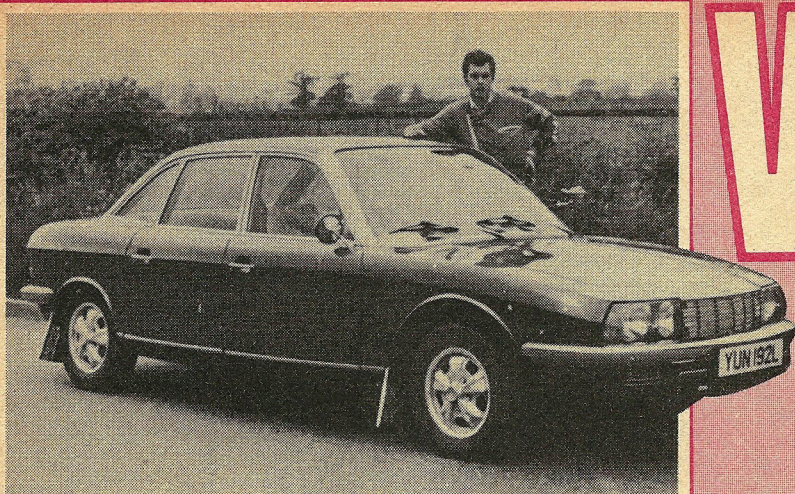
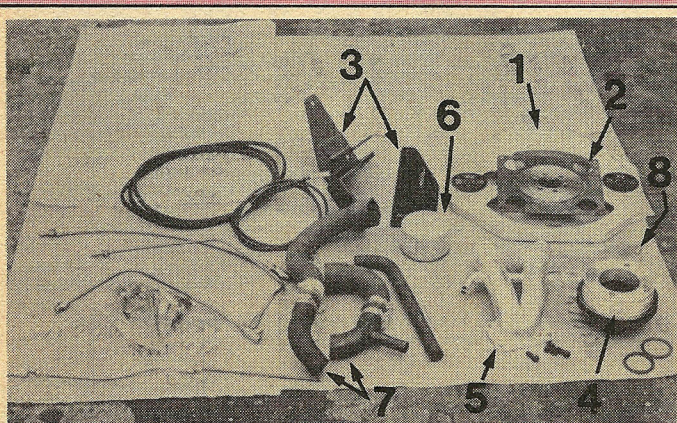


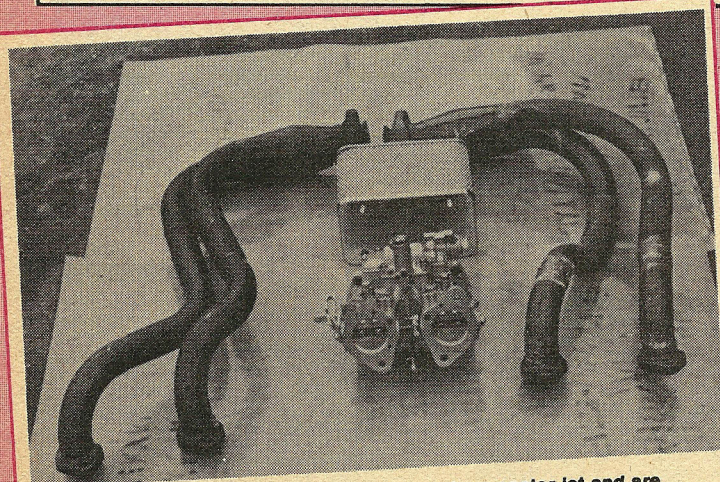


Proprietor, Eamonn Hurley, with an HME converted V6 car. Ready converted, this car would cost around the £2,500 mark

David Price tells how to put new life into this one-time Car of the Year.



1. Cast-alloy engine/bell housing adaptor plate
2. Carbon steel crankshaft/torque converter adaptor plate
3. Steel engine brackets
4. Modified Ford crankshaft pulley
5. Inlet manifold for Weber/Dellorto carb
6. Special short oil filter
7. Hoses
8. Torque converter inspection plate



The optional fabricated exhaust manifolds make a neater job and are easier to fit. Carburettor is either Weber or Dellorto twin-sidedraught

V4 POWER FOR AN RO80

CAST your mind back a decade and you'll remember much eulogising from the motoring press regarding a 'new concept in automobile engineering'. It was the Wankel rotary engine and, in particular, the NSU Ro80. That stylish, wedge-shaped luxury saloon that was to become 'Car of the Year' across Europe. So what happened to it?

