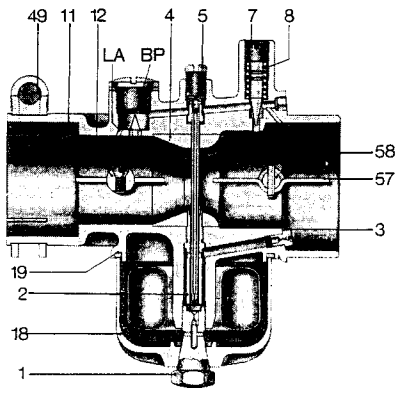
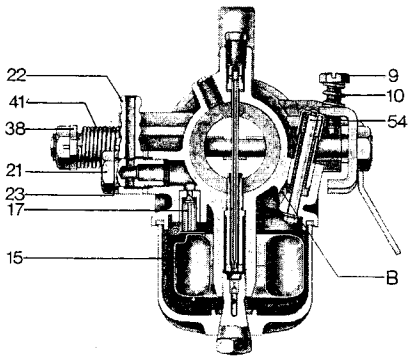
BING Throttle Valve Carburettor Type DRB

The BING Type DRB throttle valve carburettor is a cross-draught carburettor with a 25 mm diameter throttle valve and interchangeable choke tubes with diameters of 18, 20 and 22 mm. The shafts for the throttle valve and choke valve are horizontal.

In previous specifications the carburettor was designated a BING Type 8/25 throttle valve carburettor.





MOUNTING

The carburettor is secured to the engine by a 32 mm ∅ clamp; the diameter may be reduced by means of insulating bushes. Free play should be kept to a minimum on the engine intake side, so that the carburettor housing is not pulled out of true when the clamp screw (49) is tightened. On the inlet side, a 40 mm ∅, 15mm long connecting sleeve is provided, for connection of an air filter or intake muffler.

FUEL INTAKE CONTROL

The float of the carburettor, a plastic element with a metal hinge, is positioned centrally below the carburettor choke tube and concentrically around the jet system, allowing the carburettor to be inclined considerably in all directions without impairing its operation. The float's function is to maintain the fuel level in the float chamber constant. When the fuel has reached a specified level in the float chamber, the float (15) is lifted until the float needle (17) is presses against the seat of the needle valve, thus cutting off any further supply of fuel. When the engine draws fuel from the carburettor, the fuel level in the float chamber drops and so does the float. The float needie opens the valve again and allows fuel to flow in from the tank.

The float chamber comprises float bowl (18) which is secured to the carburettor housing by the main jet (1); a seal (19) is provided.

Fuel supply to the carburettor is either via the fuel pipe adapter (20) — with a seal (23) — or via a swivelling fuel pipe connector (22) secured to the carburettor housing by a screw (21) and two seals (23).

The space above the fuel level is vented to atmosphere via the tickler guide. If this vent is blocked, an air cushion forms above the fuel level. The fuel will not lift the float and the carburettor overflows.

The float needle valve regulates the fuel supply in conjunction with the float, but it does not act as a shut-off valve when the engine is at a standstill. Minute foreign bodies may be deposited between the valve seat and the tip of the needle, thus preventing complete closure of the valve. When the engine is stopped, therefore, the fuel cock on the tank should always be closed. In addition, the fuel must be filtered before it reaches the carburettor. The filter should be selected so that foreign bodies larger than 0.1 mm are filtered out, without impeding the fuel supply to too great an extent. As an additional precaution, a strainer (24) may be inserted in the fuel pipe adapter (20) or the screw (21). This strainer, however, is no substitute for a fine, large-area filter before the fuel reaches the carburettor.

When fitting a new float, the fuel level must be adjusted. The float hinge is bent until the bottom of the float is parallel with the bottom edge of the carburettor housing, into which the float bowl fits.

