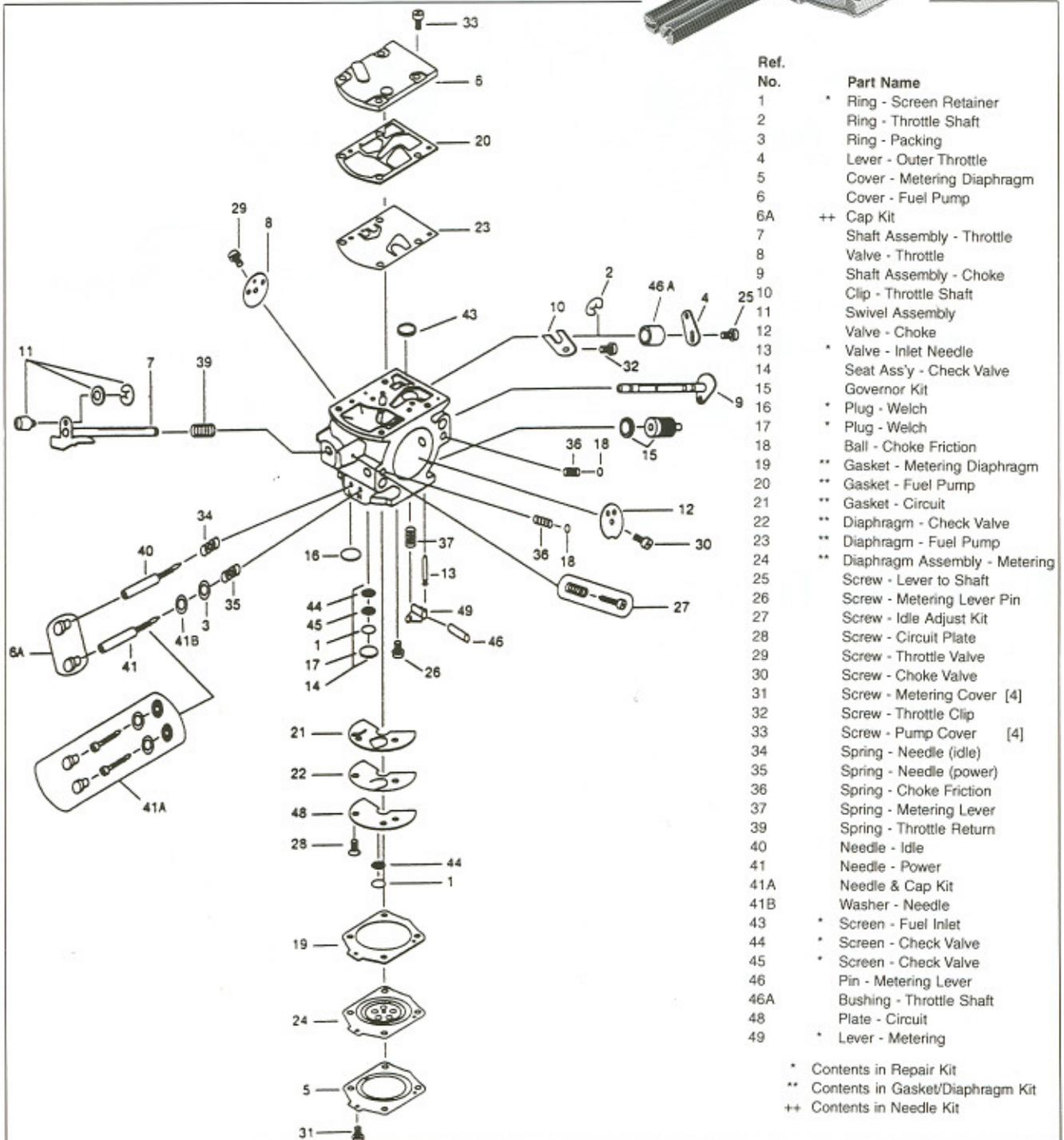
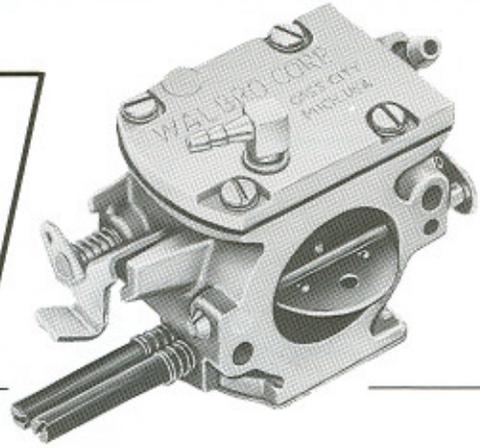




