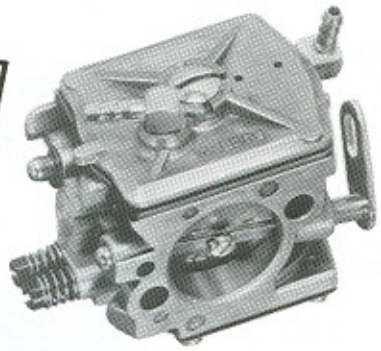
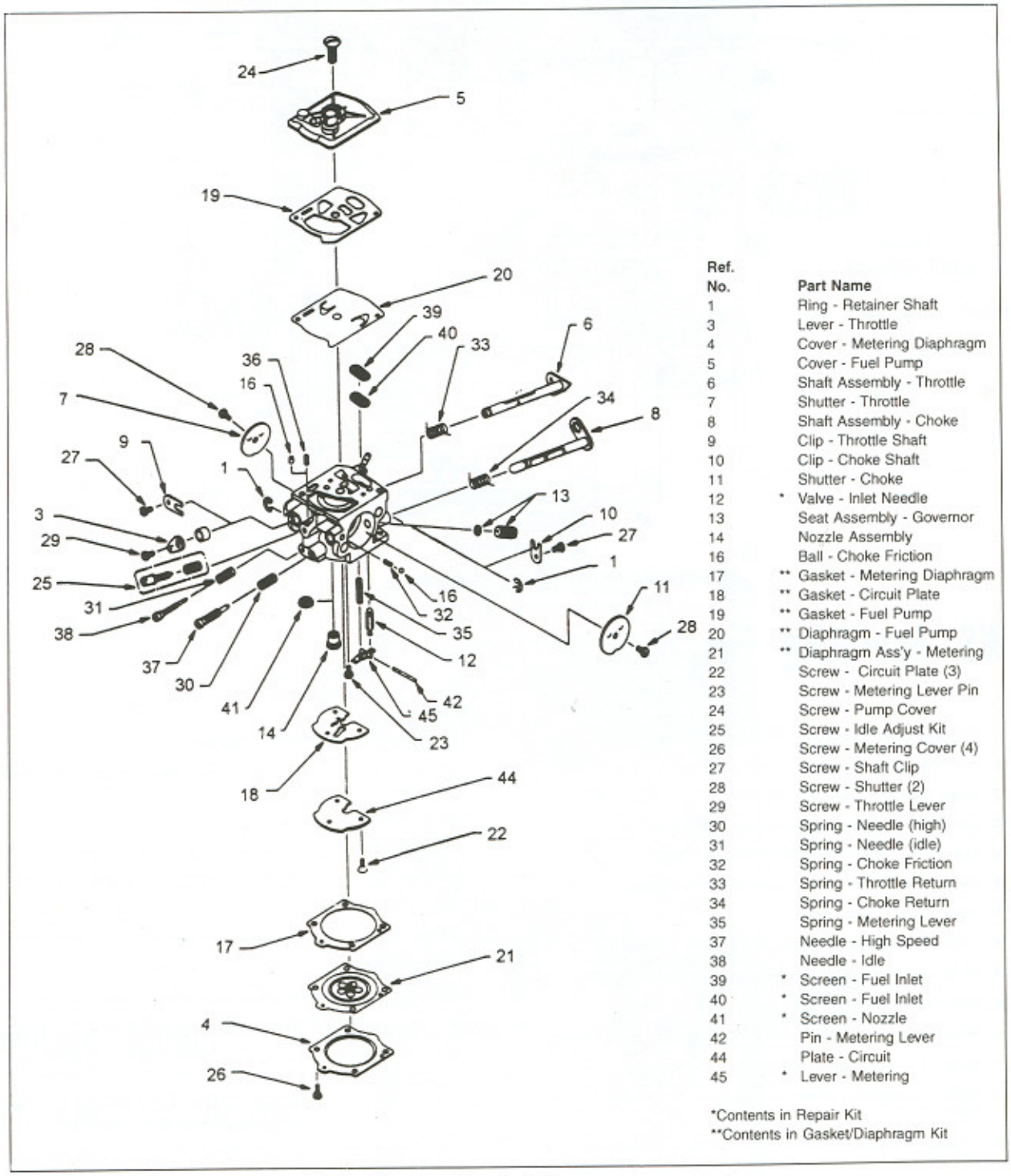
WALBRO

