

V8 Engine Differences

With Dart engines becoming scarcer, you may need to use an engine from a V8 Saloon so it pays to know the key differences between the two.

The Edward Turner designed 2.5 litre V8 is universally accepted to be one of the great British engines. After Jaguar took over Daimler, they were quick to introduce this engine into the Saloon where it won great acclaim.

So much so that popular legend had it that the Daimler Saloon was built for Bank Managers whilst the Jaguar MkII was built for bank robbers!

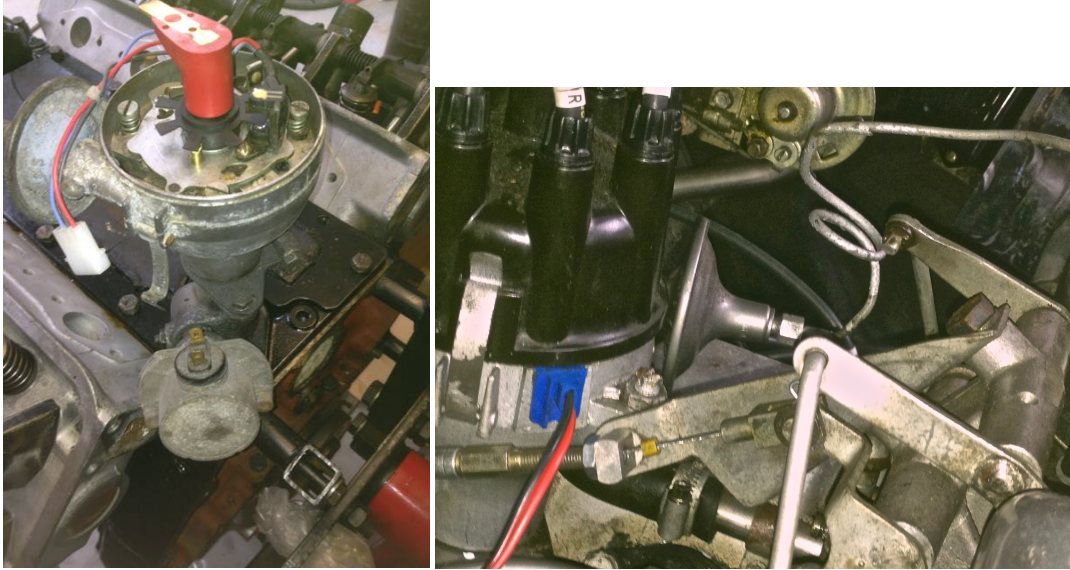
However packaging the V8 into a car designed for a straight six brought its own problems and these, together with the requirement on the Saloon for luxury features such as power steering and air conditioning, have led to a number of changes.



The most obvious difference on opening the bonnet is the carburettor air cleaner which on early models of the Saloon (left) is centrally mounted. Later Saloon versions had two smaller pancake filters (right) whereas Darts all have small, mesh-filled filters(below)

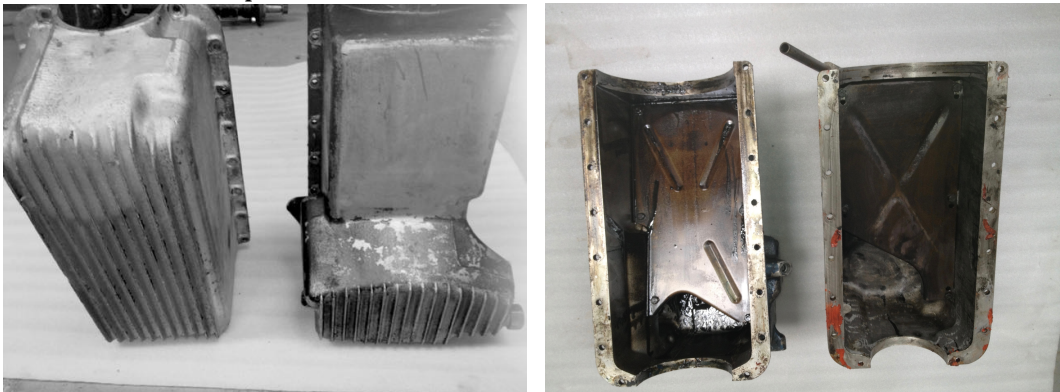


The Saloon distributor includes an electronic module to drive the tachometer (below, left) whereas the Dart has a cable drive.



Dart distributors are becoming hard to find so if you are putting a Saloon engine into a Dart, be sure you can source the mechanical drive.

