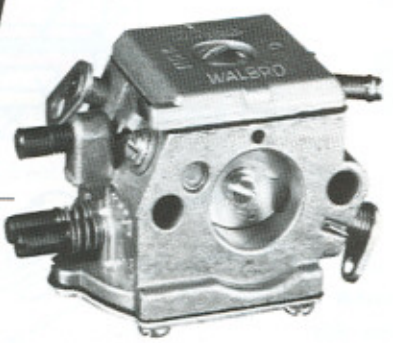
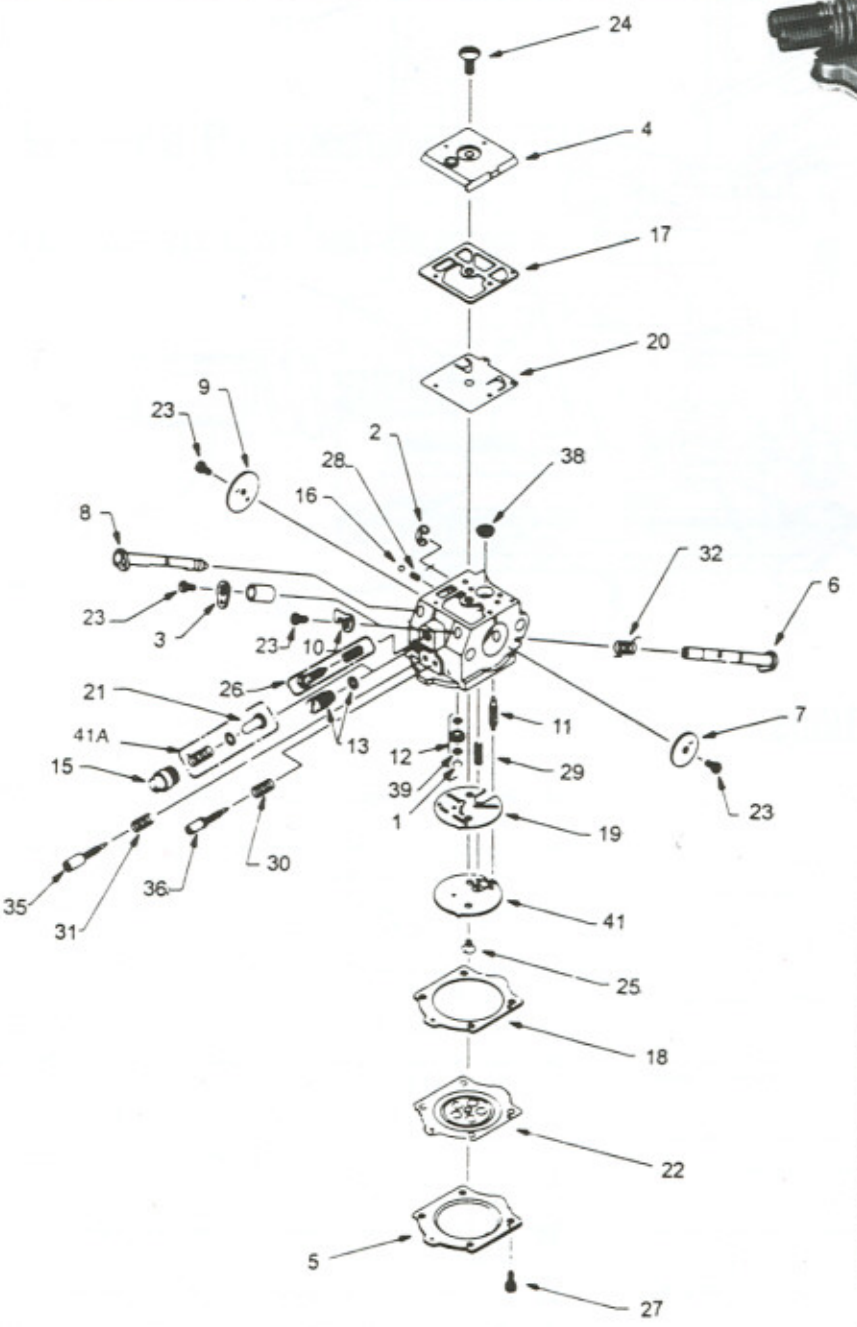
CHAIN SAW CARBURETOR STANDARD MODEL SERVICE MANUAL