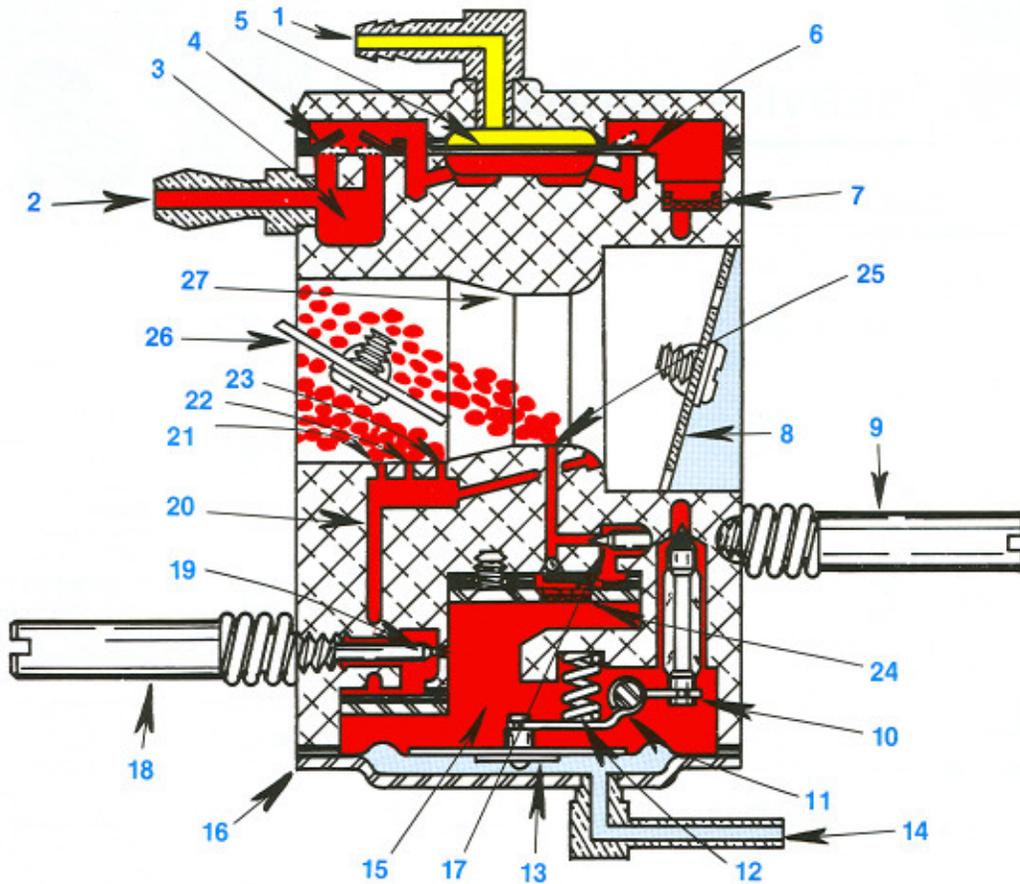
## CHAIN SAW CARBURETOR STANDARD MODEL SERVICE MANUAL



Ref. No.	Part Name
1	* Ring - Screen Retainer
2	Ring - Throttle Shaft
3	Ring - Packing
4	Lever - Outer Throttle
5	Cover - Metering Diaphragm
6	Cover - Fuel Pump
6A	++ Cap Kit
7	Shaft Assembly - Throttle
8	Valve - Throttle
9	Shaft Assembly - Choke
10	Clip - Throttle Shaft
11	Swivel Assembly
12	Valve - Choke
13	* Valve - Inlet Needle
14	Seat Ass'y - Check Valve
15	Governor Kit
16	* Plug - Welch
17	* Plug - Welch
18	Ball - Choke Friction
19	** Gasket - Metering Diaphragm
20	** Gasket - Fuel Pump
21	** Gasket - Circuit
22	** Diaphragm - Check Valve
23	** Diaphragm - Fuel Pump
24	** Diaphragm Assembly - Metering
25	Screw - Lever to Shaft
26	Screw - Metering Lever Pin
27	Screw - Idle Adjust Kit
28	Screw - Circuit Plate
29	Screw - Throttle Valve
30	Screw - Choke Valve
31	Screw - Metering Cover [4]
32	Screw - Throttle Clip
33	Screw - Pump Cover [4]
34	Spring - Needle (idle)
35	Spring - Needle (power)
36	Spring - Choke Friction
37	Spring - Metering Lever
39	Spring - Throttle Return
40	Needle - Idle
41	Needle - Power
41A	Needle & Cap Kit
41B	Washer - Needle
43	* Screen - Fuel Inlet
44	* Screen - Check Valve
45	* Screen - Check Valve
46	Pin - Metering Lever
46A	Bushing - Throttle Shaft
48	Plate - Circuit
49	* Lever - Metering

