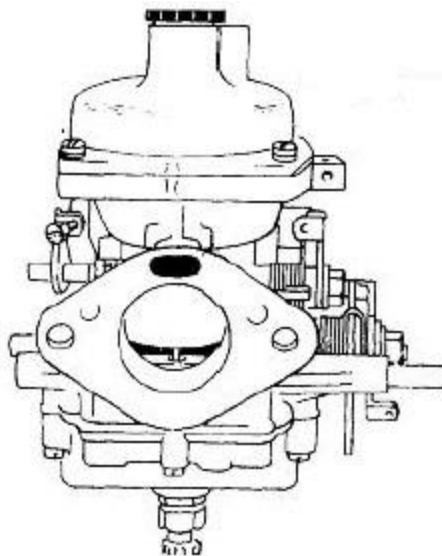


TUNING STROMBERG CD CARBURETTORS

FOR MOTOR SPORT & HIGH PERFORMANCE

by Martyn B. Watkins



We should like to acknowledge the invaluable co-operation and assistance of the Zenith Carburetter Co. Ltd. in allowing us to reproduce so much of their material and in particular for their information on carburetter specifications and needles.

We hope that this book will serve as a useful guide to motorists running cars fitted with Stromberg CD series carburetters.

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THE CD SERIES CARBURETTER

Unlike any previous carburetter manufactured by the company, the CD is a variable-choke instrument: all previous models have been of fixed choke pattern. The manufacturers' coding "CD" stands for the term constant depression—it is also known as a "constant vacuum" carburetter—and choke area and jet orifice dimensions vary according to the degree of throttle opening and the speed of the engine. A variation, known as the CDS, does not incorporate a starter-bar to lift the air valve, points which will be discussed in more detail later on: the normal CD has a starter bar.

All types of CD carburetter can be mounted and installed between the horizontal and semi-down draught positions without running difficulties on steep gradients or during hard cornering with high lateral G forces, since the concentric float chamber and a centre jet orifice give a very steep flooding angle. All carburetters are fitted with cold-start devices interconnected with the throttle to provide a fast-idle position, in addition to a rich mixture, and are available in three sizes, $1\frac{1}{4}$ in., $1\frac{1}{2}$ in., and $1\frac{3}{4}$ in., respectively designated the 125, 150 and 175. The principle difference between the three is in the size and location of the diaphragm ventilation hole: for this reason these instruments should usually be fitted complete with a suitable air-cleaner so

that this hole is not obstructed.

The carburetter itself is constructed of three principle aluminium castings forming the main body, the suction chamber and the float-chamber, while the air-valve body and the housing for the jet assembly are also castings. Dual floats are used and are formed from either expanded rubber or plastic. Outside the carburetter body and accessible without stripping the instrument, are adjustments for throttle-stop position, fast-idle setting, and jet orifice.

GENERAL DESCRIPTION

The petrol inlet tube, which is connected to the fuel pipe from the car's own supply system, is at the side of the main body of the carburetter, and the fuel passes through it into the float chamber by way of the needle which is controlled by the twin floats. As fuel level in the float chamber rises, the floats return the needle to its seating and the fuel supply is then cut off until the level in the float chamber drops far enough to allow the needle to leave its seat.

From the float chamber, fuel rises in the jet orifice, where the level is maintained equally with that in the float chamber.

With the engine running normally, opening the throttle butterfly causes a

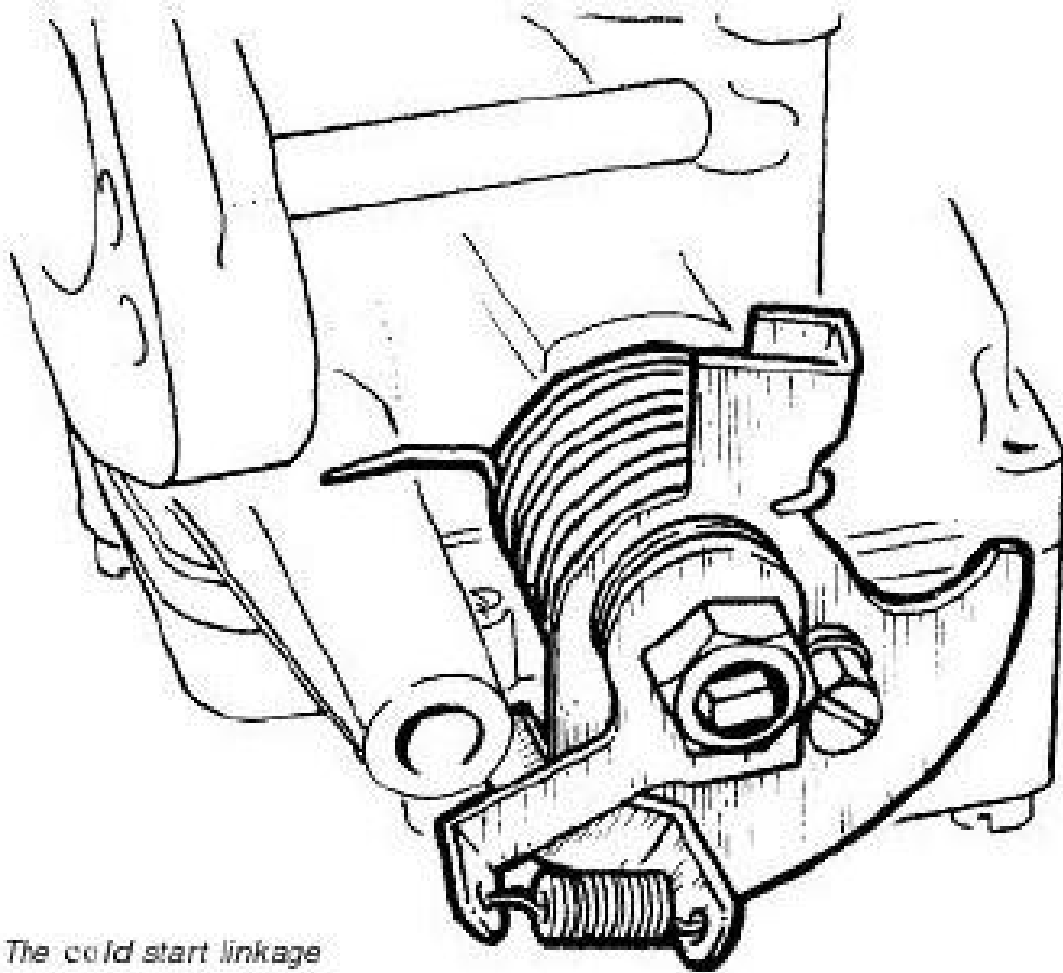


Fig. 1. The cold start linkage

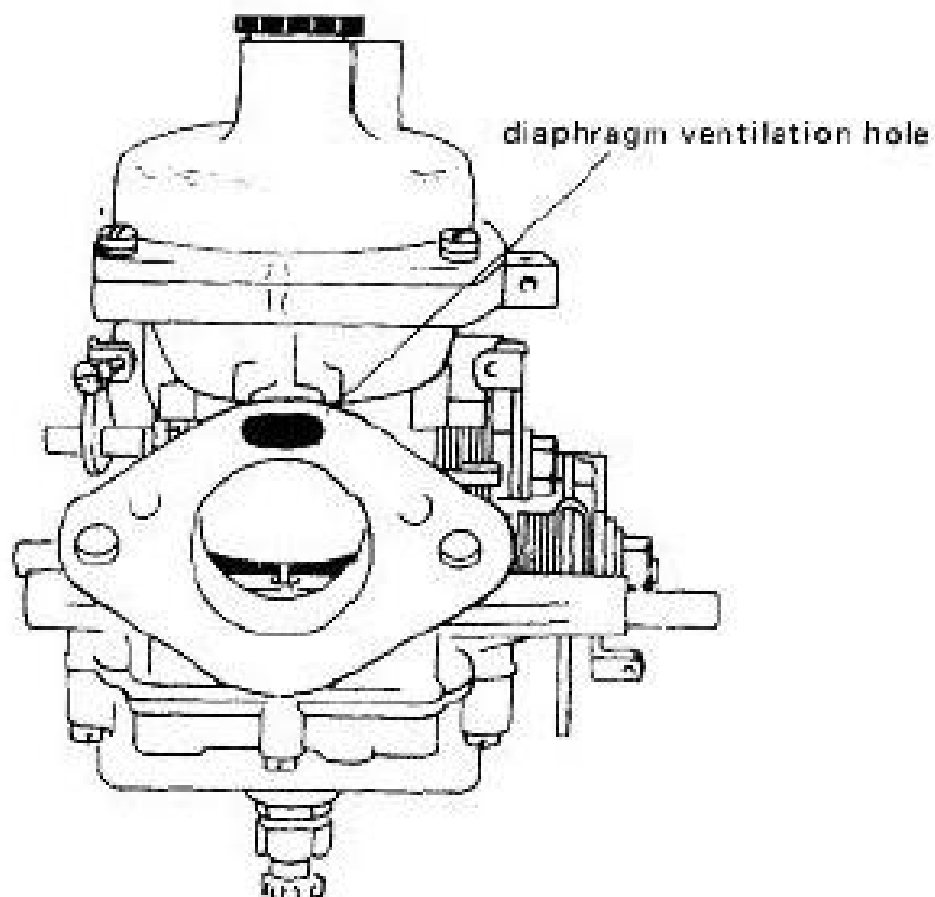


Fig. 2

transfer of the inlet manifold depression through a drilling in the air valve to a chamber which is sealed-off from the main carburettor body by a diaphragm. The difference between the pressure in the chamber and that in the bore causes the air valve to lift, thus enlarging the effective choke area. At the same time, the tapered metering needle is lifted -since it is fixed to the base of the air valve-out of the jet orifice and fuel flow is increased relative to the greater air flow permitted by the effectively larger choke opening. Air valve lift and thus metering needle lift, is proportional to the weight of air passing through the throttle, so that air pressure and velocity across the jet orifice remain approximately constant, with resulting good fuel atomisation.

The metering needle is a variable and alternative needles can be fitted from the range listed in Appendix II of this book to produce different results according to specific requirements.

THE PISTON DAMPER

Sudden, or snap acceleration, will call for temporarily richer mixture, which will be needed as soon as the throttle butterfly is suddenly opened. This facility is provided on the CD Stromberg by a dashpot -effectively an hydraulic damper-inside the hollow guide rod of the air valve itself. This dashpot is filled, generally, with an oil similar to that used in the crank-case of the engine, and for all normal requirements oil of SAE 20 specification is suitable. Zenith Carburettor Co. Ltd. sell tins of "Lube-Oil", specially intended for dashpot filling. The rod itself is filled with the oil to within $\frac{1}{4}$ in. of the end of the rod in which the damper operates. When the throttle is snapped open, the immediate upward movement of the air valve is resisted by the plunger and for that period of time until the damping resistance of the oil is overcome, the suction, or depression, at the jet orifice is increased, and this has the effect of enriching the mixture. To overcome the damper action in the opposite direction, the downward movement of the air valve is assisted by a coil spring. Failure to

provide this will cause the fuel supply to hesitate, and this gives rise to what is known as a "flat spot".

THE METERING NEEDLE

The metering needle governs mixture strength in conjunction with the air valve by regulating the amount of fuel flowing through the jet orifice. It is a component which is machined to very close limits indeed and care must be used in handling it since, if it should be bent, it will no longer move freely, and the efficient operation of the carburettor is dependent on the free and accurate movement of the needle and air valve. It can be removed for inspection or, if necessary, for an alternative needle to be fitted for a special purpose by undoing the top cover screws, removing the top cover and lifting out the complete air valve assembly, complete with diaphragm. The metering needle is secured in the base of the air valve by means of a locking screw and can be withdrawn when this is slackened. It is important to note that excessive handling of the air-valve rod and guide should be avoided, since moisture on the hands may cause corrosion. Before refitting the rod, a few drops of light oil can be applied to it.

