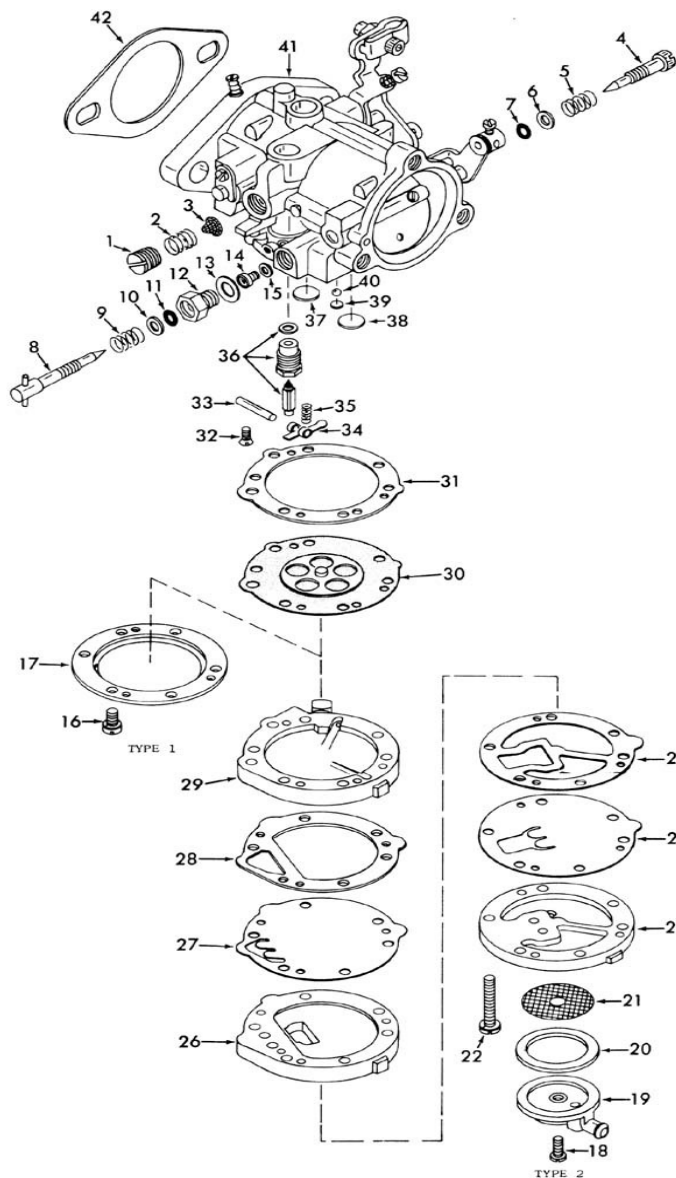


INSTRUCTION SHEET Page 1 TILLOTSON™ CARBURETOR - MODEL HD GENERAL EXPLODED VIEW

THE GENERAL DESIGN AND PARTS SHOWN WILL VARY TO
INDIVIDUAL UNITS COVERED ON THIS INSTRUCTION SHEET



NOMENCLATURE

REF. NO.