As recently as spring this year it was quoted on the price list at £7,765, available to special order only. But the tale of the Ro80 is a sad one. For, while the rest of the world was struggling to make the Wankel rotary engine work for them in the light of forthcoming emissions laws and the unexpected fuel crisis, NSU gained the deserved reputation for an appalling reliability record on their Ro80 twin-rotor powerplant. Despite constant development, the Ro80 engine would often last no longer than twenty-odd thousand miles before a major rebuild was necessary. And that could cost anything up to £1,100!

ENTER HME

But now the good news. Because of this reputation, the likes of you and I can go out and find a second-hand Ro80 with a spent engine for as little as £500. Double that will buy one in really good condition, probably with no more than twenty thousand on the clock.

Terrific, but what's the use of a lame car with engines costing as much again? Enter HME.

Hurley Motor Engineering is a small company based at 32 Draycott Road, Wyken, Coventry (Tel: 0203 86509) that specialise in converting Ro80s to Ford power. They use the 2 litre V4 engines in most cases but are now fitting the 3 litre V6 as well.

But it is the V4 which is of most interest, because they will supply a kit of parts to enable you to fit it yourself, using your own engine, which you may have purloined from a breaker's yard or a wrecked car, perhaps.

The V6 is only supplied fitted and with a brand new engine. This will cost £1,100, and some major

panel surgery is needed to shoe-horn the big lump into place.

BUDGET SWAP

So, let's have a look at the V4 proposition. The kit of parts costs £220 and contains everything you need except the engine itself, the carburettor and tubular exhaust manifolds. You can get away with using cast-iron Ford manifolds but various things must be moved around to make room and it isn't a tidy job. Either a Weber 40DCOE twin-sidedraught carburettor or the similar Dellorto 40DHLA will be needed and a suitable air filter. It isn't possible to use the original set-up because of the low bonnet line.

Any V4 engine will do but the 2000cc is a better bet than the 1700, and the latest 2000 is by far the best and most reliable. These were fitted to the last of the 2000GT and 2000E Corsairs and some Consuls.

Why the V4? If you look at the Ro80 you'll see that not only is the Wankel engine amazingly short front to back, but it is also mounted very far forward, and so only a similarly short engine, like the V4, will fit in the space without major mods. You should be able to pick up a good V4 (without flywheel, starter, alternator and induction system) for under £100.

You may think that £220 sounds a lot for a fitting kit but, apart from the expertise and development you are buying, included in the kit is a specially made cast-alloy engine/bell housing adaptor plate, a torque converter adaptor, brackets, a special pulley to drive the power steering pump, hoses, pipework, belts, a short oil filter to fit in the limited space available and selection of nuts, bolts and fittings. A purpose-made alloy inlet manifold is also included.

INSTALLATION

As long as you are a reasonably competent do-it-yourselfer, you should have little trouble installing the engine. No special



V4 POWER FOR AN Ro80

tools are needed and, with the aid of a step by step instruction leaflet, the job should take no longer than a couple of weekends.

Having taken out the old engine, a couple of small modifications are done to the NSU bell housing — shortening location dowels and drilling out a couple of steel bushes. The bell housing adaptor plate is then bolted to the Ford engine and a new crankshaft centre bush fitted.

After removing the Ro80 flexy-drive plate from its original boss, it is then riveted to the new adaptor plate. A few minor mods and the engine can be dropped in using the new brackets provided and the original rubber mounts suitably chopped about. The steering pump and alternator can then be fitted and the torque converter oil feed connected up.

As the distributor comes very close to the bonnet, 90-degree rubber connectors must be used for the HT leads and it may be necessary to shorten the tops of the sockets or even fit a distributor that has had the body machined down to lower it five eighths of an inch. The latter can be supplied if all else fails.