The needle itself, as can be seen from the charts in Appendix II of this book, is measured at thirteen points, the first measurement being taken at the base of the needle, where it joins the shoulder, and the last at its tip, where it rounds off to a point. These measurements obviously govern the amount of fuel which can flow through the jet orifice when the needle is in position, and the thinner the needle at any particular point, the richer will be the mixture at that point. The dimensions of the needle at its top, or shoulder, are in effect "datum" positions which control idling; moving progressively downwards towards the point of the needle, the next positions govern low-speed pick-up in top gear and also govern the fuel supply for part-throttle and cruising operation. The next dimensions take care of top end, full-throttle, conditions. For example, if a check reveals that the engine is running weak on small throttle openings in top

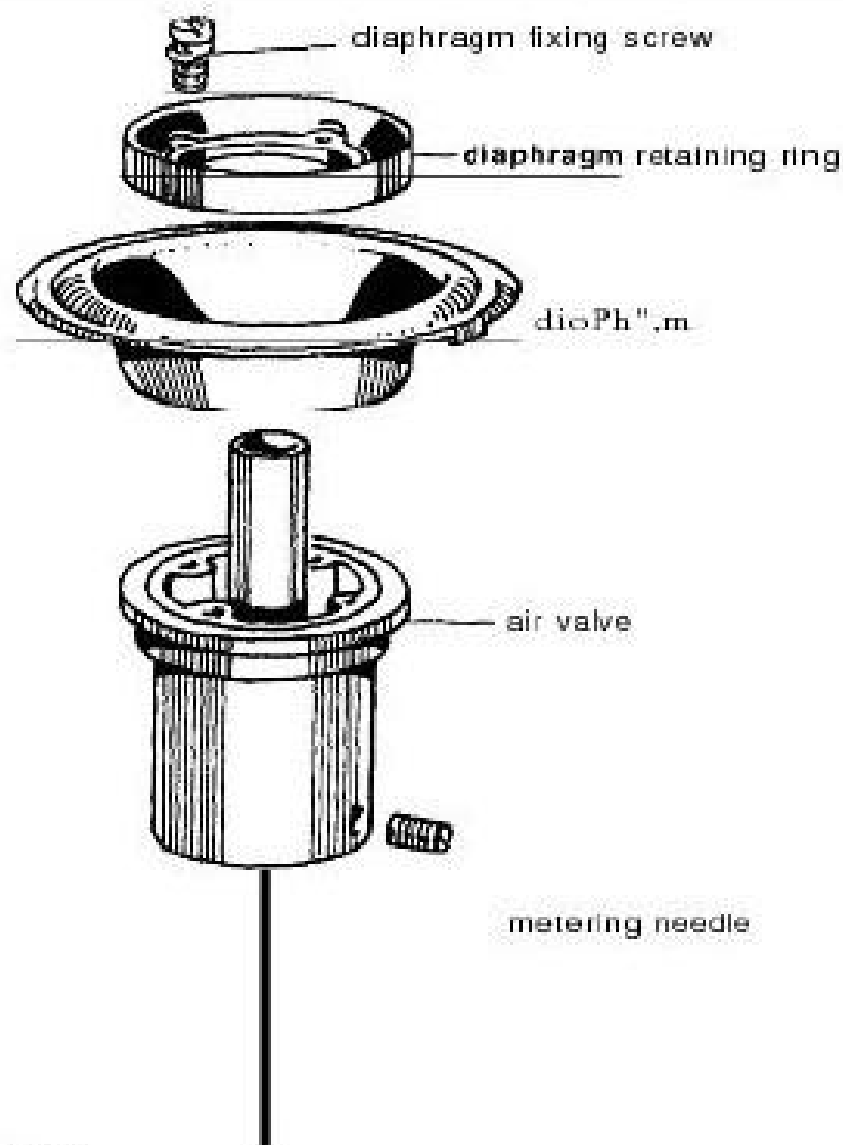


Fig. 3. The air valve assembly

gear (at, say, 30 m.p.h.) then a needle with smaller dimensions between, say positions 2 and 6 may be needed if the carburetter's own adjustment is unable to rectify the problem and provided that everything is working as it should.

COLD STARTING

Pulling out the choke control on the car's instrument panel operates the lever at the side of the carburetter body to which it is connected by cable; moving this lever causes the starter bar to lift the air valve, thus lifting the metering needle out of the jet orifice. This effectively increases the area of the jet orifice and allows the necessary enriching of the mixture. At the

same time, the cam on the lever opens the throttle to a point beyond the normal idling position, according to the setting of the fast-idle stop screw.

As soon as the engine fires, the increased depression lifts the air valve and weakens the mixture to prevent the engine from stalling through too rich a fuel/air mixture.

This applies only to the CD carburetter; its variant, the CDS, is not fitted with a starter bar and the procedure here is that the instrument board control operates the lever at the side of the carburetter in the same way. However, the lever rotates a disc in the starting device in which a series of holes of different diameters is drilled. In the fully-rich position, the largest hole