Ref. No.		Part Name
1	*	Ring - Screen Retainer
2		Ring - Shaft Retainer
3		Lever - Throttle
4		Cover - Fuel Pump
5		Cover - Metering Diaphragm
6		Shaft Assembly - Throttle
7		Shutter - Throttle
8		Shaft Assembly - Choke
9		Shutter - Choke
10		Stop - Throttle
11	*	Valve - Inlet Needle
12		Seat Assembly - Check Valve
13		Seat Assembly - Governor
15		Plug - Accelerator Screw
16		Ball - Choke Friction
17	**	Gasket - Fuel Pump
18	**	Gasket - Metering Diaphragm
19	**	Gasket - Circuit Plate
20	**	Diaphragm - Fuel Pump
22	**	Diaphragm Ass'y - Metering
23		Screw - Shutter (3)
24		Screw - Pump Cover
25		Screw - Circuit Plate (2)
26		Screw - Idle Adjust Kit
27		Screw - Metering Cover (4)
28		Spring - Choke Friction
29		Spring - Metering Lever
30		Spring - Needle (idle)
31		Spring - Needle (high speed)
32		Spring - Throttle Return
35		Needle - High Speed
36		Needle-Idle
38	*	Screen - Fuel Inlet
39	*	Screen - Check Valve
41		Plate - Circuit
41A		Accelerator Kit
42		Lever - Metering

