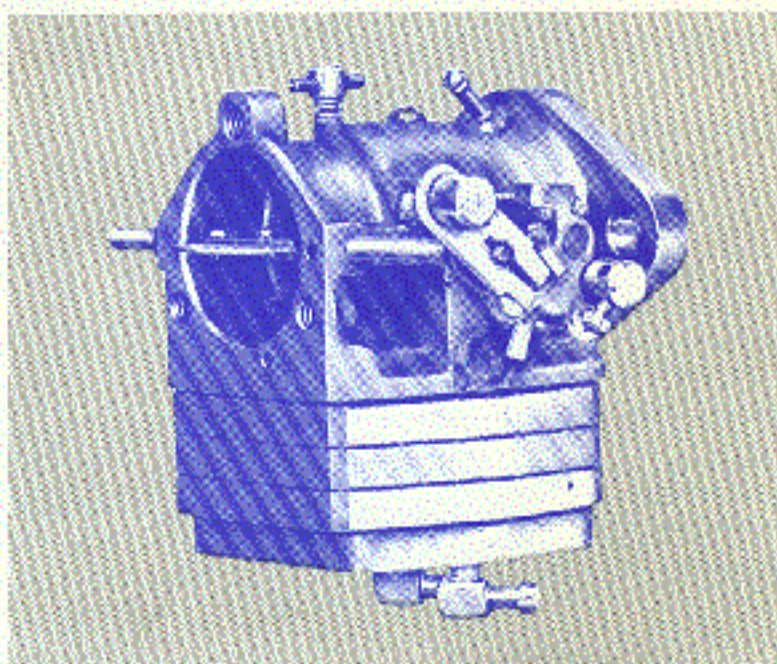


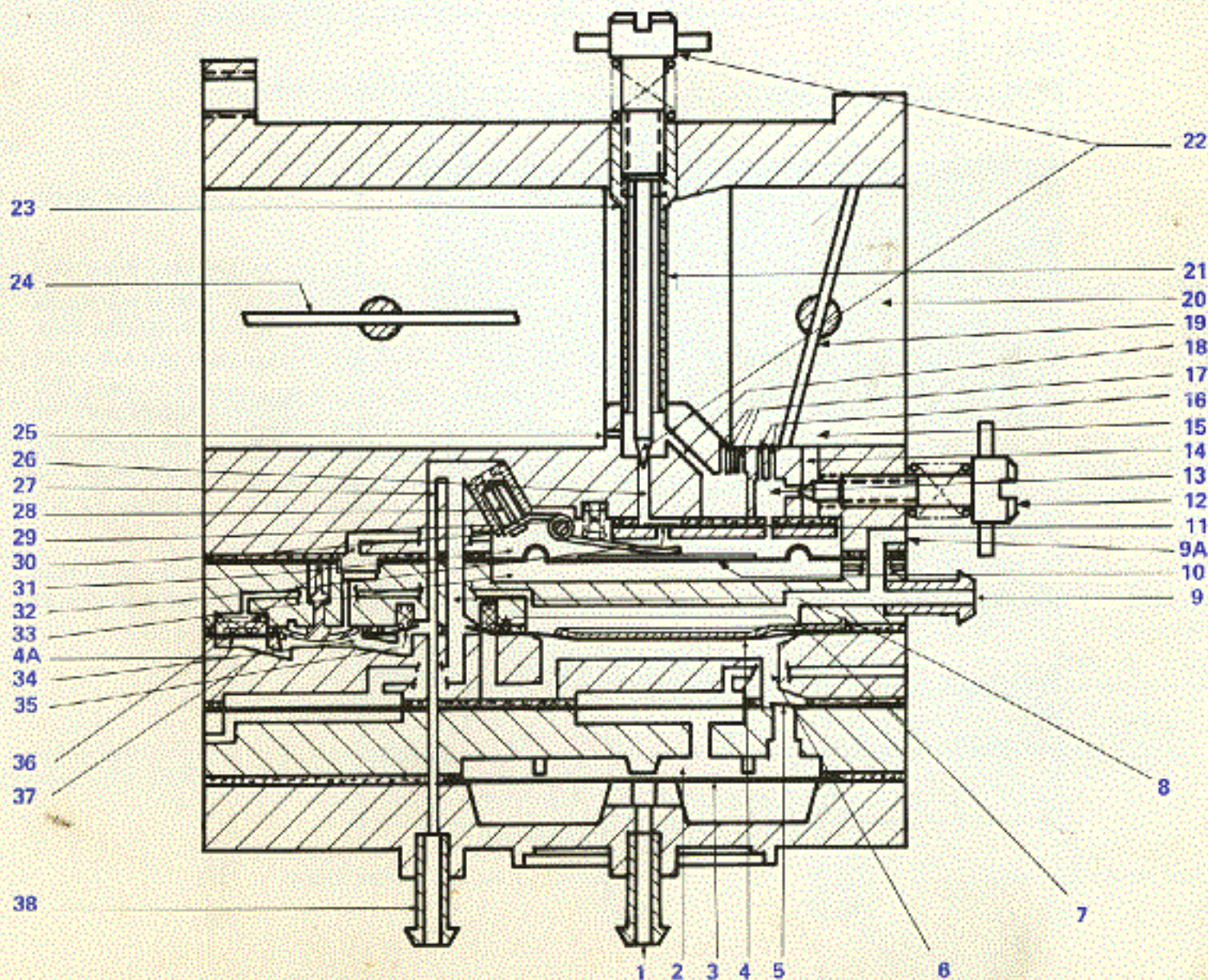


IDENTIFICATION NUMERALS

- | | | |
|---------------------------------|-----------------------------------|--------------------------------|
| 1. Fuel inlet | | |
| 2. Surge chamber | | |
| 3. Filter screen | | |
| 4. Fuel pump diaphragm | | |
| 4A. Secondary fuel pump | | |
| 5. Diaphragm check valve | | |
| 6. Channel | | |
| 7. Fuel pump outlet check valve | | |
| 8. Channel | | |
| 9. Impulse fitting, external | | |
| 9A. Internal | | |
| 10. Metering diaphragm | | |
| 11. Idle take off | | |
| 12. Idle needle | | |
| 13. Idle pocket | | |
| 14. Idle discharge port | | |
| 15. Point | | |
| 16. Secondary idle holes | | |
| 17. Part throttle holes | | |
| 18. Passage | | |
| 19. Throttle valve | | |
| 20. Throttle bore | | |
| * 21. Main nozzle | * 23. Venturi | 31. Metering diaphragm chamber |
| 22. Power needle | 24. Choke valve | 32. Check valve |
| | * 25. Nozzle air bleed | 33. Atmosphere chamber |
| | 26. Passage | 34. Chamber |
| | 27. Vapor and fuel return channel | 35. Outlet valve |
| | 28. Needle valve | 36. Channel |
| | 29. Metering lever spring | 37. Check valve |
| | 30. Metering lever | 38. Vapor return line fitting |

