4. Place a piece of starter cord into the spark plug opening. This will aid in removing of the nut securing the clutch and drum assembly to the crankshaft. See Figure 12.



**Figure 12**



7.5. Using a 13mm socket, remove the nut securing the clutch and drum assembly to the crankshaft. See Figure 13.



Figure 13

**NOTE:** This is a left hand threaded nut. Remove in a clockwise fashion.

7.6. Remove the assembly from the crankshaft. See Figure 14.



Figure 14

7.7. Inspect and repair as needed.

**NOTE:** During assembly, the machined groove in the drum/sprocket assembly must engage the tabs on the nylon worm gear. See Figure 15.

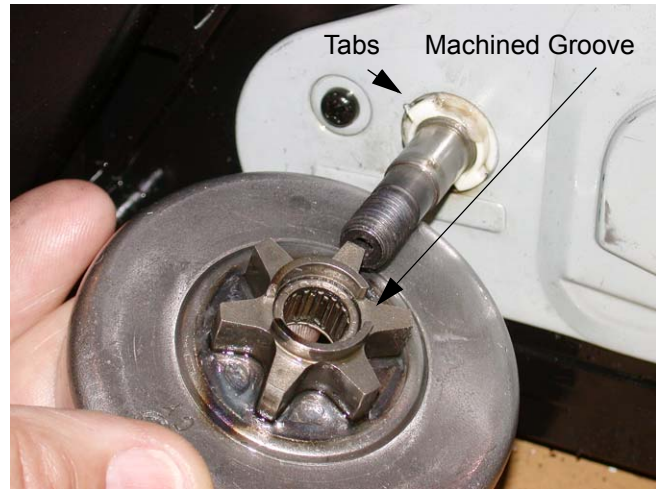


Figure 15

## 8. REMOVAL OF THE CHAIN OILER

8.1. Remove the brake kit assembly.

8.2. Remove the chain and bar.

8.3. Remove the clutch and drum assembly.

8.4. Using a number 2 phillips screwdriver. Remove the two screws securing the anti-dust cap to the chain oiler. See Figure 16.