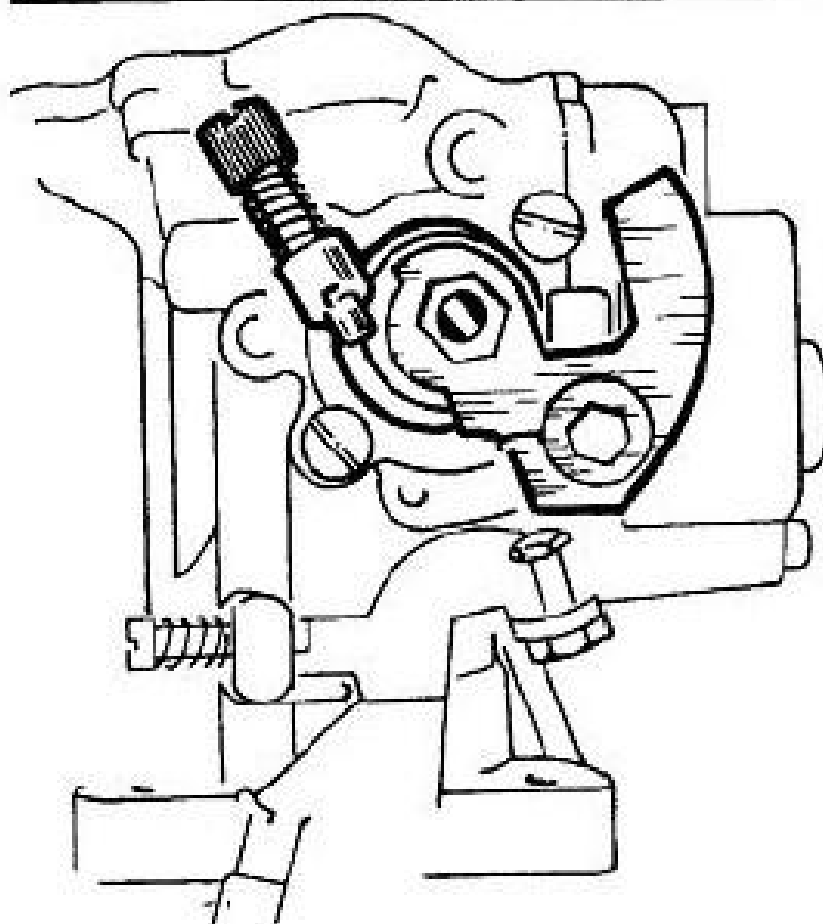


Fig. 4. External view of the CDS starter device

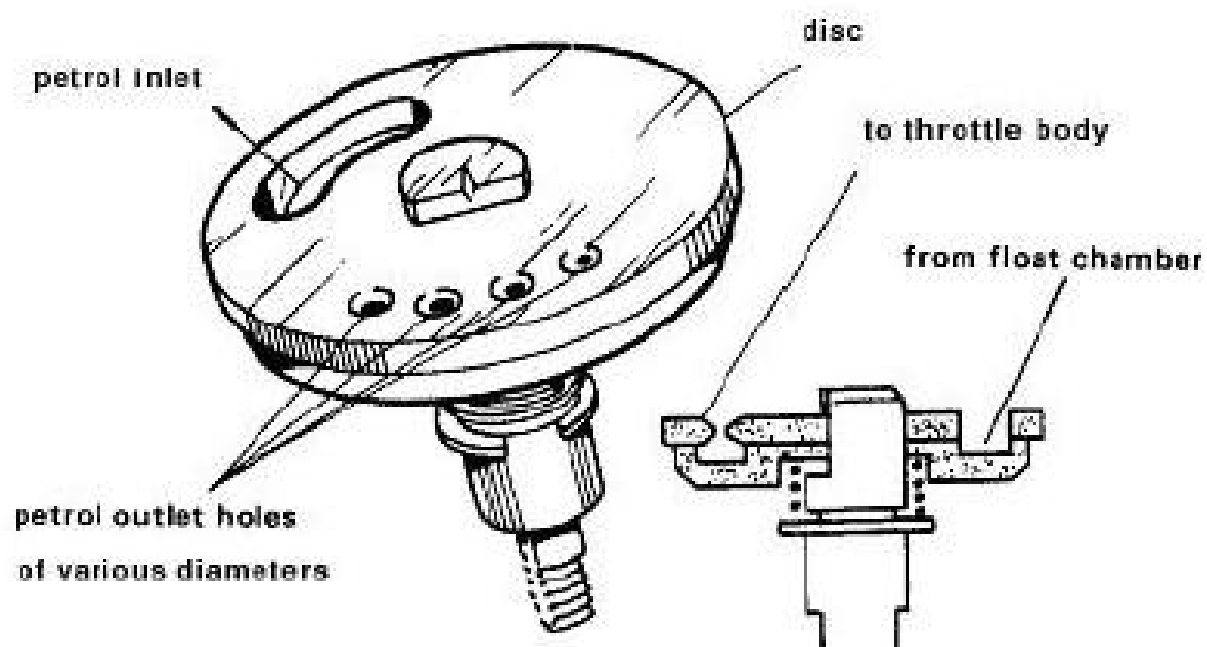


Fig. 5. Internals of the CDS starter device

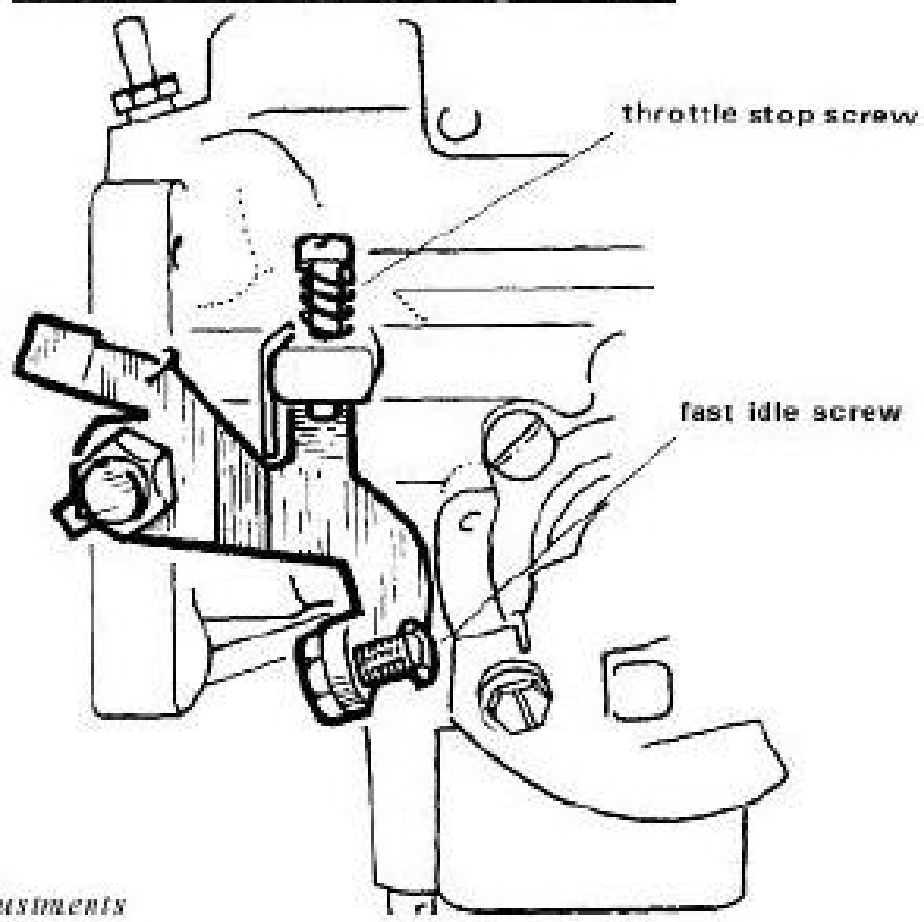


Fig. 6. CDSE adjustments

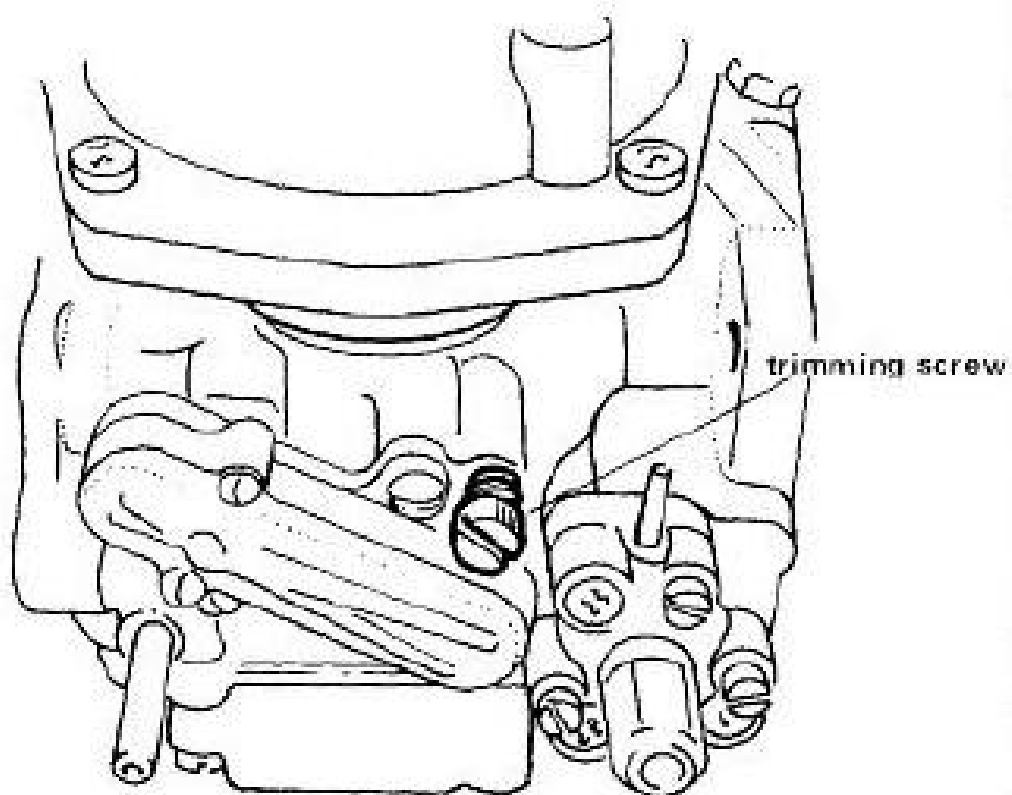
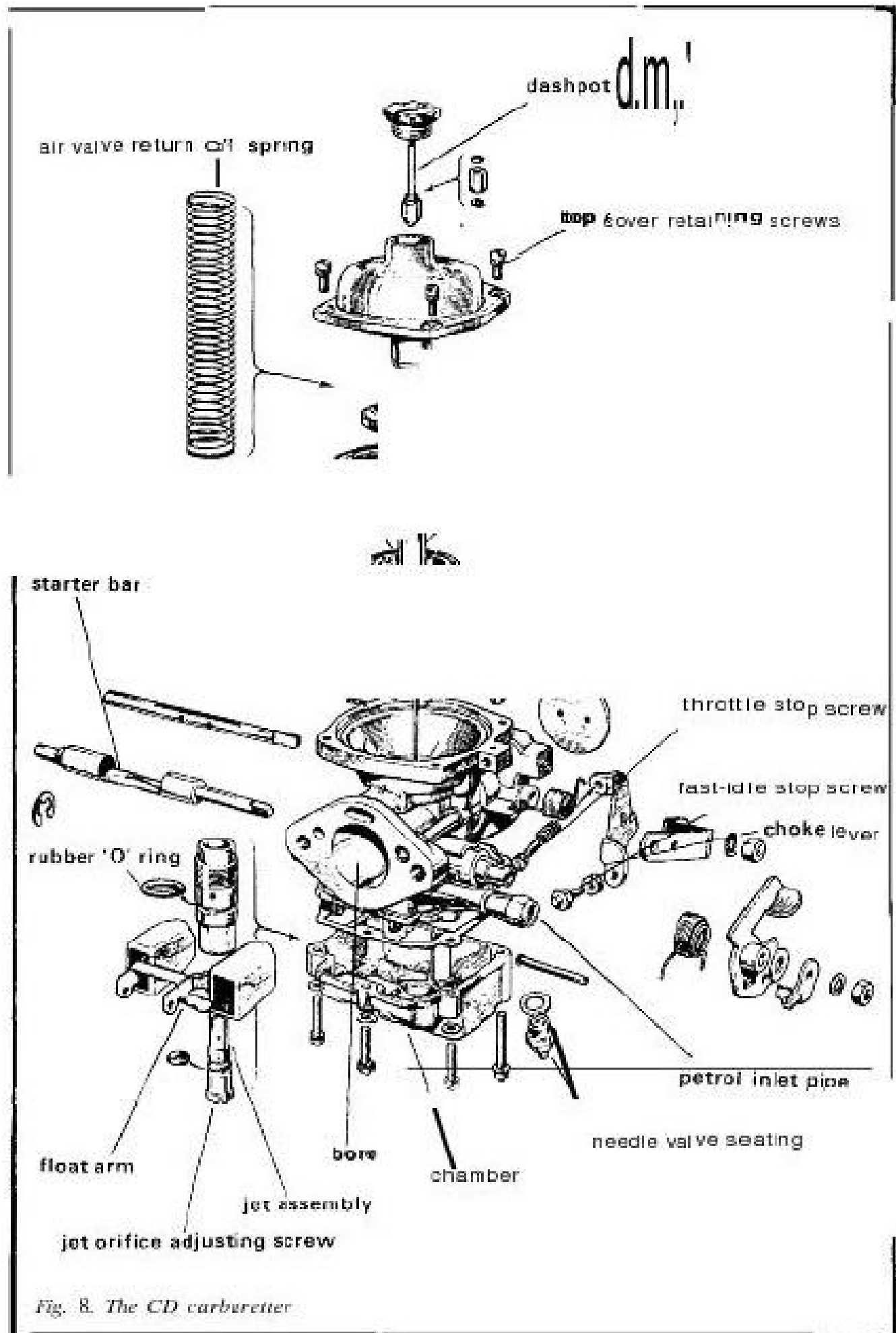


Fig. 7. The CDSE trimming screw



will provide the richest mixture. The starting device itself draws petrol from the float chamber through a vertical drilling adjacent to the central main feed channels and passes it into the throttle body on the outside, or atmosphere side, of the throttle butterfly plate. At the same time, the cam on the cold-start lever opens the throttle to the fast-idle position in the same way as before.

THE CDSE CARBURETTER

This instrument is a further development of the CDS carburetter and includes a number of special features to provide exhaust emission control to standards demanded by countries where regulations are in force on this point. Only three adjustments can be made to these carburetters in service: idling speed, adjusted by means of the throttle-stop screw; idling emission, adjusted by a trimming screw in conjunction with a carbon monoxide meter, and the fast-idle, which can be varied by means of the fast-idle screw.

The idle-trimming screw, accessible from outside the carburetter, is provided to give fine adjustment to compensate for the difference between a new "tight" engine and an older unit which has "freed-off" after a longer mileage. It regulates a controlled amount of air that can be introduced into the mixing chamber; it is not an ordinary mixture adjusting screw and

cannot be used as such. The amount of air introduced in this way provides a "leak" and lowers the depression; it is admitted through a further drilling which breaks into the carburetter mixing chamber, "downstream" of the air valve. This "leak" is set during manufacture and the balancing screw is sealed with a plug which must not be disturbed during service.

A further special feature of these carburetters is a temperature compensator, operating over a wide range of air valve lift, to cater for minor mixture strength variations which can be caused by heat transfer to the carburetter body castings. These only become of any real significance under the conditions of precision required by exhaust emission regulations and are corrected by the compensator. This consists of an air-flow channel which permits some of the air passing through the carburetter to by-pass the bridge section. When this air is introduced into the mixing chamber, the air valve rides in a lower position to maintain depressions on its downstream side and thus causes the metering needle to sit lower in the jet orifice which is thus effectively reduced in area. The degree of temperature compensation can be varied by adjusting the amount of air which is by-passed, and to permit this to be done the movement of a tapered plug is controlled by a bi-metallic blade.

section 2

ADJUSTING AND CLEANING

SETTING IDLE SPEED AND MIXTURE

The idling speed itself is governed by the setting of the throttle-stop screw, while the idling mixture is controlled by the jet-adjusting screw at the base of the carburetter float-chamber, and when the idling speed is being set or adjusted these two controls must be used in conjunction with each other. Engine speed is set in the idle position by the throttle-stop screw, while the jet-adjuster determines the richness or otherwise of the fuel/air mixture.

To set the idling speed, the air-cleaner and damper must be removed, and the air-valve must be held down on the bridge in the throttle bore. Using a coin, which will be easier than a small screw-driver, the jet-adjuster should be screwed up until the jet is felt to contact the under-side of the air valve, at which point it should then be turned down again three full turns. By doing this, you can establish a "working position" for the jet.

With the engine at normal running temperature, the idling speed should be set by using the throttle-stop screw to a speed of 600-650 r.p.m. and, by careful and gradual adjustment of the jet-adjuster, vary the mixture until the engine runs with a smooth, regular beat.

To check the final setting, lift the air

valve a very small amount - no more than 1/32 in.-and if the engine speed rises appreciably, the mixture is too rich; if it stops, the mixture is too weak. If the setting is right, the engine speed will either remain unaltered or may drop very slightly. Turning the jet-adjusting screw clockwise will weaken the mixture; turning it anti-clockwise will make it richer.

You should bear in mind that idle "quality" depends not only on the correct carburetter setting, but also on the general condition of the engine and ignition timing, spark-plugs and tappet adjustment should also be checked; any leaks at manifold joints will also affect the carburation while very old carburetters may have to be replaced due to internal wear, or fitted with a new throttle spindle.