CHAIN SAW CARBURETOR STANDARD MODEL SERVICE MANUAL





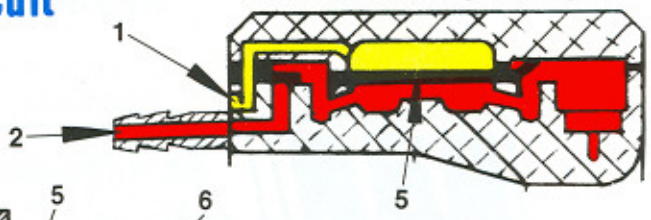
Ref. No.		Part Name
1		Ring - Retainer Shaft
3		Lever - Throttle
4		Cover - Metering Diaphragm
5		Cover - Fuel Pump
6		Shaft Assembly - Throttle
7		Shutter - Throttle
8		Shaft Assembly - Choke
9		Clip - Throttle Shaft
10		Clip - Choke Shaft
11		Shutter - Choke
12	*	Valve - Inlet Needle
13		Seat Assembly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

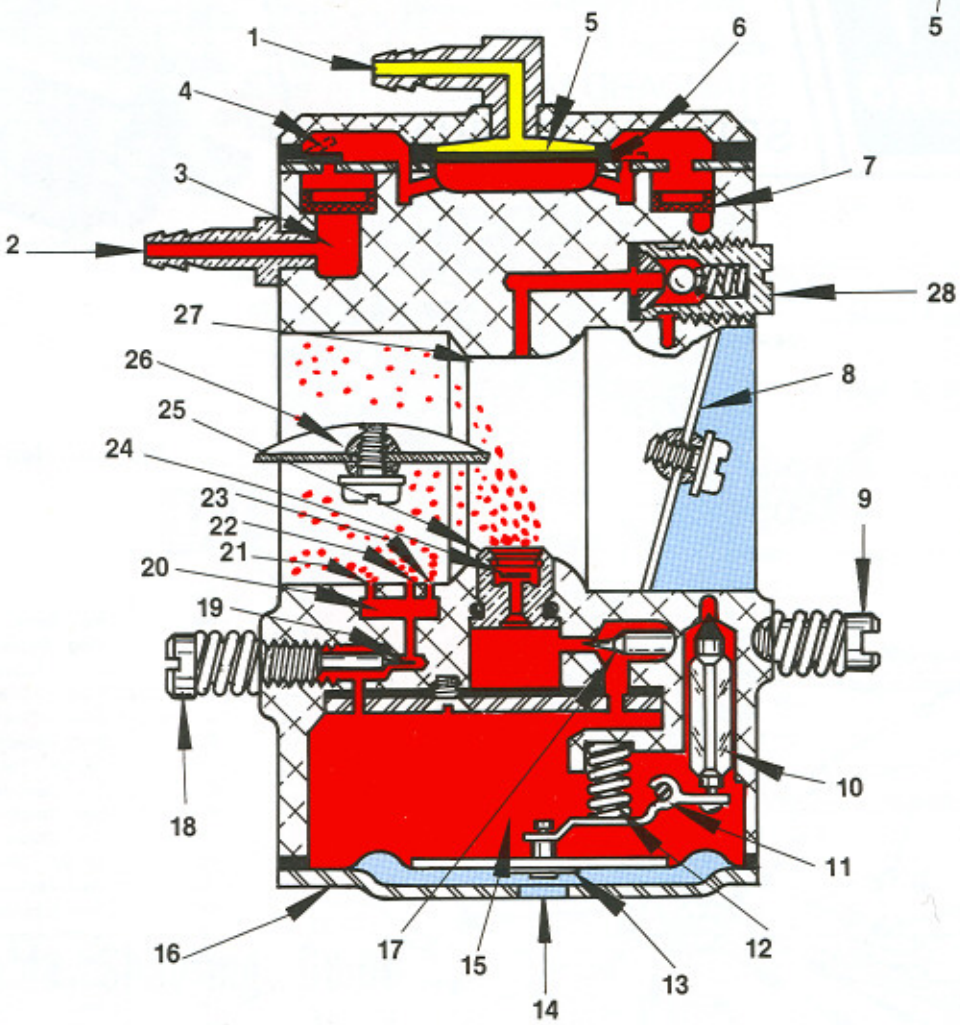
*Contents in Repair Kit
**Contents in Gasket/Diaphragm Kit

