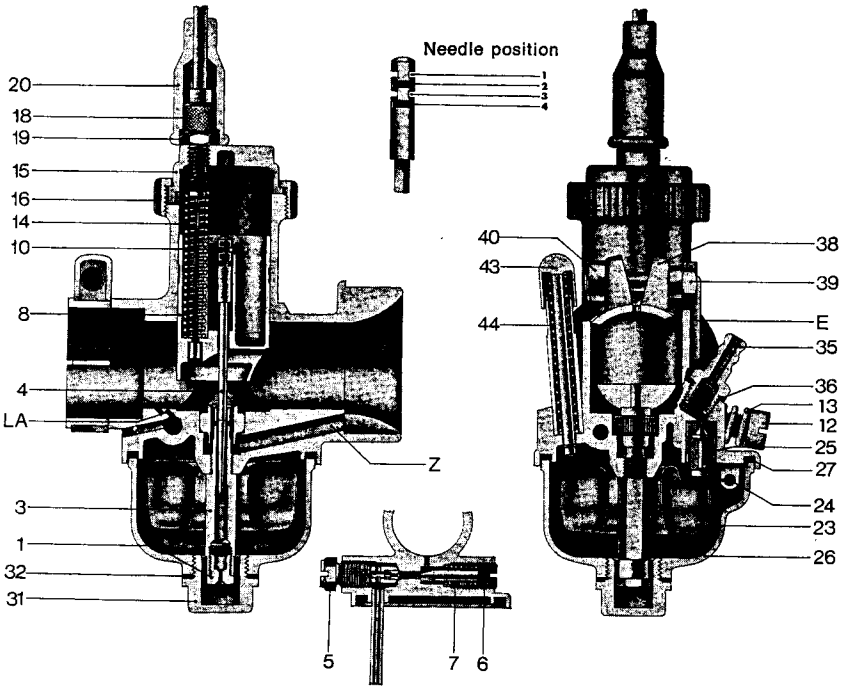
BING Slide Carburettor Type SLH

The BING carburettor type SLH is a cross-draught slide carburettor with part-load needle jet control and idling system. It is produced with two different carburettor bodies and a bore size of 18 and 19 or 20, 22 and 23 mm.



Mounting

The carburettor is mounted on the engine by a clip fitting on the carburettor body with a bore size of 18 and 19 mm. This is achieved by cast-on clamp jaws, and on the carburettor body with a bore size of 20 to 23 mm by means of a clamp ring (38), screw (39) and nut (40). On the smaller housing the connection diameter is 25 mm and 29 mm on the larger housing; using the insulating bush (41) it may be reduced to smaller diameters, the insulating bush (41) together with the insulating washer (42) at the same time restricts the heat flow from engine to carburettor. On the intake side the carburettor is provided with a stub having a diameter of 40 mm and a length of 15 mm (a special version with a diameter of 30 mm and a length of 11 mm can be provided) for connecting an air filter or intake silencer.

Fuel Supply Control

The carburettor float (23) consists of a plastic material with a metal hinge attached. It is arranged centrally below the carburettor bore and concentric with the main jet so that the carburettor can be tilted in all directions without impairing its operation. The object of the float is to maintain a constant fuel level in the float chamber (26). When the fuel has reached the specified level in the float chamber, then the float mounted on pin (24) is lifted until the float needle (25) is pressed against the inlet seat thus interrupting any further supply of fuel. When the engine draws fuel from the carburettor, the level in the float chamber (26) drops and so does the float. The float needle opens the valve seat and allows fuel to flow in from the tank.

The fuel pipe to the carburettor may be connected via the nozzle (35) with washer (36) or via the banjo fitting (35) with screw (37) and two washers (36).

In conjunction with the float the float needle valve only regulates the fuel supply, it does not function as a stop tap when the engine is stationary. Minute foreign bodies may be deposited between needle seat and needle tip, thus preventing complete closure of the valve. When stopping the engine, therefore, the fuel tap on the tank should always be closed. Furthermore it is necessary to filter the fuel before it reaches the carburettor. The filter for this should be selected so that foreign bodies greater than 0.1 mm are filtered out and the fuel supply is not impeded to too great an extent.