JET CENTRALISATION

The carburetter cannot function effectively unless the jet orifice is placed so that the metering needle can move freely and centrally within it, and whenever the jet assembly is removed, for whatever reason, it must be re-centred. A quick check is to lift the air valve by means of the spring-loaded pin found at the side of the instrument, opposite the throttle butterfly and beneath the diaphragm

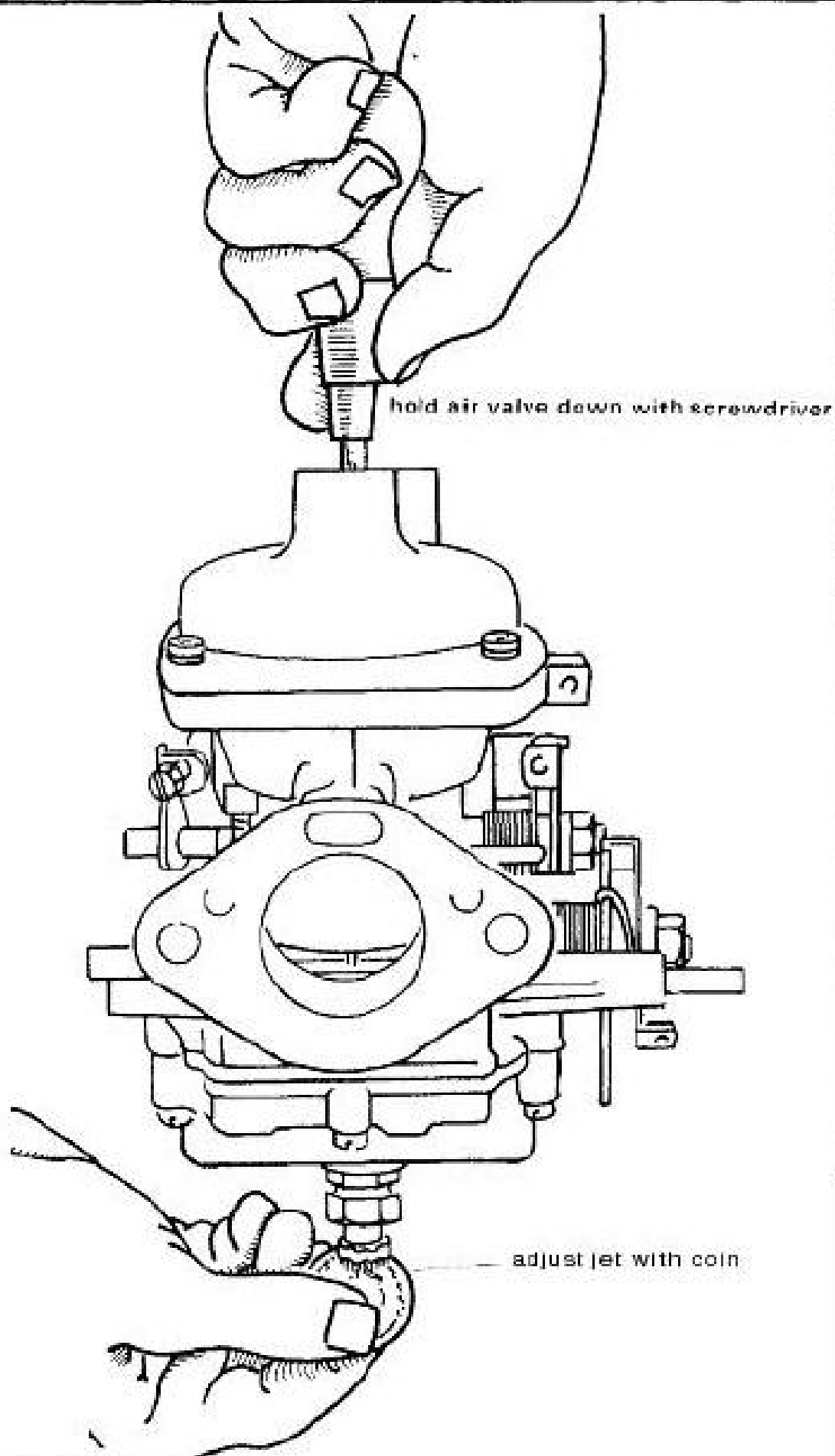


Fig. 9. Mixture adjustment

housing. If the valve will fall back freely, the jet is central; if not, it must be reset.

This is done by lifting the air-valve and fully tightening the jet assembly, then screwing up the orifice adjuster until the top of the orifice is just above the bridge in the throttle bore. Then, to release the orifice bush, slacken off the whole jet assembly by about half-a-turn and allow the air valve to drop back: the needle will then enter the orifice and in doing so will automatically centralise it. It may be necessary to assist the air valve to drop with more freedom by unscrewing the damper and sticking a thin rod in the dashpot.

The assembly can now be retightened, checking frequently as you do so that the needle remains in the orifice. This can be checked by lifting the air valve about $\frac{1}{8}$ in. and letting it drop back freely, when the piston should stop firmly on the bridge. The idling speed/mixture will now have to be reset, of course.

THE AIR VALVE

If the air valve sticks, it may be due to dirt or built-up carbon on the outside of the valve but this is rare and the condition is usually due to a need for re-centring the needle, or the bore in which it slides or even a bent metering needle. To remove the air valve assembly, you will have to undo the top cover by means of the screws and lift it out complete with the diaphragm. The outside of the valve and the bore can be wiped clean with a rag moistened with petrol or paraffin, but if the diaphragm has expanded it will be necessary to let it dry before refitting it. Otherwise, it will not fit on the bead or the locating tab recess. The air-valve rod and guide should not be handled since moisture from the skin can cause sufficient corrosion to stop it working freely. Before reassembly, the rod can be given a few drops of very light oil.

FLOAT LEVEL

Fuel level in the float chamber can be adjusted by bending the tag which contacts the end of the fuel needle, but care

must be taken to ensure that the tag remains at right-angles to the needle; at the same time, the float arms must not be bent or twisted as this will make it impossible to achieve a constant fuel level. If only a small alteration in fuel level is necessary, it can be achieved by fitting an additional washer under the needle seating assembly, which will lower the fuel level. Great care must be taken when removing the float chamber to avoid damage to the faces and floats, and the rubber "O" ring must be replaced between the jet assembly and the float-chamber spigot boss to prevent leakage,

CLEANING

Cleaning should not be necessary except at infrequent intervals as the possibility of foreign matter causing a blockage is remote. If the carburettor is to be cleaned, however, a new gasket pack should be obtained from your garage or Zenith service station before the instrument is stripped.

After removing the carburettor from the engine, the exterior must be thoroughly cleaned and all grease and dirt removed. The dome cover can then be removed, and the air-valve, complete with diaphragm and needle, taken out. The diaphragm should be cleaned with petrol and allowed to dry thoroughly, when it will resume its original shape.

With a $\frac{3}{8}$ in. A.F. spanner, the jet assembly can next be removed, and this will allow the jet orifice and bush to be dismantled. The condition of the rubber "O" ring fitted in the jet assembly should be checked and a new one fitted if necessary. The float-chamber base can now be removed and the floats and needle valve examined and replaced if necessary.

Normal cleaning of all components can now be carried out. The float assembly should be checked to make sure that both floats are in line and not twisted; rubber floats must have a completely undamaged skin, as they can otherwise absorb fuel which will increase their weight and, obviously render them useless.