Printed in U.S.A. - 5-94 Form C-1035

Standard Model Starting Circuit

Alternate Internal Impulse System





WS Operating Functions

1 Engine Impulse: Actuates Fuel Pump Diaphragm No. 5.

2 Fuel Inlet: Fuel drawn from Tank.

3 Surge Chamber: Dampens Fuel Flow.

4 Inlet Valve: Opens on demand from Fuel Pump.

5 Fuel Pump: Responds to engine impulse force.

6 Outlet Check Valve: Forced open by pump pressure.

7 Filter Screen: Filters fuel.

8 Choke Valve:Closes air passage at starting position.

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

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

11 Metering Lever: Lifts Inlet Needle off seat.

12 Metering Lever Spring: Transmits force to Metering Lever.

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

14 Atmospheric Vent: Allows air pressure against Metering Diaphragm.

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

16 Cover: Protects Metering Diaphragm

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

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

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

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

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

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

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

24 Nozzle Check Valve: Engine vacuum draws valve open.

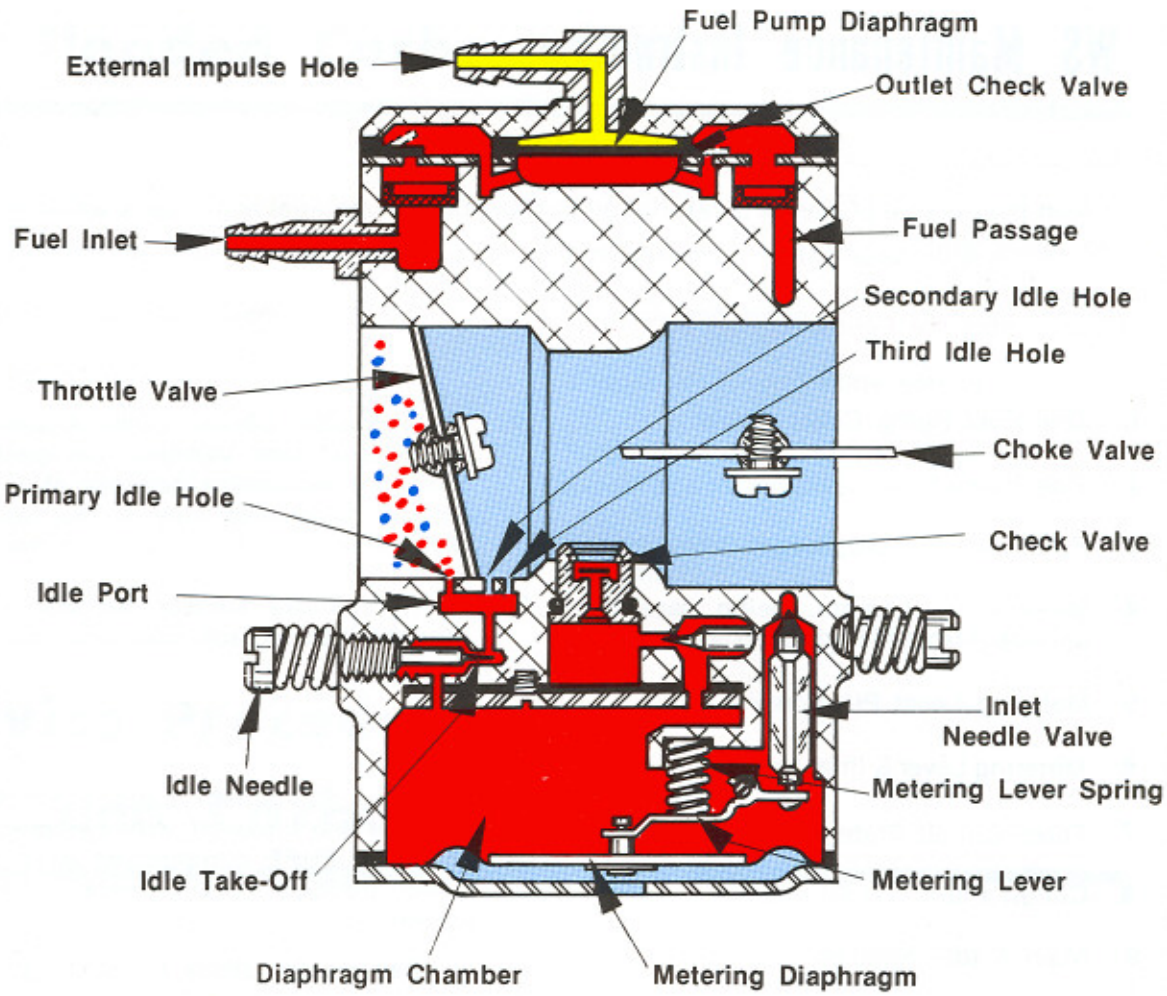
25 Nozzle: Increases fuel discharge for high speeds.