The float needle (25) contains a spring-loaded ball which contacts the float chamber. This prevents vibrations being transmitted to the float (23).

When fitting a new float, the fuel level has to be adjusted. When doing this, the spring-loading of the float needle should be taken into account which must not be compressed by the float weight when making the adjustment. It is therefore advisable to hold the carburettor in a horizontal position until the float just contacts the float needle. In this position the float hinge is bent in such a way that the top edge of the float is parallel with the top edge of the float chamber.

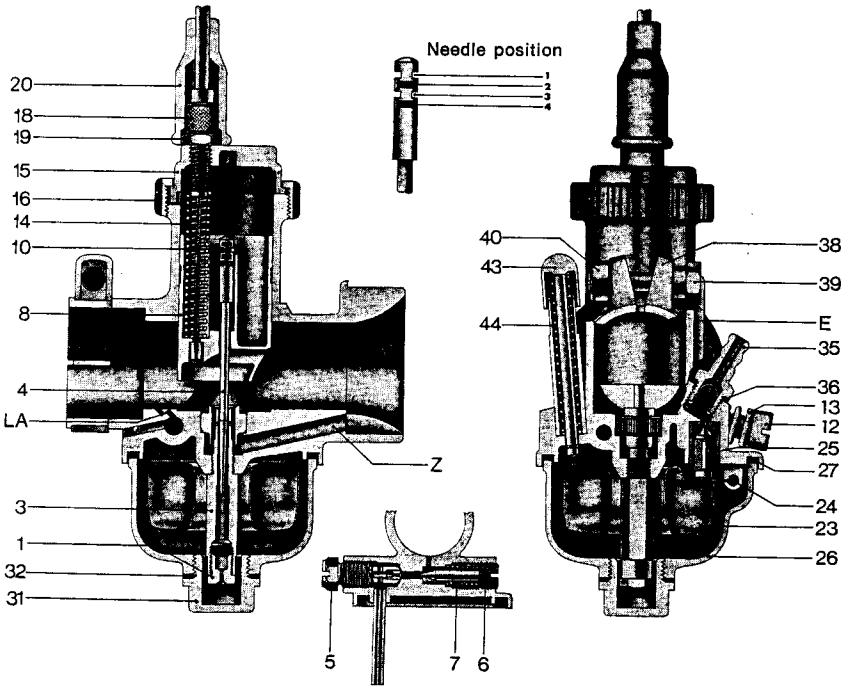
The float chamber (26) is secured to the carburettor body by two screws (28) with lockwashers (29). The washer (27) is located between float chamber and carburettor body. The space above the fuel level is vented to atmosphere by a duct (E). When this duct is blocked, an air lock forms above the fuel level. The fuel can not lift the float sufficiently to close the inlet valve and the carburettor will flood. On some versions there is additional venting via the tickler guide.

A special version of the float chamber (26) is provided with a hole at the bottom through which the main jet can be reached. This is sealed with washer (32) and plug (31).

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 bore which is opened up by the throttle valve (8). This valve is lifted by a cable against the action of a return spring (14). The air flow produces a vacuum in the carburettor bore which draws fuel from the float chamber through the jet system. On its way from the float chamber to the bore the fuel passes through the main jet (1) and the needle jet (3); as it

leaves the needle jet, it is pre-mixed with air which is brought in from the air intake via an air duct (Z) and the atomiser pressed into the carburettor body ensures an annular flow around the needle jet. This air flow assists the atomising process so that the fuel drawn in forms minute droplets and thus favourably affects the fuel distribution in the intake manifold and also combustion in the engine.