*Contents in Repair Kit
**Contents in Gasket/Diaph.Kit

Form C-1031

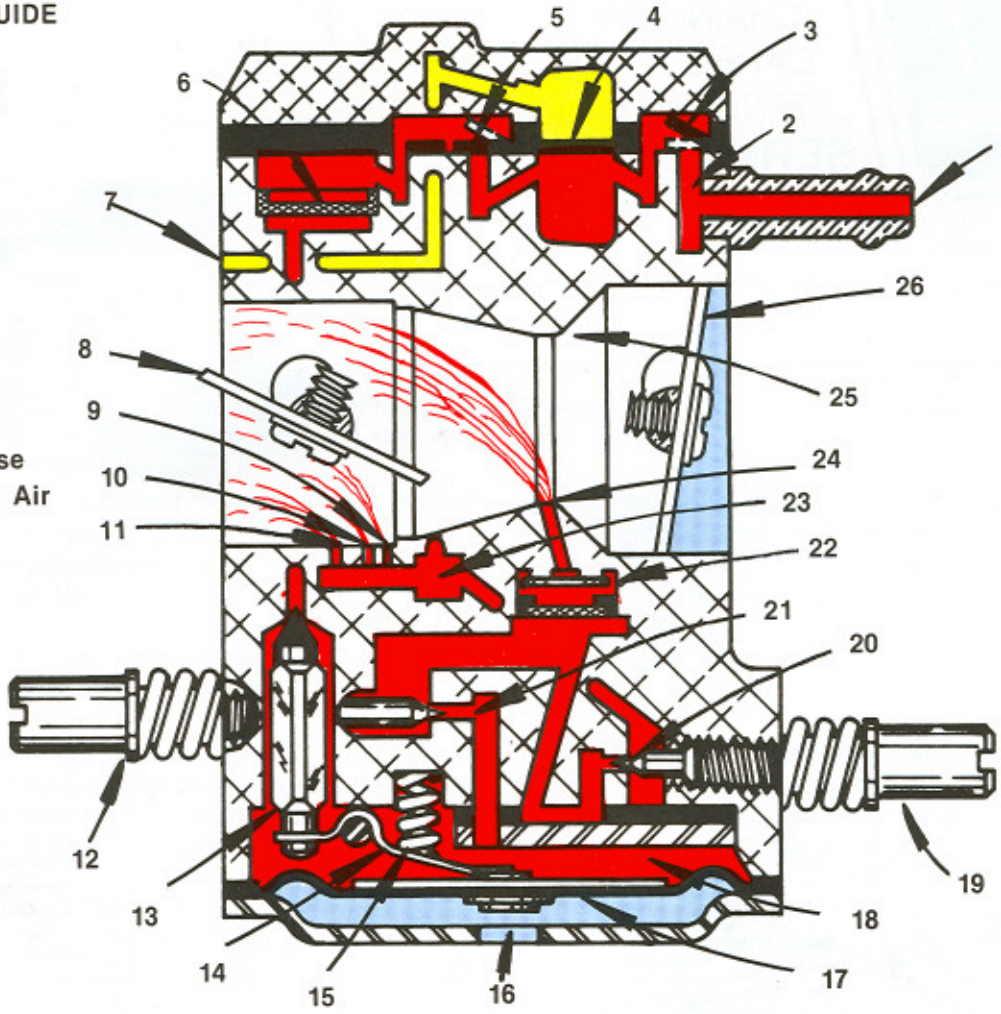
Standard Model Starting Circuit

COLOR GUIDE

Fuel

Air

Crankcase Impulse Air



HDC Operating Functions

1 Fuel Inlet: Fuel drawn from Tank.

2 Surge Chamber: Dampens Fuel Flow.

3 Inlet Valve: Opens on demand from Fuel Pump.

4 Fuel Pump: Responds to engine impulse force.

5 Outlet Check Valve: Forced open by pump pressure.

6 Filter Screen: Filters fuel.

7 Engine Impulse: Actuates Fuel Pump Diaphragm #4.

8 Throttle Valve: Regulates engine speed as it exposes Primary, Second and Third Idle holes, then Nozzle for fuel delivery.