\* Contents in Repair Kit  
 \*\* Contents in Gasket/Diaphragm Kit  
 ++ Contents in Needle Kit

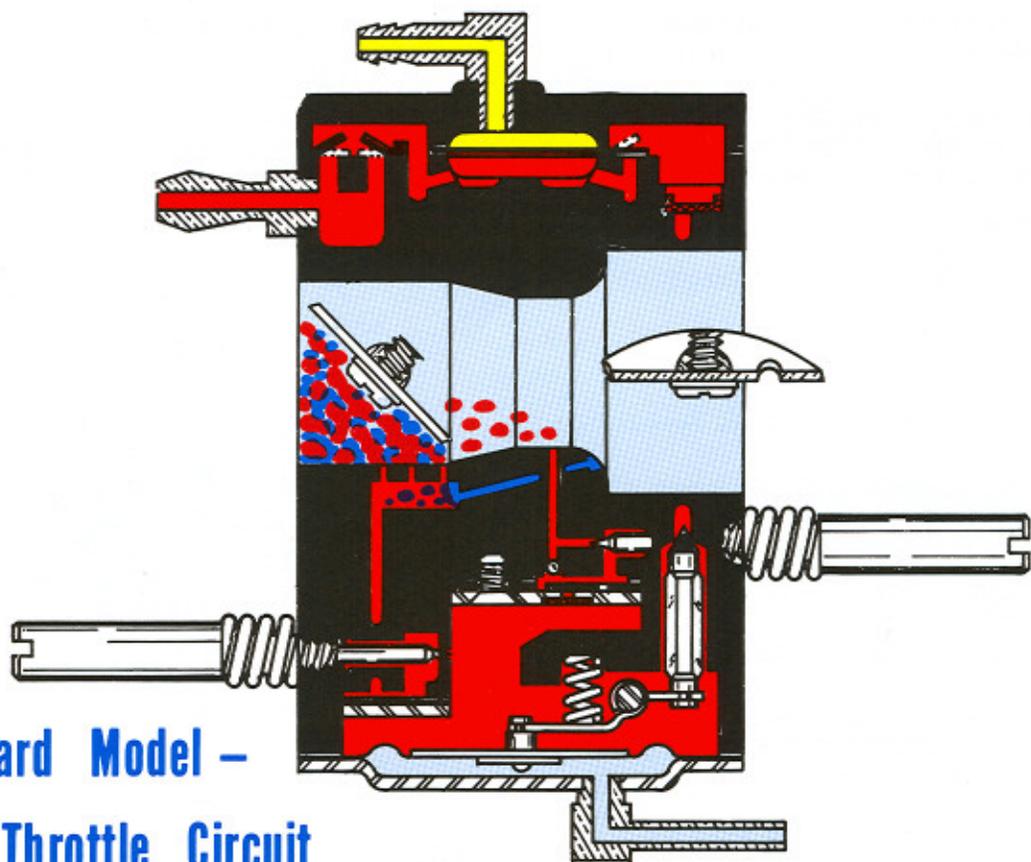
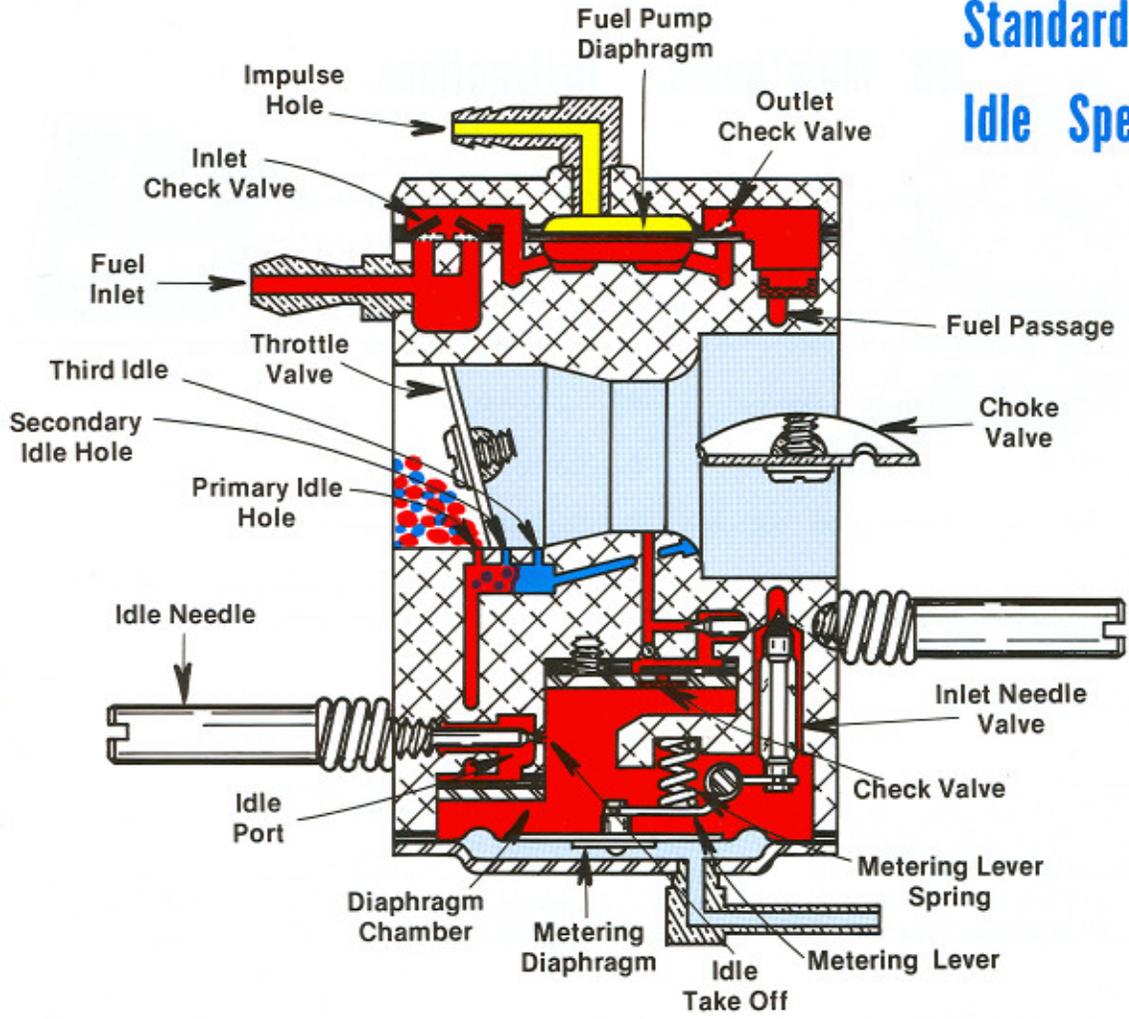
# Standard Model – Starting Circuit



