

Converting a Morris 8 ‘Tank’ engine

Over the past couple of years I have had a bit of fun talking with blokes about the engine in my Series 1 roadster (that’s what we call 2 seaters in Australia). When the subject turns to engines, I tell them that mine is the same as in a Centurion tank, and I quite enjoy the look of confusion on many faces. After a couple of minutes, I then tell the full story - how a Morris 8 engine was fitted down in the bowels of the Centurion to drive a generator to supply power to the 52 ton monster.

This short story is not about the Centurion, but about the engine in my car. (If you’d like to know more about Centurions, go to [https://en.wikipedia.org/wiki/Centurion_\(tank\)](https://en.wikipedia.org/wiki/Centurion_(tank)))

A couple of years ago, a fellow member of the Morris Register in Victoria advertised three engines that he had purchased from an Australia Army disposals auction in, he thinks, the mid 1970s. By this time, the Centurions had been retired after 30 odd year’s illustrious service with the Australian army. Two of the engines were well used - one was described on the packing slip as “seized”, the second “needing overhaul” - and the third was a brand new block and sump. Each engine was packed in a big



as

solid wooden crate, to army specs. Another local enthusiast, Norm and I bought the three engines - Norm took the two complete motors and I bought the new block. It’s this engine I will talk about now.

In a way, I felt almost guilty as I opened the packing case to inspect my purchase - it was like defacing history, or

opening a time capsule before time. The block was secured in in the box by a stout wooden frame to stop it moving in transport.

The box itself was beautifully made, in an industrial sense, of 1" thick solid pine, bolted and screwed together. The engine was wrapped in waxed paper, with each head stud and manifold bolt and nut individually wrapped and taped.

The block was smeared all over, inside and out, in grease which would have protected it for ever, if I hadn't intervened. Another cause for my feeling guilty! Sharp eyed members will now be



able to see that the block is a late MM with a water jacket just the top of the block, the hole for the oil filler next to the starter and a boss for an external oil filter. On the front of the motor is provision for a water pump, blanked off, a dip stick hole (a

new dipstick tube was supplied).

The block was otherwise standard except for one modification for military use. The rear main bearing cap had been modified to take a lip seal - luckily for me, Ian Harris motor spares in the UK had commissioned the manufacture of some split oil seals to suit this modification (split to enable it to open up to go over the rear flange of the crankshaft). The first step to the conversion

was to have a crankshaft machined to remove the scroll that is standard (below left) - this provided the smooth surface for the lip of the seal to run on. The block came with a modified rear bearing cap (right) to house the lip seal - the differences obvious - the modified cap is on the left, the original on the right. The lip seal itself is in the centre image - readers may be just able to see the split at about the 5 o'clock position. The half circle top housing is not shown,



but is also modified to accept the top half of the seal. The original oil slinger on the crankshaft was retained as the 'first line of defence' in keeping oil where it should be.



From that point on, assembly of the bottom end of the motor was straightforward. There was a slight difference in the thickness of the new and old caps, which meant the fit between the slinger and the flywheel mounting flange

was a bit tight. We fixed that by



machining about .050" off the

back of the flywheel flange. Whilst we were 'at it', my engine man recommended lightening the flywheel, removing quite a lot of weight, as shown



opposite. I have not tried it on the road yet but I have bench tested it and it seems to be a much 'peppier' little motor as a result.

All the other engine internals were replaced - new standard pistons, big end and main bearings, valves, reground camshaft, rebuilt oil pump, etc.!



Externally, I wanted the engine to look like a Series 1, not expecting for one minute that a genuine Morris enthusiast would be deceived. A Series 1 or 2 head went on, and that caused a small problem as the later block is slightly longer than a Series 2, leaving no room for the dome nut that secures the water outlet. I solved that problem by countersinking the bolt hole flush with the underside of the head and inserting a stainless countersunk bolt, with an Allen key drive, into the water outlet from below. Some good quality sealant applied to the head of the bolt has, so far, been



successful in stopping any water leaks or seepage around the bolt head.

The original distributor was refitted but first it was necessary to machine the driving dog down to 21 mm diameter, as the tank block has a smaller diameter hole.

The Series 1 timing case cover and oil filler pipe and engine

mount bearer were both used, the oil filler pipe hole in the block was blanked off, the dipstick relocated to the correct position.

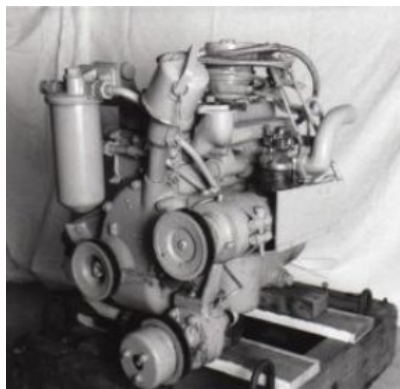
Dynamo, starter motor, distributor and carburettor are all Series 1 or 2 - the complete engine, with a four speed SE gearbox, engine, almost looks like it's original, and ready to provide many more years of reliable service - the same, unfortunately, can't be said for its owner!

Disclaimers:

This is not meant to be a comprehensive "how to" on converting a tank engine, so small hiccups along the way have been overlooked, for the sake of brevity.

I am not a qualified mechanic or engineer, so some of the explanatory notes above may be less than explanatory.

Also, if I haven't used the correct technical terms in some places, please forgive - my tertiary studies in hospitals administration many moons ago didn't include any units on converting motor car engines!



Finally, there is a much more detailed account of a conversion somewhere on the UK Morris Register website - I have a hard copy but cannot find the original, it must be locked away in the members' section accessible only to UK members.

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Modified Morris 8 engine, as fitted to Centurion - would you recognise it?