On reassembly, the tag-end of the float

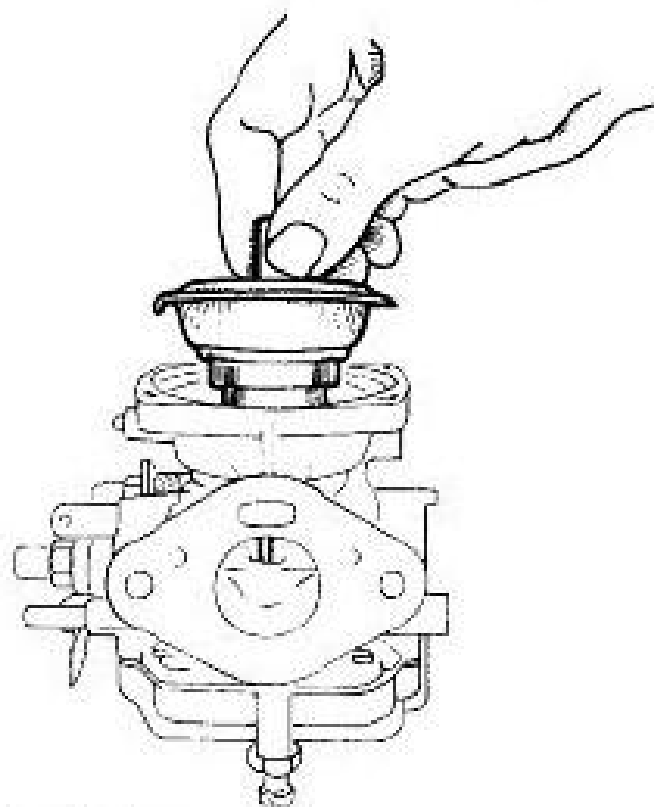


Fig. 10. Removing the air valve assembly

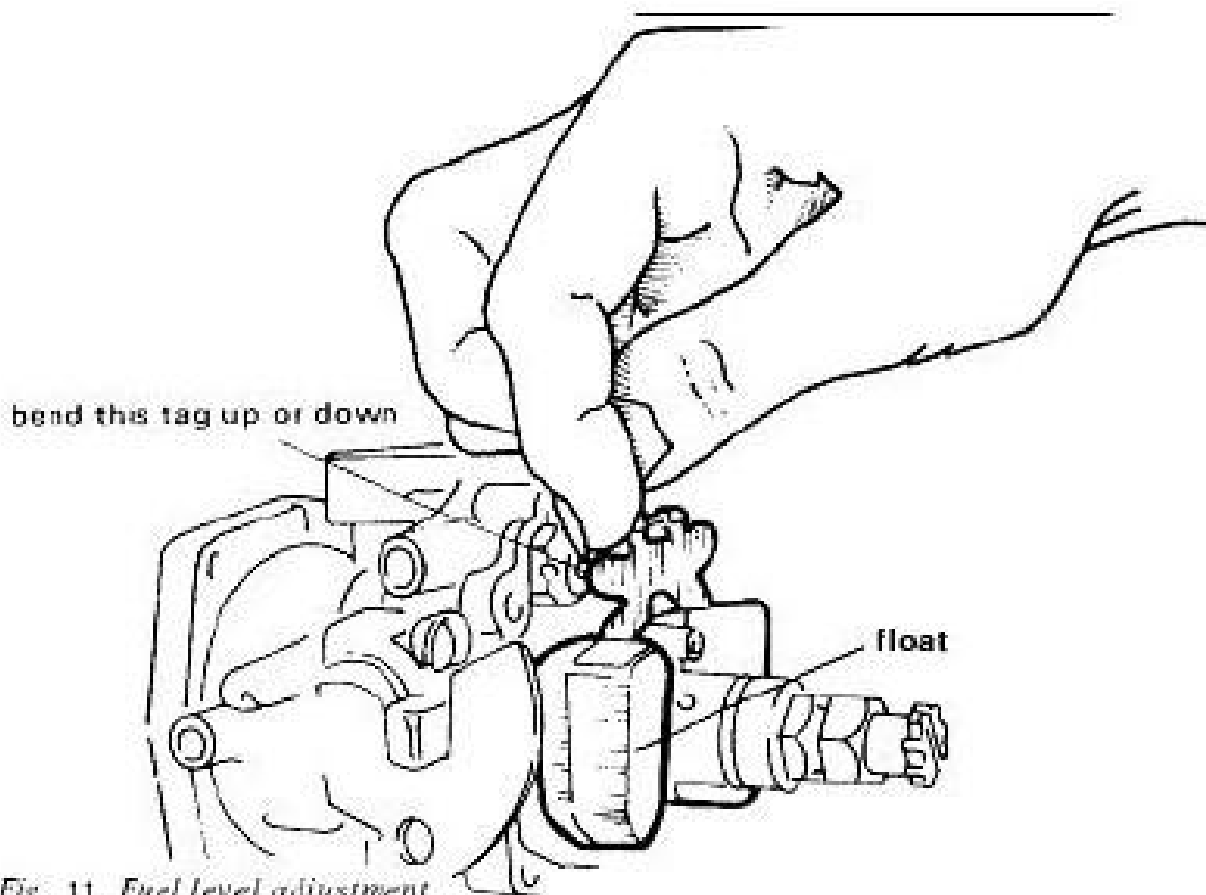


Fig. 11. Fuel level adjustment

Insert washer here for small adjustment

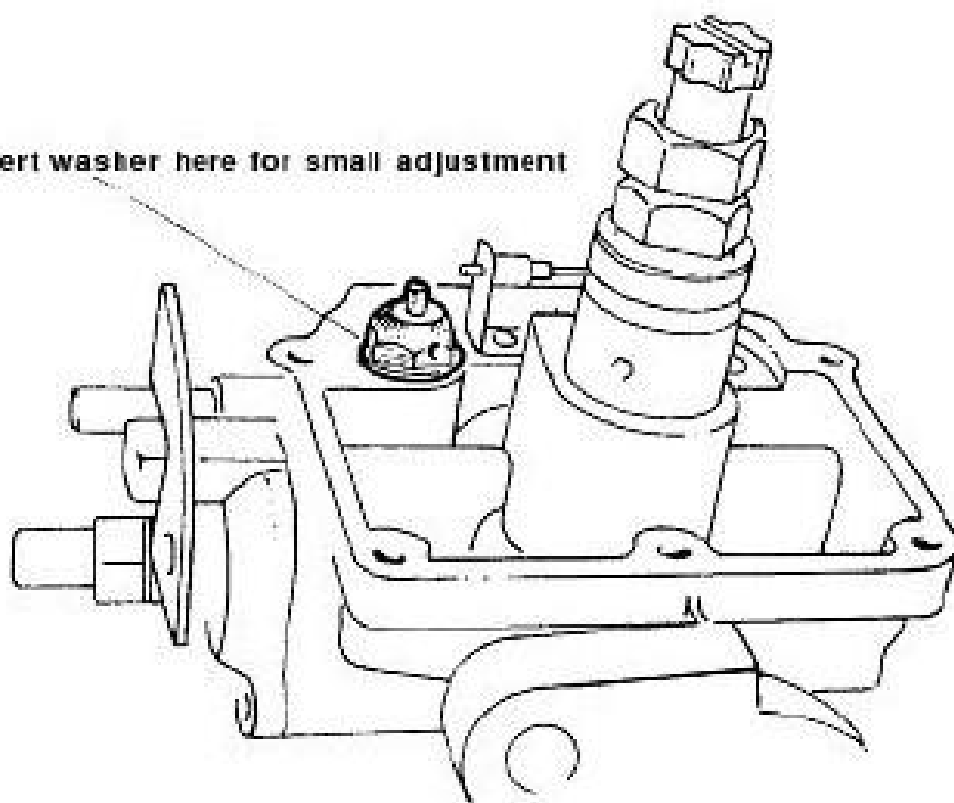


Fig. 72. Alternative method of level adjustment

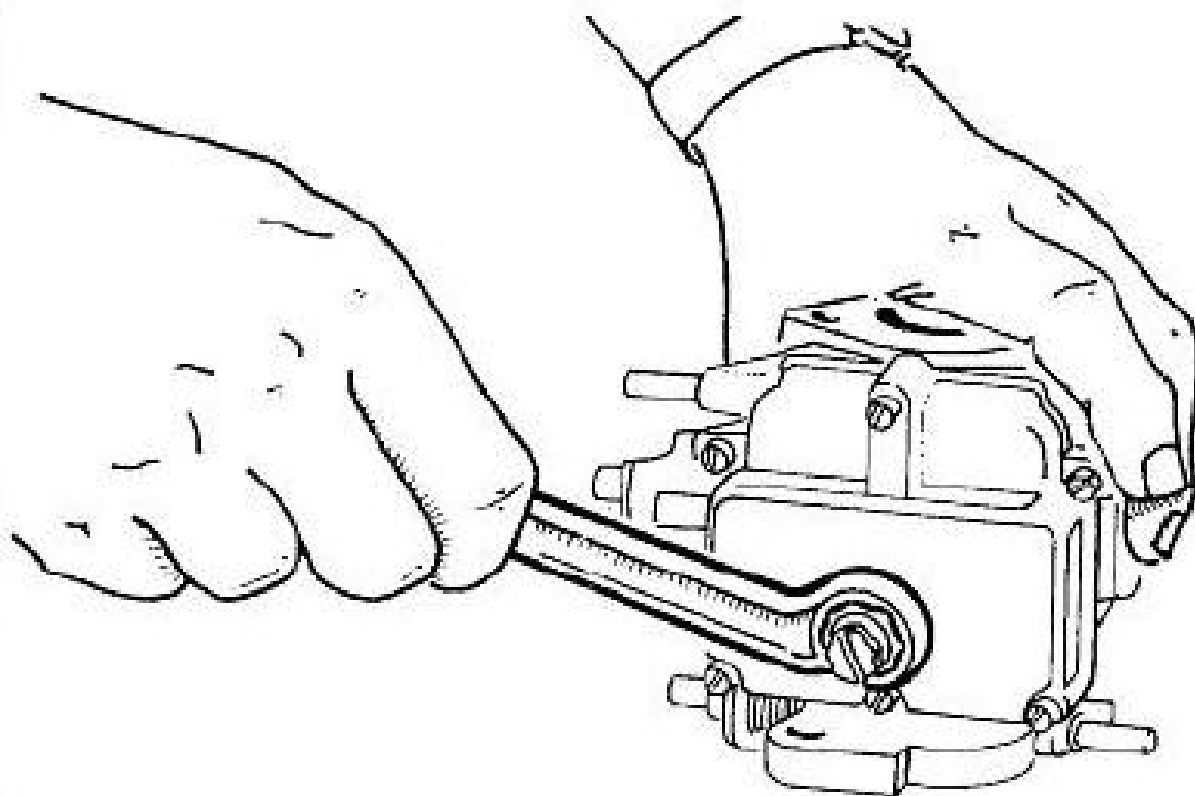


Fig. 73. Removing jet assembly

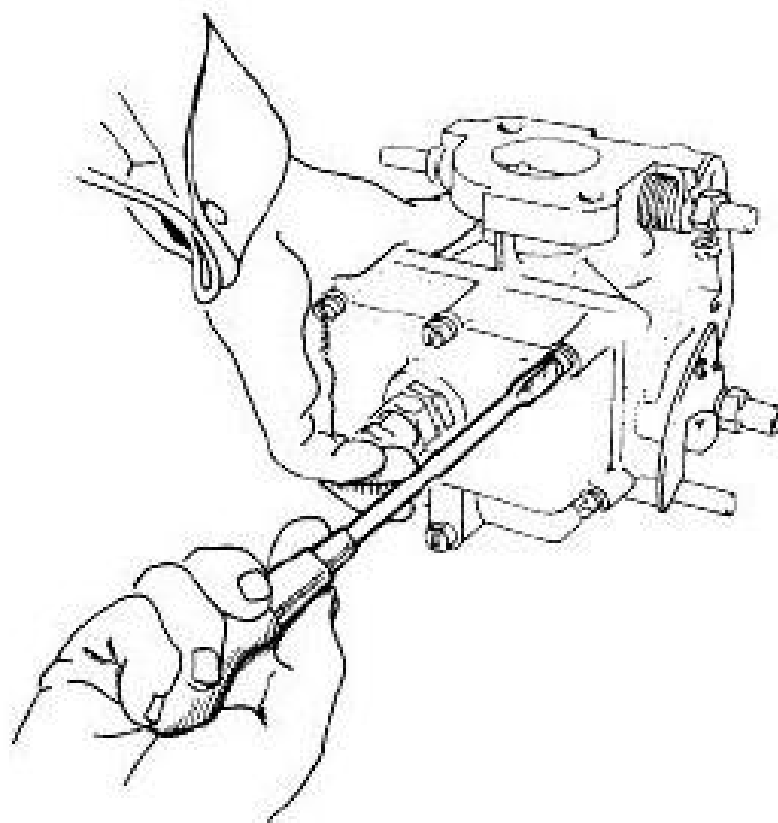


Fig. 14. Removing the float chamber base

should be in contact with the needle valve when the latter is closed, and the height of both floats should be an identical measurement from the casting face.

The next operation should be the re-fitting of the float-chamber and jet assembly, following the correct sequence: jet orifice surrounded by spring, brass washer, bushing with "O" ring, aluminium washer.

Before replacing the air-valve, check the diaphragm by stretching it gently against the light: if it contains any perforations it must be renewed. When the diaphragm is correctly fitted, the locating tab should fit snugly in the recess of the body and the holes in the underside must face towards the throttle spindle. Do not twist the air valve cover to line up the holes, and remember to replace the air-

valve spring, if one is used, before positioning the cover. Check that the air-valve moves freely before and while completely tightening the four body fixing screws.

With this in position, the jet assembly must be centralised, as described earlier, and the damper reservoir filled to within $\frac{1}{4}$ in. of the top. Lifting the air valve, thus bringing the guide rod to the top of the air valve cover, will allow this filling to be carried out with complete accuracy.

If a pancake type of air cleaner is fitted, you should ensure that, when replacing it, the ventilation holes in the flange of the carburetor are not obstructed. After running the engine to normal working temperature the mixture and idling-speed adjustments can be carried out as described earlier.

SYNCHRONISING TWIN CARBURETTORS

Twin-carburettor installations must be carefully synchronised for best results and while procedure is quite straightforward the fact of correct synchronisation is more complex on the CD instrument because of the variable-jet feature. The first move is to examine the action of the two throttles, making sure that both throttles close "completely when the throttle-stop screws are slacked right off. Loosen the clamp-bolts on the throttle-spindle couplings and then, with each throttle completely shut, make sure that the fast-idle screw is clear of the cam on the side of the carburettor body.

The throttle-stop screws must now be screwed in, first to the point at which the ends of the screws are just contacting the casting and then by a further $1\frac{1}{2}$ turns each. This will open the throttles by an equal amount and provide a basis for setting idle-speed.

Regulate the jet-adjusting screws three turns down from the point at which the jet orifice comes into contact with the base of the air valve, treating each carburettor as outlined in Section 2 under "Setting Idle Speed and Mixture", and

check that both cold-start levers are fully off against the stops with the dashboard control pushed fully in. If necessary, adjust the coupling and control wire until this is so.

Next start the engine and run to normal working temperature and then set the idling speed as outlined in Section 2; both throttle-stop screws **must**, of course, be set in unison. When applying the piston-lift test-by lifting the air-valve $1/32$ in. by means of a cycle-spoke or some similar tool-the rise or drop in engine speed will apply only to the two cylinders served by that carburettor, and the object will be to achieve an identical effect on each pair of cylinders. (Some carburettors have integral lifting pins).

As a final check, you should make sure that the hiss from each carburettor intake is equal in intensity. A rubber tube, one end placed in the intake and the other end held to the ear, will make it easier to detect any difference, while a number of suitable tools is on the market, such as the German PSW tool marketed in the United Kingdom by Motor Books and Accessories.