1. PLUG SCREW - BODY CHANNEL
2. SPRING - INLET SCREEN RETAINER
3. SCREEN - INLET
4. NEEDLE - IDLE ADJUSTING
5. SPRING - IDLE ADJUSTING NEEDLE
6. WASHER - IDLE NEEDLE SPRING
7. O-RING - IDLE NEEDLE
8. NEEDLE - HIGH SPEED ADJUSTING
9. SPRING - HIGH SPEED ADJUSTING NEEDLE
10. WASHER - HIGH SPEED NEEDLE SPRING
11. O-RING HIGH SPEED NEEDLE
12. GLAND - HIGH SPEED NEEDLE
13. GASKET - GLAND
14. JET - MAIN
15. GASKET - MAIN JET
16. SCREW & LOCKWASHER (6) DIAPHRAGM COVER
17. COVER - DIAPHRAGM
18. SCREW - FUEL STRAINER COVER
19. COVER - FUEL STRAINER
20. GASKET - FUEL STRAINER COVER
21. SCREEN - FUEL STRAINER
22. SCREW & LOCKWASHER (6) - INLET VALVE BODY
23. BODY - INLET VALVE
24. DIAPHRAGM - INLET VALVE
25. GASKET - INLET VALVE
26. BODY - FUEL PUMP
27. DIAPHRAGM - FUEL PUMP
28. GASKET - FUEL PUMP
29. COVER - DIAPHRAGM
30. DIAPHRAGM
31. GASKET - DIAPHRAGM
32. SCREW - LEVER PIN RETAINING
33. PIN - LEVER
34. LEVER - INLET CONTROL
35. SPRING - INLET LEVER TENSION
36. NEEDLE, SEAT & GASKET ASSEMBLY
37. WELCH PLUG - IDLE PORT
38. WELCH PLUG - NOZZLE CHECK VALVE
39. WELCH PLUG - ECONOMIZER CHECK BALL (SOME MODELS)
40. BALL - ECONOMIZER CHECK (SOME MODELS)
41. BODY - MAIN CARBURETOR
42. GASKET - FLANGE

DISASSEMBLY

USE EXPLODED VIEW AS A GUIDE. THE NUMERICAL SEQUENCE MAY GENERALLY BE FOLLOWED TO DISASSEMBLE UNIT FAR ENOUGH TO PERMIT CLEANING AND INSPECTION.
NOTE: SOME MODELS HAVE AN EXTERNAL FUEL PUMP WHICH IS REMOVED AS AN ASSEMBLY.

EARLY MODELS HAVE A MAIN JET (14) WITH RIGHT HAND THREADS.
LATER MODELS HAVE LEFT HAND THREADS.

IF WELCH PLUGS ARE REMOVED, CAREFULLY DRILL THROUGH THICKNESS OF PLUG, USING A 1/8" DRILL. THEN PRY OUT WELCH PLUG, USING A SMALL PUNCH.

INSTRUCTION SHEET Page 2
TILLOTSON™ CARBURETOR - MODEL HD
GENERAL EXPLODED VIEW
THE GENERAL DESIGN AND PARTS SHOWN WILL VARY TO
INDIVIDUAL UNITS COVERED ON THIS INSTRUCTION SHEET

CLEANING

CLEANING MUST BE DONE WITH CARBURETOR DISASSEMBLED.
SOAK PARTS LONG ENOUGH TO SOFTEN AND REMOVE ALL FOREIGN MATERIAL. USE

- (1) A CARBURETOR CLEANING SOLVENT,
- (2) LACQUER THINNER, OR
- (3) DENATURED ALCOHOL.

MAKE CERTAIN THE THROTTLE BORE IS FREE OF ALL CARBON AND VARNISH DEPOSITS.
RINSE OFF IN SUITABLE SOLVENT. BLOW OUT ALL PASSAGES IN CASTINGS WITH COMPRESSED AIR AND CHECK
CAREFULLY TO INSURE THOROUGH CLEANING OF OBSCURE AREAS.
CAUTION: DO NOT SOAK GASKETS OR RUBBER PARTS IN CLEANING SOLVENTS.

REASSEMBLY

REASSEMBLE IN REVERSE ORDER OR DISSASSEMBLY.
NOTE SPECIAL INSTRUCTIONS AND ADJUSTMENTS.

