



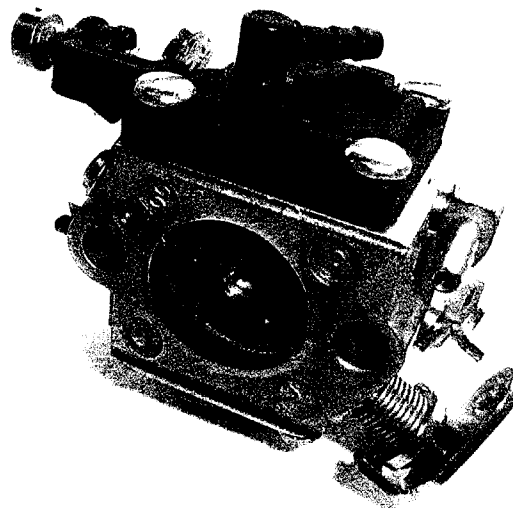
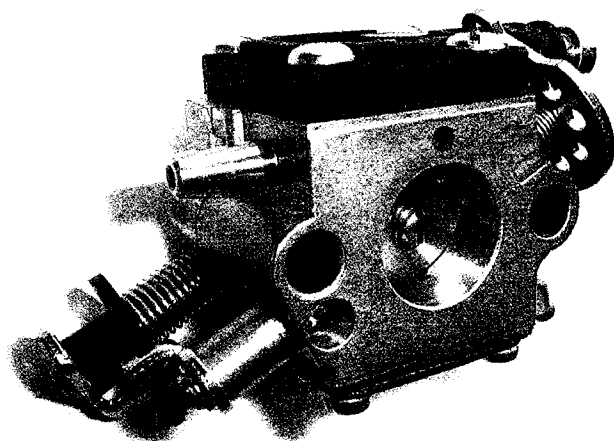
## BING-Diaphragm Carburettor Type 47



As the BING type 48 our BING type 47 is the ideal carburation unit for equipment which has to operate reliably in all positions and attitudes (chain saws, brush cutters) or else which is subjected to particularly heavy vibrations.

With throttle valve diameters between 14,3 and about 16 mm, a choke diameter of 19 mm and venturi diameters between 8 and 13 mm (intermediate sizes are also available) it is especially suitable for chain saws and similar equipments in the medium and lower 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.



Moreover a separate connection nipple will be fixed close to the both adjusting screws with possible variable angular positions. An additional check valve in the metering chamber area provides the one-sided air or fuel transport.

There is also the possibility to turn a notch lever (mounted on the choke shaft) whereby the throttle valve will open up to a steady angle. Now to start the engine r.p.m. will remain increased as long as the throttle valve is opened up the first time. A spring will then turn back the notch lever to its original position and the throttle valve can be closed again to idle position (only by carburettors provided with choke system).

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 adjusting screws will be always sealed with O-rings to be protected against the ambient. In this way we have an improvement in the gas emissions of the carburettor.

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 inside diameters between 4, 5 and 6 mm should be used as the fuel supply line.

### 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 (on choice) the choke. The single adjustment of the lever to the corresponding equipment can also occur individually. If required, the choke shaft can be locked in the operating position (ball and spring).

This diaphragm carburettor can be also equipped with an air purge function.

By operating this air purge application the carburettor will be washed through the fuel contained in the fuel tank so that the existent air and fuel steam can be removed.

This contributes to a good motor start especially after a long pause.

## OPERATION OF THE CARBURETTOR

The following illustrations show the flow 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 pumps 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). 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.