9 Third Idle Hole: Increases fuel flow at Part Throttle.

10 Second Idle Hole: Allows additional fuel flow on acceleration.

11 Primary Idle Hole: Only fuel source to engine at Idle position.

12 Hi Speed Needle: Adjust for fuel richness at high speeds.

13 Inlet Needle Valve: Lifts off seat to allow fuel entry.

14 Metering Lever: Lifts Inlet Needle off seat.

15 Metering Lever Spring: Transmits force to Metering lever.

16 Atmospheric Vent: Allows air pressure against Metering Diaphragm.

17 Metering Diaphragm: Drawn up by vacuum to activate Metering Lever.

18 Metering Chamber: Fuel reservoir, feeds to idle and nozzle holes.

19 Idle Needle: Adjust for fuel richness to 3 Idle holes.

20 Nozzle Well: Fuel is drawn in from Metering Chamber at high speed.

21 Idle Take-off: Fuel entry for Idle and Part Throttle holes.

22 Nozzle Check Valve: Engine vacuum draws valve open.

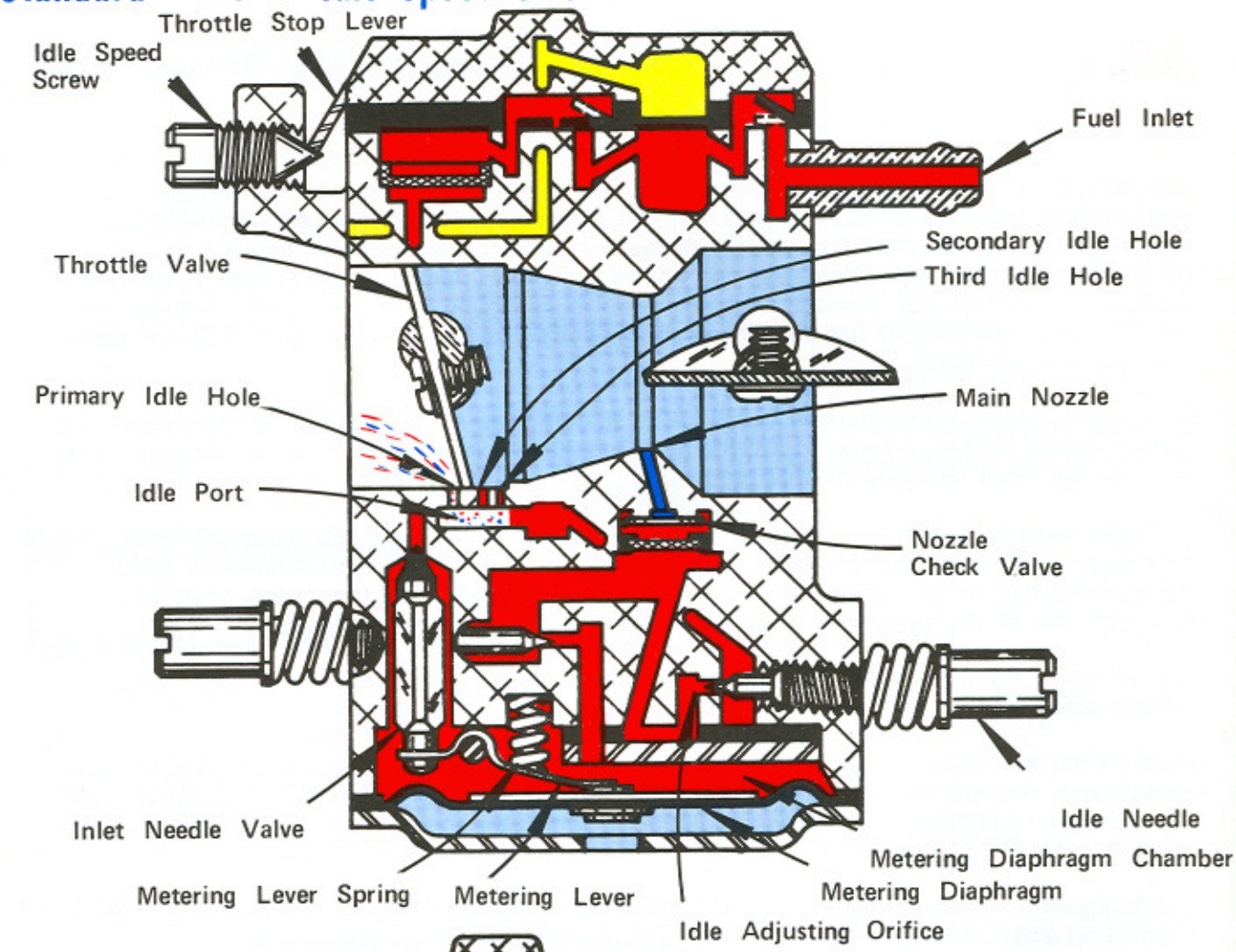
23 Idle Port: Fuel reservoir for Idle and Part Throttle holes.