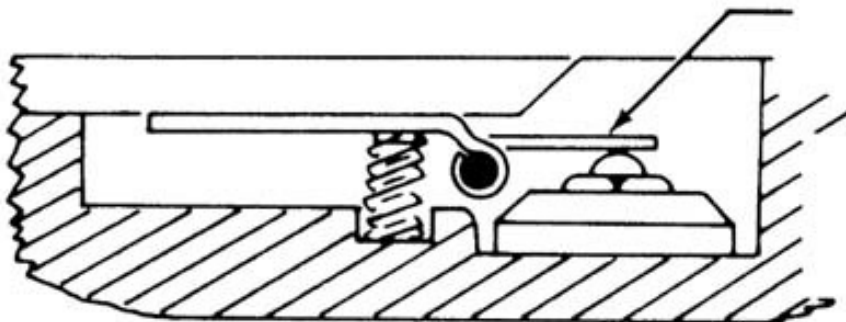
SPECIAL INSTRUCTIONS

WELCH PLUG INSTALLATION - INSTALL PLUG WITH CONVEX SIDE UP.
THEN FLATTEN, USING A 5/16" FLAT END PUNCH AND HAMMER.
(CORRECTLY INSTALLED WELCH PLUG IS FLAT.)

INLET NEEDLE SEAT INSTALLATION - INSTALL GASKET AND SEAT THEN
TIGHTEN TO 40-50 INCH LBS. OF TORQUE.

TO ADJUST BEND TANG

* CAUTION: DO NOT EXERT PRESSURE ON RESILIENT NEEDLE VALVE.
INLET CONTROL LEVER SETTING



INLET CONTROL LEVER SHOULD BE FLUSH WITH THE METERING CHAMBER WALL.

IDLE NEEDLE INSTALLATION - TURN NEEDLE (4) IN LIGHTLY UNTIL SEATED, THEN BACK OUT 1 TURN.

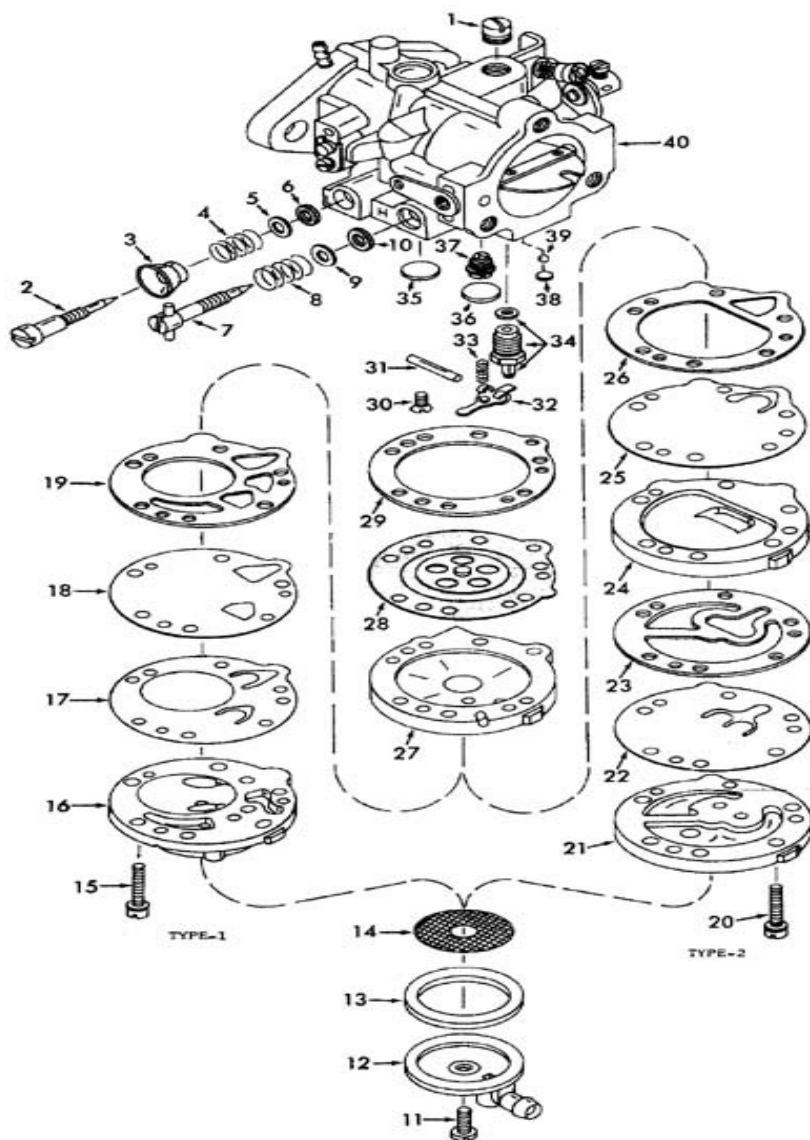
HIGH SPEED NEEDLE INSTALLATION - TURN NEEDLE (8) IN LIGHTLY UNTIL SEATED, THEN
BACK OUT 1 TURN.