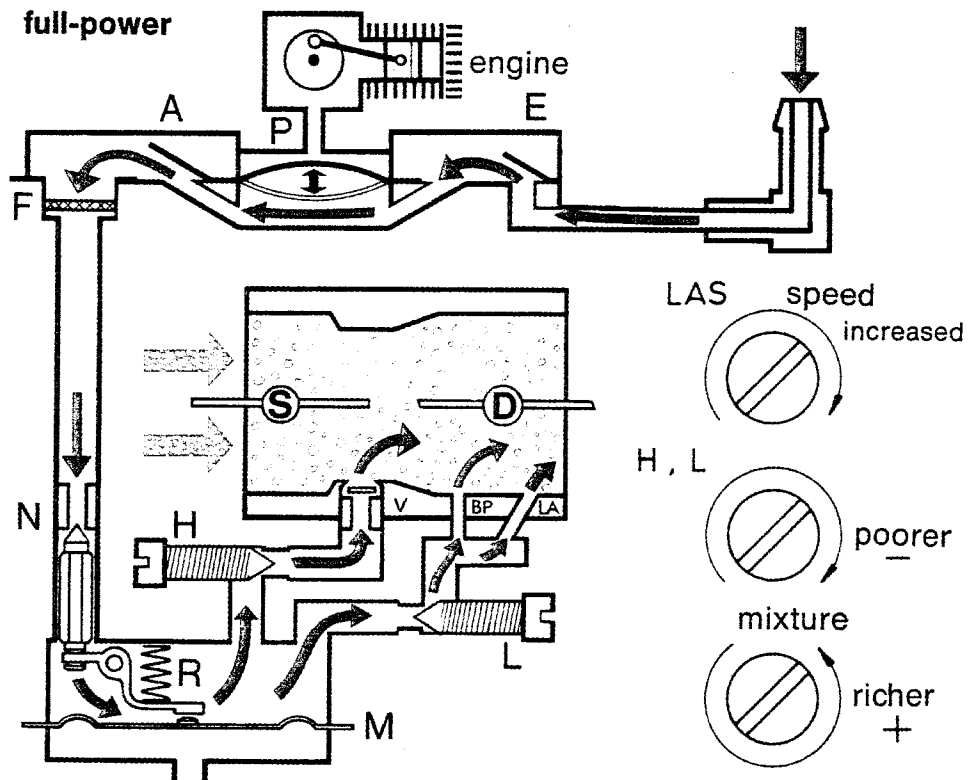
## Carburettors, jet systems

The BING Type 47 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

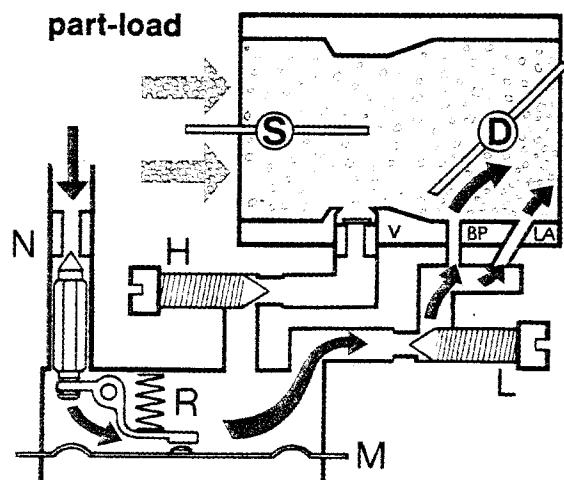
If full power is required from the engine, the throttle valve and choke are fully open. The vacuum in the carburettor port sucks fuel in the main system, through the main jet (H) and non-return valve (V), and in the idling system through the idling jet (L), the idling outlet drilling (LA) and the bypass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

The fuel flow can be altered by opening and closing the main jet and idling jet.



### Part-load operation

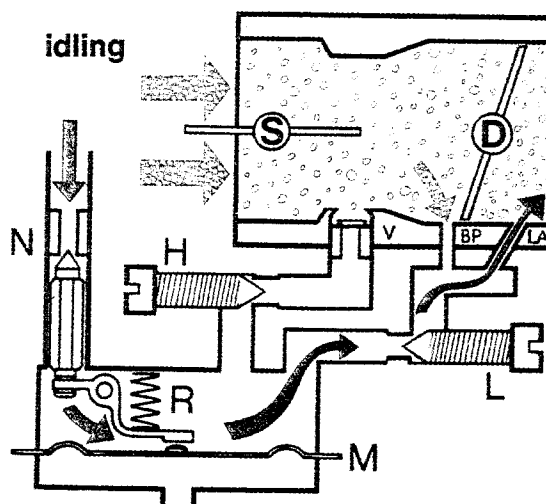
If only reduced engine output is required and the throttle valve is accordingly partially closed, sufficient vacuum to suck fuel is only present in the space between the throttle valve and the engine and fuel now flows through the idling system. This causes the non-return valve (V) in the main system 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).

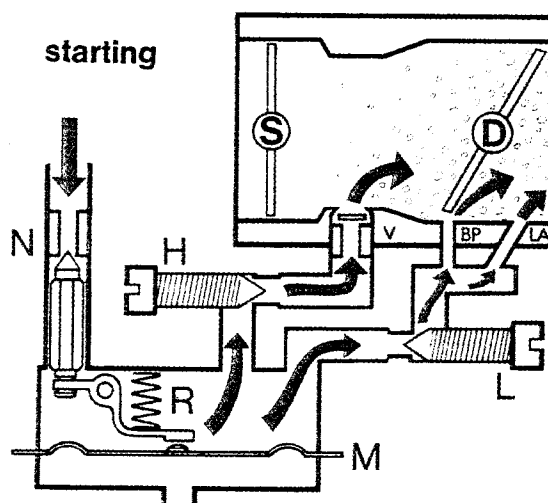


## Starting

To start the engine the choke valve (S) is closed and (when available) the air purge should be pushed 3 to 5 times. In case it is possible to include a start-up opening system the throttle valve will be opened by pushing the corresponding lever.

Each attempt at starting the engine produces a vacuum in the carburettor port which sucks fuel through both jet systems.

If the air purge function is not available, 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 carburettors systems. Several attempts at starting - usually four - are necessary for this until the first firing is observed. Then open the choke 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 four 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 in that order and fastened with four screws.