## WB Operating Functions

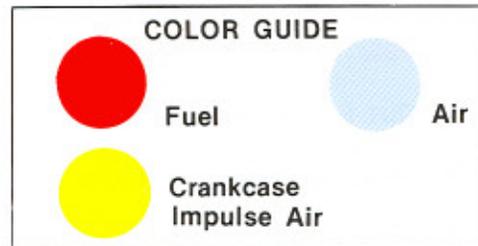
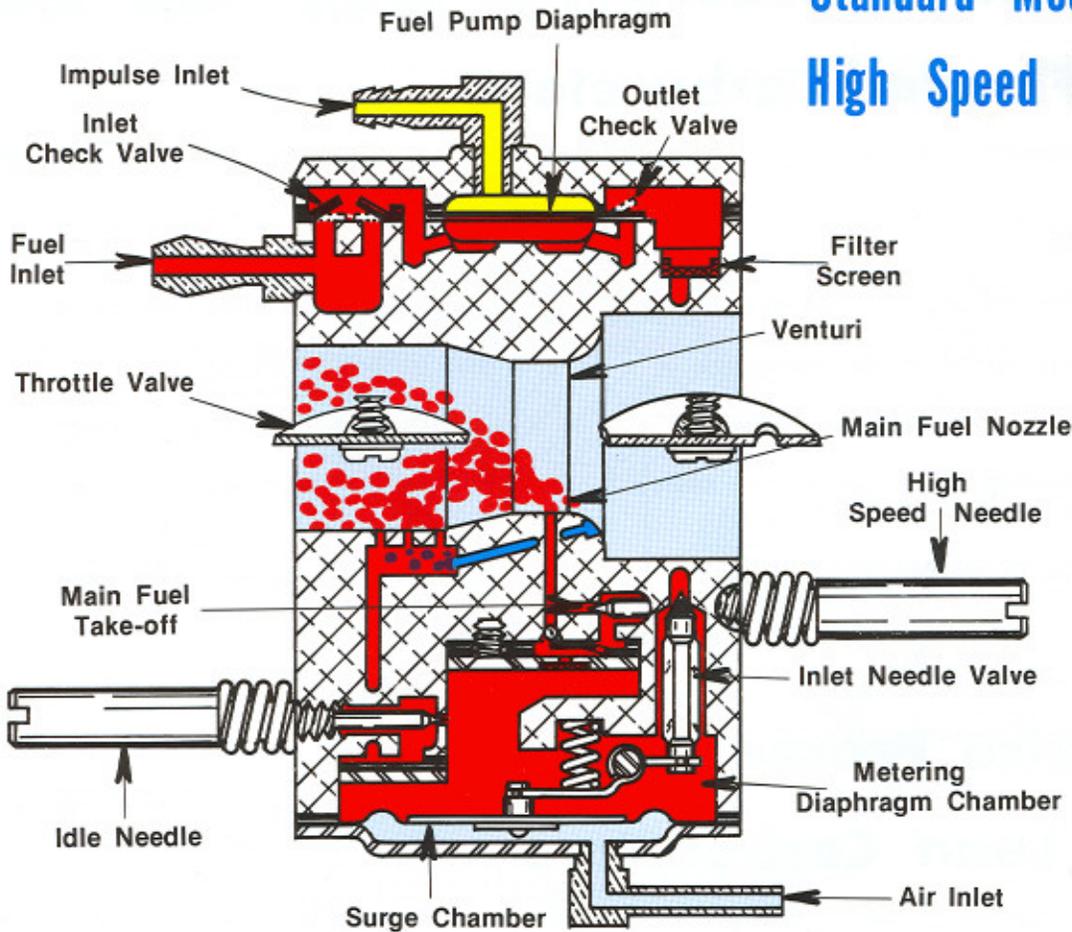
- |   |  |
|---|--|
| 1 Engine Impulse: Actuates Fuel Pump Diaphragm No. 5.                 | 15 Metering Chamber: Fuel reservoir, feeds to idle and nozzle holes.   |
| 2 Fuel Inlet: Fuel drawn from Tank.                                   | 16 Cover: Protects Metering Diaphragm.   |
| 3 Surge Chamber: Dampens Fuel Flow.                                   | 17 Nozzle Well: Fuel is drawn in from Metering Chamber at high speed.  |
| 4 Inlet Valve: Opens on demand from Fuel Pump.                        | 18 Idle Needle: Adjust for fuel richness to 3 Idle holes.  |
| 5 Fuel Pump: Responds to engine impulse force.                        | 19 Idle Take-off: Fuel entry for Idle and Part Throttle holes.   |
| 6 Outlet Check Valve: Forced open by pump pressure.                   | 20 Idle Port: Fuel reservoir for Idle and Part Throttle holes.   |
| 7 Filter Screen: Filters fuel.  | 21 Primary Idle Hole: Only fuel source to engine at Idle position.   |
| 8 Choke Valve: Closes air passage at starting position.               | 22 Second Idle Hole: Allows additional fuel flow on acceleration.  |
| 9 Hi Speed Needle: Adjust for fuel richness at high speeds.           | 23 Third Idle Hole: Increases fuel flow at Part Throttle.  |
| 10 Inlet Needle Valve: Lifts off seat to allow fuel entry.            | 24 Nozzle Check Valve: Engine vacuum draws valve open.   |
| 11 Metering Lever: Lifts Inlet Needle off seat.                       | 25 Nozzle: Increases fuel discharge for high speeds.   |
| 12 Metering Lever Spring: Transmits force to Metering Lever.          | 26 Throttle Valve: Regulates engine speed as it exposes Primary, Second and Third Idle holes, then Nozzle for fuel delivery. |
| 13 Metering Diaphragm: Drawn up by vacuum to activate Metering Lever. | 27 Venturi: Increases air velocity at Nozzle, creating a suction to draw fuel into Throttle Bore passage to engine intake.   |
| 14 Atmospheric Vent: Allows air pressure against Metering Diaphragm.  |  |