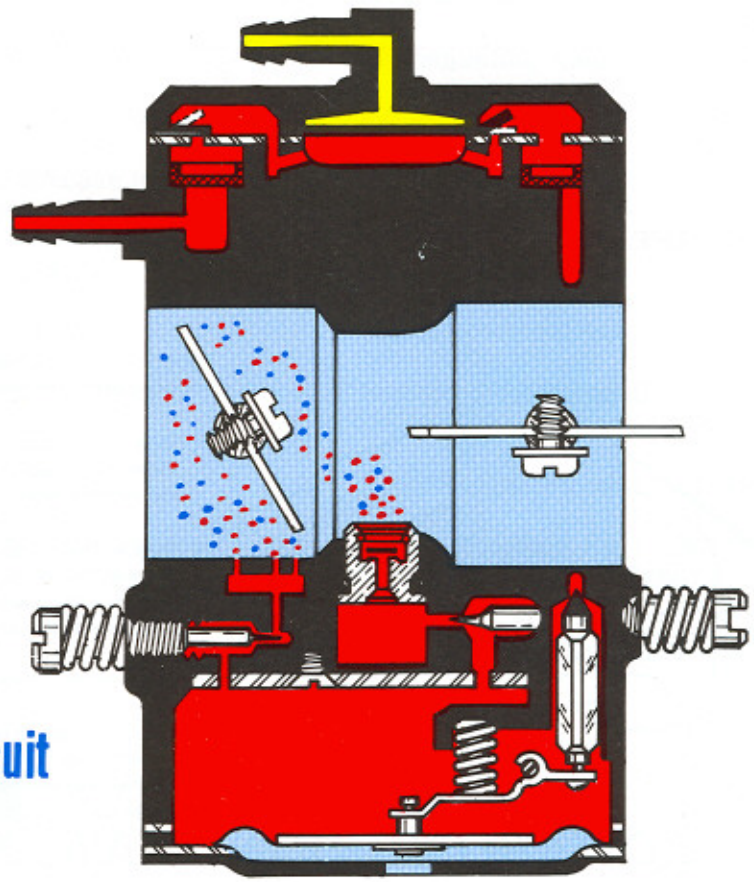
26 Throttle Valve: Regulates engine speed as it exposes Primary, Second and Third Idle holes, then Nozzle for fuel delivery.

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

28 Governor System (optional): This calibrated interchangeable high speed enrichment device limits overspeed and therefore prevents engine damage.

