

Setting HS4 Carburetters - Comparison of Two Manuals

By Gerry Threlfall

In March of 1961 BMC fitted the Austin Healey 3000 models BT7 Mk II and BN7 Mk II with three SU HS 4 carburetters. The setting of these carbs are the subject of this discussion.

When some mechanics see these carburetters they gasp, throw up their hands and shake their heads. That is when you should close the bonnet, drive home and do the settings yourself, as it is not particularly complicated. Basically all you need to do is follow the numbers.

Before attempting to touch a screw you need to make sure the points are set properly to the specs, the spark plugs and wires are in good condition, the timing is correct, and the fuel pump has the correct pressure.

Sequence of Adjustments

(see figures on page 3)

AH Workshop Manual

- 1.) Bring operating temperature to the normal running temperature, turn off engine
- 2.) Tuning of carbs is confined to correct idle settings
- 3.) Slacken the actuating arms on the throttle spindle inner-connection.
- 4.) Close all the throttles fully unscrewing the throttle adjusting screws.
- 5.) Open each throttle by screwing the idle adjusting screw one turn.
- 6.) Remove pistons and suction chambers making sure to identify each for correct replacement.
- 7.) Disconnect the jet control cables i.e. choke.
- 8.) Screw the jet adjusting nuts up or down until each jet is flush with the top of

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- 1.) Remove the air cleaners
- 2.) Check the throttle for correct operation and signs of sticking
- 3.) Unscrew the throttle adjusting screw on each carb until it is just clear of the throttle lever with the throttle closed, then turn the screw clockwise one turn on each carburetter.
- 4.) Raise the piston of each carb with the lifting pin and check that it falls freely onto the bridge when the pin is released. If it does not the carb must be serviced.
- 5.) Lift and support the piston clear of the bridge so that the jet is visible; if this is not possible due to the position of the carb, remove the suction chamber assembly numbering each one to be certain to replace them on the original carb.

Continued on next page

AH manual continued

9.) Replace pistons and suction chambers making sure each piston and suction chamber are replaced on the original carb. Top up piston dampers with either special damper oil or SAE 20 engine oil to within 1/2" above the piston.

10.) Using the lifting pins check that the pistons fall freely on to the bridge of each carb.

11.) Turn down the jet adjusting nut 2 complete turns or 2 flats.

12.) Restart the engine and adjust throttle adjusting screws to give desired idling speed by moving each screw an equal amount.

13.) By listening to the hiss in the intakes using a pipe or tube adjust the throttle adjusting screws until the intensity of the hiss is similar on all intakes. This will synchronize the throttle setting.

14.) The fuel mixture should be adjusted by screwing each jet adjusting nut up or down by the same amount until fast idling speed is consistent with even firing.

15.) As the mixture is adjusted the engine will probably run faster and it therefore may be necessary to reduce speed by adjusting each throttle adjusting screw by the same amount, this should be done a small amount at a time for each of the carbs.

16.) Tighten actuating arms on the throttle spindle inner-connection.

SU Butec manual continued

6.) Turn the jet adjustment nuts on each carburetter up or down until the jet is even with the top of the bridge.

7.) Turn the jet adjusting nuts down 2 turns on each of the carbs.

8.) Turn the fast idle adjusting screw until it is clear of the cam.

9.) Re-install the suction chamber assembly onto the corresponding carb.

10.) Top up piston damper oil level with SAE 20 engine oil or special damper oil to 1/2" above the pistons.

11.) Start the engine and run it at a fast idle until the engine attains normal running temperature.

12.) Move each throttle adjusting screw until the correct idle speed is obtained (see the owners manual).

13.) Turn each adjusting nut up or down by the same amount until the fastest speed is obtained. Turn each nut down very slowly until the engine speed starts to fall. Turn the nut up slowly until the maximum engine speed is regained.

14.) Check the idle speed and adjust it as necessary using the throttle adjusting screws.

15.) Using a vacuum gauge balance the carbs by setting the throttle adjusting screws until the correct idle speed and balance is achieved. Alternatively use a listening tube to compare the intensity of the hiss on each carb. Turn the throttle adjusting screw until the hiss is the same for each carb.

