

Rolls Royce "B" Range Petrol Engines

SECTION 18B . . CARBURETTOR (Solex Type 40 NNIP)

SETTING THE IDLING SPEED

The setting of the idling speed is achieved by the joint adjustment of the idling stop and volume control screws illustrated in fig. 2 and should be carried out with the engine at normal running temperature. Care should be taken to ensure that the setting of both volume control screws is identical.

To adjust the idling r.p.m., screw in the volume control screws to the fully closed position, taking

care not to damage their seatings, then unscrew them one full turn.

Set the idling stop screw to maintain an engine speed of approximately 350 r.p.m. and adjust the volume control screws to obtain the most even running position. Screwing out the volume control screws enriches the idling mixture.

Final adjustment to obtain a smooth idling speed of 350 r.p.m. can vary between engines, but is achieved by careful manipulation between the volume control screws and idling stop.

CLEANING THE FILTERS

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There are three filters in the carburettor, one in the inlet banjo connection and one beneath each accelerator pump.

Disconnect the fuel inlet connection to remove the former and unscrew the two plugs shown in fig. 3 to withdraw the latter.

When cleaning the filters it is advisable to remove and blow out the main jets shown in fig. 2, allowing any sediment which may have collected in the carburettor to drain away

Do not attempt to clean the jet orifices with wire, broaches or similar instruments; this will damage the jet and impair the operation of the carburettor.

Finally, check that all plugs and joints which have been disturbed are secure and free from leaks.

RECTIFICATION

The following paragraphs are complementary to the instructions given Chapter 4, Fault Diagnosis, and

detail the action which can be taken with the carburettor in situ.

If, however, this fails to effect a cure and it is established that the fault is in the carburettor, the unit should be removed for further investigation.

If the engine fails or is difficult to start, ensure that the throttle spindle is in the idling position.

DISMANTLING

Remove the starter, main and pilot jets and the volume control screws.

Unscrew the two plugs beneath the accelerator pumps and withdraw the filters and non-return valves.

Remove the eight setscrews securing the top cover and lift off the cover.

Remove the needle-valve and washer and withdraw the emulsion tubes.

Remove and clean the starter jet; this may be blocked by either dirt or water.

Remove and clean the filters as described above.

If the engine will not idle or idling r.p.m. is erratic, check that the choke control lever returns to the OFF position.

Remove and clean the pilot jets.

Re-adjust the idling r.p.m.

If the engine runs irregularly or loses power, ensure that the throttle opens to its full extent.

Check that the altitude control is correctly set. Remove and clean the main jets.

Remove and clean the correction jets, the emulsion tubes and the economy jet.

If acceleration is slow or flat spots are apparent, remove and clean the accelerator pump jets, filters and non-return valves. Check that the valves work freely on their seatings.

REMOVAL

Disconnect the air cleaner and breather pipes from the air horn.

Unscrew the eight nuts securing the air horn to the carburettor and remove the air horn.

Disconnect the throttle control rod and choke cable.

Disconnect fuel inlet pipe.

Unscrew the four nuts securing the carburettor to the induction manifold and lift off the carburettor.

Unscrew and remove the correction jets.

Unscrew the two hexagon headed float pivots and **lift** out the float assembly. Do not disturb the setting of the balance weights.

Remove the nut and lever from the choke control spindle then, unscrew the seven setscrews securing the dust cover and remove the cover.

Unscrew the four setscrews securing each accelerator pump cover and swing back the covers, then carefully remove the diaphragms.

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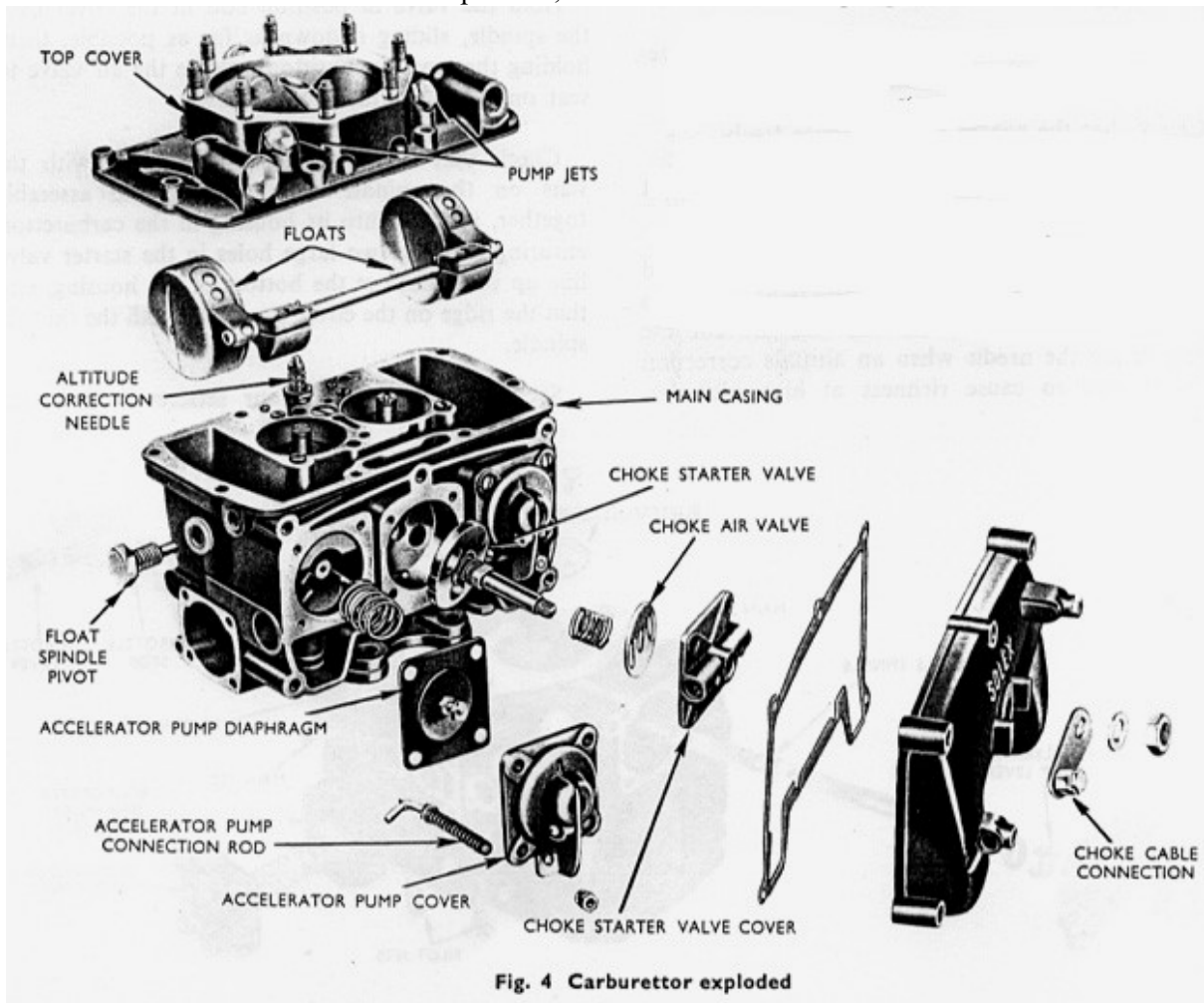
Do not disconnect the control linkage; the setting of the connection rod controls the amount of fuel injected at each stroke of the pump.