# Standard Model – Idle Speed Circuit



# Standard Model – Part Throttle Circuit

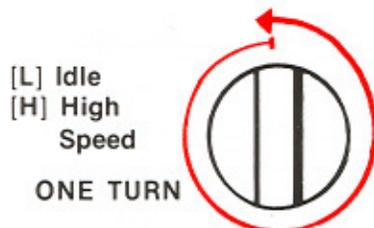
# Standard Model - High Speed Circuit



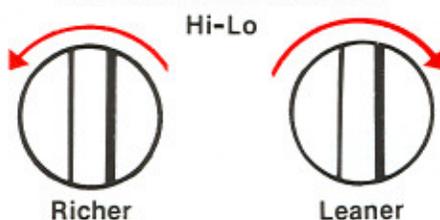
## Needle Settings

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 1 1/4 turns open and the idle (low speed) needle 1 1/4 turns 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



## 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. Basic Adjustments - Idle and Main needles, 1 1/4 turns off seat - Tune from rich side by 1/8 turn, **gradually**, leaning the mixture. **CAUTION: Excessive lean mixture can damage the engine.**
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

# Service Procedure for Flooded Carburetors

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## CAUSE

- 1 Metering Lever set too high
- 2 Dirt under Inlet Needle Valve
- 3 Circuit Plate and Gasket leaking
- 4 Metering Lever Spring not seated on dimple in Metering Lever
- 5 Fuel Pump Diaphragm leaking

## REMEDY

- See High Speed Circuit Illustration
- Remove and clean
- Tighten screws or replace gasket
- Remove lever and re-install spring
- Remove and replace with new diaphragm

# Service Procedure for Lean Carburetors

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## CAUSE

- 1 Dirt in Idle Main Channels
- 2 Metering Lever set too low
- 3 Hole in Metering Diaphragm
- 4 Pulse line from Crankcase to carburetor plugged
- 5 Leaky Manifold Gaskets
- 6 Leaky Nozzle Check Valve
- 7 Fuel Pump Diaphragm Check valves worn
- 8 Dirty Fuel Inlet Screen
- 9 Faulty Fuel Delivery System to carburetor

## REMEDY

- Disassemble carburetor & clean
- See High Speed Circuit Illustration
- Replace Diaphragm
- Remove obstruction
- Replace Gaskets
- Replace Check Valve with Kit
- Replace Fuel Pump Diaphragm
- Remove Fuel Pump Cover & Clean
- 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



Walbro  
Engine Management  
Aftermarket Division

**TIGHTEN ALL SCREWS**

**WALBRO CORPORATION**

CASS CITY, MICHIGAN

# WB 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. Four Fuel Pump Cover Screws
2. Fuel Pump Diaphragm and Gasket
3. Inlet Screen
4. Four Metering Diaphragm Cover Screws
5. Metering Diaphragm, being careful to unhook it from Metering Lever
6. Metering Lever Pin Screw
7. Metering Lever & Inlet Needle
8. Two Flat Headed Screws
9. Circuit Plate
10. Diaphragm & Gasket

Wash all component parts with clean gasoline and blow off with compressed air.

**Reverse the above for assembly.**

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. The choke friction ball should be perfectly round. 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 fuel mix, 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.

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, inlet needle valve seat, or a damaged body casting.

## ADJUSTING THE METERING LEVER

With metering diaphragm cover (4 screws), metering diaphragm, and gasket 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 be  $\frac{3}{64}$  to  $\frac{1}{16}$  below straight-edge. Slight pressure will bend needle valve end up or down.
3. Gasket must be assembled next to 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.

