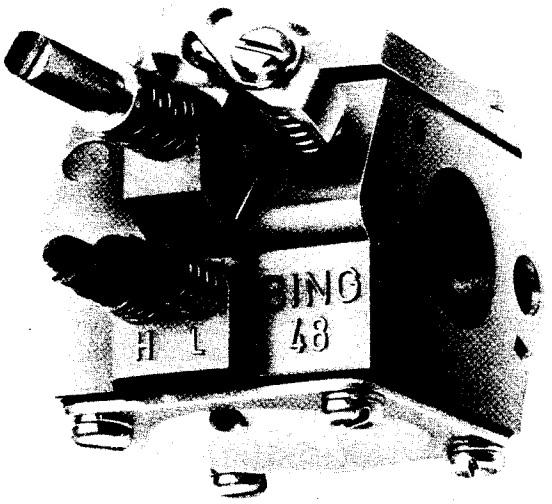
BING-Diaphragm Carburettor Type 48

The BING Type 48 diaphragm carburettor is the ideal carburation unit for equipment which has to operate reliably in all positions and attitudes (chain saws, hammer drills, etc.) or else which is subjected to particularly heavy vibrations (tampers, vibrating plates, etc.). With throttle valve diameters of 16 mm and 19 mm (intermediate sizes available on demand) and a choke diameter of 17.5 and 19 mm (intermediate sizes are also available), it is especially suitable for chain saws in the medium power range.

The carburettor is fitted with a pneumatically-driven fuel feed pump (for example operated by crankcase pressure). Its delivery is sufficient for the carburettor size and the fuel requirements of the engine it supplies by a large margin.



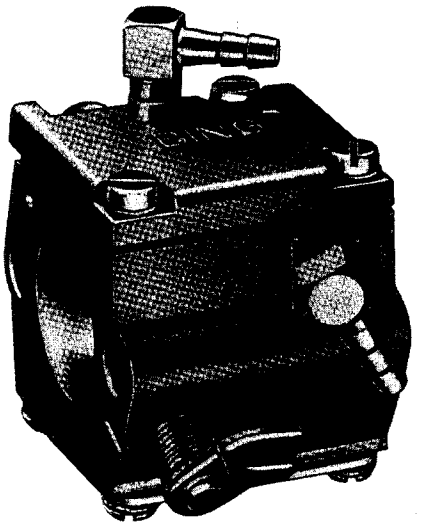
MOUNTING AND OPERATION

The carburettor is generally mounted on the engine with two M5 screws. Depending on the application, it should be protected against the flow of heat from the engine by suitable insulation. The gasket between the carburettor flange and the engine should reliably prevent any additional air from leaking in.

Various levers are available for operating the throttle valve and choke. If required, the choke spindle can be locked in the operating position (ball and spring).

The main jet (H) and the idling jet (L) can be adjusted in most applications. The adjusting screws are available with various cone dimensions and head shapes. Special versions are available on request.

The pressure pulses for driving the pump can be transmitted through a drilling in the flange on the engine side or through a right-angled nipple on the pump cover.



A well-fitting hose with a maximum inside diameter of 4.5 mm should be used as the fuel supply line.

OPERATION OF THE CARBURETTOR

The following illustrations show the flow of air and fuel at full power, part-load, idling and starting.

Pump

The diaphragm of the fuel pump (P) is moved by pressure fluctuations in the engine crankcase. If it moves towards the engine, the inlet valve (E) on the pump opens and the outlet valve (A) shuts, and the pump sucks in fuel. If the diaphragm swings back, the inlet valve (E) shuts and fuel is forced out through the outlet valve (A). A compensating chamber (W) between the fuel inlet in the carburettor and the pump inlet valve dampens oscillations in the fuel flowing past. The diaphragm of the chamber bends outwards towards the atmosphere if fuel accumulates through the inlet valve. If fuel is then sucked out by the pump, the diaphragm bends towards the fuel side.

After the pump the fuel flows through the fine filter (F). This traps any residual dirt particles, but is not a substitute for a large-area filter, which must be fitted in the fuel flow before the carburettor.