Unscrew the grubscrew situated in the bottom of the choke unit between the two fixing bolt holes and withdraw the spring and choke locating ball.

Remove the four setscrews securing the choke unit and withdraw the components,

noting particularly the position of the starter valve.

Remove the four corner setscrews securing the economy device and withdraw the unit; to inspect the diaphragm unscrew the two remaining screws. Do not disturb the setting of either the diaphragm or its valve. Incorrect adjustment of either will adversely affect the operation of the carburettor.



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Wash out all parts with clean petrol and thoroughly clean the float chambers, then blow through all drilled passages and jets with compressed air.

INSPECTION

Examine all diaphragms for wear, perforation and distortion. Perforated or distorted diaphragms must be renewed, the economy device assembly being changed complete.

Examine the floats for leakage and the jets for damage and distortion. Jets with damaged orifices should be changed.

Check that the non-return valves operate freely on their seatings.

Examine the three filters and ensure that the gauzes are clean and free from damage.

Check that the needle valve operates freely.

Depress the altitude control needle and ensure that it returns under the pressure of the spring.

Check that the gland-nut, housing the needle and spring, is tight and making a petrol-tight seal. Do not over-tighten the nut as this will prevent the spring lifting the needle when an altitude correction is made and so cause richness at high altitudes.

RE-ASSEMBLY

Re-assembly is, in general, straightforward but the following paragraphs will assist in the rebuilding of the accelerator pump, the choke unit and the economy device.

Assembling the choke control unit

Place the spring on the choke spindle assembly, ensuring that it seats in the recess on the upper face of the starter valve.

Fit the air valve with its finished face uppermost and press it on to the spring until it passes over the flats on the spindle.

Hold the valve in position and fit the cover over the spindle, sliding it down as far as possible, then, holding the cover in position, release the air valve to seat on the inner face of the cover.

Check that the valve remains engaged with the flats on the spindle then, holding the assembly together, insert it into its housing in the carburettor, ensuring that the two large holes in the starter valve line up with those at the bottom of the housing, and that the ridge on the cover is parallel with the throttle spindle. Secure the cover with four setscrews, tightening

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them evenly in diagonal sequence to avoid distortion

Do not turn the choke spindle until the large dust cover is fitted.

Turn the carburettor upside down, place the location ball and spring in the drilling in the underside of the choke unit and fit the grub screw.

Finally, fit the spacing washer, the lever and the retaining nut.

Assembling the accelerator pump

Place the pump spring in the housing then fit the diaphragm with the domed end of its spindle facing outwards.

Swing the pump cover back into position and fit the four setscrews, taking care that they do not damage the diaphragm; do not tighten the screws.

Depress the pump lever, then insert a *blunt* screw driver or similar instrument through the slot in the cover and under the domed hexagon head of the diaphragm guide and flex the diaphragm by levering it outwards.

Press the cover down and tighten the setscrews.

If new diaphragm membranes are being fitted, care should be taken to ensure that there is sufficient

slack' or movement in the centre of the diaphragm; insufficient movement will seriously affect the working of the pump

To obtain the required 'slack', operate the toggle several times while tightening the setscrews then remove the cover and examine the diaphragm. If its condition is satisfactory and the required 'slack' has been obtained, refit the cover and tighten the setscrews.

Assembling the economy device

Assembly of the economy device is straightforward, but if a new diaphragm is required, the complete economy device must be changed.

When changing the economy device, care should be taken to ensure that the jet in the replacement unit is identical with that in the unserviceable unit. If necessary, the jet should be changed.

REFITTING

Refitting is the reverse of removal, new washers being fitted to the filters, the main economy and starter jets and the fuel inlet connection.

After refitting, run the engine and check the operation of the carburettor over the whole speed range, reset the idling r.p.m. and examine all joints for leakage.