The two sumps are very different (below, left) as the front section is cutaway on the Saloon in order to clear the crossmember and its increased depth requires a longer oil pump pick-up. Internally, the baffling in the sump is also slightly different and the dipstick tube on the Dart emerges from the front nearside. In the picture (below, right) the Dart sump is on the right. It should be mentioned that there are two designs of Dart sumps -- the earlier one has a smaller "U" shape cut-out for the crankshaft seal than the later one which is known as the Big Sump! However it is possible to convert a Saloon sump by cutting and welding it to match the Dart profile.



Note also how on the Saloon the oil filler tube is cranked to clear the air cleaner on Saloons fitted with the single, large air cleaner. The tube is straight on the Dart and on later Saloons where it is straight but a little longer. Any of the 3 can be used on a Dart and perversely, the increased length of both types of Saloon tube make for easier topping-up on a Dart!

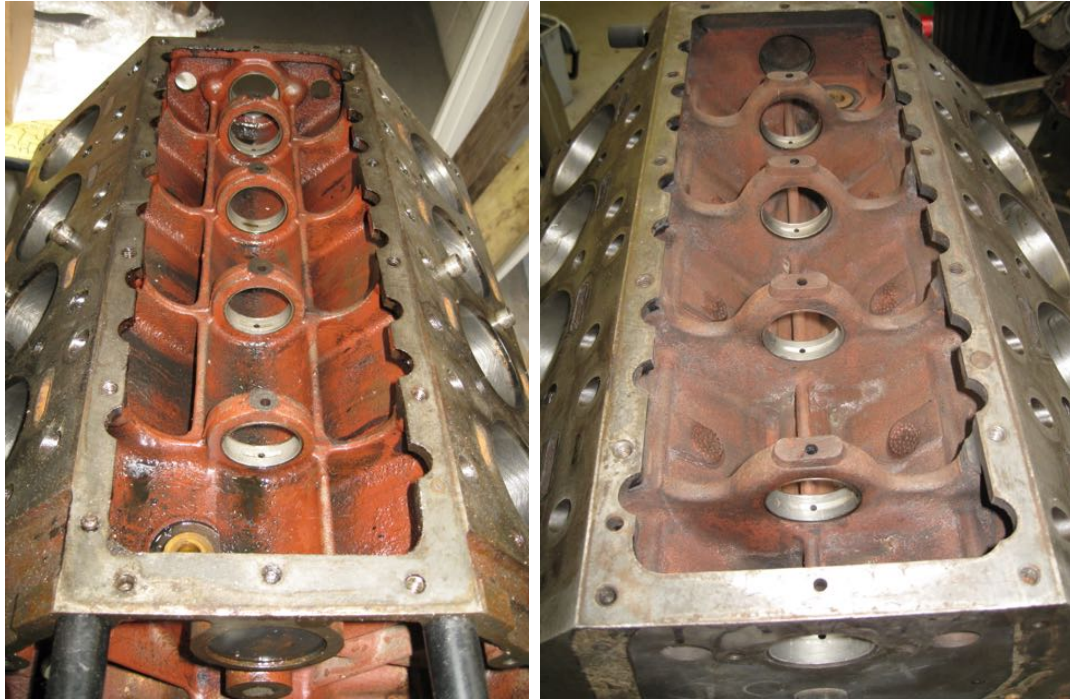


If you are buying a partly dismantled engine or one where the ancillaries have been removed, it is worth checking the engine number (see Buying Tips for location.) Dart engines have 5-digit designations that start with either the number 8 or 9 whilst Saloon engines start with the number 7 followed by the letter A or H and 4 further digits.

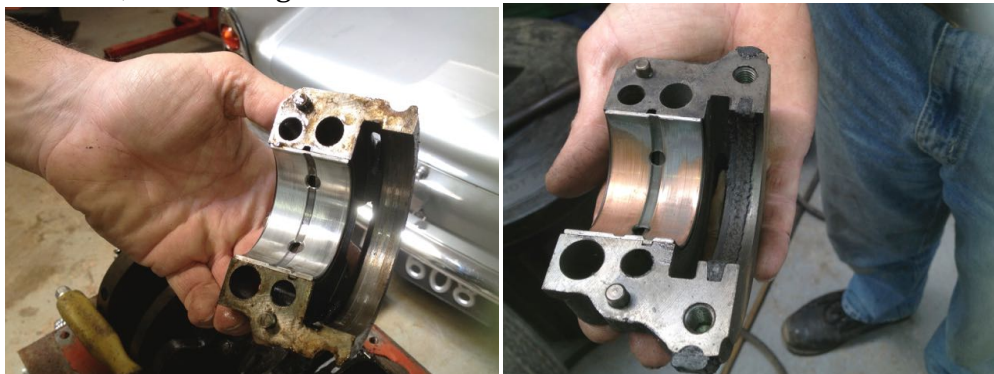
Looking inside the engine reveals more differences. The Saloon has cylinder head bolts whereas the Dart has more conventional studs with nuts. This allowed the cylinder heads to be removed in service on the Saloons without having to remove the engine which would have been necessary if studs were used. Even in the Dart however, bolts make head removal more simple and I recommend always fitting bolts when a Dart engine is dismantled. Another feature on Saloons and very late Darts is that sound insulation is incorporated on the valve chest cover (below, right.)