The foregoing adjustment methods were gleaned from the Austin Healey Workshop manual (a BMC publication); and from SU Butec Manual. They both arrive at the same result, a properly tuned tri-carb using two different roadways. As well one could apply the technique to a two SU HS4 carb set up.

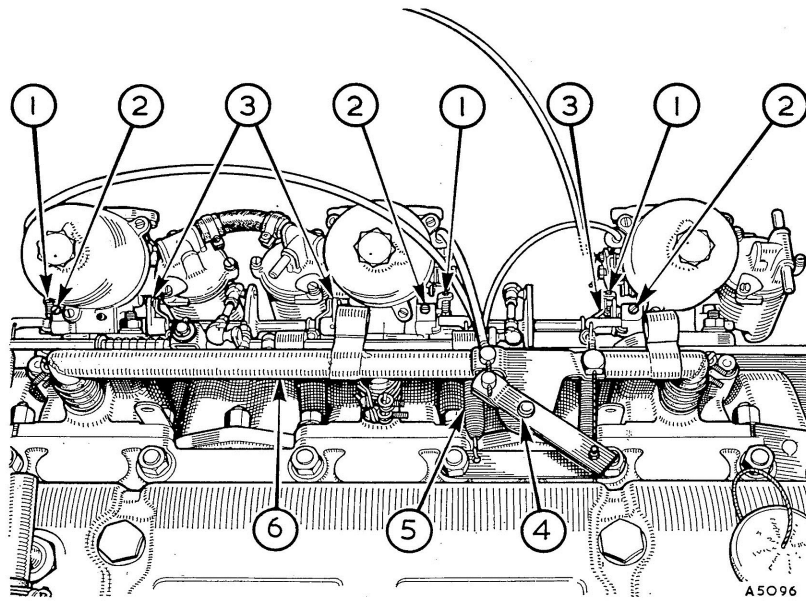


Fig. DDD. 8.
The layout of the triple H.S.4 carburetors.

1. Fast idling adjusting screws.
2. Throttle adjusting screws.
3. Throttle operating levers.
4. Choke cable relay lever.
5. Throttle return spring.
6. Balance tube.

The fuel pipe connecting the front and centre carburetors, and the air cleaners, are removed for clarity.

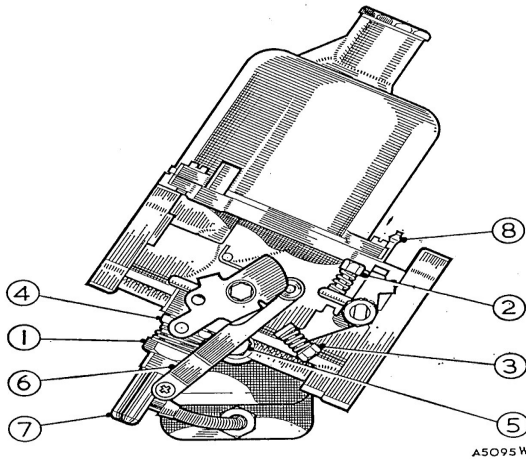


Fig. DDD.4. The H.S.4 type carburettor

1. Jet adjusting nut
2. Throttle adjusting screw.
3. Fast idle adjusting screw.
4. Jet locking nut.
5. Float chamber securing nut.
6. Jet link.
7. Jet head.
8. Vacuum ignition take-off.

From SU Butec Manual

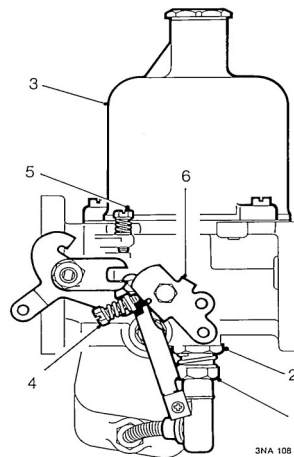


Fig 3(a). HS4

- 1 Jet adjusting nut
- 2 Jet locking nut
- 3 Suction chamber assembly
- 4 Fast-idle adjusting screw
- 5 Throttle adjusting screw
- 6 Cam lever