MAIN REGULATING SYSTEM

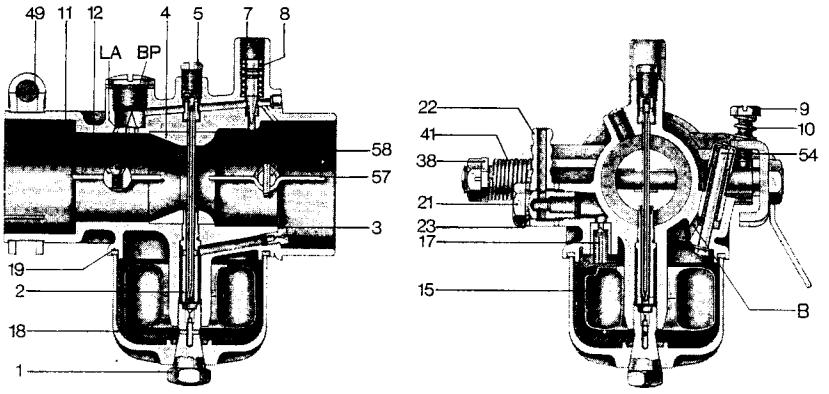
The amount of mixture drawn in by the engine, and thus its performance, is determined by the cross-sectional area in the choke tube, which is opened up by the throttle valve (11). This is secured to the throttle valve shaft (12) by two screws (13). When a new throttle valve is fitted, precise alignment must be checked when the valve is fully closed.

The air flow in the choke tube (4) creates a vacuum which draws fuel from the float chamber through the jet system. The amount of fuel drawn in, and thus the composition of the mixture, is determined by the main regulating system. After passing through the main jet (1), the fuel is pre-mixed within the mixing tube (2) with air, the amount of which is adjusted by the air adjustment jet (3). This

assists the atomizing process, forming minute fuel droplets.

IDLING SYSTEM

During idling and at low engine loads, the throttle valve is almost closed. The air flow and the vacuum in the choke tube are reduced so much that the main regulating system will no longer supply any fuel. In this operating range the fuel supply for the air intake is provided by an auxiliary system, the idling system.



As a result of the vacuum between the engine and the throttle valve, fuel flows from the float chamber, through the main jet (1) and the idling jet (5) into the system of ducts above the choke tube; it is mixed with air which enters from the choke tube and is regulated by the mixture control screw (7) and passes through the idling outlet bore (LA) and the bypass or transition passages (BP) into the carburettor choke tube.

During idling, the throttle valve is closed to such an extent that only the idling outlet bore (LA) is available between the throttle valve and the engine. The fuel required is drawn in through this bore only, while air enters through the bypass bores and is mixed with fuel together with the idling air described above.

If the throttle valve is opened further, bringing the bypass bores (BP) into play, these too are then subjected to the vacuum in the inlet and supply the additional fuel required for the amount of air drawn in, which is now greater. The idling outlet bore and the bypass bores are precisely matched to any given engine and must not be changed.

Idling speed should always be adjusted with the engine at running temperature. First, the mixture control screw is turned until it is in the position recommended for the particular engine (Back off one turn means that the screws must be fully closed, with care, then backed off by one turn). Then the idling speed is selected by means of the idling adjustment screw (9).

The idling speed quoted for a particular engine serves as a guide only. It may sometimes be necessary to make minor adjustments. First, run the engine until warm and select the desired idling speed by using the idling adjustment screw (9). The mixture control screw is then opened carefully, starting from the basic position, until the engine speed rises. The screw is then closed again by approximately one quarter of a turn.

OPERATION

Depending on the application, different combinations of levers are available to operate the carburettor.

In the system illustrated overleaf, the speed regulator at one end of the shaft is mounted on the throttle lever (38), moving the throttle valve against the force of the spiral spring (41), which can also be adjusted by means of the adjuster plate (42).

The lever (25) at the other end of the shaft, acting via the pin (14) on the shaft of the throttle valve, allows the throttle valve to be brought to the idling position regardless of the engine speed regulator.

The lever (25) is operated either by hand or by means of a Bowden cable, the outer of which is retained by the bracket (34); the lever acts against the force of the spring (33).

The screw (46) limits the full throttle opening of the throttle valve, since this is often a requirement when engines are operated in conjunction with a speed regulator.