If you look closely at the two photographs of the oil reservoir beneath the camshaft location, you can see that the Dart engine (above, left) has two longitudinal webs either side of the cam bearing housings whereas the Saloon (above, right) has a single central web. This was presumably easier to cast and hence cheaper than the original Daimler treatment and can be found on very late Darts which used Saloon blocks.



Moving on to the rear main bearing, you can see that the Dart unit (below, left) has an oil thrower arrangement while the Saloon is machined to incorporate a seal. Yes, the bearing shells are a touch worn!



The pistons on Saloons were also slightly modified to incorporate slots in place of drilled holes on the oil groove but they are interchangeable.

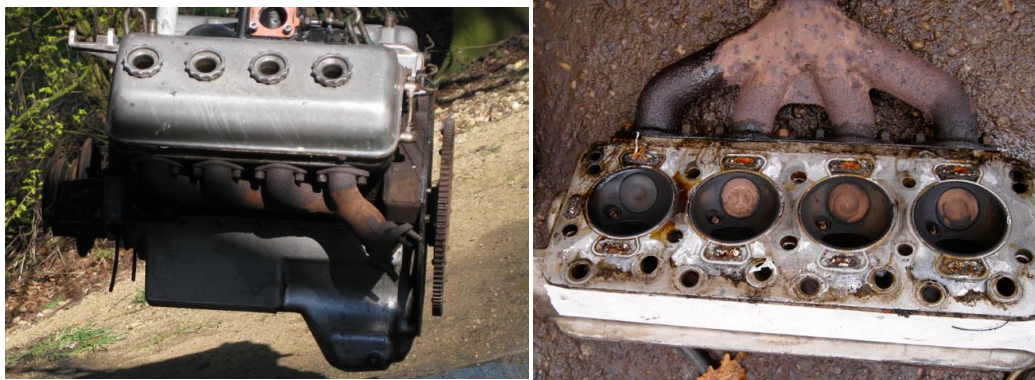
Another difference between the Saloon and the Dart is how the main oil gallery is sealed on the rear of the block. On the Dart it is plugged (below, right) whereas the Saloon is sealed with a bolt which can be seen on the picture to the left.



Engines sealed with a bolt have a backplate that incorporates a cutout for access/clearance (below.) Note that although the starter motor is common to both engines, the starter locations are different and the backplates are not interchangeable.



The exhaust manifolds are also different. Contrast the Saloon exhaust (below, left) where the manifolds are handed and swept aft with the Dart (right) where the manifolds are interchangeable and exit amidships of the engine!



Another difference is that the oil filter mounting on the Dart accommodates a take off for the direct reading oil pressure gauge.

The Saloon has a pressure sensor mounted on the block which needs to be removed (and the hole plugged) as it will foul the engine mountings on a Dart (note also the double pulley arrangement used on Saloons which is pictured (above.) Dart exhaust manifolds are available from Daimler parts suppliers but they are expensive so factor this into your budget if you are fitting a Saloon engine into a Dart. It is also worth considering that a very high proportion of Saloons were automatic and that unless you are one of the few people to own an automatic SP250, you will need to source a flywheel as well as the disc and pressure plate. Whilst looking at the flywheel/crankshaft union, bear in mind that the Dart crankshaft has a deeper spigot bearing location than the Saloon and so a saloon crankshaft will need to be drilled some 10mm deeper to accommodate the Dart's first motion shaft to allow you to fit the gearbox.

