AMAL

LIST No. 545
(ISSUE No. 1)

Instructions for

Amal Carburetter

Type 365

SERVICE ARRANGEMENTS.

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Genuine Amal spares are packeted under the name Amal.

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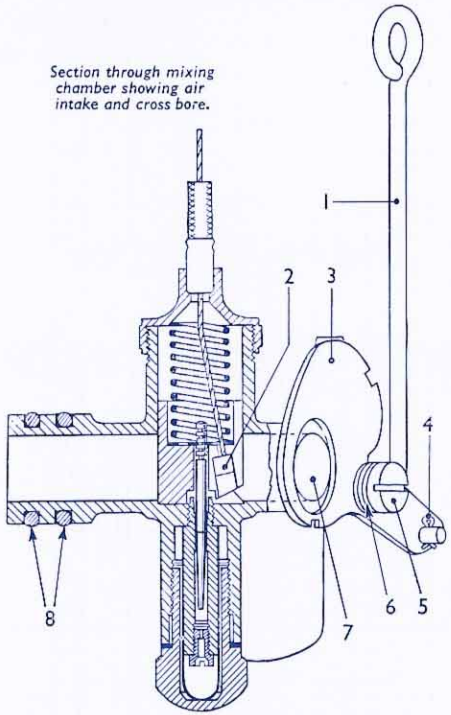
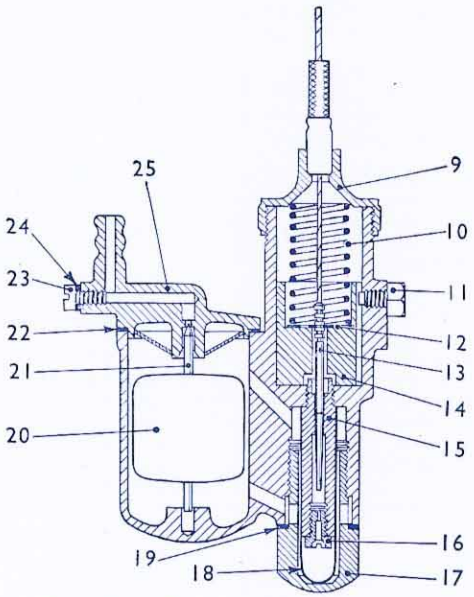
Section through mixing chamber showing air intake and cross bore.



Illustrations of Type 365 Carburetter



Section through float chamber and mixing chamber.

KEY TO ILLUSTRATION NUMBERS.

1.—Strangler Operating Rod.
2.—Cable Nipple.
3.—Strangler Shutter.
4.—Cotter Pin.
5.—Strangler Shutter Pivot.
6.—Strangler Shutter Pivot Washer.
7.—Air Intake.
8.—Sealing Rings.
9.—Mixing Chamber Top.
10.—Throttle Valve Spring.
11.—Throttle Valve Locating Screw.
12.—Jet Needle Clip.
13.—Jet Needle.
14.—Throttle Valve.
15.—Needle Jet.
16.—Main Jet.
17.—Jet Cover.
18.—Filter Gauze.
19.—Jet Cover Washer.
20.—Float.
21.—Float Needle.
22.—Float Chamber Cover Washer
23.—Plug Screw.
24.—Plug Screw Washer.
25.—Float Chamber Cover

HOW CARBURETTER WORKS

The carburetter atomises the correct amount of petrol with air which is drawn into the engine. A float chamber maintains a constant level of fuel at the jets and cuts off the fuel supply when the engine stops. On fuel flowing from the float chamber the float (20) falls and its needle (21) coming away from its seating allows fresh fuel to enter. Depression caused by movement of the engine piston causes, via the throttle opening, air to flow into the air intake (7) and fuel to flow through the needle jet (15) into the cross bore and mix with the incoming air forming a fuel/air mixture. Correct fuel/air proportions for various throttle openings are governed by : **The size of the main jet** (16) which controls the amount of fuel fed to the needle jet (15) at three-quarters to full open throttle. **The taper of the jet needle** (13) which operating in the needle jet (15) controls the amount of fuel fed at lesser openings. **The parallel portion of the jet needle** (13) which, on entering the bore of the needle jet (15) and in conjunction with **the amount of cutaway** on the throttle valve (14) controls the idling mixture. A strangler shutter (3) fitted to the main air intake provides for air regulation when starting the engine from cold.

STARTING INSTRUCTIONS

Follow the engine makers' instructions regarding recommendations about type of fuel or mixture to be used.

STARTING WHEN ENGINE IS COLD.

Close strangler shutter (3) set throttle valve about a quarter open and start engine, immediately engine commences to fire fully open the strangler shutter and when engine is running regularly throttle down to idling speed, if the engine then begins to falter partly close the strangler shutter until engine is warm and then set it in its fully open position.

STARTING WHEN ENGINE IS WARM.

Leave strangler shutter in its fully open position, set throttle valve slightly open and start engine.

GENERAL.