IDLE ADJUSTMENT - ENGINE AT OPERATING TEMPERATURE, ADJUST IDLE
MIXTURE SCREW TO OBTAIN A SMOOTH STEADY IDLE AND ADJUST IDLE
SPEED SCREW TO ENGINE MANUFACTURER'S R.P.M.

HIGH SPEED ADJUSTMENT - ENGINE AT FULLY OPEN THROTTLE AND UNDER
NORMAL FULL LOAD, ADJUST NEEDLE TO OBTAIN THE HIGHEST R.P.M.

INSTRUCTION SHEET Page 1
TILLOTSON™ CARBURETOR - MODEL HR
GENERAL EXPLODED VIEW

THE GENERAL DESIGN AND PARTS SHOWN WILL VARY TO
INDIVIDUAL UNITS COVERED ON THIS INSTRUCTION SHEET



NOMENCLATURE

REF. NO.

1. PLUG SCREW - BODY CHANNEL
2. NEEDLE - IDLE ADJUSTING
3. CUP - IDLE ADJUSTING NEEDLE
4. SPRING - IDLE ADJUSTING NEEDLE
5. WASHER - IDLE NEEDLE SPRING
6. O-RING - IDLE NEEDLE
7. NEEDLE - HIGH SPEED ADJUSTING
8. SPRING - HIGH SPEED ADJUSTING NEEDLE
9. WASHER - HIGH SPEED NEEDLE SPRING
10. O-RING HIGH SPEED NEEDLE
11. SCREW - FUEL STRAINER COVER
12. COVER - FUEL STRAINER
13. GASKET - FUEL STRAINER
14. SCREEN - FUEL STRAINER
- TYPE 1 -
15. SCREW & LOCKWASHER
- (6) FUEL PUMP BODY
16. BODY - FUEL PUMP
17. DIAPHRAGM (VALVE) - FUEL PUMP
18. DIAPHRAGM (PULSE) - FUEL PUMP
19. GASKET - FUEL PUMP
- TYPE 2 -
20. SCREW & LOCKWASHER (6)
- INLET VALVE BODY
21. BODY - INLET VALVE
22. DIAPHRAGM - INLET VALVE
23. GASKET - INLET VALVE
24. BODY - FUEL PUMP
25. DIAPHRAGM - FUEL PUMP
26. GASKET - FUEL PUMP
27. COVER - DIAPHRAGM
28. DIAPHRAGM
29. GASKET - DIAPHRAGM
30. SCREW - LEVER FULCRUM PIN RETAINER
31. PIN - LEVER FULCRUM
32. LEVER - INLET CONTROL
33. SPRING - INLET LEVER TENSION
34. NEEDLE, SEAT & GASKET ASSEMBLY
35. WELCH PLUG - IDLE PORT
36. WELCH PLUG - NOZZLE
- CHECK VALVE
37. VALVE - NOZZLE CHECK
38. WELCH PLUG -
- ECONOMIZER CHECK BALL
- (SOME MODELS)
39. BALL - ECONOMIZER CHECK
- (SOME MODELS)
40. BODY - MAIN CARBURETOR

DISASSEMBLY

USE EXPLODED VIEW AS A GUIDE. THE NUMERICAL SEQUENCE
MAY GENERALLY BE FOLLOWED TO DISASSEMBLE UNIT FAR
ENOUGH TO PERMIT CLEANING AND INSPECTION.