Depending on the application, the two jets have the same 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.

## MAINTENANCE, REPAIR

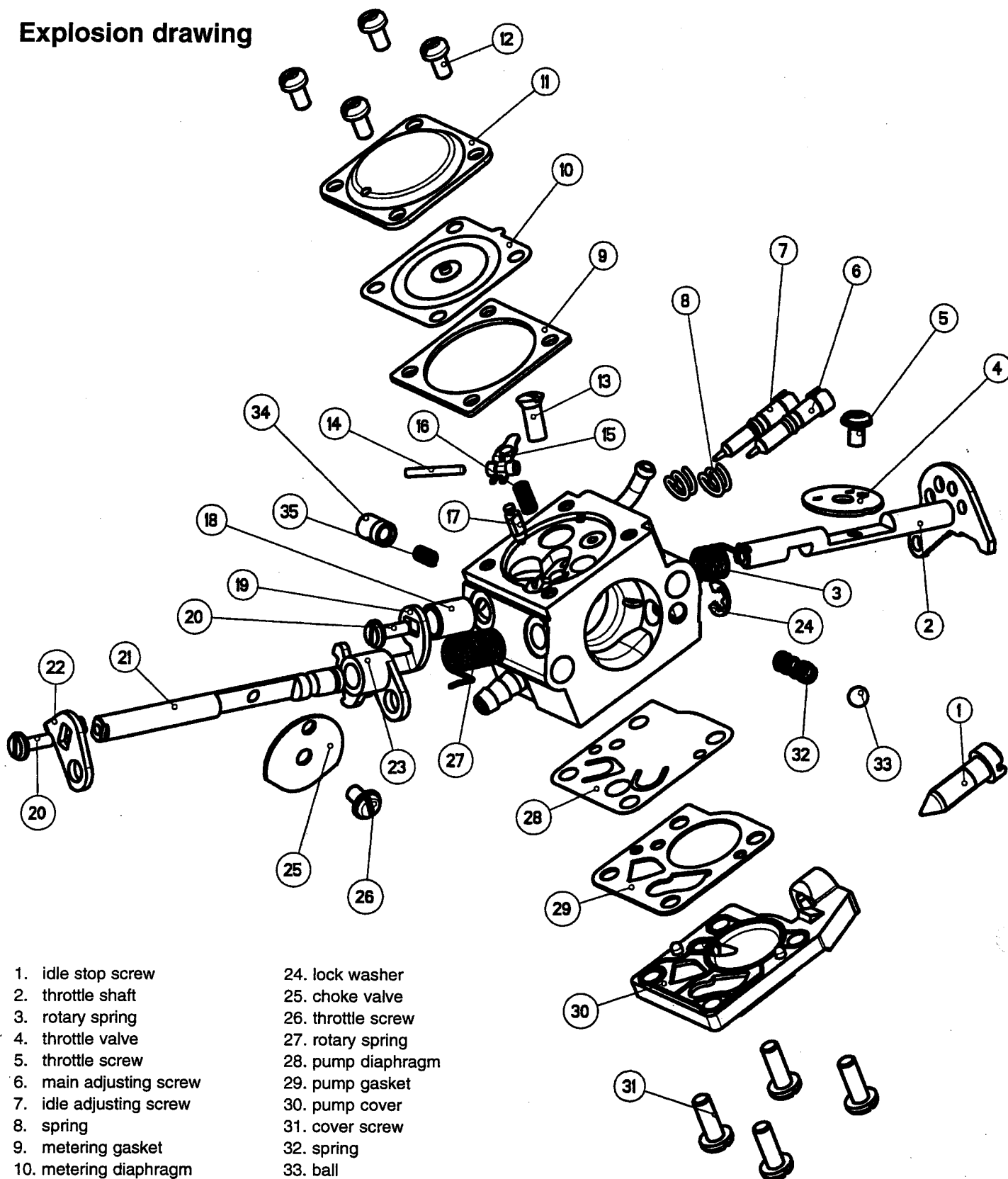
All moving parts in the carburettor are resistant to wear. Dismantling the carburettor will only be necessary in the event of faults. Diaphragm carburettors are particularly sensitive to dirt. The carburettor must be therefore thoroughly cleaned externally before being dismantled. Only clean tools which 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 parts numbers are given in the BING spare parts list.

## Explosion drawing



1. idle stop screw
2. throttle shaft
3. rotary spring
4. throttle valve
5. throttle screw
6. main adjusting screw
7. idle adjusting screw
8. spring
9. metering gasket
10. metering diaphragm
11. governor cover
12. cover screw
13. fixing screw
14. pin
15. regulator lever
16. metering spring
17. valve needle
18. bushing
19. lever
20. fixing screw
21. starting axle

24. lock washer
25. choke valve
26. throttle screw
27. rotary spring
28. pump diaphragm
29. pump gasket
30. pump cover
31. cover screw
32. spring
33. ball