Experience will show when it is necessary to use the strangler shutter and also the best setting of the throttle valve. If the carburetter has been over-strangled, which would result in a wet engine and over-rich starting mixture—fully open the throttle valve and strangler shutter, and give the engine several turns to clear the richness, then start again with the strangler shutter fully open and the throttle valve slightly open. If the engine refuses to start after the instructions given have been carried out and the carburetter is suspect, read and carry out the instructions given in section headed "Maintenance."

MAINTENANCE OF CARBURETTER

Incorrect functioning of the carburetter may be the cause of the engine refusing to start or starting and cutting out, erratic running, continual sooting up of the sparking plugs, poor acceleration or loss of power, engine over-heating or excessive petrol consumption. Check the items as follows and also that the carburetter is correctly adjusted (see Adjustment Pages 5 and 6).

CABLE CONTROLS.

See that the cable control fully opens and closes the throttle valve (14).

AIR LEAKS.

Check that there are no air leaks at the point of attachment of the carburetter to the engine. The carburetter should be a good push fit in the induction pipe. If the carburetter is removed it should be pulled with an unscrewing motion from the induction pipe, when re-fixing see that the sealing rings (8) on the carburetter outlet are undamaged, push the carburetter into the induction pipe with a slight screwing motion making sure the carburetter is fully home.

PETROL FEED.

Ensure that an ample supply of petrol is reaching the carburetter, test by disconnecting the petrol feed pipe from the float chamber and turning on the fuel supply to see if petrol gushes out from the feed pipe.

FLOAT CHAMBER.

Check that there is no continual flooding of the float chamber caused by the float needle (21) not shutting off correctly, due to foreign matter being on the float needle or its seating. The float chamber, float or its needle, may be inspected by removing the float chamber cover (25) which is secured by two screws, take care not to damage the jointing washer (22) or the faces of the float chamber cover or float chamber. Flush the float chamber and the needle seating in the cover with clean petrol, wipe the float needle clean. On old machines failure of the float needle to shut off may be due to wear on the needle or its seating, or a leaky float, replacements should be fitted. When assembling the float chamber parts ensure that the jointing washer is undamaged and that the float needle is located in its seating when replacing cover. Nearly all flooding with new machines is due to foreign matter (grit, fluff, etc.) in the petrol tank—so clean out the float chamber periodically until the trouble ceases. If the trouble persists the tank might be drained, swilled out, etc.

MAIN JET (16).

Check that no foreign matter is obstructing its passageway. To extract the jet from the carburetter first remove the jet cover (17), withdraw the filter gauze (18), the main jet exposed can then be removed with the use of a screwdriver. The jet should be cleaned by washing it in clean petrol and blowing through its passageway (a tyre pump is quite useful for this purpose), do not prod or reamer jet with any sharp implement as this might enlarge its passageway. When re-assembling the jet, should be screwed in firmly but without excessive strain, if the jet is loose on its seating incorrect flow of petrol occurs.

NEEDLE JET (15).

On old machines wear may have taken place in the portion where the jet needle operates and if this is suspected a replacement should be fitted.

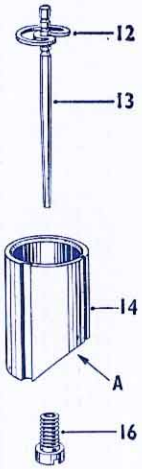
JET NEEDLE AND THROTTLE VALVE (13 and 14).

Check that the throttle valve, with its jet needle, moves freely up and down when its control is operated. On old machines check that no undue wear has taken place between the throttle valve and the bore in which it operates, and on the portion of the jet needle that operates in the needle jet. If wear has taken place replacement parts should be fitted. The throttle valve complete with jet needle and attached to the cable can be withdrawn from the carburetter after the knurled mixing chamber top (9) has been unscrewed. To separate the throttle valve and jet needle from the cable release the cable at the control end and push the inner cable forward in the throttle valve until the nipple (2) in the throttle valve clears its hole.
On re-assembling, ensure that the portion of the jet needle clip (12) that falls in towards the jet needle is opposite the cable slot in the throttle valve. On putting back this throttle assembly into the body, see that the locating screw (11) in the body engages the key-way opposite the cable slot in the throttle valve and that the jet needle is entering the needle jet before attempting to push the assembly home.

FILTER GAUZE (18).

The filter gauze, which is a push fit over the needle jet and which can be withdrawn after the jet cover (17) has been removed, should be periodically examined and cleaned if necessary by washing in clean petrol.

PARTS WITH WHICH THE CARBURETTER IS ADJUSTED OR TUNED



MAIN JET (16). Main jets may be had with varying flows, the number on each jet signifies a certain flow, the higher the number the larger the flow, the numbers varing, for example, 20, 22, 25, 27, 30, 32. Never reamer a main jet out, get another one of the right size.

THROTTLE VALVE (14) The slope on the throttle valve is called the cutaway, and its number is stamped on the bottom of the throttle valve. Throttle valves can be had with different cutaways—the larger the cutaway the higher is the number.