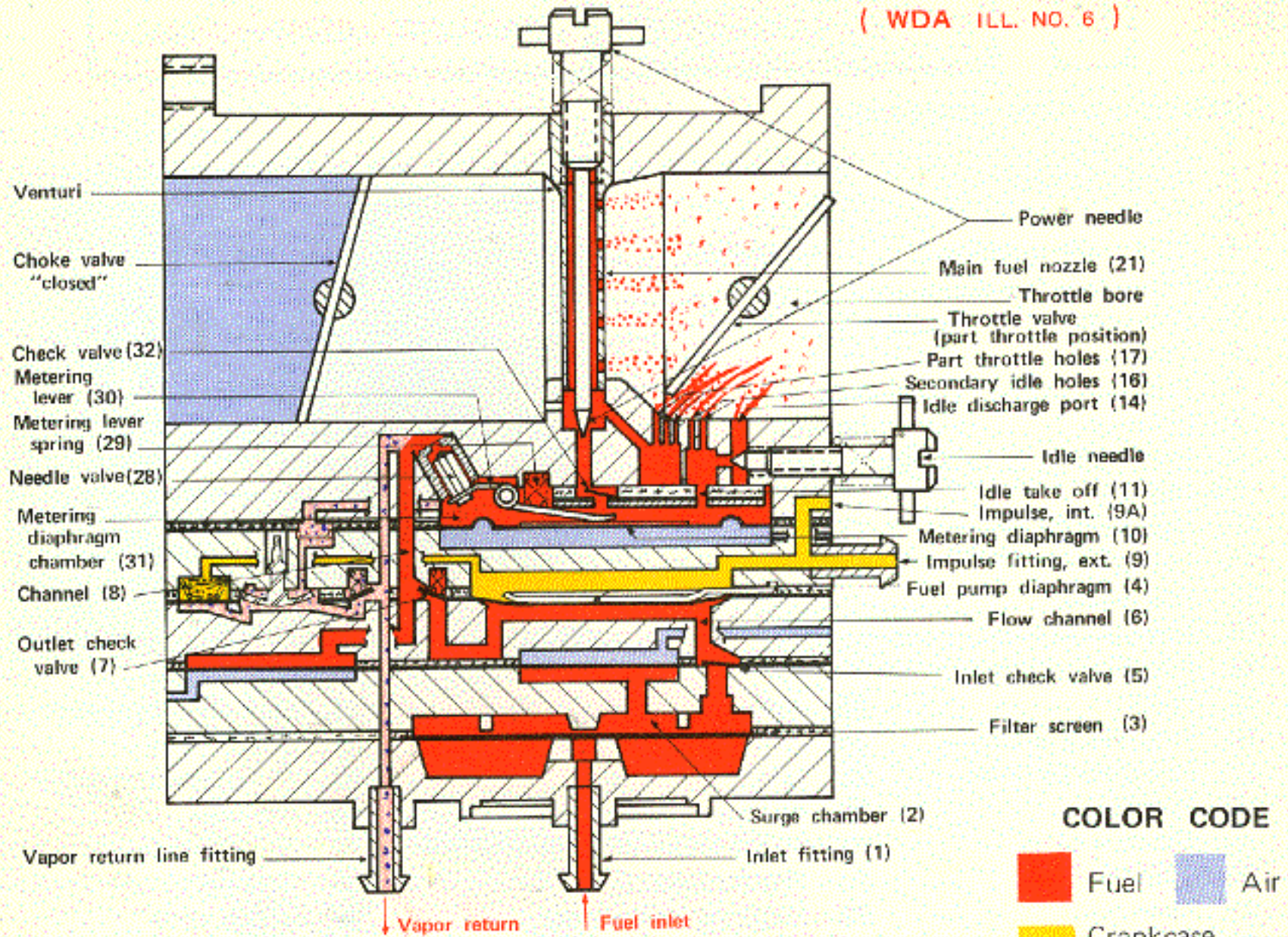


* Refer to WDA Illustration No. 6

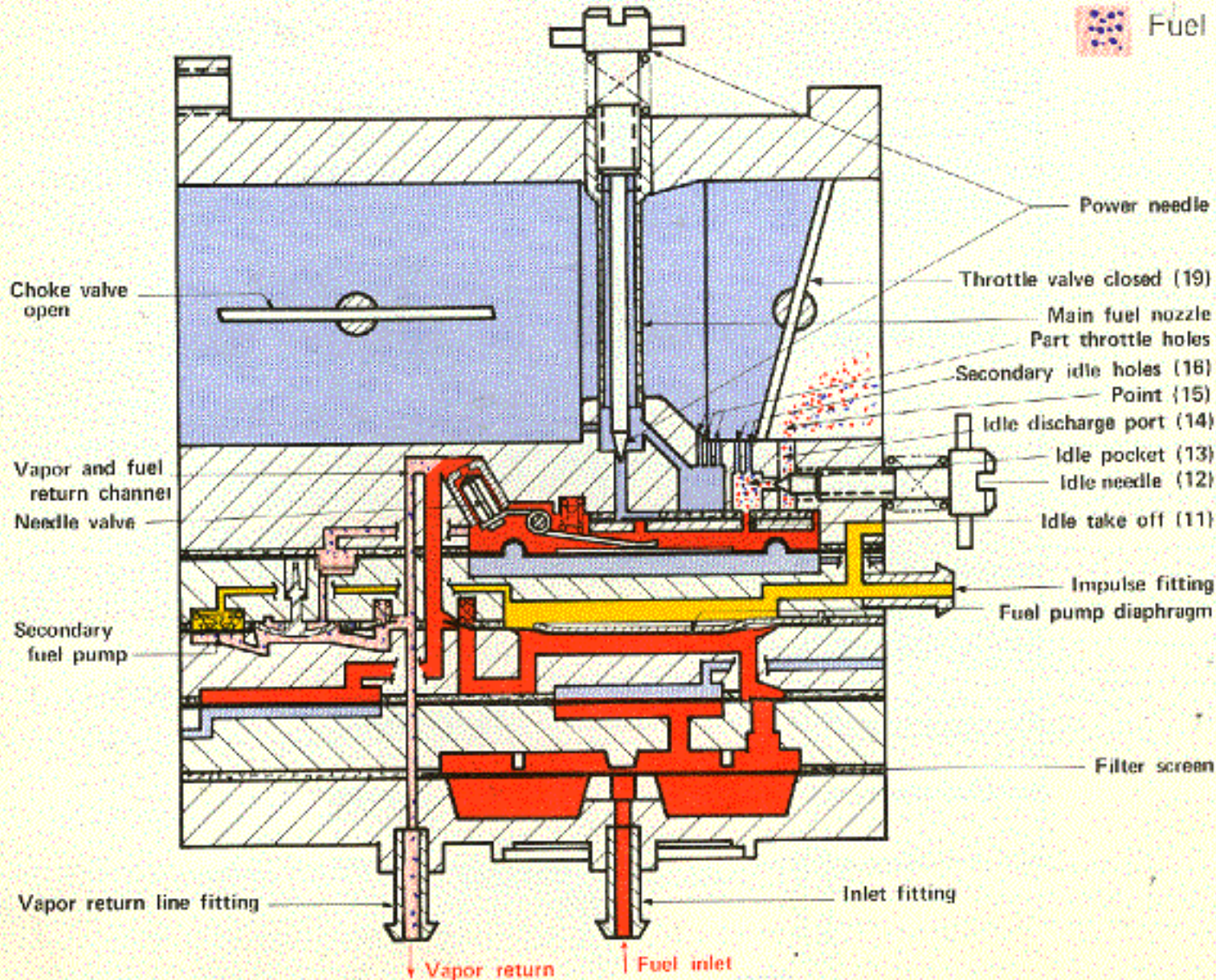


STARTING (CHOKE) OPERATION ILL. NO. 2

(WDA ILL. NO. 6)



IDLE OPERATION ILL. NO. 3



STARTING (CHOKE) OPERATION ILL. NO. 2 (WDA ILL. NO. 6)

THIS IS HOW IT WORKS:

Fuel from the supply tank is drawn in the fuel inlet (1) into the surge chamber (2) through the filter screen (3) by pulsations of the fuel pump diaphragm (4). The engine crankcase pulsations transmitted through the external impulse fitting (9) or internal impulse hole (9A) actuates the fuel pump diaphragm (4) which supplies pumping action for the fuel pump. The fuel is drawn from the surge chamber through the check valve (5) and the channel (6). The fuel continues past the fuel pump outlet check valve (7) and into channel (8). Fuel continues through fuel channel (8) and to the needle valve (28). The metering lever spring (29) transmits a force through the metering lever (30) and seats the inlet needle valve (28) against pressure. The metering diaphragm (10) is pulled upward by engine suction which is transmitted through the idle discharge port idle hole (14) secondary idle holes (16) and part throttle feed holes (17). The diaphragm action depresses the metering lever (30) and unseats the needle valve (28) and allows the fuel to enter the metering diaphragm chamber (31) and pass through the idle take off (11). Check valve (32) is forced open passing fuel into the main nozzle (21) which also feeds the part throttle holes (17). Fuel only is fed through all discharge holes.