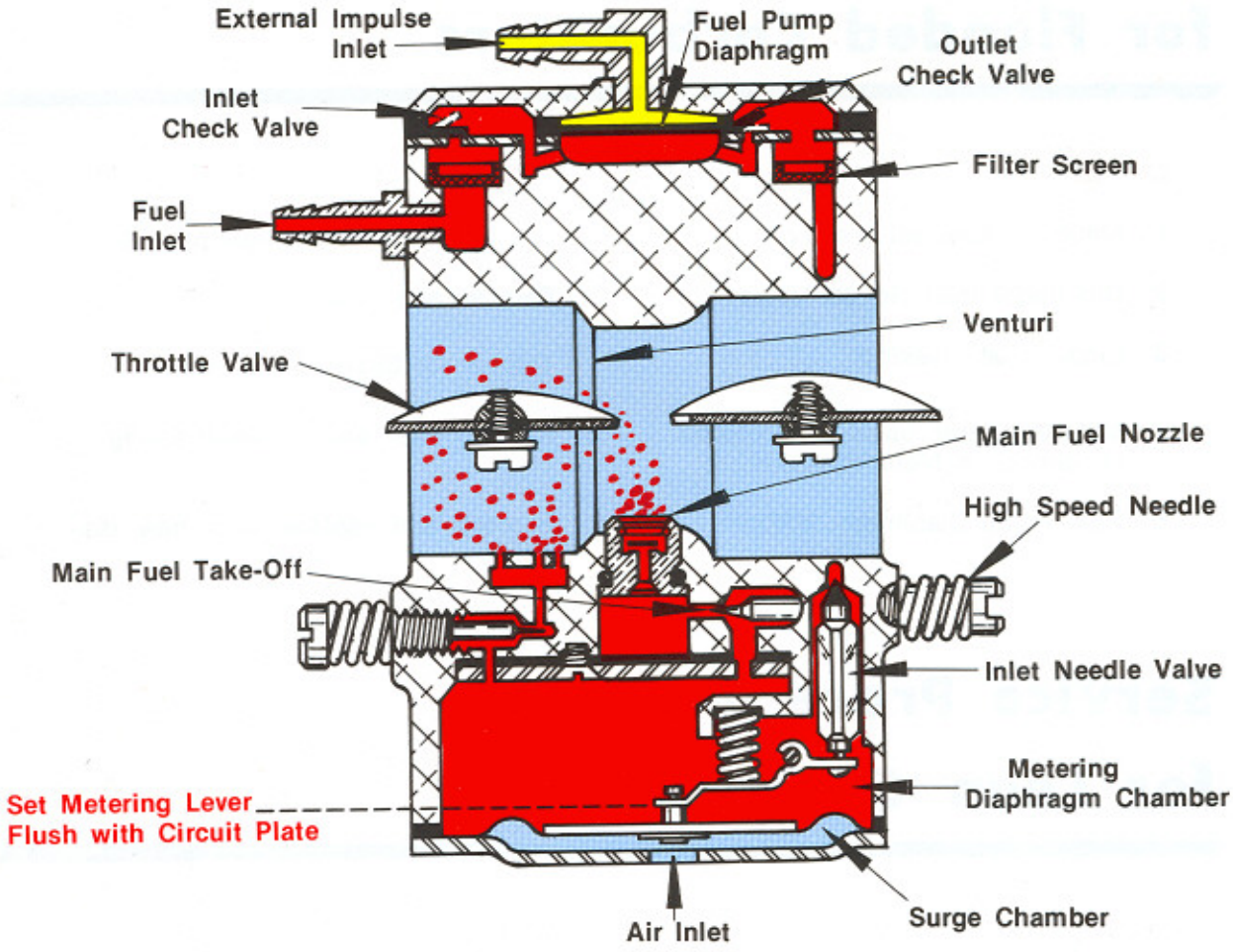
Standard Model Idle Speed Circuit





Standard Model
Part Throttle Circuit

Standard Model High Speed Circuit



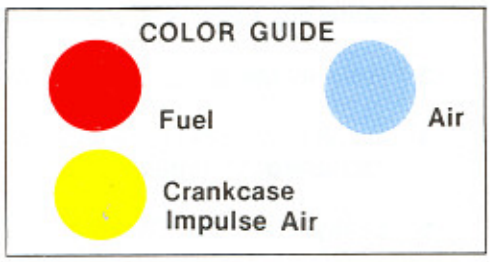
Trouble Shooting Guide

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.