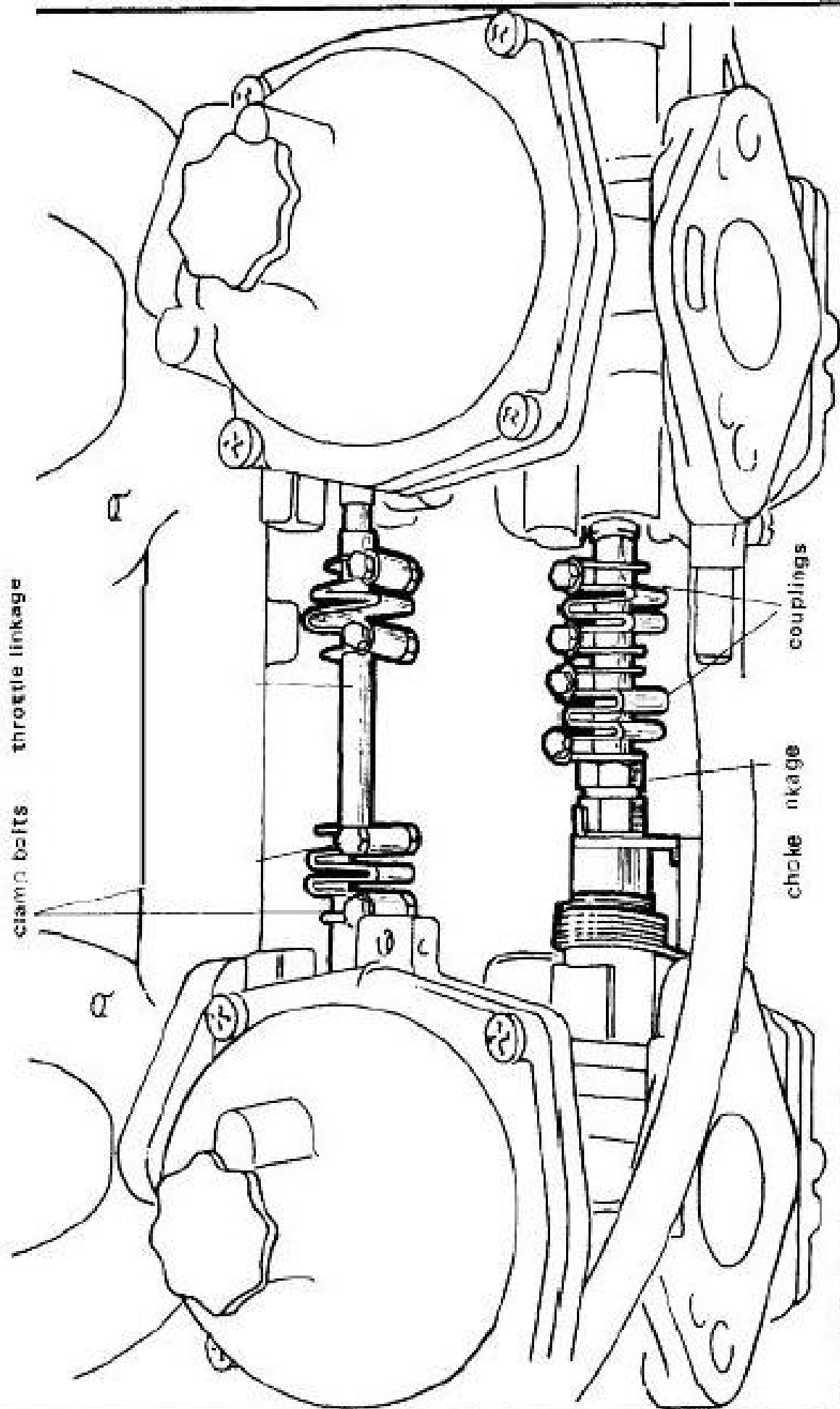
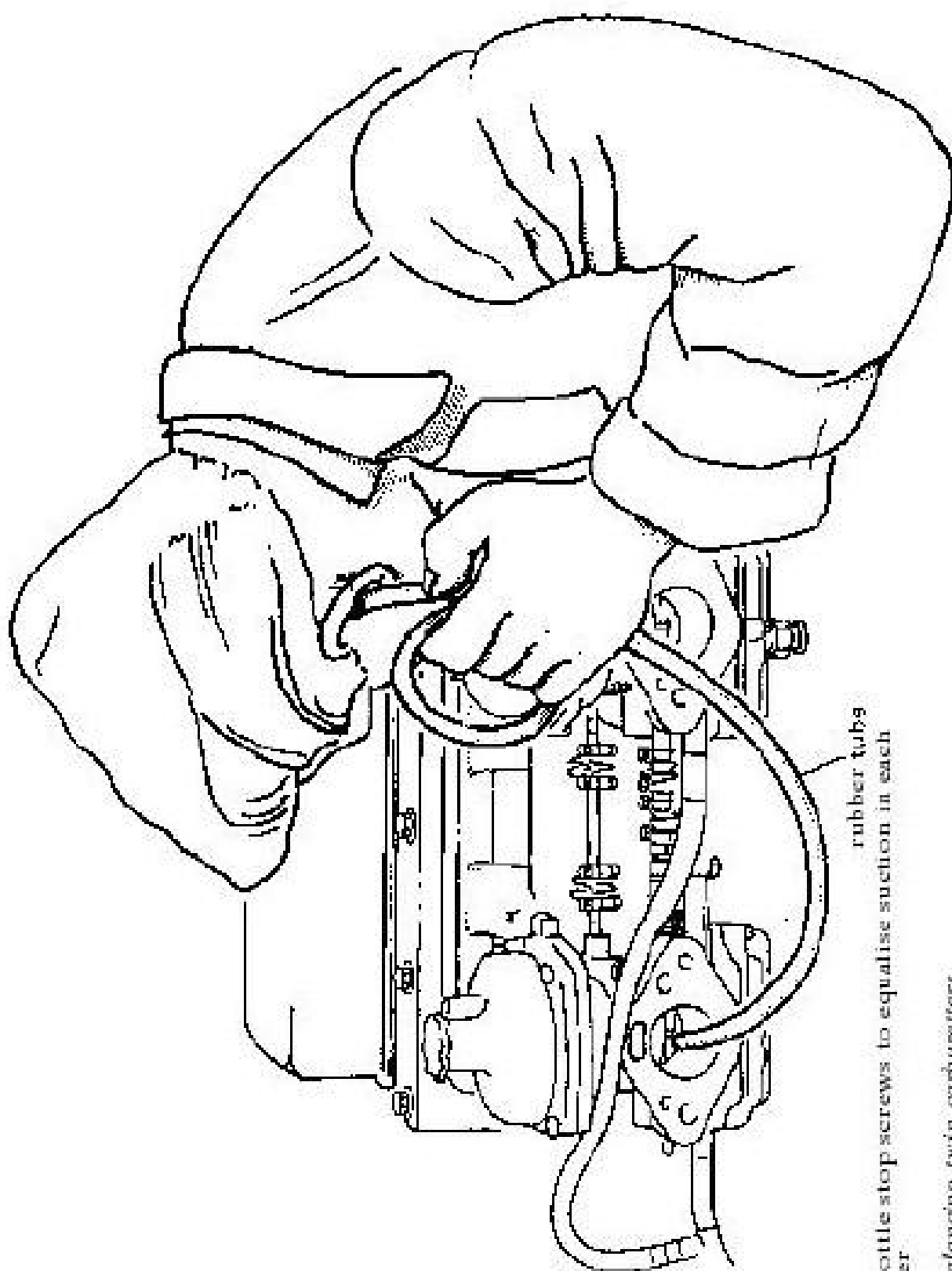


Fig. 15. Twin carburettor linkages



adjust throttle stop screws to equalise suction in each carburetter

rubber tubes

Fig. 16. Balancing twin carburetters

SPECIFICATIONS, APPLICATIONS AND NEEDLE CHARTS

STANDARD APPLICATIONS AND CONVERSIONS

MAKE/MODEL	CARE	METERING NEEDLE	AIR VALVE SPRING
Aston Martin (export)	175 CD-2SE	B.19147	Natural
Ford Anglia Super/Cortina 1200	125 CD	6T	—
Humber Sceptre 1725	150 CD	6R	—
Hillman Imp Sport	125 CDS	6K	Natural
Hillman Imp Sports (Comps. Dept.)	150 CD	6F	Red
Hillman Hunter 1725 (alum. head)	150 CDS	6P	Red
Hillman Hunter 1725 (iron head)	150 CDS	6Q	Red
Hillman Hunter (alum. head, South Africa)	150 CDS	6Z	Natural
Hillman Minx 1500 (iron head)	150 CDS	6Q	Red
Jaguar 4.2 (Export)	175 CD-2SE	B.18394	Natural
Sunbeam Stiletto	125 CD	6K	Natural
Sunbeam Alpine 1725	150 CD	5M	Natural
Sunbeam Rapier 1725 (1967)	150 CD	6R	Blue
Triumph Herald 1300	150 CD	6E	None
Triumph 1300	150 CD	6E	None
Triumph Vitesse 1600	150 CD	7B	None
Triumph Vitesse 2000	150 CD	6J	Natural
Triumph 2000 1964—67	150 CD	7A	Natural
Triumph 2000 1967—	150 CD	6J	Natural
Triumph GT6 1966—67	150 CD	6J	Natural
Triumph GT6 1967—	150 CDS	6W	Blue
Triumph GT6 (Stage II)	150 CDS	6AC	Blue
Triumph Vitesse (Stage II) 2000	150 CDS	6AC	Blue
Triumph TR4	175 CD	2A	Natural
Triumph TR4A (Mid 1965)	175 CD	2E	Natural
Triumph TR4A 1965	175 CD	2H	Blue
Triumph TR 250 (U.S.A.)	175 CD-2SE	B.18580	Blue
Triumph Ajax 1500	150 CDS	5Y	Red
Vauxhall Viva HA	150 CD	6G	Blue

MAKE/MODEL	CARB	METERING NEEDLE	AIR VALVE SPRING
Vauxhall Viva HB	150 CD	6N	Blue
Vauxhall Viva HB (Borg-Warner trans.)	150 CD	6N	Blue
Vauxhall Viva HB (Fram Plastic Air Cleaner)	150 CD	6AB	Blue
Vauxhall Viva HB (Fram Plastic Air Cleaner and Automatic Transmission)	150 CD	6AB	Blue
Vauxhall Viva GT 1975	175 CD-28	1C	Red

AIR-VALVE RETURN SPRINGS

SPRING COLOUR CODE	PART NO.	DESCRIPTION
125 CD/150 CD CARBS:		
Natural	B.18276	Light
Blue	B.18274	Medium
Red	B.18275	Heavy
175 CD CARBS:		
Natural	B.18278	Light
Blue	B.18277	Medium
Red	B.18339	Heavy

Note: Spring colour is for identification purposes only: the part no. must be quoted when ordering.

JET-NEEDLE MEASUREMENTS

1A	1B	1C	1O	1E	1H	1G	1H	1J	1K	1L	1M	1N	1P
-0980	-0980	-0980	-0983	-0942	-0980	-0962	-0979	-0950	-0955	-0980	-0980	-0980	-0940
-0919	-0931	-0926	-0942	-0933	-0949	-0930	-0930	-0932	-0944	-0915	-0943	-0964	-0925
-0889	-0913	-0919	-0913	-0915	-0918	-0912	-0910	-0914	-0913	-0926	-0916	-0945	-0910
-0862	-0893	-0899	-0883	-0881	-0892	-0877	-0880	-0880	-0878	-0908	-0920	-0932	-0884
-0834	-0877	-0876	-0857	-0845	-0854	-0850	-0837	-0844	-0843	-0887	-0902	-0915	-0846
-0811	-0868	-0855	-0813	-0809	-0807	-0828	-0797	-0805	-0807	-0870	-0887	-0903	-0809
-0784	-0867	-0849	-0764	-0764	-0762	-0804	-0752	-0774	-0778	-0863	-0882	-0898	-0764
-0758	-0865	-0847	-0718	-0725	-0719	-0781	-0708	-0740	-0738	-0861	-0878	-0896	-0725
-0725	-0862	-0833	-0674	-0687	-0675	-0750	-0647	-0700	-0702	-0850	-0870	-0888	-0687
-0692	-0860	-0827	-0654	-0653	-0640	-0712	-0585	-0666	-0675	-0845	-0865	-0885	-0653
-0661	-0857	-0823	-0637	-0620	-0600	-0706	-0567	-0625	-0638	-0841	-0861	-0881	-0620
-0630	-0855	-0823	-0634	-0601	-0565	-0706	-0548	-0598	-0607	-0840	-0860	-0880	-0601
-0630	-0853	-0823	-0617	-0587	-0565	-0706	-0530	-0594	-0597	-0840	-0860	-0880	-0587

F10	B1R	B15	Bn	B1U	B1V	B1W	B1Y	B1Z
-0940	-0979	-0955	-0980	-0969	-0975	-0980	-0967	-0979
-0931	-0990	-0944	-0949	-0968	-0938	-0949	-0941	-0951
-0914	-0910	-0913	-0918	-0919	-0914	-0918	-0905	-0925
-0878	-0880	-0878	-0892	-0897	-0888	-0902	-0889	-0891
-0843	-0837	-0843	-0854	-0864	-0858	-0854	-0866	-0867
-0807	-0797	-0807	-0807	-0814	-0812	-0807	-0829	-0846
-0778	-0752	-0778	-0762	-0794	-0773	-0762	-0793	-0822
-0738	-0708	-0738	-0719	-0761	-0726	-0719	-0759	-0797
-0702	-0647	-0702	-0675	-0734	-0681	-0675	-0723	-0758
-0675	-0585	-0675	-0640	-0703	-0647	-0640	-0704	-0723
-0638	-0567	-0638	-0600	-0674	-0645	-0600	-0697	-0684
-0607	-0548	-0607	-0565	-0653	-0645	-0565	-0697	-0684
-0597	-0510	-0597	-0565	-0645	-0645	-0565	-0697	-0684

