PHIL IRVING DESIGNED CYLINDER HEAD FITTED TO OE282

When my late dad Vic purchased OE282 over 50 years ago it was a fairly complete non runner; worn but not damaged. A good 30 years was spent in restoration and it returned to the road in 2001. A few years ago a pin hole opened up between an exhaust port and the water cavity so as a project we decided to machine and fit a spare cylinder head casting which was designed by Phil Irving (of Vincent, Velocette and Repco Brabham fame) and commissioned by Jumbo Goddard for OE169 in the early seventies. Vic knew Jumbo fairly well and had done various jobs for him over the years and he kindly agreed to lend his head patterns to have a casting made as a spare for OE282, 'just in case' it might be needed one day.

Some technical features of the Irving 30-98 cylinder head are:

i) The head was designed to be cast in aluminium and we calculated it contains 50% more material than the original cast-iron version. It also holds an additional two litres of water. One benefit of using aluminium is the engine runs considerably cooler, even during our hot summers or climbing long hills.

ii) Inlet and exhaust valves are slightly smaller (52 & 44 mm dia compared to 54 & 51 of the iron head). Supposedly this is to speed up gas flow and improve performance.

iii) The Irving-head features four long rectangular inlet ports and was designed to incorporate twin SUs, which improves carburation, economy, emissions and (fire) safety! After we fitted the new head our amateur carburettor tuning was checked on a rolling road dyno and the operator was surprised how good the emission readings were compared to a number of modern vehicles he'd tuned.

iv) Visually the most noticeable change is the location of the spark-plugs, which have moved to the left hand side of the engine. They neatly fit between the pushrods, which still operate the original, slightly repositioned, rockers. Phil, who wrote the *bible* 'Tuning for Speed', went to considerable trouble to relocate the plugs, so there must have been a performance benefit. Jumbo held a vintage car world speed record in a WO Bentley and liked all his cars to go well.

v) The kidney shaped combustion chamber is 30% smaller than the cast-iron original so the compression ratio has increased to just under 8:1 which is an ideal minimum ratio for use with modern fuels. New steel Argo connecting rods were fitted 25 years ago (Carillo style) with slipper bearings compatible with the original Ambrosia counter-balanced crankshaft. The engine also has full-flow oil filtration.

The ten core-holes visible in the attached photo of the up-turned, un-machined head are used to support the sand core (representing the water cavity) during casting. These were sealed with ten screw-in plugs.

Our Irving-head machining project took over a year to complete but OE282 does go well, making first gear virtually redundant. We can scoot through most round-abouts in top gear and pull away cleanly. The main issue experienced with the new head is the lack of a fifth gear! So our next project (and article) will be the installation of an overdrive gearbox to a 30-98. As always, one main aim will be to avoid any irreversible alteration to original parts.

Warwick Nicholson, NSW (March 2021)