

Rolls-Royce Owners' Club of Australia

Adjusting a Ghost Carburettor

By Derek du Toit

Before going through all the following, check oil consumption. If above limits, you may be better off overhauling the engine first (after you have made sure there are no obvious oil leaks). If there is a variance of more than 4 lbs/sq. in. in oil pressure when hot between idle and full speed, you should check the oil pump for wear of dirt before assuming that the bearings have either lost their nip or are worn.

1. Test compression of cylinders of warm engine, normal & leak down. Limits - all within 5lbs/sq. in.; 62 lbs/sq. in. for standard pistons; up to 90 lbs/sq. in. for high compression pistons.
2. Check spark plugs for gaps and cleanliness - 0.030" coil, .018" magneto. There are several recommendations; these are the most practical.
3. Check distributor for electrical integrity, rotor gaps (.002") and point gap (.020" for post-War cars.)
4. Check magneto for efficacy (should fire at hand-cranking speeds) and point gap (.014").
5. Check valve clearances at .004" cold.
6. Check for air leaks in inlet manifold and all joints. When assembling new gaskets, hold in place on block with silicone sealant and rub graphite on faces of gaskets and manifold, so sliding action is maintained.
7. Check carburettor: -
 1. piston valve (throttle valve) movement and wear
 2. air valves drop (1 - 1.5 seconds)
 3. air valve diaphragm to be within .001" of high-speed throat diameter; upper face to seat .025" above airports
 4. air valve spring to have 1/32" clearance

5. petrol level in jets to 3/32" to 3/16" below top
6. float needle should hold petrol overnight with no leaks
7. low-speed valve should fit concentrically in jet and be free
8. Set low-speed jet (valve) to lowest setting, when it settles into low-speed jet. Turn milled adjusting nut anticlockwise over 195 degrees or 35 minutes. This is the mechanical setting, sufficient to start and run the engine at idling speeds. Start engine and run till hot. Set governor so engine is running at just below the speed sufficient to start lifting air valve - this is slower than you would think. Adjust nut until two notches left of centre of STRONG/WEAK setting will cause engine to stall. Test finally by unscrewing air valve $\frac{3}{4}$ to 1 turn - this should cause the engine to stop. If not, the diaphragm is in the incorrect position. The ignition lever is at retard during the setting of the low-speed jet.
9. Set high-speed by running engine at full speed, with the ignition advanced. Clockwise turning of the high-speed adjusting nut will cause the engine to lean out, eventually failing with backfires and a loud sucking noise as the governor attempts to get more mixture by opening the throttle further. It is set correctly when the engine will begin failing when the mixture is set over towards WEAK, while developing full power at the centre position.
10. Check the setting over the whole range from slow to fast by setting the governor up notch by notch from idle. At each speed the engine should begin to fail, or show signs of running lean, when the carburettor lever is set towards WEAK by the same amount. If not, shorten the air valve spring for a rich spot; lengthen it for a lean one.
11. Test this finally on a road up a hill sufficient to need full throttle in top gear to maintain say 40mph, the engine should lack power with two notches WEAK and noticeably develop power with two notches STRONG. Your performance should now be 11 miles/US gallon (14 miles/Imperial gallon) or better. Points 8-11 are mostly a summary those in the Technical Bible. The most likely cause of failure, after all the above have been attended to, is wear to the jets and valves.