Figure 16

8.5. Using needle nose pliers, remove the worm gear. See Figure 17.



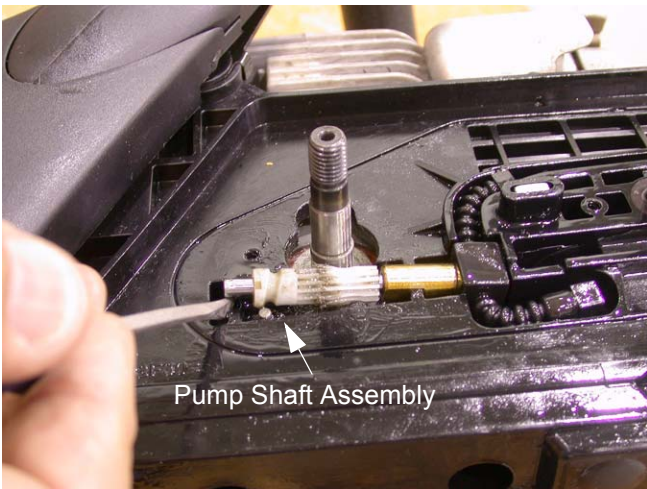
**Figure 17**

8.7. Remove the shaft from the oil pipe. Inspect the shaft for damage. See Figure 19.



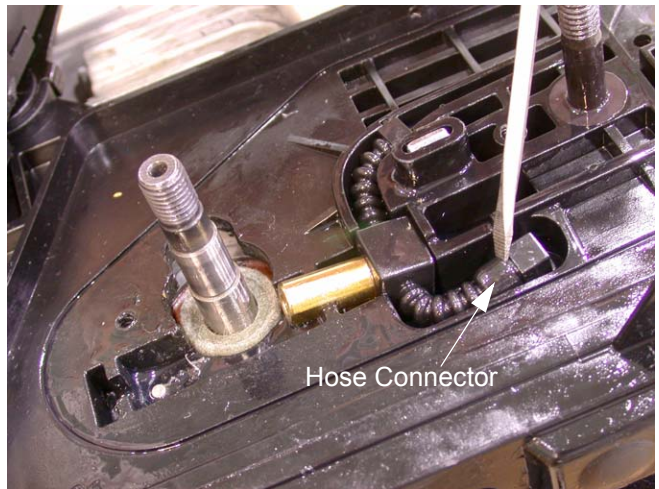
**Figure 19**

8.6. Using the tip of a small screwdriver, lift the rear portion of the pump shaft from the housing. See Figure 18.



**Figure 18**

8.8. Using a small screwdriver, remove the ends of the two hoses from the housing. Inspect for damage. See Figure 20.



**Figure 20**

8.9. Remove the brass pump housing from the oil pipe. See Figure 21.

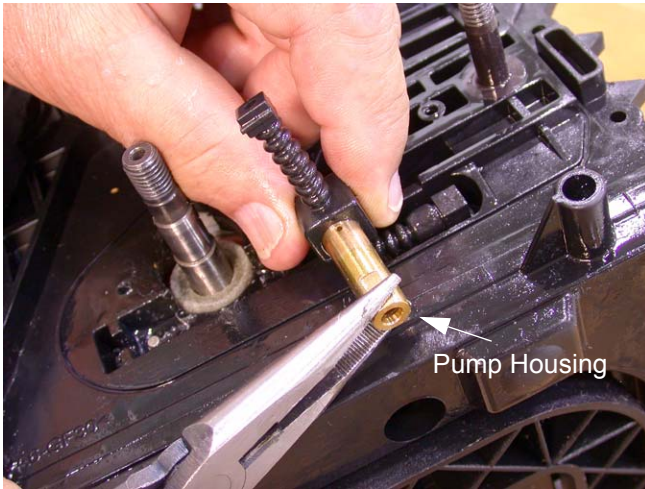


Figure 21

**NOTE:** The small hole in the brass pump housing must be facing up into the upper oil hose during assembly. The flats on the pump housing align with the molded tabs on the housing.

**NOTE:** Replace the felt washer any time you service the chain oiler. See Figure 22.



Figure 22

8.10. Torque the nut securing the clutch drum assembly to the crankshaft to during assembly.

## 9. STARTER SERVICING

9.1. Using a T-25 Torx wrench, remove the four screws attaching the starter housing assembly to the housing assembly. See Figure 23.



Figure 23

9.2. Remove the housing from the unit.

9.3. Use a screwdriver to lift the starter cord from around the pulley and unwind the starter cord. This takes tension off the starter pulley. See Figure 24.



Figure 24

- 9.4. Using a T-25 Torx driver, remove the screw attaching the pawl retainer to the pulley housing. See Figure 25.

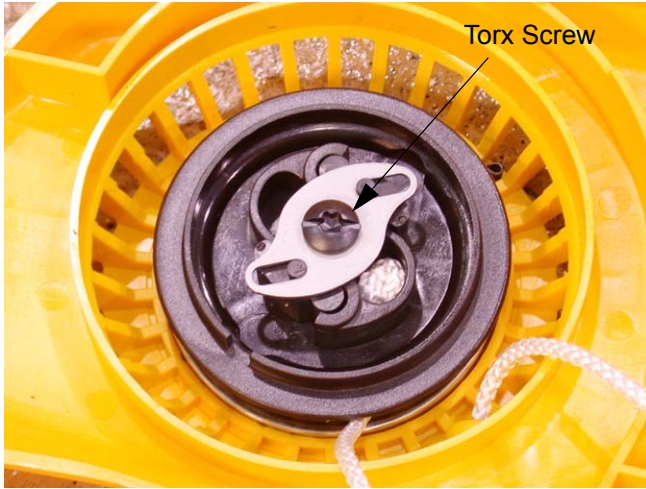


Figure 25

**NOTE:** There is a spring under the retainer.

- 9.5. Replace the pawls if they are worn.

**NOTE:** During assembly, note the proper orientation of the pawl retainer. The pawl retainer slots will face the same direction as the pawls. See Figure 26.



Figure 26

- 9.6. If the starter return spring is broken, lift of the spring retaining cover and replace the spring. See Figure 27.