In the part-load range, in other words when the throttle valve is between one and three quarters of movement, less fuel is required than at full throttle. The fuel supplied to the bore is therefore reduced by a jet needle (4) which is connected via the throttle valve (8) and enters the needle jet (3). Depending on the dimension of the taper at the lower end of the jet needle, the annular gap between the jet needle and needle jet is enlarged or decreased. For fine adjustment the jet needle is located in the throttle valve in various positions (needle positions) which, similarly to the jet needle taper, affect the amount of fuel drawn in. For example a higher needle position results in a larger annular gap in the needle jet which allows more fuel to pass through and vice versa. "Needle position 2" means that the jet needle has been suspended by the retainer (10) or spring clip (10) from the second notch from the top. When the throttle valve opening is reduced, the amount of mixture supplied is affected by the shape of the throttle valve (8) at the lower end. With increasing height the cylindrical recess results in the mixture becoming leaner. The chamfer on the filter side called cutaway has a similar effect but this extends up to a greater throttle valve movement. The carburettor is adjusted by using main jets and needle jets of various sizes and also atomisers, throttle valves and jet needles. Depending on the type used, the jet needle (4) is located in the throttle valve (8) by the spring clip (10) or the circular spring clip (10). When the circular spring clip (10) is used, the washer (11) is located above it and supported in the throttle valve in such a way that the clip (10) is freely movable. The spring (14) acts on the throttle valve via the washer (11).

The throttle valve movement is limited at the top by the screwed ring (16) or the cover plate (15), the washer (17) and the screwed ring (16). The cable play is adjusted by means of adjusting screw (18) and locknut (19). During idling the cable play should be approximately 3 mm. The rubber cover (20) provides a seal over the adjuster (18) and the cable ferrule. If necessary, the cable may be re-routed using an adaptor (21) with locknut (22).

On special versions the main jet (1) is surrounded by a ring (9) which, together with screw (31), forms a narrow space in the float chamber (26) through which the fuel flows from the float chamber to the main jet. This ensures that fuel is not spun away from the main jet under particularly severe operating conditions.

Idling System

During idling the throttle valve is lowered to such an extent that it touches the valve adjusting screw (12). This screw allows the idling speed to be changed. If it is turned in clock-wise direction, the idling speed is increased and vice versa. The spring (13) ensures that the adjusting screw (12) cannot work loose. In the idling position the vacuum at the needle jet outlet is so low that the main regulating system will no longer supply any fuel. This is then supplied via an auxiliary system, the idling system, which consists of a standpipe pressed into the carburettor housing, the idling jet (5) and the mixture control screw (6) with spring (7) which prevents the screw from working loose. The fuel passes through the standpipe and the idling jet (5) whose bore will determine the amount of fuel allowed through. Behind the idling jet the fuel mixes with air which is supplied via a duct from the filter side, the amount admitted being determined by the setting of the mixture control screw (6). This initial mixture then flows through the idling outlet orifice (LA) into the main bore where it is further mixed with pure air.

The idling setting should always be adjusted with the engine at operating temperature. First the mixture control screw is turned in fully clock-wise and then slacked off by the number of turns specified for the particular engine. Turning in clock-wise direction results in a richer mixture and turning in anti-clockwise direction in

a leaner mixture. The idling setting quoted serves as a guide only. The optimum will generally differ slightly. First select the desired idling speed by using the throttle valve adjusting screw (12). The mixture control screw is then opened (turned anti-clockwise!) until the speed is increased. Then turn the screw back by a quarter of a turn.

Idling may be adjusted only by turning the throttle adjusting screw (12) and the mixture control screw (6) or by using idling jets of various sizes. The idling outlet bore is matched to the fuel requirement of any given engine and must not be changed.