STARTING AIDS

1. Tickler

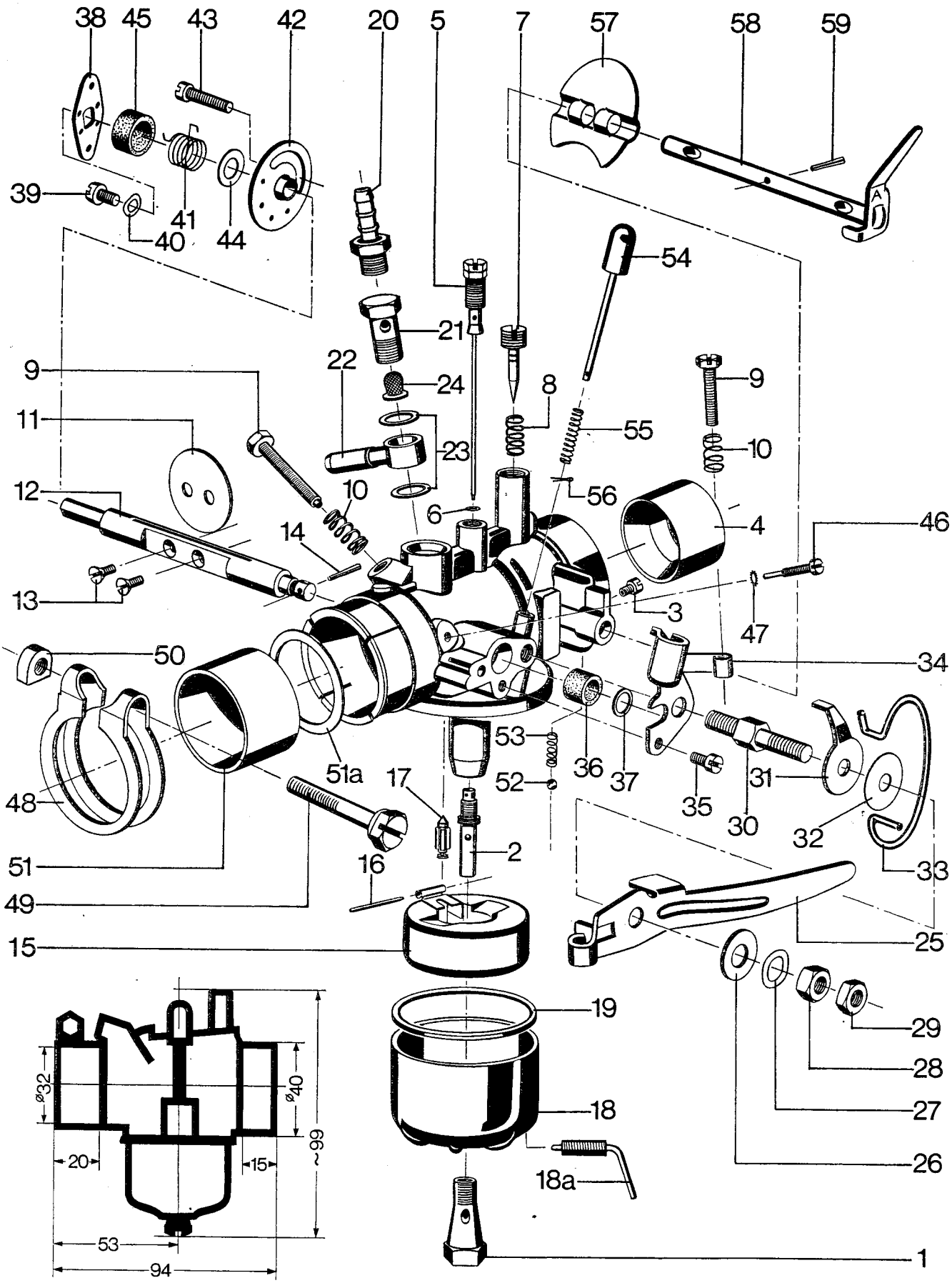
When outside temperatures are low, the carburettor can be flooded. The float may be pushed below the fuel level in the float chamber by depressing the tickler (54), so that more fuel is supplied than normally necessary.

2. Choke

The mixture can be enriched to start the engine by closing the choke (57), secured to the shaft (58) by a pin (59). Once the engine has started, the choke should be opened again as soon as engine speed begins to fall because of the overrich mixture.

3. Drain plug

When running an engine on fuels with different ignition qualities, it may be necessary to start the engine with higher grade fuel, using the low-grade fuel only after the engine has been started. In this case the float chamber is drained via the drain plug (18a) and filled with the higher grade fuel.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