NOTE: IF WELCH PLUGS ARE REMOVED, CAREFULLY DRILL
THROUGH THICKNESS OF PLUG,
USING A 1/8" DRILL. THEN PRY OUT WELCH PLUG, USING A
SMALL PUNCH.

Instruction Sheet for Walbro™ - WD

Instruction Sheet For: WDA, WDB, WD, WRA, WR, WRD Series

MAINTENANCE INSTRUCTIONS

NOTE: The 3 chief causes of carburetor malfunction are dirt, excessive richness and excessive leanness.

TROUBLE SHOOTING GUIDE

Things to check before disassembling the carburetor.

1. **FUEL SOURCE:** In-tank filters, lines, fittings. Check for leaks or obstructions.
2. **LINES PROPERLY CONNECTED:** Fuel, bottom center; vapor return, bottom off-set; pulse, side fitting.
3. **PULSE LINES:** Use thick-wall tubing of minimum length. Disconnect both ends and blow clear of obstructions.
4. **CHOKE AND THROTTLE:** Check mechanical linkage and cables. Look for ice, kinks etc.
5. **ADJUSTMENTS:** Idle and Main needles, 1 1/4 turns off seat. Tune from rich side by 1/8 turn, gradually.
6. **Spit Shield (Ram Tubes)** may improve low-end torque. Must be clean and tight.
7. Clutch engagement should be approximately 3000 RPM. Check with tachometer.
8. **IGNITION - SPARK PLUGS:** Change if backfire or pre-ignition. When timed correctly, white plugs mean fuel is too lean, black, too rich. Chocolate brown is normal.
9. **FUEL MIXTURE:** Follow manufacturer's recommendations, usually 20:1.
10. Tighten all screws on the carburetor. Tighten all mounting bolts. Check for cracks or leaks at flanges and manifolds.
11. **TIGHTEN ALL SCREWS**

NEEDLE SETTINGS

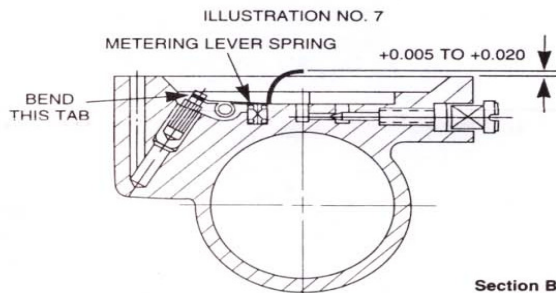
The power and idle needles control the lubrication, as well as fuel, received by the engine. Caution: Too lean an adjustment can cause insufficient lubrication. Adjustments should be done carefully. Start by turning the needles all the way in (do not force them). Set Power (high speed) needle one and one-quarter (1 1/4) turns open and the Idle (low speed) needle one and one-quarter (1 1/4) turns open. This puts both slightly on the rich side. Leaner adjustments can be made as needed.

ADJUSTING THE METERING LEVER

Proper fuel volume will pass through the needle valve only when the metering lever correctly engages the metering diaphragm. The "bumper" end of the lever should extend from 0.005 to 0.020 above the surface of the main body casting.

A simple way to check this tolerance is by sliding a straight-edge across the face of the casting. The straight-edge should very slightly interfere with the lever.

If adjustment is necessary, hold down the bumper end of the lever and bend the needle end. DO NOT PRESS DOWN ON THE NEEDLE.



BEFORE DISASSEMBLY

Carefully clean the outside of the carburetor of all dirt and foreign material and clear a working area for disassembly. The best cleaning material is one with a petroleum base.