IDLE OPERATION ILL. NO. 3 (ALL MODELS)

At idle speed the fuel passes from the idle take off (11) to the idle pocket (13) where it mixes with air from the secondary idle holes (16). This rich mixture passes around idle needle (12) through the idle discharge port (14) where it mixes with additional air passing the throttle valve (19) at point (15).

PART THROTTLE OPERATION ILL. NO. 4 (ALL MODELS)

At part throttle, in addition to the fuel fed into the throttle bore by the idle system, more fuel enters past the check valve (32) through passage (26) around the power needle (22) and through the passage (18) and discharged into the throttle bore (20) through the part throttle holes (17). All ports except the main nozzle feed progressively as throttle valve opens for smooth acceleration. Air is intermixed through air bleed nozzle (25).

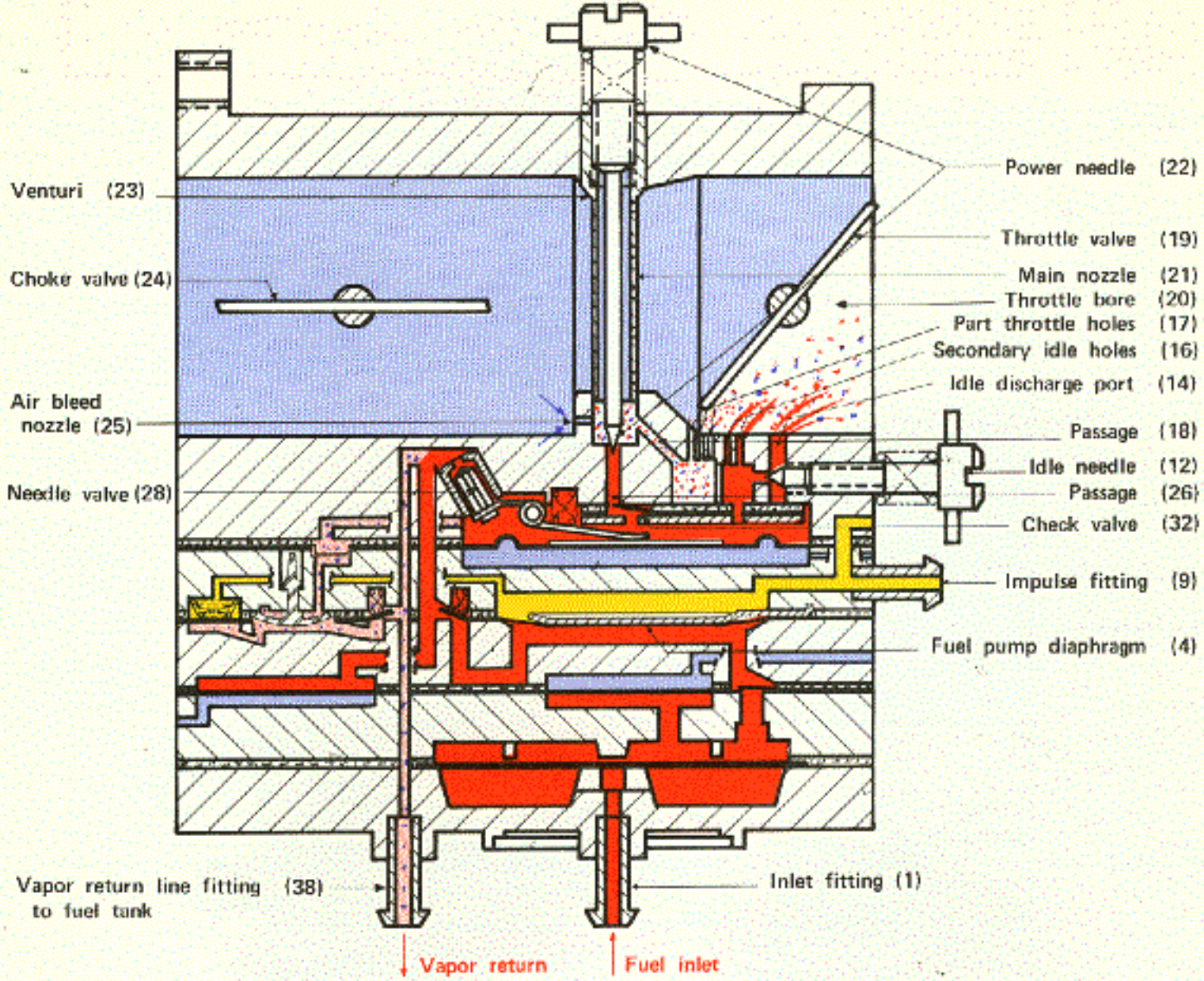
FULL (WIDE OPEN) THROTTLE OPERATION ILL. NO. 5 (WDA ILL. NO. 6)