Starting Aids

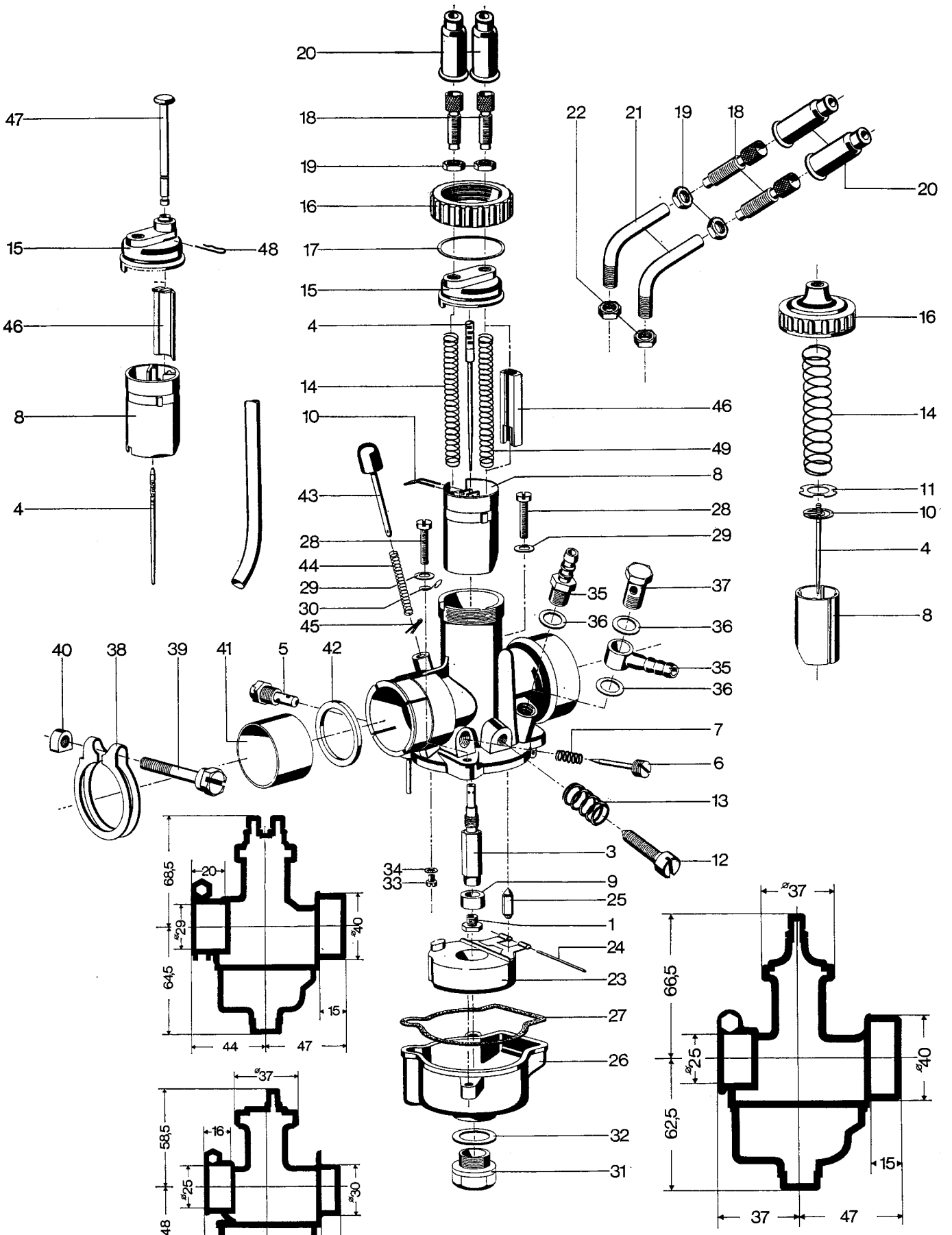
Depending on the particular application, the BING carburettor type SLH is provided with three different starting aids:

1. Tickler
   When starting at low temperatures, the float may be pushed below the fuel level in the float chamber by depressing the tickler (43) against the spring (44) so that more fuel is supplied than is required for normal operation. The tickler should only be operated until fuel is seen to emerge from the float chamber vent (E).

2. choke valve (only in carburettors with a bore size of 20 to 23 mm).
   The choke valve (46) is guided inside the throttle valve (8) and is moved by cable against the action of spring (49). When the choke valve projects into the bore, its cross-section is reduced and the vacuum at the needle jet outlet is increased. This enriches the mixture which can be desirable when starting the engine.

3. starting slide (only in carburettors with a bore size of 20 to 23 mm).
   The starting slide (46), too, is guided inside the throttle valve (8). At its upper end there is the starting rod (47) which protrudes from the carburettor through a hole in the cover plate (15). Prior to starting the starting slide is pressed downwards via the starting rod and thus restricts the bore upstream of the throttle valve. During the start the throttle valve remains in idling position.

   When the throttle valve (8) is lifted after the engine has started, it will take the starting slide (46) with it after it has moved a few millimeters until, at full throttle, the retaining spring (48) in the cover plate (15) latches into the notch on the starting rod (47).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