DISASSEMBLE (in sequence) for cleaning and repairing the carburetor.

1. Four bottom cover screws
2. Filter screen and gasket
3. Check valve diaphragm and gasket
4. Fuel pump diaphragm and gasket
5. Three check valve springs and main fuel leaf spring.
6. Metering diaphragm
7. Metering lever pin screw
8. Metering lever pin
9. Metering lever spring
10. Metering lever and inlet needle valve
11. Three circuit plate screws
12. Circuit plate
13. Check valve diaphragm and gasket
14. High speed (power) needle
15. Low speed (idle) needle
16. If choke and throttle levers show signs of wear, they should be replaced, otherwise need not be removed from the casting.

Wash all components carefully with clean gasoline or a good quality carburetor cleaner. Blow out all passages and blow off components (except diaphragms) with compressed air. Replace all worn parts. Reverse the above for reassembly.

PROCEDURE FOR FLOODED CARBURETOR

CAUSES

1. Metering diaphragm lever set too high
2. Dirt under inlet needle valve
3. Metering lever spring not seated on the dimple in the metering lever
4. Fuel pump diaphragm leaking
5. Dirt under the umbrella check valve (37)

REMEDY

1. Set to specification shown on page 1
2. Remove and clean
3. Remove lever and install as shown on page 1
4. Remove and replace with new diaphragm
5. Blow through screen on the reverse side of plate

Instruction Sheet for Walbro[™] - WD (Page 2)

PROCEDURE FOR LEAN CARBURETOR

CAUSES

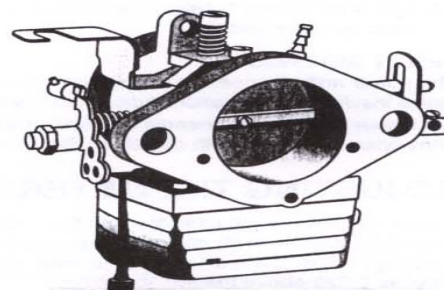
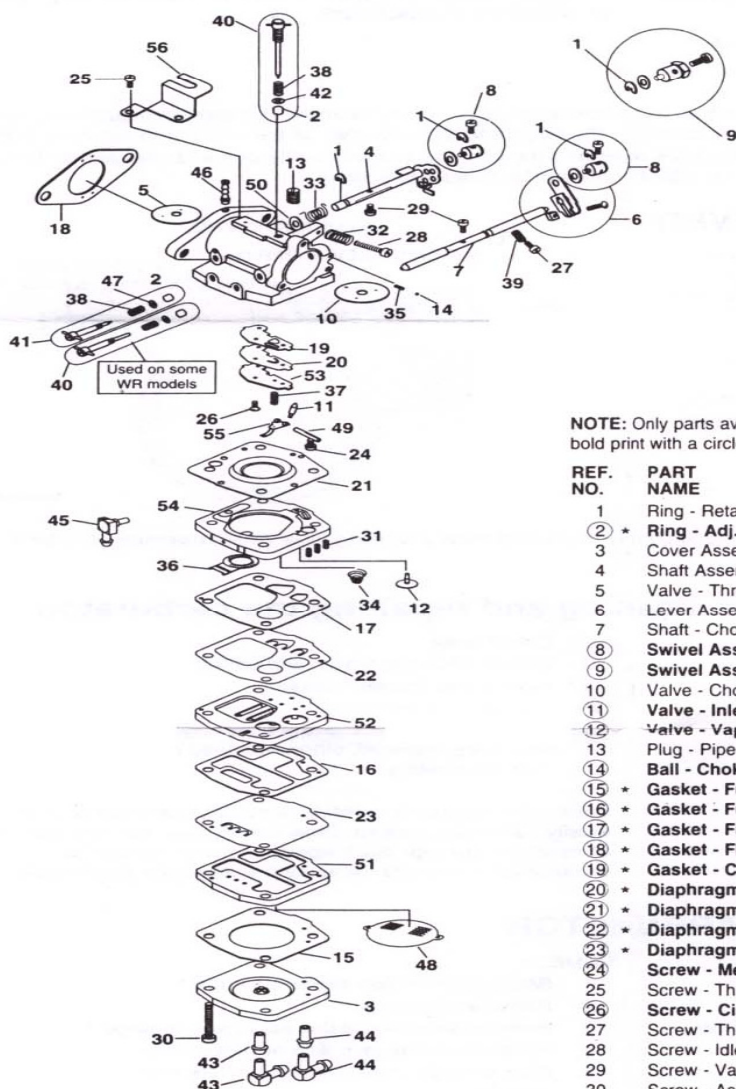
1. Dirt in idle fuel channels
2. Metering lever set too low
3. Leaky nozzle check valve diaphragm (32)
4. Hole in metering diaphragm
5. Pulse line plugged
6. Leaky manifold gaskets
7. Leaky diaphragm check valve
8. Fuel pump diaphragm check valve worn
9. Dirty fuel inlet screen
10. Faulty fuel delivery system to carburetor
11. Dirty inlet valve screen