Luckily, the Ro80 has a twin-pipe exhaust system and it is quite easy to modify this to connect to the two banks on the V4, especially using the optional tubular manifolds.

All that remains is to plumb in the hoses and other pipework, fit and connect the carburettor, modify the dip-stick and you're away.

If this sounds a bit more than you are prepared to take on, you can get the job done using a new engine and all new parts at an all-in price of £690 — which still makes a lot of sense for an otherwise sound car.

BUYING AN Ro80

Although this engine conversion will be of great interest to those who already own an Ro80, there will surely be a potential for buying a car with an ailing engine for the sole purpose of doing the swap and ending up with a budget priced luxury car — and make no mistake, the Ro80 deserved its 'Car of the Year' tag apart from the engine reliability problem.

So, how do you tell when the engine has given up the ghost, or is about to? Well, the problem lies with the rotor tip seals which eventually break up, often when the car is asked to do a lot of town driving. The plugs soot up, misfiring occurs and the resulting contamination affects the rotor tips. Once this happens, the rotor housing will rapidly be eroded and low compression results. The

first symptoms of this are poor starting and an intermittent tinkling noise from the engine. Fitting a hefty battery and new spark plugs is not a cure — but you'll find a lot of Ro80s with huge batteries and a boot full of old plugs.

If you suspect trouble, get an NSU dealer to give it a compression test. The minimum acceptable is nine atmospheres. If it's down to six, it's useless.

Eventually, the engine will seize and, if this happens under power, a shear pin breaks and the drive plate nut can unscrew, forcing back the clutch into the torque converter and maybe even the gearbox itself. Removal of the engine will be a hammer and chisel job in these cases. So try and avoid cars with seized engines.

A common fault is a clapped gearbox mainshaft bearing. Don't confuse this with the normal whine that a rotary engine makes. You'll be putting more low down torque through the box so try and make sure it's sound to start with.

ON THE ROAD

All this work is all very well but what does the car feel like with its new, and totally different, engine? I tried both a V4 and V6 conversion and the results were interesting.

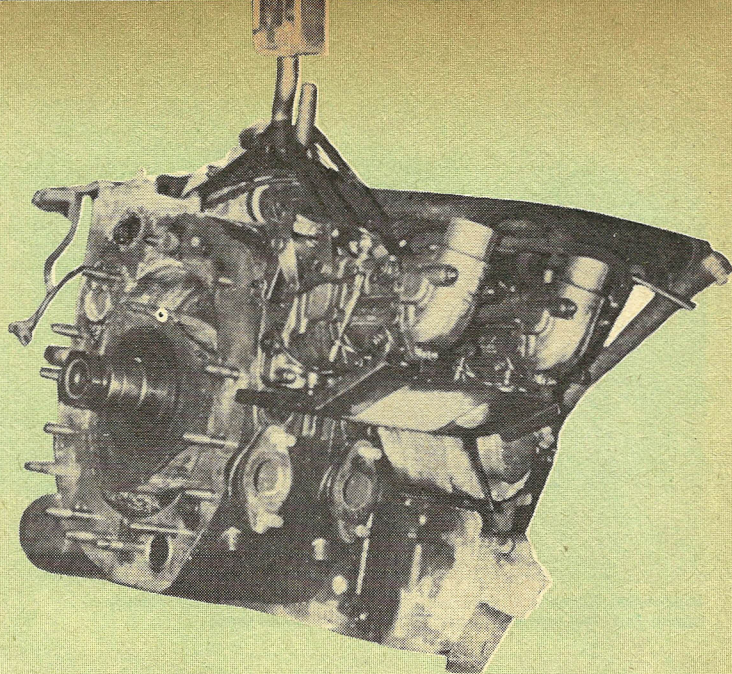
Nobody would argue that the V4 can compare to the rotary engine on smoothness — the Wankel is like a turbine, whereas the V4 was always considered Ford's roughest running engine. This accepted, it is certainly no worse and possibly a little smoother in the NSU than it ever was in a Ford. Main noise is induction roar — the Weber air filter does not act as a silencer very efficiently, and a marked sucking can be heard on acceleration.