Pressure regulator

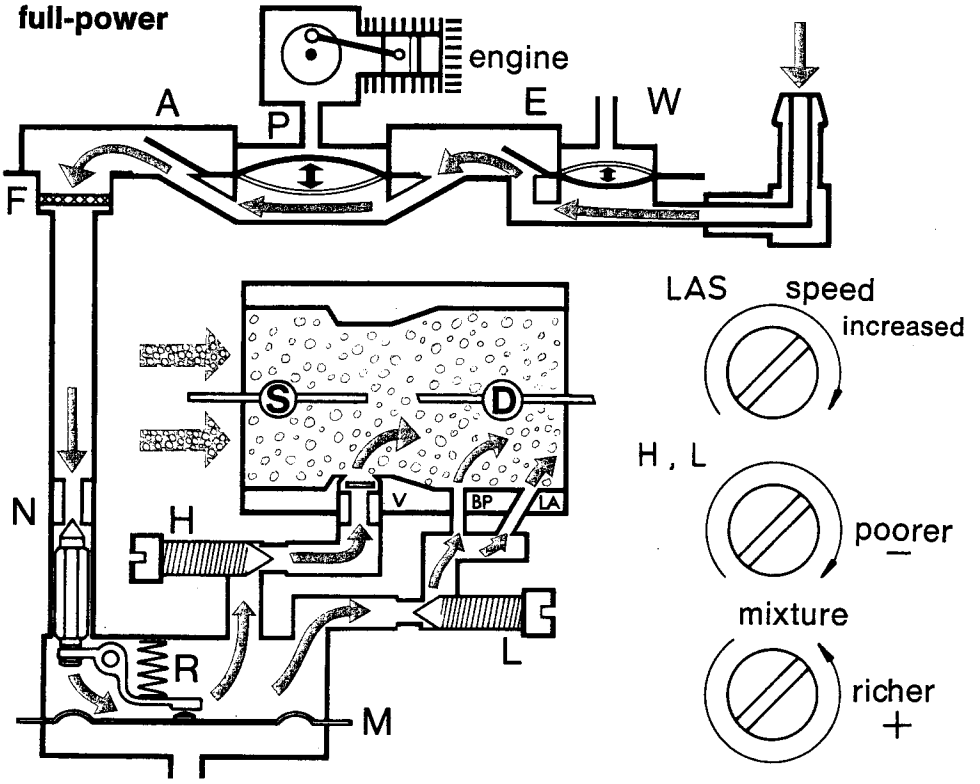
A diaphragm pressure regulator ensures – largely independently of the pump pressure – a constant low vacuum before the jet systems.

If the vacuum in the carburettor inlet manifold is transmitted to the pressure regulator through the jets, it moves the regulator lever (R), via the diaphragm (M), against a spring and opens the feed

valve (N). An even flow of fuel then passes through the valve into the regulator and through the jets into the carburettor port. The diaphragm (M), regulator lever (R) and feed valve (N) adjust to a constant flow quantity at any given time.

Carburettor, jet systems

The BING Type 48 carburettor is fitted with one main and one idling fuel system. Its operation depends on the position of the throttle valve and choke, and on the vacuum in the carburettor port.

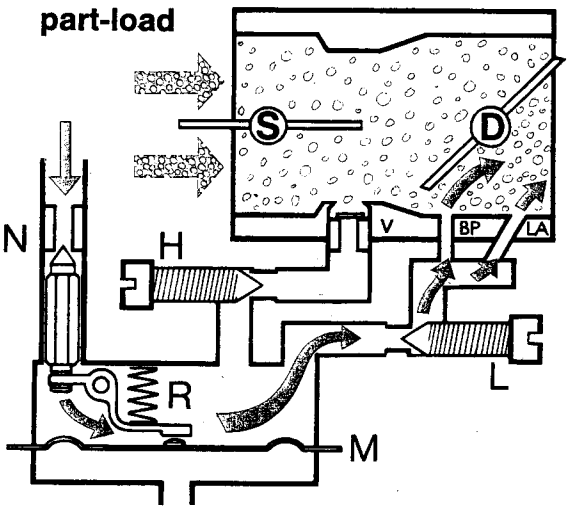


Full-power operation:

If full power is required from the engine, the throttle valve and choke are fully open. The vacuum in the carburettor port sucks fuel in the main system, through the main jet (H) and non-return valve (V), and in the idling system through the idling jet (L), the idling outlet drilling (LA) and the by-pass drillings (BP).
The fuel flow can be altered by opening and closing the main jet and idling jet.

Part-load operation:

If only reduced engine output is required and the throttle valve is accordingly partially closed, sufficient vacuum to suck fuel is only present in the space between the throttle valve and the engine, and fuel now flows through the idling system. This causes the non-return valve (V) in the main system to shut, so preventing air from entering the pressure regulator where it would impede the fuel flow.



