

WEBER TUNING NOTES

As both the Elan and Cortina-Lotus have twin Weber carburettors, it will no doubt save a great deal of time and trouble for a limited number of people to understand the adjustment method to secure correct synchronization in service. This instruction must also be given some prominence in the Service Manual.

GENERAL.

1. There are no mysteries in "tuning" the Weber carburettor.
2. Due to the fact that those used on the Elan and Cortina are fixed choke carburettors, in which the basic settings of chokes, jets, etc. have been determined by the factory, there are absolutely NO "adjustments" necessary other than those necessary to secure satisfactory synchronization and slow running. Virtually nothing else can go wrong except dirt in a jet or a loose diffuser, etc. and this will usually only occur due to faulty work during a recent overhaul, strip down, etc.
3. The design of these carburettors is such that even considerable mileage and wear will have little effect on them, apart from the synchronization, which can be set up as follows:
4. First carry out the adjustments below - do not start the engine as yet.
5. All four mixture screws must be brought to the same setting by screwing each in turn fully in and then out a fixed amount - say 1/2 turn.
6. Next the butterflies have to be set and synchronized and this is the most important - and difficult part. Start by unscrewing both idle running screws right out so that they are not in contact with their operating pads and therefore both butterfly spindles could become fully closed.
7. It will probably be found that because of the spring loaded interconnecting device that when one spindle is fully closed the other is partially open. By screwing this interconnection adjustment screw in and out it can be seen at which point one spindle will become fully closed and the other start to open. By reaching this point and then backing off a little, it should be possible to very nearly set the butterfly spindles to be fully closed together.
8. Now screw both idle running screws in one at a time until the spindles are just seen to move and then back off by the same amount say 1/2 turn. When both have been done then advance both screws together by the same amount from this position - say 1 1/2 turns so that the idle running settings are now the same, i.e. one turn down.
9. Now start the engine and bring to a working temperature, it may be necessary to adjust the idle running screws to get the required r.p.m. for tick-over - say 800/1000 r.p.m. but move both exactly the same amount by noting the fraction of a turn movement of the slot from its original position.

10. It is now necessary to do the fine adjustment to the interconnecting device to exactly synchronize the butterflies and to do this it is necessary to ensure that both carburettors are contributing the same amount to keeping the engine running. As we have set all the mixture screws to the same setting and all other parts of the carburettors are non-adjustable, then the ONLY factor determining equal sharing between each carburettor is the interconnection adjustment screw!

11. The best way to determine which carburettor is "doing all the work" is to remove a plug lead from each cylinder in turn while the engine is ticking over and note the drop in engine speed. The plug leads which, when removed, cause the biggest drop in speed are on the cylinders whose carburettor has the most open butterflies. The interconnecting adjustment screw must be adjusted until there is an equal drop in r.p.m. when all four plug leads are removed in turn.

12. Now you have the butterflies synchronized correctly the slow running screws can be backed off equally until the engine runs as slow as is comfortable, the individual setting of each slow running screw can be checked and re-set if required by seeing that a small increase in setting of each causes the engine r.p.m. to rise a similar amount.

13. Now we check to see whether our original guess of 1/2 turn out on the mixture screws is giving the correct slow running mixture. All four mixture screws can now be adjusted together in and out say 1/4 turn at a time, to get the greatest possible rise in engine r.p.m. for a given slow running setting. Remember, these are mixture screws and not "air" screws as some British carburettors, i.e. screwing them out will richen the mixture not weaken it as on British carburettors.

14. When this point has been reached then the slow running screws can be re-set as per (12) until the slowest comfortable slow running is achieved. This should be around 600/800 r.p.m. and should be even without-the engine rocking severely on its mountings.

15. If this is not achieved then the butterfly synchronization is still at fault, so go back to (11) and start again. Never adjust the mixture screws or the slow running screws to individually different settings or satisfactory slow running will never be achieved.

16. Only when all the above has been conscientiously carried out with unsatisfactory results should one look elsewhere for trouble. Some other factors which could affect slow running and could be checked are as follows:

- (a) Uneven fuel levels due to a stuck needle valve or faulty foot (one that has been tampered with!). Check this by means of service manual instructions.
- (b) Blocked slow running jet. N.B. Blocked main or air jet etc. will NOT affect slow running.
- (c) Inlet manifold leak - Rubber 'O' ring no longer sealing properly.