But the V4 has something the Wankel never had — torque!

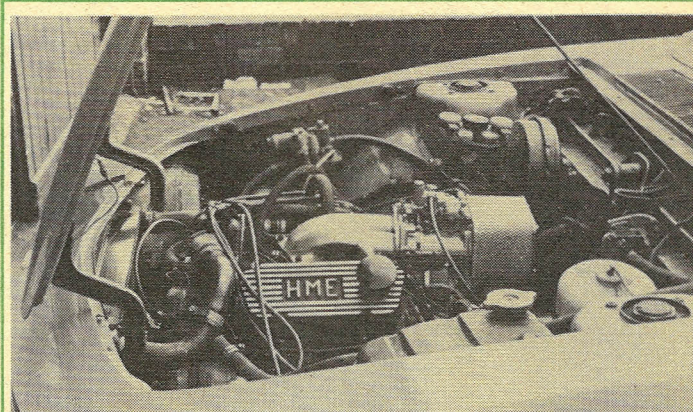
The Ro80 gearbox is semi-automatic. It has a torque converter and a clutch. The latter is operated by a solenoid so that, when the gear lever is touched, the clutch disengages allowing selection of one of the three forward gears. With the aid of the torque converter, the car will pull away in any gear and, with the lusty V4 behind it, will accelerate quite happily from standstill in top gear. Throttle response is instant and top speed is in the nineties. Remember, the NSU is a fair bit heavier than the Corsair.

Fuel consumption works out at around 22mpg with the V4 compared to the 18mpg mark with the rotary. There is no doubt that the character of the car is changed but not all to its detriment — and it does have reliability!

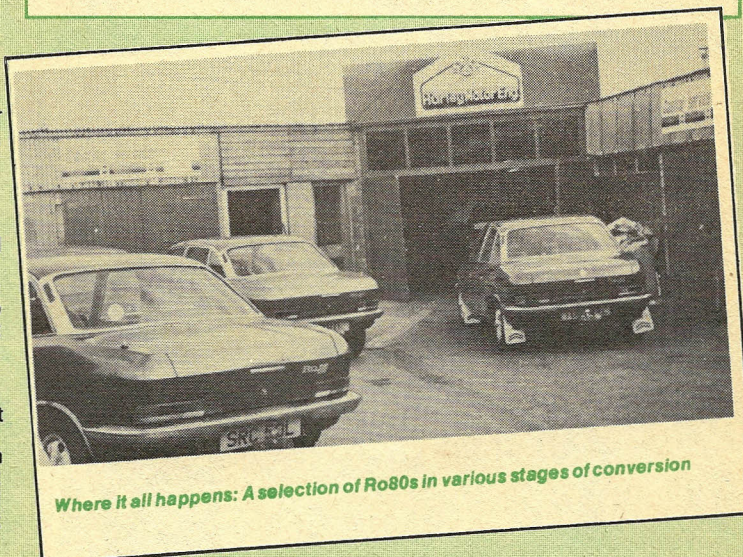
I thought the V6 car less of a success. It certainly had bags of power but it was obvious that the car was not designed with a big engine in mind. A little more work in the insulation department seems to be needed as there was a little harshness that was out of character with the rest of the car. To be fair, no attempt had been made to improve the sound insulation because it was felt that



A replacement rotary engine is as much as £1,100 fitted although recon units can be fitted for £6-700. How long will a replacement engine last though?



Situated well forward, the V4 looks quite at home in the Ro80 engine bay. The cast-alloy rocker covers are an optional extra



Where it all happens: A selection of Ro80s in various stages of conversion

this demonstrator should reflect the results of a typical installation — and then it was up to the owner.

Handling with this big heavy engine right at the front of the car was surprisingly good. Only a tendency towards throttle steering on tight corners betraying the changed weight distribution.

So, if you want a prestige, roomy and luxurious car on the cheap, you could do a lot worse than find yourself a lame Ro80 and apply the V4 treatment. Over 100 cars have already been converted just using HME kits. You can even buy a ready converted car from T. Hurley in London SW5 (Tel: 01-603 6575) for less than £2,000. Not bad for a Car of the Year!