REMEDY

1. Disassemble and clean carburetor
2. Set to specification shown on page 1
3. Replace diaphragm
4. Replace diaphragm
5. Clean
6. Replace gaskets
7. Replace diaphragm check valve assembly
8. Replace fuel pump diaphragm
9. Remove bottom plate and clean
10. Check fuel tank, lines, filters etc.
11. Unscrew pipe plug (ref. #13) next to idle screw. Carefully swab clean.

EXPLODED VIEW

WDA, WDB, WD, WRA, WR, WRD SERIES



NOTE: Only parts available are those in bold print with a circle around the number.

REF. NO.	PART NAME	REF. NO.	PART NAME
1	Ring - Retaining (3)	31	Spring - Valve (3)
2	Ring - Adj. Packing	32	Spring - Idle Screw
3	Cover Assembly - Fuel Pump	33	Spring - Throttle Return
4	Shaft Assembly - Throttle	34	Spring - Pressure
5	Valve - Throttle	35	Spring - Choke Friction
6	Lever Assembly - Choke	36	Spring - Fuel Pump Leaf
7	Shaft - Choke	37	Spring - Metering Lever
8	Swivel Assembly	38	Spring - Power & Idle Needle
9	Swivel Assembly Hex Head	39	Spring - Throttle Cracker
10	Valve - Choke	40	Needle Assembly - Power
11	Valve - Inlet Needle	41	Needle Assembly - Idle
12	Valve - Vapor Pump	42	Retainer - O-Ring
13	Plug - Pipe	43	Fitting - Fuel Inlet
14	Ball - Choke Friction	44	Fitting - Vapor Return
15	Gasket - Fuel Inlet	45	Fitting - Impulse
16	Gasket - Fuel Pump Check Valve	46	Fitting - Primer
17	Gasket - Fuel Pump	47	Washer - Packing
18	Gasket - Flange	48	Screen - Filter
19	Gasket - Circuit Plate	49	Pin - Metering Lever
20	Diaphragm - Circuit Plate	50	Bushing - Throttle Spring
21	Diaphragm - Metering	51	Plate - Filter
22	Diaphragm - Fuel Pump	52	Plate - Fuel Pump
23	Diaphragm - Check Valve	53	Plate - Circuit
24	Screw - Metering Lever Pin	54	Plate Ass'y - Metering Diaphragm
25	Screw - Throttle Bracket	55	Lever - Metering
26	Screw - Circuit Plate	56	Bracket - Throttle Control
27	Screw - Throttle Cracker		
28	Screw - Idle Adj.		
29	Screw - Valve (2)		
30	Screw - Assembly (4)		

○ Contained in Repair Kit K1-WDR
 * Contained in Gasket & Diaphragm Kit D1-WDR