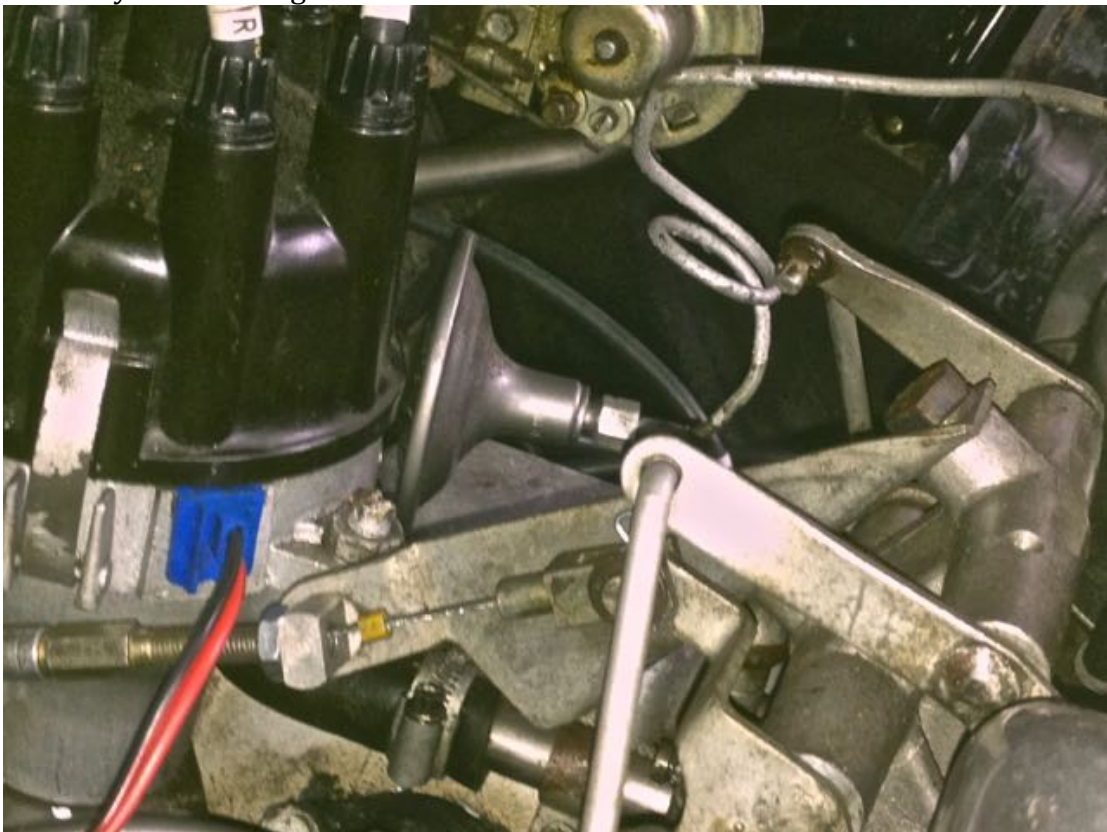


Another difference is the mounting bracket for the alternator on a Saloon (below, left) and the dynamo which is normally used on a Dart (below, right.) However some Darts did leave the works with alternators fitted -- Police cars for example. If you are planning to use an alternator then the Saloon bracket may be usable but may require some metal removal in order to clear the water rails which, together with the water pump housing, are different on the two engines. Alternatively, the original Dart dynamo bracket can easily be fettled to accommodate a 3 point mounted alternator.



Further points of difference are the engine mounting brackets which are much larger on the Saloon and are not interchangeable with the Dart .

Minor differences are the treatment of the water outlet on the inlet manifold which are metal tubing on the Saloon versus the rubber elbow used on Darts and the Saloon inlet manifold incorporates a vacuum take off point which can be useful if you are fitting a brake servo to a Dart.



The throttle linkage arrangement also incorporates provision for kick-down on Saloons . A less well-known fact is that the Saloon and Dart, whilst both having

SU HD6 carburettors, have different needles and piston damping springs. The Dart has AUD 1359TS needles and AUC 1167 springs whilst the corresponding part numbers for the Saloon are AUD 1469TZ and AUC 4387. The fuel pipes to the carburettors on Saloons incorporate T pieces and compression olives on the float chamber inlets whereas Darts use straight pipes secured by clamps.

Finally, saloons destined for the Austrian market were of 2498cc (called the 2.4) this was achieved by reducing the bore to 2.97" (75.43) from 3" (76.2mm)

SUMMARY

To fit a Saloon engine in a Dart, you need to use the following Dart components:

- Sump (the Saloon sump will seriously reduce ground clearance.)
- Oil pump drive and oil pump housing in order to use the Dart oil pressure gauge
- Mechanical tachometer drive on the distributor
- Exhaust manifolds, engine mounting brackets
- Backplate, flywheel & clutch assembly
- Front pulley, water rail and pump housing
- Dynamo mount
- Carburettor needles, piston damper springs and air cleaners.

You will also need to drill the spigot bearing location on the Saloon crankshaft in order to accommodate the Dart's first motion shaft, drill a hole through the Dart backplate to clear the oil gallery sealing bolt and plug the oil pressure sensor location.

If all this seems a little too much like hard work, I will be pleased to undertake the conversion on your behalf and have a good stock of engines and ancillary parts!