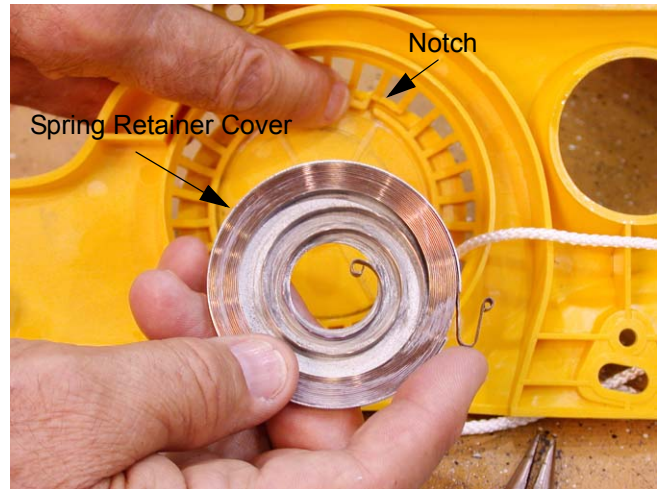


Figure 27

- 9.7. If the starter cord is broken, attach one end of the starter rope to the pull handle. Pass the loose end of the cord through the starter housing assembly and through the pulley. Knot the end of the cord and make sure it is secure in the pulley. See Figure 28.

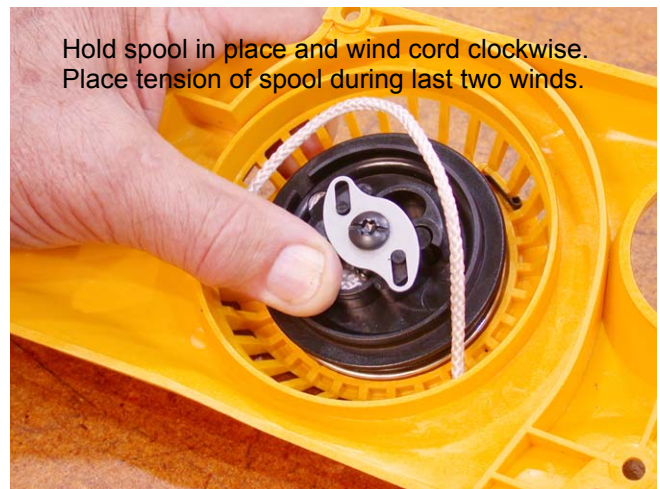


Figure 28

- 9.8. Wind the starter cord around the pulley. Wind the starter pulley clockwise to put tension on the spring during the last loop of the starter cord.

## 10. AIR GAP

Using a feeler gauge, measure the air gap between the flywheel and the coil. The measurement should be between .08"-.010". Loosen the mounting screws to adjust the air gap. See Figure 29.



**Figure 29**

## 11. FLYWHEEL REMOVAL

**IMPORTANT:** If any of the air fins on the flywheel break off for any reason, a serious imbalance and resulting vibration and damage to the engine will occur.

- 11.1. Remove the spark plug from the engine.
- 11.2. Place a length of starter cord into the spark plug opening. This will ease removal of the flywheel.
- 11.3. Using a T-25 Torx wrench, remove the four screws attaching the starter housing assembly to the housing assembly.
- 11.4. Remove the housing from the unit.

- 11.5. Using a 13mm socket, **loosen but do not remove** the nut securing the flywheel to the crankshaft. See Figure 30.



**Figure 30**

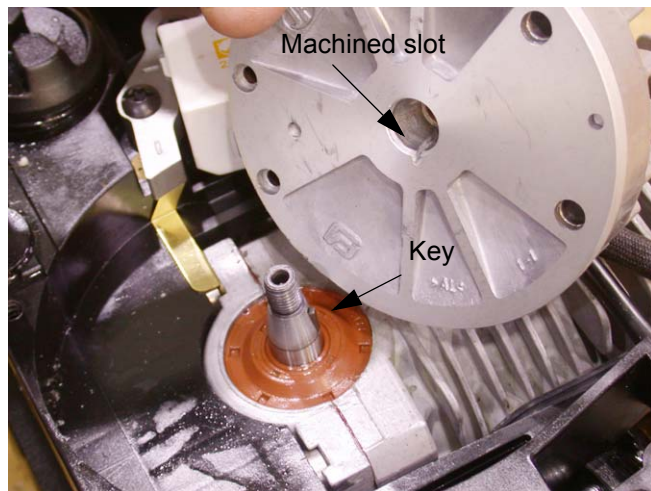
- 11.6. Unthread the nut until it is flush with the end of the drive shaft.