JET NEEDLE (13) and CLIP (12). The jet needle is positioned in the throttle valve by a clip (12). The top of the jet needle is grooved and by springing the clip off, and springing it on again in another groove, the position of the jet needle in the throttle valve and relative to the needle jet is altered, being either raised or lowered.

ADJUSTMENT OF CARBURETTER

See that there are no faults as outlined in " Maintenance " as this would affect the correct functioning and adjustment of the carburetter. Check that the ignition timing, etc., is functioning correctly.

Carburetters as supplied by the makers for fitting to specific machines should under normal conditions,, only require adjustment of the position of the jet needle (13) to ensure best general running with maximum fuel economy. See " Adjustment of Jet Needle."

For special conditions or adaptations or where it is suspected that the carburetter may have had an unsuitable throttle valve or main jet substituted, as these parts vary according to engine requirements, it will be necessary to completely re-tune the carburetter. See " Complete Tuning of Carburetter."

ADJUSTMENT OF JET NEEDLE.

Try the jet needle (13) in as low a position as possible—viz. : with the clip (12) in a groove as near the top of the jet needle as possible ; if when the engine is under load or pulling, acceleration is poor, or there is spitting back in the carburetter, raise the needle by two grooves, if very much better try lowering the needle by one groove and leave it where it is best. In general, if the engine runs heavily and lumpy the mixture is too rich and will be a cause of excessive petrol consumption, but if there is spitting back in the carburetter poor acceleration or over-heating, the mixture is too weak.

COMPLETE TUNING OF CARBURETTER.

Check as follows and in the order given.

1st. Size of Main Jet.

With the engine pulling or under load, open up to full throttle, if at full throttle the engine runs heavily the main jet (16) is too large, resulting in a rich mixture. If at full throttle by slightly closing the throttle the engine seems to have better power, the main jet is too small, resulting in a weak mixture. Examination of the sparking plug will also help to determine whether the mixture is correct. If the plug body at its end has a cooled appearance the mixture is correct : if sooty the mixture is rich ; if, however, there are signs of intense heat, the mixture is too weak.

2nd. Amount of Throttle Valve Cutaway.

If there is objectionable spitting from the carburetter when the throttle is opened up from the idling or slow running position which signifies weakness, fit a throttle valve with a smaller cutaway (A). If the engine jerks under load at this throttle position and there is no spitting, either the jet needle is in a much too high a position, or a throttle valve with a larger cutaway is required to cure the richness.

3rd. Position of Jet Needle.

Adjust position of jet needle (13) as instructed in " Adjustment of Jet Needle."

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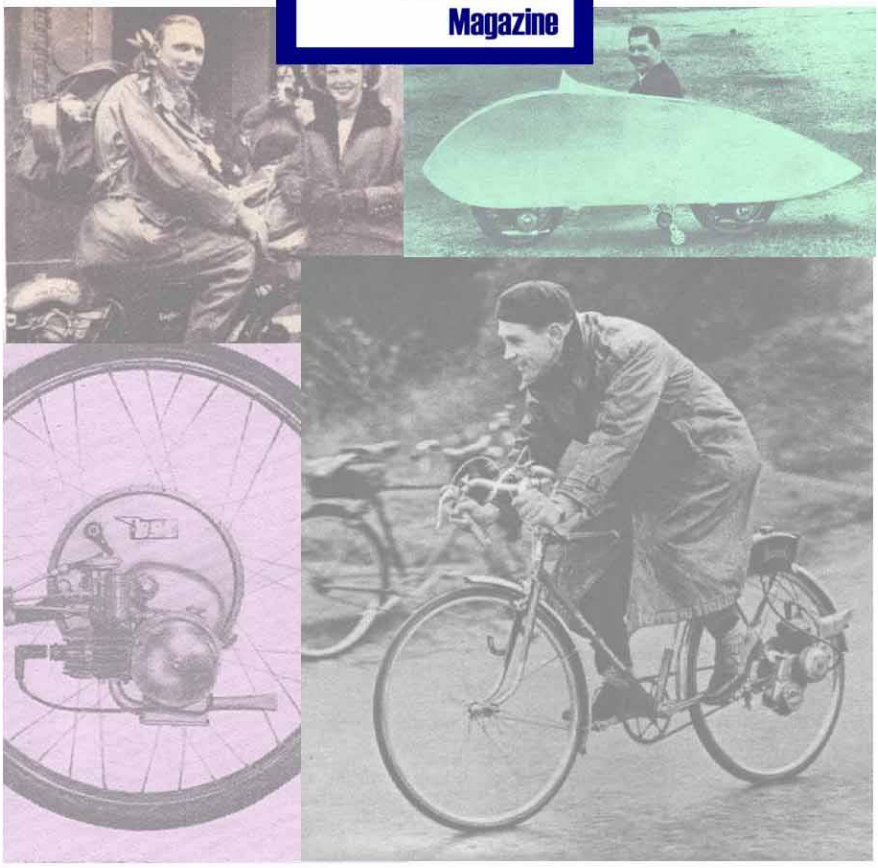

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