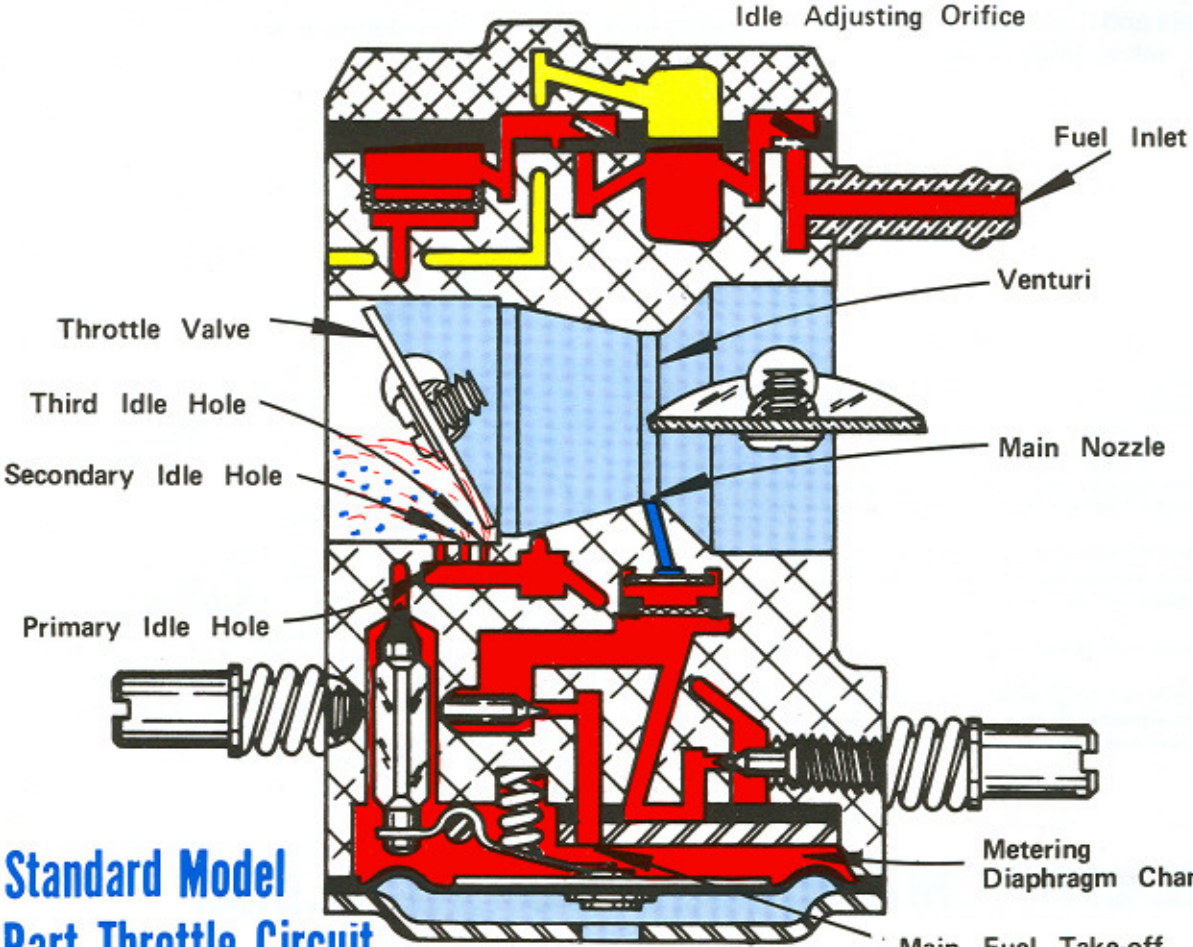
24 Nozzle: Increases fuel discharge for high speeds.

25 Venturi: Increases air velocity at Nozzle, creating a suction to draw fuel into Throttle Bore passage to engine intake.