2A	2B	2C	2O	2E	2F	2G	2H	2I	2K	2L	2M	2N	2P
-0981	-0980	-0980	-0980	-0980	-0980	-0980	-0980	-0980	-0980	-0980	-0980	-0980	-0964
-0939	-0936	-0950	-0907	-0925	-0943	-0910	-0923	-0930	-0930	-0930	-0930	-0931	-0935
-0915	-0908	-0910	-0888	-0898	-0905	-0894	-0899	-0897	-0890	-0902	-0913	-0902	-0910
-0885	-0881	-0875	-0870	-0876	-0878	-0876	-0877	-0876	-0867	-0867	-0877	-0881	-0871
-0852	-0857	-0855	-0840	-0847	-0850	-0847	-0855	-0857	-0851	-0833	-0850	-0864	-0835
-0827	-0829	-0825	-0812	-0818	-0828	-0818	-0825	-0847	-0843	-0805	-0825	-0856	-0796
-0800	-0788	-0780	-0782	-0781	-0804	-0781	-0792	-0837	-0831	-0782	-0807	-0848	-0758
-0775	-0757	-0750	-0751	-0740	-0790	-0740	-0750	-0828	-0828	-0777	-0800	-0846	-0720
-0753	-0725	-0690	-0720	-0705	-0782	-0705	-0708	-0825	-0825	-0775	-0795	-0843	-0681
-0730	-0693	-0630	-0688	-0670	-0774	-0670	-0674	-0823	-0823	-0770	-0790	-0841	-0644
-0708	-0662	-0575	-0656	-0635	-0763	-0635	-0635	-0821	-0821	-0763	-0785	-0838	-0606
-0690	-0648	-0525	-0625	-0597	-0765	-0597	-0604	-0821	-0821	-0755	-0780	-0836	-0569
-0690	-0648	-0525	-0625	-0597	-0765	-0597	-0600	-0821	-0821	-0755	-0780	-0834	-0532

2O	2R	2S	B2T	B2U	B2V	B2W	B2Y	B2Z
-0964		-0983	-0974	-0959	-0959	-0953	-0967	-0942
-0938		-0926	-0932	-0923	-0926	-0943	-0932	-0929
-0914		-0896	-0902	-0896	-0899	-0914	-0905	-0908
-0875		-0873	-0864	-0867	-0871	-0879	-0880	-0872
-0839		-0846	-0833	-0835	-0840	-0840	-0848	-0844
-0798		-0823	-0800	-0803	-0807	-0804	-0816	-0805
-0763		-0793	-0766	-0769	-0773	-0768	-0779	-0774
-0722		-0765	-0745	-0748	-0750	-0731	-0755	-0740
-0684		-0738	-0725	-0728	-0730	-0693	-0735	-0700
-0647		-0710	-0705	-0708	-0710	-0615	-0715	-0666
-0605		-0710	-0686	-0689	-0691	-0580	-0695	-0623
-0574		-0710	-0668	-0671	-0673	-0562	-0677	-0580
-0551		-0710	-0668	-0671	-0673	-0562	-0677	-0580

3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M	3N	3P
+0980	'0980	'0983	-0980				3O	3R	3S	3T	3U	3V	3W
-0936	'0918	-0929	'0918										
'0897	-0888	-0893	-0888				3Y	3Z					
-0858	'0857	'0867	'0857										
-0821	'0820	-0825	-0820										
'0789	-0787	'0777	-0780										
-0771	-0775	'0732	'0765										
-0751	'0765	-0684	'0750										
-0716	'0752	'0642	'0720										
-0685	-0728	-0626	-0710										
-0663	-0700	-0610	'0685				4O	4R	4S	4T	4U	4V	4W
-0640	-0675	-0593	'0665										
-0640	-0675	-0570	-0665				4Y	4Z					

4A	4B	4C	4D	4E	4F	4G	4H	4J	4K	4L	4M	4N	4P
-0980	'0980	-0980	-0980	-0980	'0980	'0958	'0964	-0964	-0980				
'0931	'0927	'0922	-0890	0922	'0922	'0913	'0897	'0897	0914				
-0887	'0890	-0876	-0866	'0896	'0896	-0871	-0885	'0885	-0888				
'0851	-0863	-0835	'0841	-0858	-0858	'0836	'0851	-0850	'0857				
-0813	-0825	-0806	-0815	'0817	'0817	-0783	'0817	-0808	'0820				
-0784	-0785	-0757	'0787	-0775	'0775	'0737	'0773	-0756	'0787				
'0760	-0740	'0708	-0752	-0744	-0744	'0693	-0721	'0710	'0772				
-0755	-0695	-0656	'0717	'0694	'0694	-0638	-0677	'0669	-0760				
'0750	'0650	-0599	-0661	-0650	'0650	'0580	'0645	-0645	-0745				
-0714	'0600	-0550	'0608	'0617	-0617	'0518	-0619	-0619	-0720				
-0737	-0555	'0505	-0565	-0587	'0587	-0455	'0593	-0593	'0695				
'0730	-0500	-0464	-0525	-0560	'0560	-0415	'0562	-0562	-0675				
-0730	-0500	-0464	'0525	-0560	-0560	'0415	-0524	'0524	-0675				

5A	5B	5C	5D	5E	5F	5G	5H	5J	5K	5L	5M	5N	5P
'0880	-0880	'0880	-0880	-0880	-0880	'0880	'0880	-0885	'0879	'0880	'0880	-0880	-0880
'0831	'0809	'0841	'0823	'0827	-0840	-0835	'0844	'0840	-0840	'0847	-0835	'0844	'0834
-0802	-0786	-0806	-0795	-0792	0813	-0815	-0798	0817	'0823	-0821	'0805	-0821	'0812
-0788	-0765	'0781	'0784	-0779	-0792	'0785	'0787	'0797	-0800	-0791	-0784	'0791	'0793
'0775	-0745	'0761	'0777	-0762	-0775	-0777	'0769	-0783	'0775	'0762	'0760	-0760	'0768
-0759	-0730	-0742	-0760	-0742	-0757	-0765	-0747	-0773	-0758	'0739	-0735	'0732	-0746
-0744	-0722	-0718	'0740	-0729	-0740	'0750	'0727	'0758	-0747	'0714	-0705	-0700	-0716
-0726	-0714	-0693	-0715	'0723	-0720	-0730	'0707	-0735	-0735	'0687	-0693	'0656	'0703
'0708	-0705	'0668	'0692	-0705	-0710	'0710	-0693	-0722	-0723	-0660	-0671	-0630	'0681
'0686	'0697	-0642	-0668	'0683	-0690	-0690	-0670	-0702	'0711	'0633	-0644	-0616	-0656
-0664	-0687	-0617	-0645	'0663	-0670	-0670	-0656	0681	-0700	'0606	'0621	-0592	'0630
'0646	-0677	-0593	'0623	-0642	-0670	-0670	-0635	-0659	'0690	-0578	-0598	-0575	-0600
-0641	-0677	-0593	-0623	-0642	-0670	-0670	'0635	-0659	-0690	-0578	-0593	-0571	'0570

5O	5R	5S	5T	5U	5V	6SW	5Y	5Z
-0880	-0881	-0883	'0883	-0884	-0882	-0880	-0867	-0880
-0834	-0844	-0845	-0844	'0842	-0844	-0839	-0846	-0842
-0819	-0824	'0824	-0835	'0832	-0842	-0821	'0827	-0826
-0804	-0800	'0797	-0817	'0806	-0816	-0798	-0797	-0796
-0782	-0772	'0765	-0792	-0768	-0788	-0762	-0756	-0758
-0760	-0739	'0730	-0761	-0738	'0761	'0717	-0715	-0720
'0732	-0700	-0687	-0728	-0701	-0729	-0671	-0665	-0678
-0718	-0644	'0647	-0697	'0663	-0698	'0625	-0617	-0636
-0698	-0636	-0615	-0874	-0639	-0674	-0625	-0584	-0610
-0672	-0613	'0587	-0653	-0639	-0674	-0625	-0553	-0586
-0645	-0611	-0585	-0650	-0639	-0674	-0625	-0535	-0583
-0615	-0609	-0584	-0650	-0637	-0672	'0625	-0535	-0580
'0590	-0609	-0584	'0650	-0636	-0671	-0625	-0535	-0580

6A	6B	6C	6D	6E	6F	6G	6H	6I	6K	6L	6M	6N	6P
'0880	-0880	-0880	-0875	-0880	-0876	-0880	-0880	-0880	-0880	-0883	-0880	-0877	-0883
'0835	0831	-0833	-0830	-0838	-0850	-0830	'0829	-0841	-0842	-0844	'0833	-0832	'0844
-0802	0793	-0805	-0780	'0810	-0816	'0805	-0800	-0799	-0821	-0813	-0811	-0789	-0814
'0775	0765	-0780	'0750	-0786	-0776	'0783	-0774	-0777	-0790	0787	-0784	'0773	-0787
-0750	0735	-0755	-0740	-0763	-0727	'0755	-0740	'0748	-0751	-0758	-0745	-0748	-0757
-0735	0708	-0732	-0732	-0739	'0691	-0720	-0700	-0721	-0715	'0719	-0709	-0732	-0718
-0688	0690	-0708	-0718	-0710	-0673	-0680	-0682	-0693	'0673	-0676	-0666	-0711	'0675
'0639	0672	-0685	-0693	-0689	-0655	-0640	-0660	-0662	-0632	-0641	-0621	-0689	'0636
'0580	0635	-0657	-0668	-0668	-0632	-0600	'0639	-0628	'0605	'0609	-0592	'0669	-0605
-0528	0599	-0632	-0642	-0649	-0605	-0600	-0618	-0590	'0579	-0577	'0588	-0655	'0577
-0500	0564	-0607	-0617	-0631	'0574	-0600	-0595	-0555	'0558	-0574	'0585	'0644	-0573
'0500	0560	-0580	'0591	-0612	-0544	-0600	-0572	-0514	'0540	'0572	-0573	'0632	-0572
-0500	0560	-0580	-0591	'0566	-0537	-0600	'0570	-0500	'0540	-0572	-0573	-0593	'0574

6Q	6R	6S	6T	6U	6V	6W	6Y	6Z	7A	7B	7C	7D	7E
'0885	0883	-0884	-0881	-0880	-0876	-0880	0880	-0879	-0881	'0880	-0880	-0860	-0880
-0846	'0844	'0844	'0828	-0826	-0836	-0841	-0845	-0841	-0821	-0835	'0836	-0817	-0832
'0815	0817	-0826	-0809	'0812	-0814	'0818	-0817	0811	-0793	-0796	0802	'0795	-0798
-0789	-0790	-0793	-0768	'0787	'0788	-0793	-0785	-0784	-0773	-0769	-0769	-0774	'0771
-0764	-0763	'0765	-0745	'0764	-0764	-0768	-0762	'0756	-0737	'0736	-0735	'0744	'0728
-0726	-0742	0721	'0720	-0732	-0737	'0741	'0725	'0729	-0695	'0700	'0691	'0707	-0684
'0685	-0725	-0677	'0683	-0700	-0714	-0719	'0676	'0703	-0670	'0672	'0655	-0664	-0648
-0649	-0705	-0636	-0655	-0690	-0687	-0691	-0640	-0676	-0648	-0639	'0618	'0624	-0603
0615	0690	-0596	-0641	-0676	-0667	-0672	-0612	-0649	'0633	-0608	-0580	-0586	'0570
'0582	-0674	-0572	-0623	-0662	'0646	-0650	-0582	-0622	-0616	'0573	-0544	'0578	-0530
-0582	'0674	-0553	-0602	-0644	'0617	-0621	-0582	-0595	'0579	-0539	-0544	-0580	'0500
'0675	0655	'0534	-0562	-0636	-0602	0608	-0582	'0568	-0549	'0506	'0544	-0580	'0560
-0575	'0655	-0519	-0540	-0616	-0593	-0603	-0582	-0568	'0549	-0506	'0544	-0580	-0500

7F	7G	7H	7J	7K	7L	7M	8C	8D	8E	8F	8G	8H	8J
7N	7P	7Q	7R	7S	7T	7U	8K	8L	8M	8N	8P	8O	8R
7V	7W	7Y	7Z				8S	8T	8U	8V	8W	8Y	8Z

8A	8B
-0880	0880
-0810	0832
-0755	0785
'0730	0755
-0700	0720
-0670	0684
-0640	0648
-0610	0603
-0580	0570
'0545	0530
'0509	0500
-0473	0500
-0473	0500