At full throttle operation fuel passes around the power needle (22) and is discharged through the main nozzle (21) into the venturi (23). During full throttle air is mixed with fuel in the main nozzle (21) through the nozzle air bleed (25). Suction (or vacuum) created by the engine's piston action draws fuel and air as the ports are exposed by position of the throttle valve.

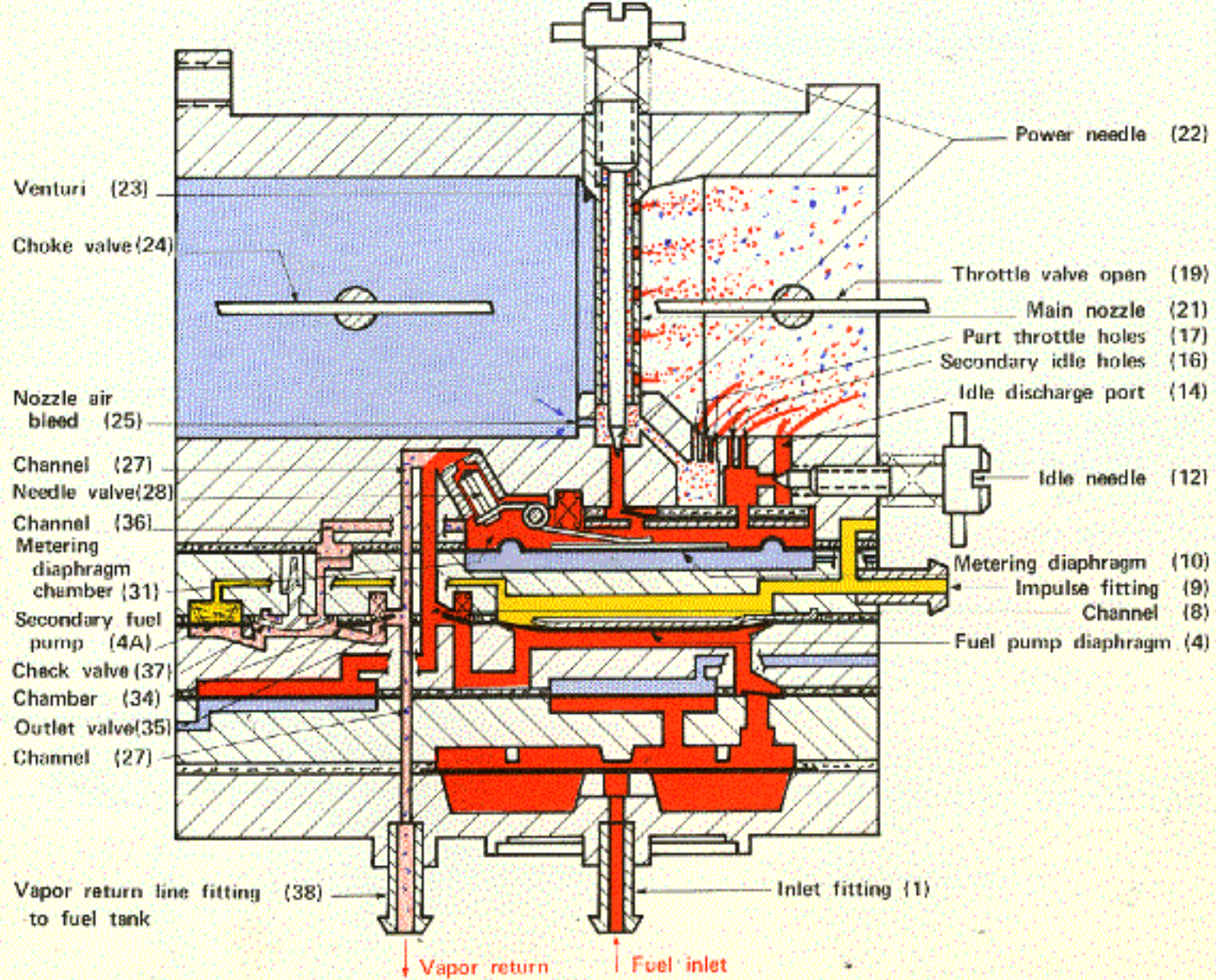
FUEL AND VAPOR RETURN SYSTEM (ALL MODELS)