26 Choke Valve: Closes air passage at starting position.

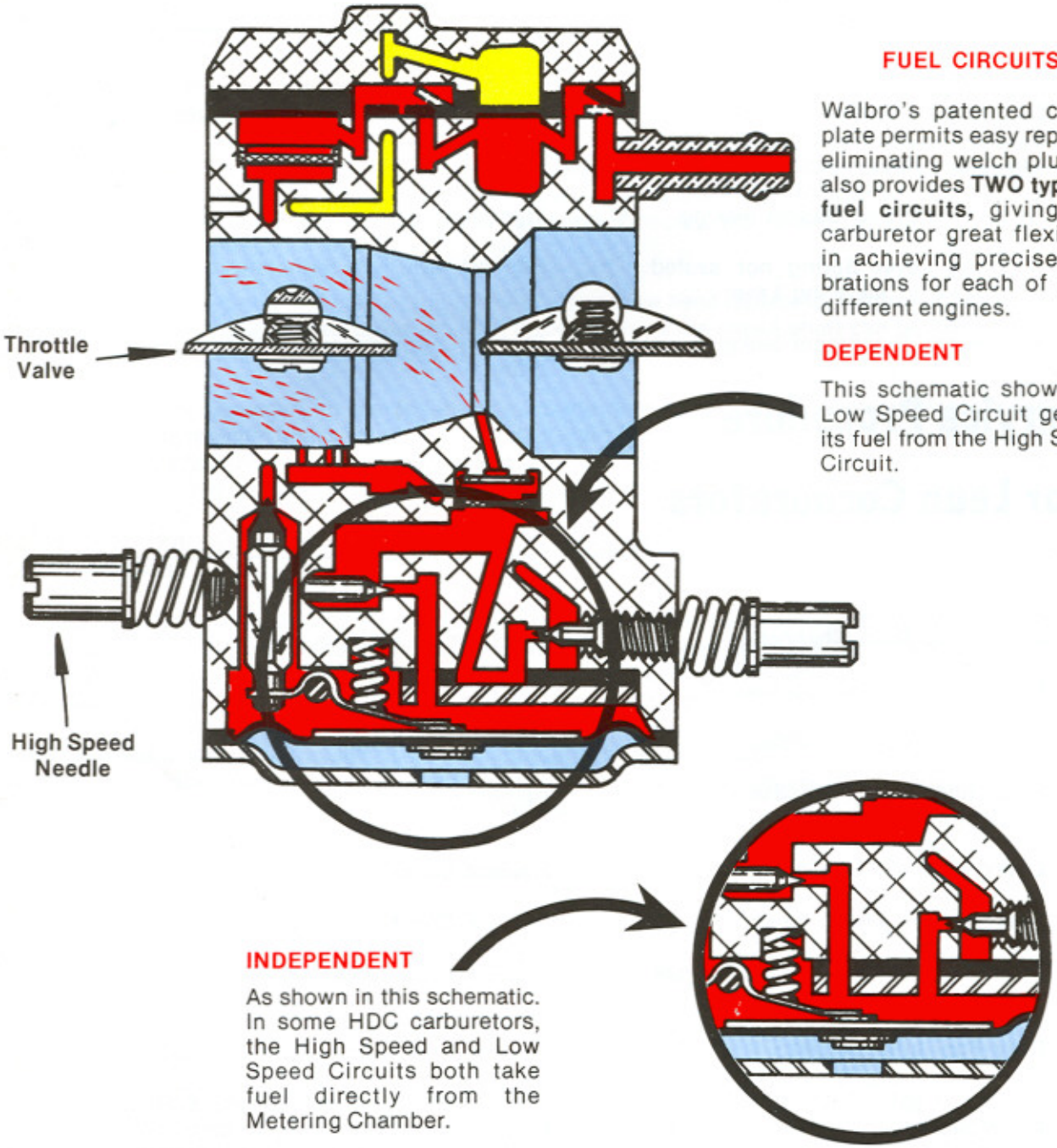
Standard Model Idle Speed Circuit





Standard Model Part Throttle Circuit

Standard Model High Speed Circuit



FUEL CIRCUITS

Walbro's patented circuit plate permits easy repair by eliminating welch plugs. It also provides **TWO types of fuel circuits,** giving this carburetor great flexibility in achieving precise calibrations for each of many different engines.

DEPENDENT

This schematic shows the Low Speed Circuit getting its fuel from the High Speed Circuit.

INDEPENDENT

As shown in this schematic. In some HDC carburetors, the High Speed and Low Speed Circuits both take fuel directly from the Metering Chamber.

Trouble Shooting Guide

1. Fuel Source- In-tank filters, lines, fittings — check for leaks or obstructions, venting and air filter.
2. Choke and Throttle - Check mechanical linkage and cables - Look for ice, kinks, etc.
3. Adjustments - Idle and Main needles, 1 turn off seat - Tune from rich side by 1/8 turn, gradually.
4. Ignition - Spark plugs - Change if back-fire or preignition - when timed correctly, white plugs mean fuel is too lean, black - too rich, chocolate brown - normal.
5. Fuel Mixture - Use 16 to 1 or as recommended by engine manufacturer.
6. Tighten all screws on the carburetor - tighten all mounting bolts - check for cracks or leaks at flanges and manifolds.