Idling operation:

When the engine is idling, the throttle valve is shut so far that the vacuum between the valve and the engine only acts on the idling outlet drilling (LA). While fuel is being sucked out of the idling outlet drilling (LA), air enters through the bypass drillings (BP) and mixes with the fuel coming out.

The idling speed is set with the stop screw (LAS), and the matching fuel quantity with the idling jet (L).

Starting:

To start the engine, the starting valve (S) is closed, with the throttle valve (D) roughly half-open. Each attempt at starting the engine produces a vacuum in the carburettor port, which sucks fuel through both jet systems.

When starting a cold engine and sometimes a hot engine, first flood the carburettor with fuel to flush air and fuel vapour out of the carburettor systems. Several attempts at starting – usually four – are necessary for this until the first firing is observed. Then open the starting valve (S). The next attempt will start the engine running.

DESIGN OF THE CARBURETTOR

The main part of the carburettor is a compact aluminium casing in which the most important components are located.

The fuel pump consists of a diaphragm with cut-out valve tabs, a gasket and a cover. These parts are positioned on the carburettor casing in that order, and fastened with three screws.

The fuel filter is pressed into the carburettor casing and should not be removed for cleaning.

The needle valve is set so deep in the carburettor casing that the regulator lever is flush with the casing surface. This setting should never be altered.

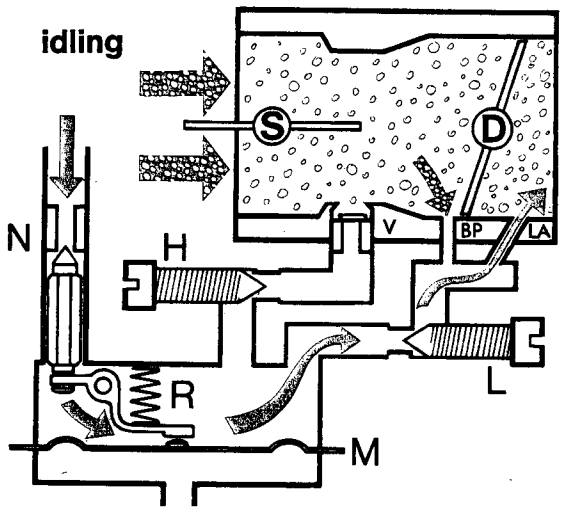
The moving parts of the systems are extremely resistant to wear.

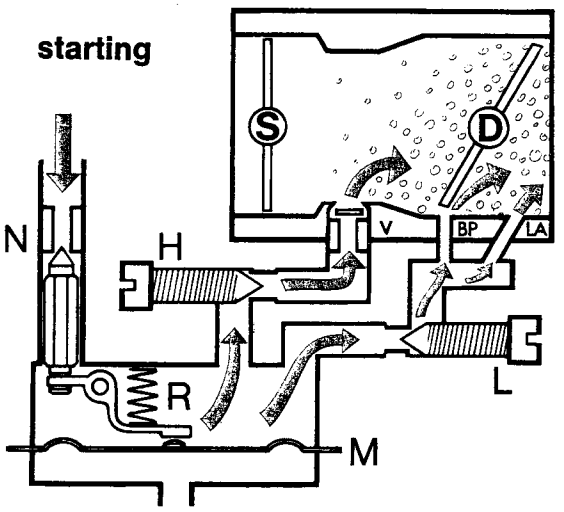
As well as the feed valve and regulator level with its spring, the pressure regulator includes a gasket, a diaphragm and the regulator cover, which are placed on the carburettor casing in that order and fastened with four screws.

Depending on the application, the two jets have the same or different points, with very small point angles. The closed position of the jet must be found very carefully when adjusting the carburettor. By opening the jet one turn at a time, an adequate operating setting can usually be found which can be further improved by slight alterations.

The idling outlet drilling and bypass drillings are matched to each engine very carefully and must not be altered.

Both jet systems are sealed with a gasket and a plate fastened with two screws. They can be opened up to clean the carburettor, but when resealing





care should be taken that no condaminations are left behind in the systems.

In special cases the sealing plate for the jet systems can contain a fuel drilling. The size of the drilling is then stated on the plate.