At high temperature or high elevation fuel vaporizes and collects in channel (8) and metering diaphragm chamber (31). As fuel is pumped past the fuel pump diaphragm (4) through channel (8) to the needle valve (28) some fuel and vapor is pumped into channel (27) and on out the fuel and vapor return line fitting (38). Vapor in the metering diaphragm chamber (31) is pumped by a secondary fuel pump (4A), through channel (36) past check valve (37) into chamber (34) through the outlet valve (35) into the vapor and fuel return channel (27) and out the vapor return line fitting (38).

PART THROTTLE OPERATION ILL. NO. 4



FULL (WIDE OPEN) THROTTLE OPERATION ILL. NO. 5





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

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.

SERVICE HINTS

Dirt in the carburetor, richness and leanness are the three chief causes of faulty carburetor operation. Disassembly of the carburetor for cleaning and for repair is discussed on the other side of this page.

CARBURETOR RICHNESS

- | Cause | Remedy |
|---|---|
| 1. Diaphragm lever set too high | 1. Set to specification shown in Ill. No. 7 |
| 2. Dirt under inlet needle valve | 2. Remove and clean |
| 3. Metering lever spring not seated on the dimple in the metering lever | 3. Remove lever and install as per Ill. No. 7 |
| 4. Fuel pump diaphragm leaking | 4. Remove and replace with new diaphragm |
| 5. Dirt under the umbrella check valve (37) | 5. Blow through screen on the reverse side of plate |

CARBURETOR LEANNESS

- | Cause | Remedy |
|---|---|
| 1. Dirt in idle fuel channels | 1. Disassemble and clean carburetor |
| 2. Metering lever set too low | 2. Set flush with bases on chamber floor (Ill. No. 7) |
| 3. Leaky nozzle check valve diaphragm (32) | 3. Replace diaphragm |
| 4. Hole in metering diaphragm | 4. Replace diaphragm |
| 5. Pulse line plugged | 5. Clean |
| 6. Leaky manifold gaskets | 6. Replace gaskets |
| 7. Leaky diaphragm check valve | 7. Replace diaphragm check valve assembly |
| 8. Fuel pump diaphragm check valve worn | 8. Replace fuel pump diaphragm |
| 9. Dirty fuel inlet screen | 9. Remove bottom plate and clean |
| 10. Faulty fuel delivery system to carburetor | 10. Check fuel tank, lines, filters, etc. |

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 and one-quarter (1¼) open and the Idle (low speed) needle one and one-quarter (1¼) 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).