Service Procedure for Flooded Carburetors

	CAUSE	REMEDY
1	Diaphragm Lever set too high	See High Speed Circuit Illustration
2	Dirt under Inlet Needle Valve	Remove and clean
3	Circuit Plate and Gasket leaking	Tighten screws or replace gasket
4	Metering Lever Spring not seated on dimple in Metering Lever	Remove lever and re-install spring
5	Fuel Pump Diaphragm leaking	Remove and replace with new diaphragm

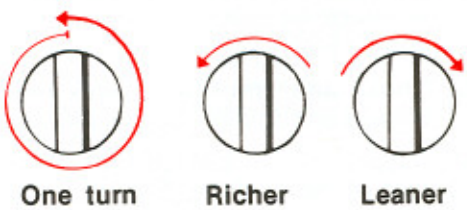
Service Procedure for Lean Carburetors

	CAUSE	REMEDY
1	Dirt in Idle Main Channels	Disassemble carburetor & clean
2	Metering Lever set too low	See High Speed Circuit Illustration
3	Hole in Metering Diaphragm	Replace Diaphragm
4	Pulse line from Crankcase to carburetor plugged	Remove obstruction
5	Leaky Manifold Gaskets	Replace Gaskets
6	Leaky Nozzle Check Valve	Replace Check Valve with Kit
7	Fuel Pump Diaphragm Check valves worn	Replace Fuel Pump Diaphragm
8	Dirty Fuel Inlet Screen	Remove Fuel Pump Cover & Clean
9	Faulty Fuel Delivery System to carburetor	Check complete Fuel Delivery system from Pickup in Fuel Tank to carburetor Fuel Inlet for cracks, dirt, etc. Replace fuel line or Pickup Filter when necessary

TIGHTEN ALL SCREWS

NEEDLE SETTINGS

The power and idle needles control the lubrication received by the engine. Adjustments should be done carefully. Start by turning the needles all the way in (do not force them). Set Power (high speed) needle one (1) turn open and the idle (low speed) needle one (1) turn open. This puts both slightly on the rich side and leaner adjustments can be made as needed. (Too lean an adjustment can cause improper lubrication).



WALBRO CORPORATION,

WALBRO MODEL HDC

(Maintenance Instructions)

DISASSEMBLY: Remove the large cover screw, fuel pump cover, pump gasket and diaphragm. Remove four screws and lock washers. Lift off metering diaphragm cover. Remove metering diaphragm and gasket. The circuit plate with positioning tab is now visible. This plate holds down the inlet needle valve, metering lever and spring assembly. Remove two flat head circuit plate screws and lift the plate. Remove inlet needle valve, lever and spring. Remove the thick black circuit gasket, exposing all fuel passages and idle ports. Unscrew the HI and the LO fuel needle and spring assemblies.

If the choke friction spring and ball, or the choke shaft or valve need replacing, remove choke valve from the shaft. With your finger, cover the hole through which the choke shaft can be seen. Then pull out the shaft. Remove the ball and the spring from the hole.

It should never be necessary to remove the screen-retaining rings and the screens covering the limiting jet or the main jet check valve. If the throttle shaft is to be replaced, remove the screw and the throttle valve (butterfly); also the screw and the throttle stop. Pull the throttle shaft and lever assembly out of the carburetor body. Do not lose the throttle-return spring.

INSPECTION: For best results, first soak all the metal parts in a regular solvent, not a "carburetor cleaner solution.

Examine the inlet needle, lever and spring, looking for needle wear at the tip and also at the lever contact area. Replace worn parts. Make sure the limiting jet is clean and open by blowing through the limiting jet with the throttle in open position. Examine the three fine screens. They should be open and perfectly clean. The choke friction ball should be perfectly round.

Cracked gaskets, and torn, frayed or porous diaphragms must be replaced. It is best to replace all the gaskets and diaphragms. The carburetor is not repairable if it has a damaged or worn-out main jet check valve, inlet needle valve seat, or limiting jet.

ADJUSTING THE METERING LEVER

With metering diaphragm cover (4 screws) and metering diaphragm removed:

1. Make sure the metering lever spring is seated in its hole in the chamber floor and under the dimple in the metering lever.
2. Place a straight-edge across carburetor body casting, as illustrated. Metering lever should just touch the straight edge. Slight pressure will bend needle valve end up or down.
3. Gasket must be assembled next to the body as shown.
4. Special care should be taken to make sure that the metering lever is assembled to the hook on the diaphragm and the inlet valve to prevent malfunctioning of the carburetor.