- 11.7. Place a large screwdriver under the flywheel and while applying upward pressure, tap on the nut on the drive shaft to release the flywheel from the shaft. See Figure 31.



**Figure 31**

**NOTE:** There is an alignment key in the drive shaft. During assembly make sure the key does not slip out of the keyway. See Figure 32.



**Figure 32**

- 11.8. Torque the nut to during assembly.

## 12. CARBURETOR REMOVAL

- 12.1. Disconnect the spark plug wire.
- 12.2. Using a T-25 Torx driver, remove the three screws securing the top cover. Remove the cover.
- 12.3. Lift out the foam air filter.

- 12.4. Using a small screwdriver, lift out the metal screen.

- 12.5. Using a 8mm socket, remove the two nuts securing the air filter assembly to the carburetor. See Figure 33.



**Figure 33**

- 12.6. Using a screwdriver, pry the wire harness from the clip on the air filter assembly. See Figure 34.



**Figure 34**

- 12.7. Release the air filter assembly from the two mounting bolts, slide it to the left and remove it from the carburetor.

- 12.8. Inspect the brass colored fuel tank breather for any blockage.

**NOTE:** Blockage of this breather will allow the chainsaw to operate briefly but then stop due to lack of fuel.

12.9. Using a small flat bladed screwdriver, pry the fuel line from the carburetor inlet. See Figure 35.

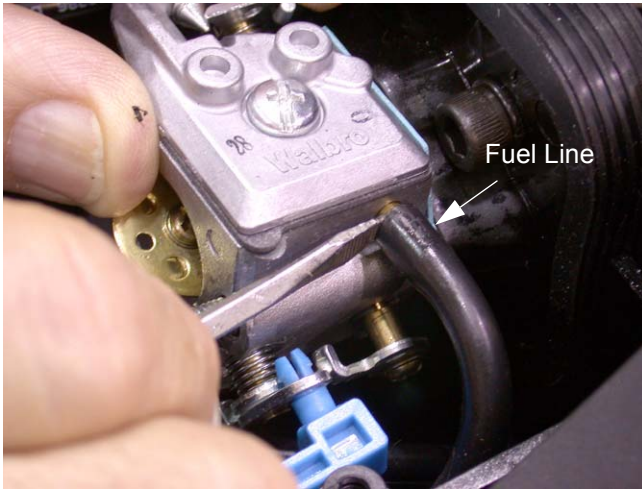


Figure 35

12.11. Pry the choke handle from the carburetor. See Figure 37.

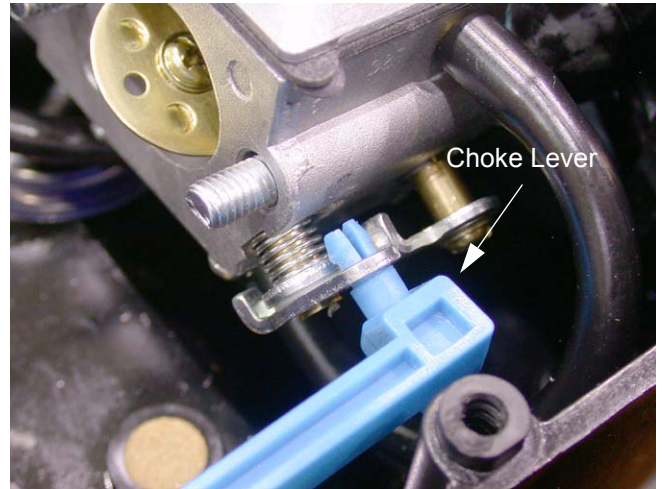


Figure 37

12.10. Lift up on the choke lever to remove the rubber grommet from the housing. See Figure 36.



Figure 36

**NOTE:** In order to remove the throttle cable from the carburetor it will be necessary to remove the left side of the handle assembly and create slack in the cable.