MAINTENANCE, REPAIR

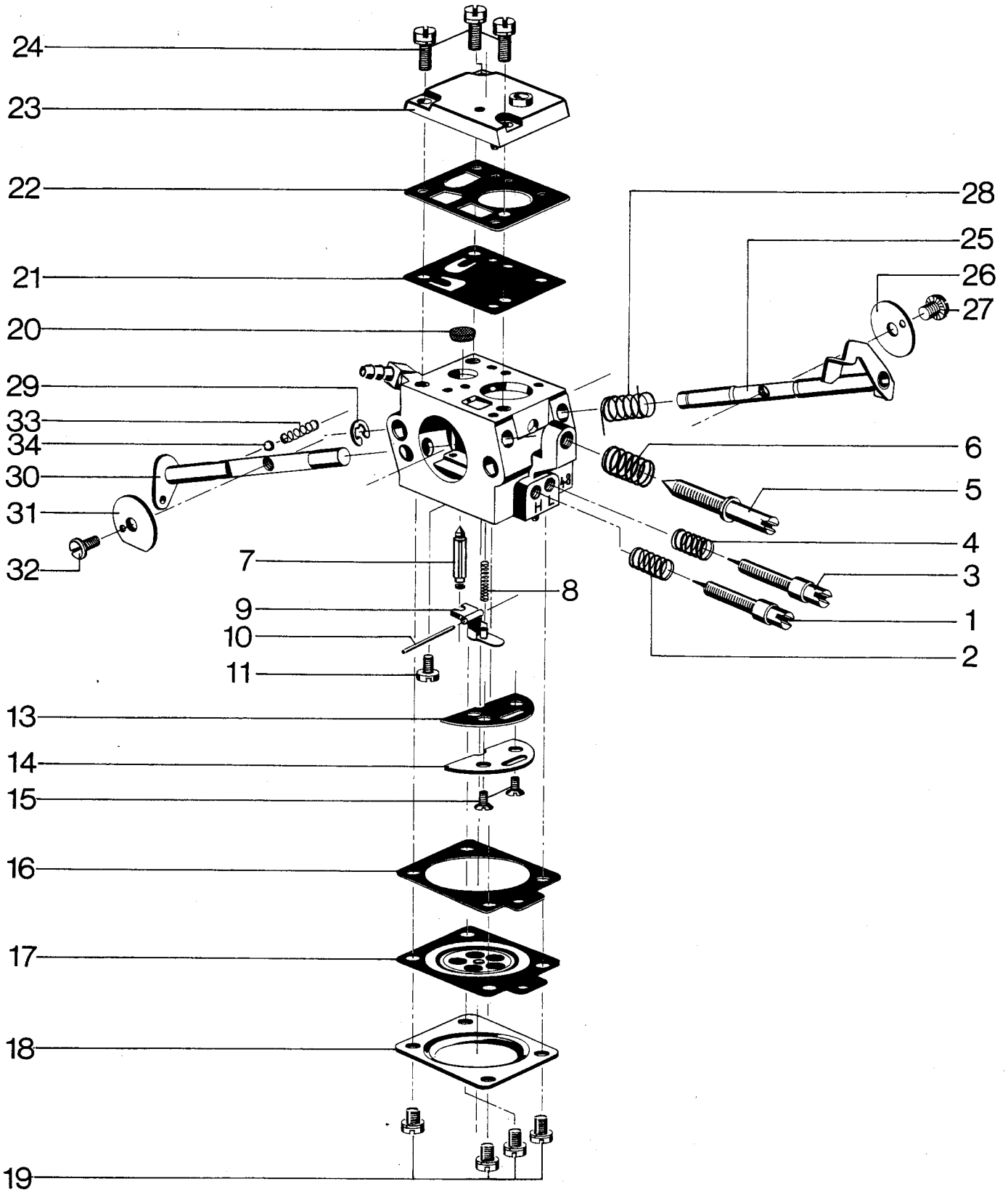
All moving parts in the carburettor are resistant to wear. Dismantling the carburettor will only be necessary in the event of faults.

Diaphragm carburettors are particularly sensitive to dirt. The carburettor must therefore be thoroughly cleaned externally before being dismantled. Only clean tools which fit should be used for working on the carburettor.

The carburettor and its parts should only be cleaned with compressed air.

Every time the carburettor is cleaned – which will only seldom occur during its service life – new gaskets and diaphragm should be fitted. These parts are attacked by components in the fuel, can become porous as a result of continuous movement (diaphragm), or else become heavily deformed by the sealing corrugations, which become impressed into the gaskets.

Only use original BING spare parts as shown on the illustration. The corresponding part numbers are given in the BING spare parts list.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