

CARBURETOR ADJUSTMENT

The carburetor tuning on most late model Ferraris can be accomplished without a great deal of effort.

PREREQUISITES:

Ignition timing must be correct. Spark plugs should be in good condition or new. Engine should be warm or hot - 140°F oil temp. min. Air cleaners should be clean or new. Weather should be good - no rain or snow. Engine should be run hard prior to tuning - to blow out carbon, etc. Valve clearances should be set and correct. Exhaust system free from holes or leaks. Fuel filters clean. Float levels set to specification.

EQUIPMENT REQUIRED:

- 10mm wrench.
- Screwdriver with 1/4" blade.
- Electronic engine tachometer
- Uni-syn or equivalent.

If all of the prerequisites have been followed, the next step is to adjust the idle mixtures and throttle opening settings. As previously stated, this procedure is for obtaining a smooth idle only. High speed mixture problems or float settings are not dealt with. If your Ferrari is operating to your satisfaction don't disturb it. If it does need adjustment, here is the procedure:

1. Close the choke (keeps parts out of the engine).
2. Remove the aircleaner assembly and filters.
3. Carburetors are numbered as follows:
 - #1 - closest to radiator (front)
 - #2 - center
 - #3 - closest to fire wall (rear)
4. Remove the linkage clips from carburetors #2 and #3, and lift the linkage rods away from the carburetors.
5. Open the chokes and start the engine (still at warm operating temperature) and leave it idle.
6. Increase the engine RPM to approximately 1000 RPM with carburetor #1's throttle adjustment screw.
7. Completely close (CCW) the throttle adjustment screws on carburetors #2 and #3.

- 8. The engine's rpm should be adjusted with carburetor #1 throttle screw so an idle of about 800 RPM can be obtained.
- 9. Connect an electronic tachometer to either distributor.

NOTE: The RPM readings may not be correct, but we are only interested in meter movement, not readings.

- 10. Adjust both of carburetor #1's idle mixture screws until a maximum RPM indication is obtained on the electronic tachometer. (Engine is running rough because only one carburetor is in operation)
- 11. Increase the engine RPMs (3000-4000) by blipping (pressing) the linkage of carburetor #1 with your hand. There should be no spitting (backfireing) through the carburetor or crackling at the exhaust when released. If so, repeat step ten with greater accuracy.
- 12. Increase the RPM of the engine via the throttle adjustment screw on carburetor #2, 1000 RPM is o.k.
- 13. Close the throttle adjustment screw on carburetor #1. #1 and #3 are now closed.
- 14. Adjust the throttle adjustment screw on carburetor #2 so that an idle of about 800 RPM is obtained.
- 15. Adjust both of carburetor #2's idle mixture screws until the maximum RPM indication is obtained on the electronic tachometer. Engine will continue to run rough because only one carburetor is operating the engine.
- 16. Increase the engine's RPMs (3000-4000) by blipping (pressing) the throttle linkage of carburetor #2 with your hand. There should be no spitting (backfireing through the carburetor or crackling at the exhaust when the linkage is released. If so, repeat step fifteen with greater accuracy.
- 17. Increase the RPM of the engine via the throttle adjustment screw on carburetor #3, 1000 RPM is o.k.
- 18. Close the throttle adjustment screw on carburetor #2; #1 and #2 are now closed.
- 19. Adjust the throttle adjustment screw on carburetor #3 so that an idle of about 800 RPM is obtained.
- 20. Adjust both of carburetor #3's idle mixture screws until the maximum RPM is obtained on the electronic tachometer. The engine will continue to run rough, because only one carburetor is operating the engine.
- 21. Increase the engine RPMs (3000-4000) by blipping (pressing) the throttle linkage of carburetor #3 with your hand. There should be no spitting (backfireing through the carburetor) or crackling at the exhaust when the linkage is released. If so repeat step twenty ~ with greater accuracy.

NOTE: Exhaust leaks will cause crackling at the exhaust as though the mixture were too lean. All holes should be plugged as tight as possible; try muffler cement as a quick fix.

22. Balancing of the throttle openings. With the engine still idling, turn each of the throttle adjustment screws in (CW) until each carburetor contributes to an increase in engine RPM. (NOTE: Linkages are still disconnected, and the engine warm).
23. Place the UNI-SYN instrument on top of carburetor number three. Adjust the UNI-SYN until the cork is at a readable line. (NOTE: On carburetors that have chokes that prevent the placement of the UNI-SYN atop of the venturi, a small plastic or sheetmetal adaptor will need to be fabricated to clear the choke butterflies).
24. Place the UNI-SYN on carburetor number one and adjust the throttle adjustment screw until the same reading (cork level) is indicated.
25. Place the UNI-SYN on carburetor #2 and adjust the throttle adjustment screw until the same reading (cork level) is indicated.
26. The engine should idle smooth at about 800 RPM. To properly adjust for this RPM, adjust the throttle adjustment screws on all carburetors until this RPM is indicated and the cork levels in the UNI-SYN are the same on all carburetor venturi.
27. Stop the engine. Loosen all of the adjustments of carburetor #2 and #3's throttle linkage rods so that they are free to be lengthened or shortened. Loosen the actuating lever arms that operate carburetors #2 and #3 so that they are free to move. (These are located on the main linkage bar).
28. Place the lever arms (that actuate the linkage rods) so that they are in line with the lever arm of carburetor #1's linkage arm. Tighten the bolts that secure these arms.
29. Adjust the lengths of the carburetor linkage rods until they slip loose over the ball on the lever arm. Secure the jam nuts, and replace the spring clips.
30. Start the engine, recheck the idle; it should steady at about 800 RPM on the engine's tachometer. If it does not, repeat steps 22 to 29.
31. Drive the vehicle in second gear, at about 3000 RPM, release the accelerator pedal; there should be no crackling heard at the exhaust as the engine slows down (in gear) to 1000 RPM. If crackling is heard, repeat steps 10, 15, 20 and 22 to 29.
32. Close the chokes, replace the aircleaner, filter elements and top plate. Open the choke (this is done to prevent any loose hardware from falling into the carburetor).

Some carburetors and adjustment details may differ greatly from the systems described (250GT and 330GT engines),