12.12. Using a T-25 Torx driver, remove the four screws securing the handle halves.

12.13. Remove the left handle half.

12.14. Raise up on the trigger assembly enough to allow removal of the throttle cable from the trigger. See Figure 38.



Figure 38

12.15. Push the throttle cable and housing towards the saw body.

12.16. Pull rearward on the carburetor until it clears the two mounting screws. See Figure 39.

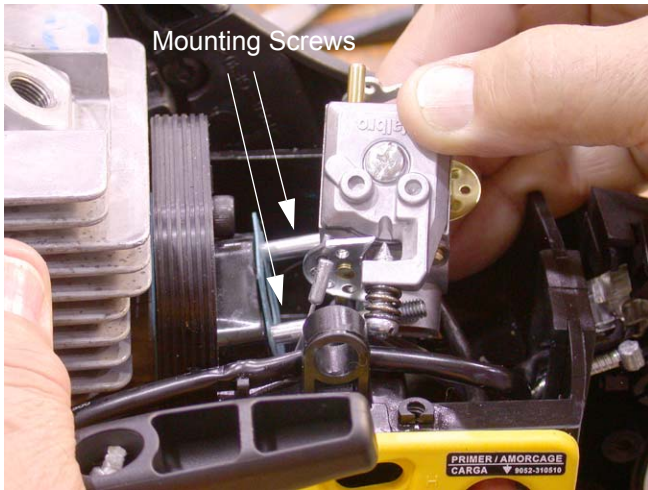


Figure 39

12.18. Remove the primer tube from the lower left side of the carburetor. See Figure 41.

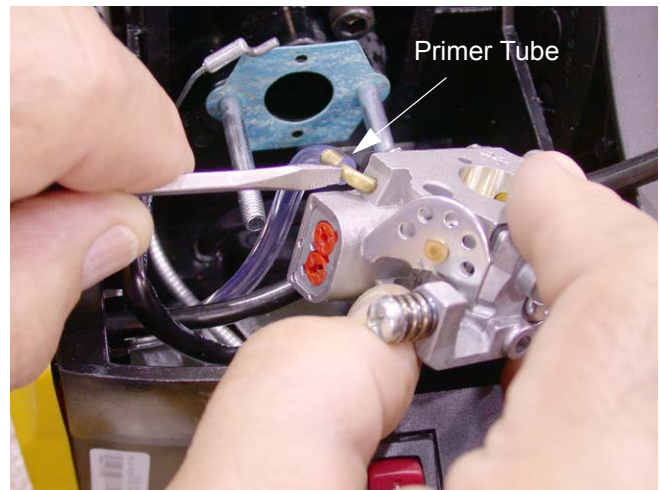


Figure 41

12.17. Rotate the carburetor forward and to the left in order to remove the throttle cable from the carburetor. See Figure 40.

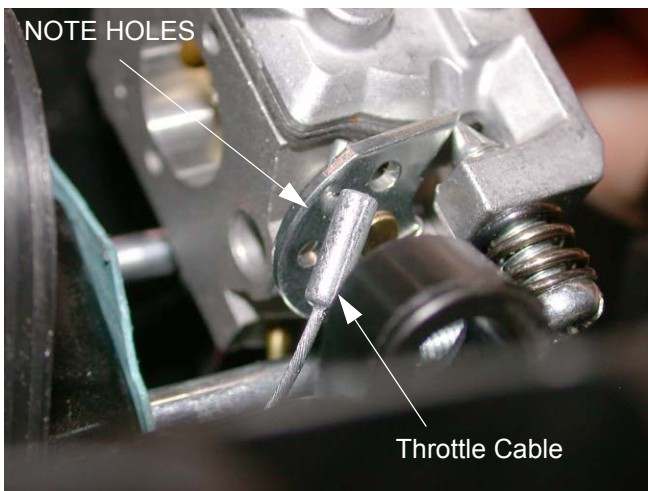


Figure 40

**NOTE:** Note which hole the throttle cable is attached to on the carburetor.

**NOTE:** You can replace the carburetor as a complete assembly if it is obviously gummed up beyond repair or you can purchase a rebuild kit and rebuild the carburetor in about 15 minutes.

12.19. Install the carburetor in the reverse order of disassembly.

### 13. CARBURETOR ADJUSTMENT

The carburetor was pre-set at the factory for optimum performance and to meet all federal and state emission guidelines. Unless you are a trained service professional, take your unit to the nearest Authorized Service Center listed in the Yellow Pages for any adjustment.

The carburetor does have Low and High adjustment screws for qualified technicians. See Figure 42.



Figure 42



## 14. CHAIN TENSION ADJUSTMENT

14.1. Chain tension adjustments can be made using a standard screwdriver. See Figure 43.



**Figure 43**

**NOTE:** Follow proper chain tensioning procedures outlined in the User Manual.