EMISSION CARBURETTER APPLICATIONS AND SPECIFICATIONS

Reference No.	Type	Vehicle	Parts List	Price Each	Manufacturers Part No.	Temperature Compensator	By-Pass Valve
3150F	175 CD-2SE	Triumph TR.250	738	£16. 0.0	308377	B.18681/F	B.17928/A
3150R	175 CD-2SE	Triumph TR.250	738	£16. 0.0	308378	B.18681/F	B.17928/A
3165F	175 CD-2SE	Jaguar 4.2	740	£16. 0.0	C.28816	B.18673/E	B.18435/E
3165R	175 CD-2SE	Jaguar 4.2	740	£16. 0.0	C.28816	B.18673/E	Not used
3172F	150 CDSE	Triumph GT.8	764	£14. 5.0	308487	B.18681/F	B.18445/C
3172R	150 CDSE	Triumph GT.8	764	£14. 5.0	308488	B.18681/F	B.18445/C
3173F	175 CD-2SE	Triumph TR.250	770	£16. 0.0		B.18681/F	B.17928/A
3173R	175 CD-2SE	Triumph TR.250	770	£16. 0.0		B.18681/F	B.17928/A
3175F	175 CD-2SE	Lotus Elan	755	£16. 0.0	E28S710	B.18673/E	B.18435/D
3175R	175 CD-2SE	Lotus Elan	755	£16. 0.0	E28S711	B.18673/E	B.18435/D
3184	175 CD-2SE	Volvo 144	761	£16. 0.0	237345	B.18895/120	Not used
3185F	175 CD-2SE	Volvo 144S	762	£16. 0.0	237348	B.1889/50	B.18880/X
3185R	175 CD-2SE	Volvo 144S	762	£16. 0.0	237349	B.18894/60	Not used
3186F	175 CD-2SE	Volvo 184S	763	£16. 0.0	237342	B.18894/60	B.18896/Y
3186R	175 CD-2SE	Volvo 184S	763	£16. 0.0	237343	B.18894/60	Not used
3198	150 CDSE	Hillman	809	£14. 5.0	1240850	B.19425/H	B.19424/Z
3207F	175 CD-2SE	Jaguar 4.2	769	£16. 0.0	C.30338	B.18673/E	B.19058/E
3207R	175 CD-2SE	Jaguar 4.2	769	£16. 0.0	C.30339	B.18673/E	B.19058/E
3211 F	150 CDSE	Sunbeam Alpine	811	£14. 5.0	1240869	B.18681/F	B.19058/E
3211R	150 CDSE	Sunbeam Alpine	811	£14. 5.0	1240870	B.18681/F	B.19058/E
3212F	175 CD-2SE	Aston Martin	793	£16. 0.0	71-50-015	B.18673/E	B.19058/E
3212M	175 CD-2SE	Aston Martin	793	£16. 0.0	71-50-016	B.18673/E	Not used
3212R	175 CD-2SE	Aston Martin	793	£16. 0.0	71-50-017	B.18673/E	B.19058/E
3216	150 CDSE	Vauxhall Viva 90 HB (Japan)	764	£14. 5.0	8829401	B.18894/60	Not used
3217	150 CDSE	Vauxhall Viva 90 HB (Japan)	788	£14. 5.0	8829402	B.18894/60	Not used
3225F	150 CDSE	Triumph GT.8	785	£14. 5.0	308864	B.19229/G	B.19058/E
3225R	150 CDSE	Triumph GT.8	785	£14. 5.0	308865	B.19229/G	B.19058/E
3234F	175 CD-2SE	Jaguar 4.2	815	£16. 0.0	C.31265	B.18673/E	B.19058/E
3234R	175 CD-2SE	Jaguar 4.2	815	£16. 0.0	C.31266	B.18673/E	B.19058/E
3236F	175 CD-2SE	Lotus (Not USA)	807	£15.10.0		B.18673/E	Not used
3236R	175 CD-2SE	Lotus (Not USA)	807	£15.10.0		B.18673/E	Not used
3237	150 CDSE	Vauxhall	817	£14. 5.0	8831835	B.19542/J	B.19541/B
3238	150 CDSE	Vauxhall	812	£14. 5.0	8831836	B.19542/J	Not used
3196	36 ME	Rover	784		574244		
3214	30 ZE	Vauxhall	778	£10.12.6	8825965		
3215	30 ZE	Vauxhall	798	£10.12.6	8829133		
3218	36 MED	Vauxhall	769	£11.15.0	8829034		
3219	36 MED	Vauxhall	790	£11.15.0	8829032		
3220	361VED	Vauxhall	791	£11.15.0	8829297		
3226	36 MED	Vauxhall	792	£11.15.0	8829033		

Diaphragm	Metering Needle	12,000 Emission Pack	Miles 25,000 Emission Pack	Gasket Pack	Needle Valve Pack	Air Valve Return Spring
B.17421	B.18580/B2Y	B.18536	3.18538		B.19053	B.18277 Blue
B.17421	B.18580/B2Y				B.19053	B.18277 Blue
B.17421	B.18394/B1E	B.18536	B.18610		B.19055	B.18278 Natural
B.17421	B.18394/B1E				B.19055	B.18278 Natural
B.16001	B.18605/6W	B.18536	B.19634		B.19052	B.18274 Blue
B.16001	B.18605/6W				B.19052	B.18274 Blue
B.17421	B.18580/B2Y	B.18536	B.18538		B.19053	B.18277 Blue
B.17421	B.18580/B2Y				B.19053	B.18277 Blue
B.17421	B.18654/B1G	B.18536	B.18538		B.19053	B.18277 Blue
B.17421	B.18654/B1G				B.19053	B.18277 Blue
B.18634	B.19164/B2AE	B.19633	B.19637	242	B.19053	B.18277 Blue
B.18634	B.18999/B1S	B.18536	B.19638	242	B.19053	B.18277 Blue
B.18634	B.18999/B1S			242	B.19053	B.18277 Blue
B.18634	B.19000/B1R	B.18536	B.19638	242	B.19053	B.18277 Blue
B.18634	B.19000/B1R			242	B.19053	B.18277 Blue
B.18175	B.19228/B5AP	B.19666	B.19667		B.19053	B.18275 Red
B.17421	B.18394/B1E	B.18536	B.18610		B.19055	B.18278 Natural
B.17421	B.18394/B1E				B.19055	B.18278 Natural
B.18175	B.19616/B5AU	B.19666	B.19968		B.19052	B.18274 Blue
B.18175	B.19616/B5AU	B.19666	B.19968		B.19052	B.18274 Blue
B.17421	B.19147/B1U	B.19633	B.19635		B.19055	B.18278 Natural
B.17421	B.19147/B1U	B.19633	B.19635		B.19055	B.18278 Natural
B.17421	B.19147/B1U	B.19633	B.19635		B.19055	B.18278 Natural
B.16001	B.19432/B5AS	B.19633	B.19635		B.19053	B.18274 Blue
B.16001	B.19432/B5AS	B.19633	B.19635		B.19053	B.18274 Blue
B.18175	B.19101/B5AJ	B.18536	[1.18537		B.19052	B.18274 Blue
B.18175	B.19101/B5AJ				B.19052	B.18274 Blue
B.17421	B.19619/B1AE	B.18536	9.18610		B.19055	B.18278 Natural
B.17421	B.19619/B1AE				B.19055	B.18278 Natural
B.17421	B.19419/B1Y	B.18536	B.18538		B.19053	B.18278 Natural
B.17421	B.19419/B1Y				B.19053	B.18278 Natural
B.18175	B.19482/B6AD	B.19633	B.19970		B.19052	B.18274 Blue
B.18175	B.19482/B6AD	B.19633	B.19969		B.19052	B.18274 Blue
B.17333				237	B.17256	
B.17456				238	B.18304	
B.17456				238	B.18304	
B.17330				237	B.17256	
B.17333				237	B.17256	
B.17333				237	B.17256	
B.17330				237	B.17256	

JET-NEEDLE PART NUMBERS

TYPE	.090"	PART NO.	.125"	TYPE	.090"	PART NO.	.125"
STAMPING	NEEDLES	"100" NEEDLES	NEEDLES	STAMPING	NEEDLES	"100" NEEDLES	NEEDLES
1A		019672		B1G		B-13653Z	
2A		020101		2G		B-16899Z	
3A		B-16039		3G			
4A		021061		4G		B-11137Z	
5A	020821			5G	B-16405		
6A	020849			6G	B-17064Z		
7A	020691			7G			
8A	B-17247Z			8G			
9A			020731	9G			
1B		B-17296Z		B1H		B-18671Z	
2B		020774		2H		B-16948Z	
3B		B-17645Z		3H			
4B		B-15169		4H		B-17867Z	
5B	020888			5H	B-16561Z		
6B	021101			6H	B-17274Z		
7B	B-16837Z			7H			
8B	B-19409Z			8H			
9B				9H			
1C		B-18128Z		B1J		B-13730Z	
2C		020965		2J		B-17005Z	
3C		B-18263Z		3J			
4C		B-16651Z		4J		B-18362Z	
5C	020903			5J	B-16824Z		
6C	B-16198			6J	B-17316Z		
7C	B-17152Z			7J			
8C				8J			
9C				9J			
10		B-18330Z		B1K		B-18731Z	
20		B-16304		2K		B-17060Z	
30		B-18946Z		3K			
40		B-17176Z		4K		B-18857Z	
50	020908			5K	B-16887Z		
60	B-16623Z			6K	B-17351Z		
70	B-17274Z			7K			
80				8K			
90				9K			
B1E		B-18393Z		1L		B-18722Z	
2E		B-16625Z		2L		B17202Z	
3E				3L			
4E		B-17193Z		4L			
5E	B16242			5L	B-16961Z		
6E	B-16894Z			6L	B-17350Z		
7E	B-17275Z			7L			
8E				8L			
9E				9L			
B1F		B-18544Z		1M		B-1823Z	
2F		B-16792Z		2M		B-17203Z	
3F				3M			
4F		B-17903Z		4M			
5F	B-16404			5M	B-16852Z		
6F	B-16971Z			6M	B-17519Z		
7F				7M			
8F				8M			
9F				9M			

TYPE STAMPING	.090" NEEDLES	PART NO. "100" NEEDLES	.125" NEEDLES	TYPE STAMPING	.090" NEEDLES	PART NO. "100" NEEDLES	.125" NEEDLES
1N		8-18724Z		B6U	8-18387Z		
2N		8-17295Z		7U			
3N				8U			
4N				9U			
5N	8-17101Z			B1V		8-19410Z	
6N	8-17584Z			B2V		8-18434Z	
7N				3V			
8N				4V			
9N				5V	8-17752Z		
81P		8-18878Z		6V	8-18599Z		
2P		8-17659Z		7V			
3P				8V			
4P				9V			
5P	8-17297Z			B1W		8-19416Z	
6P	8-17595Z			B2W		8-18509Z	
7P				3W			
8P				4W			
9P				B5W	B-18167Z		
F10		8-18927Z		6W	8-18605Z		
20		8-17677Z		7W			
30				8W			
40				9W			
50	8-17298Z						
60	8-17649Z			1X		X-5508	
70				2X		X-5509	
80				3X		X-5600	
90				4X		X-5601	
B1R		8-18994Z		5X		X-5602	
2R		B-17912Z		6X		X-5603	
3R				7X		X-5604	
4R				8X		X-5605	
5R	8-17749Z			9X	X-5606		
6R	8-17866Z			10X	X-5607		
7R				11X	X-5608		
8R				12X	X-5609		
9R				13X	X-5610		
B15		B-18995Z		14X	X-5611		
2S		8-18226Z		15X	X-5612		
3S				16X	X-5613		
4S				17X	8-16918Z		
5S	8-17753Z			18X			
6S	8-18173Z			B1Y		8-19418Z	
7S				B2Y		8-18579Z	
8S				3Y			
9S				4Y			
B20		B-19073Z		5Y	8-18218Z		
B2T		8-18379Z		6Y	8-18683Z		
3T				7Y			
4T				8Y			
5T	8-17750Z			9Y			
6T	B-18220Z			12			
7T				B1Z		8-18729Z	
8T				3Z			
9T				4Z			
B1U		B-19146Z		5Z	8-18260Z		
B2U		8-18425Z		6Z	8-18745Z		
3U				7Z			
4U				8Z			
5U	B-17751Z			9Z			

This book has been approved by the manufacturers and gives full details of the maintenance and tuning of Stromberg CD carburettors, including many illustrations, comprehensive spring and needle charts and application details.

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