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Renault Clio 172/182 (with air-con) lightweight pulley kit fitting instructions.

This pulley kit has been designed to make it easy to remove the aircon on your 172/182 plus save you lots of rotating mass that will improve the power output of your engine and allow it to rev more freely. The ratios of pulley size also means that the alternator is rotating slower sapping less power.

It will also save you over 16kg in total mass (equal to an extra 3Bhp per tonne!)

WARNING:

The engine fitted to these vehicles has no keyways to locate the cam or crank pulleys. The engine timing will be lost if the cams and crank aren't locked with the correct tools. Severe engine damage is likely to result from not locking the cams and crank before removing the crank pulley bolt.

NOTES:

Pure Motorsport accept no responsibility whatsoever for incorrect fitment of this kit. It is highly recommended that a competent and suitably trained vehicle mechanic fit this kit and have access to the correct tools.

These instructions are offered as a guide only and further information may be required in the form of a workshop manual and engine locking/cambelt replacement guide.

You may need to use your experience when tensioning the belt – if you don't have the experience in knowing how tight a multi V belt should be then you shouldn't be fitting this kit and should enlist the help of a professional with the required experience.

This procedure may differ slightly on later models as these instructions are based on a phase 1 172.

The fitting of this kit follows many of the same procedures necessary to replace a cambelt and water pump – this is a great chance to do these jobs at the same time.

NS=left hand side of vehicle, OS=right hand side of vehicle

10mm bolt = 10mm hex. M10 bolt = metric 10mm thread

FITTING

Degas the air-conditioning system using best practice methods. Do not release the gas to atmosphere.

Remove in order:

- The battery negative terminal.
- Both front wheels.
- Both front wheel arch liners.
- Engine undertray.
- The front bumper.
- The front grille (if separate from bumper)
- The bonnet catch and radiator mounts from the slam panel.
- The slam panel (just slacken bolts behind cross member then slide panel upwards)
- The air filter housing and intake trunking





Drain the engine coolant from the bottom radiator hose into a suitable container and dispose of in an environmentally friendly way.

Disconnect the top radiator hose and fan wiring.

Disconnect the aircon pipes to the condenser.

Remove the radiator pack from the car and the aircon pipes from the compressor to heater unit.



Disconnect the alternator wiring and remove the alternator top bolt. Slacken the bottom alternator bolt and swing the alternator forward. Remove the alternator bottom bolt and pull the alternator out.



Remove accessory belt.

Disconnect aircon compressor wire and four mounting bolts and remove unit. Remove the top accessory belt tensioner bolt and the five bolts holding the mounting bracket to the block.



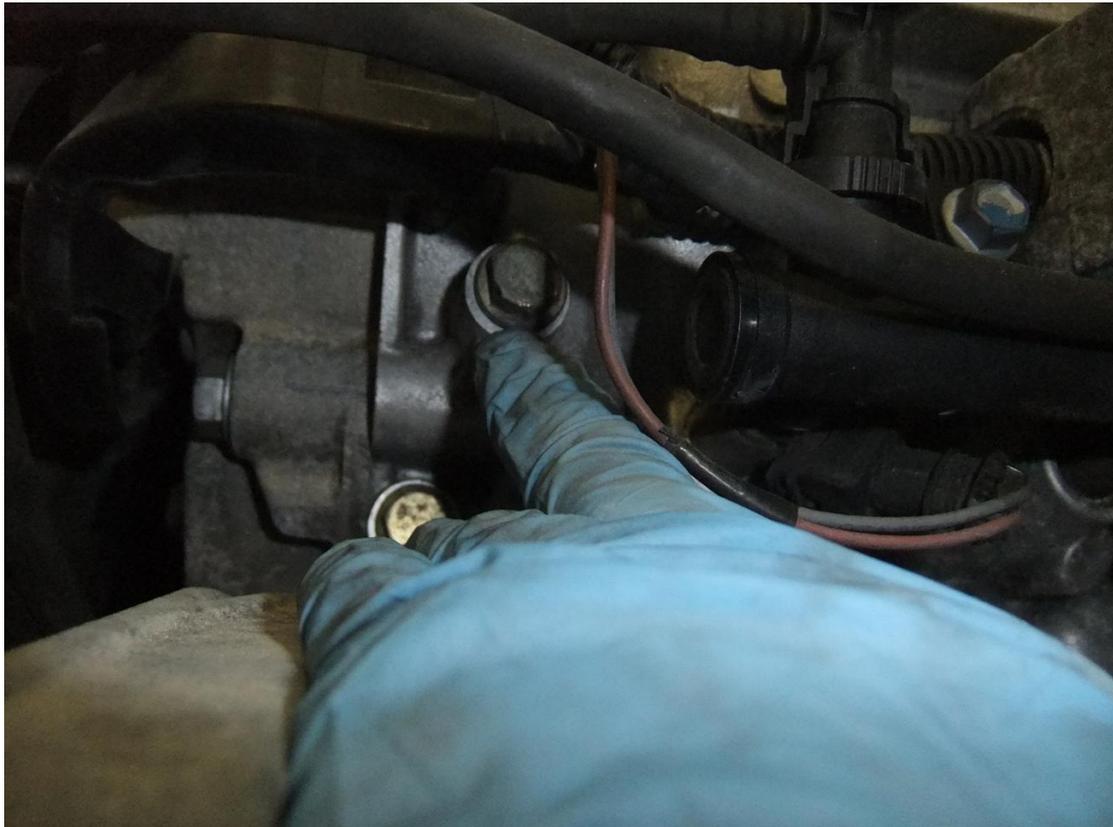
Remove the alternator support bracket.