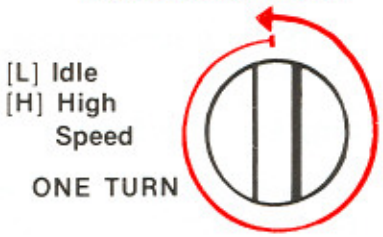
TIGHTEN ALL SCREWS

NEEDLE SETTINGS

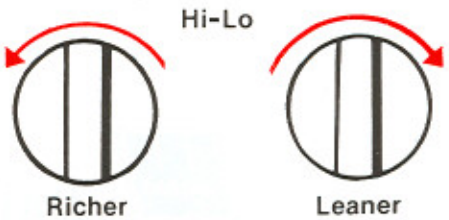
The power and idle needles control the lubrication received by the engine. Adjustments should be done carefully. Start by turning the needles all the way in (do not force them). Set Power (high speed) needle one (1) turn open and the idle (low speed) needle one (1) turn open. This puts both slightly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



NEEDLE SETTINGS



NEEDLE ADJUSTMENTS



Service Procedure for Flooded Carburetors

CAUSE		REMEDY
1	Metering lever set too high	See adjusting meter lever page 6
2	Dirt under Inlet Needle Valve	Remove and clean
3	Circuit Plate leaking	Tighten (3) Circuit Plate screws
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 adjusting meter lever page 6
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 Nozzle Assembly
7	Fuel Pump Diaphragm Check valves worn	Replace Fuel Pump Diaphragm
8	Dirty Fuel Inlet Screens	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

Walbro Engine Management Aftermarket Division

WALBRO CORPORATION
CASS CITY, MICHIGAN

WS Maintenance Instructions

Before Disassembly

Clean the outside of the carburetor of all dirt and foreign material and clear a working area for disassembly.

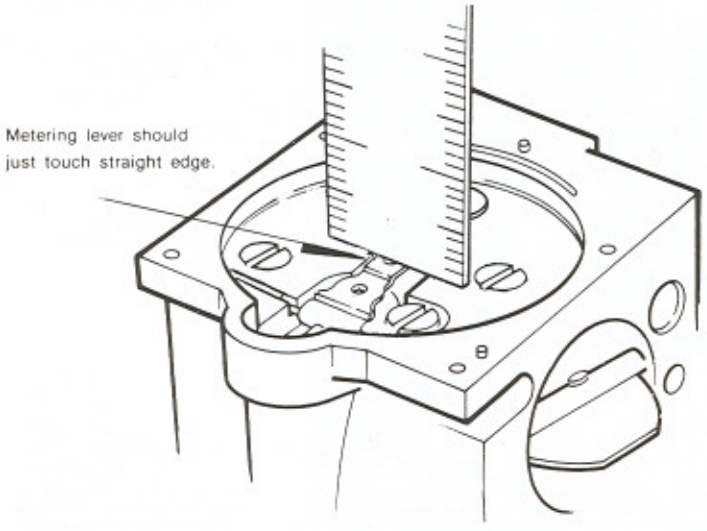
Disassemble the Following Part in Sequence

1. One Fuel Pump Cover Screw
2. Fuel Pump Cover, Diaphragm and Gasket
3. Four Metering Diaphragm Cover Screws
4. Metering Diaphragm, being careful to unhook it from Metering Lever
5. Metering Lever Pin Screw
6. Metering Lever & Inlet Needle
7. Three Circuit Plate Screws
8. Circuit Plate and Gasket
9. Main & Idle Needles
10. Main Nozzle Check Valve Assembly (press out from Venturi). No special tools are necessary because this assembly is retained only by its rubber O'Ring.
11. Do not remove Throttle System. It is necessary to replace only after significant wear.

Wash all component parts with clean gasoline and blow off with compressed air, being SURE compressed air is not blown through nozzle check valve & screen.

Reverse the above for assembly.

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 pocket in the chamber floor and under the dimple in the metering lever.
2. Place a short straight-edge across circuit plate on chamber floor 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.
4. Special care should be taken to make sure that the metering lever hooks are hooked on the diaphragm and the inlet valve buttons to prevent malfunctioning of the carburetor.