Remove the engine cover, MAP and VVT solenoid wiring plugs, the 10mm bolt holding wiring loom in place and push wiring aside to gain access to 16mm bolt. Remove 16mm bolt from the side of the top alternator bracket, the 13mm bolt from the front and unclip fuel pipes. Remove bracket.

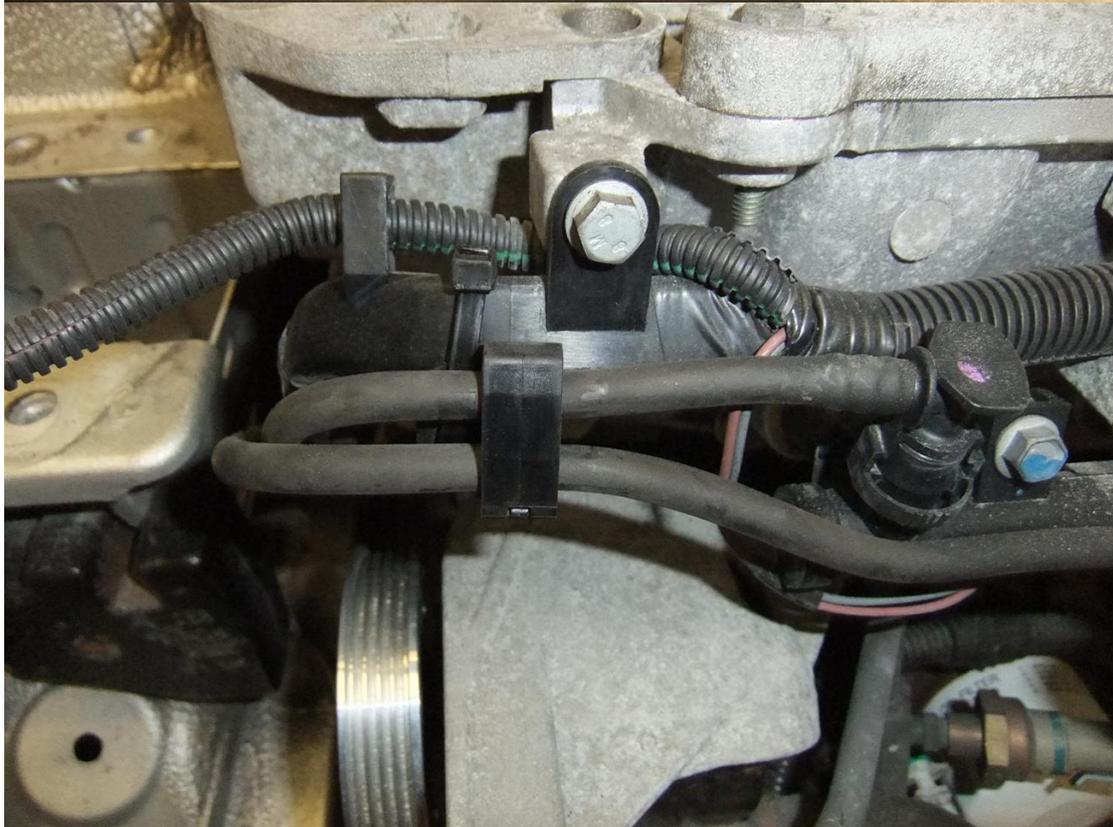


Refit the 16mm and 13mm bolts back into the inlet manifold.



Remove the fuel pipe clip from the top alternator bracket by pulling out the centre dowel as shown.

Refit the wiring and fuel pipes and cable tie the fuel pipe clips onto the wiring loom.



Remove the power steering pulley, clean spindle.

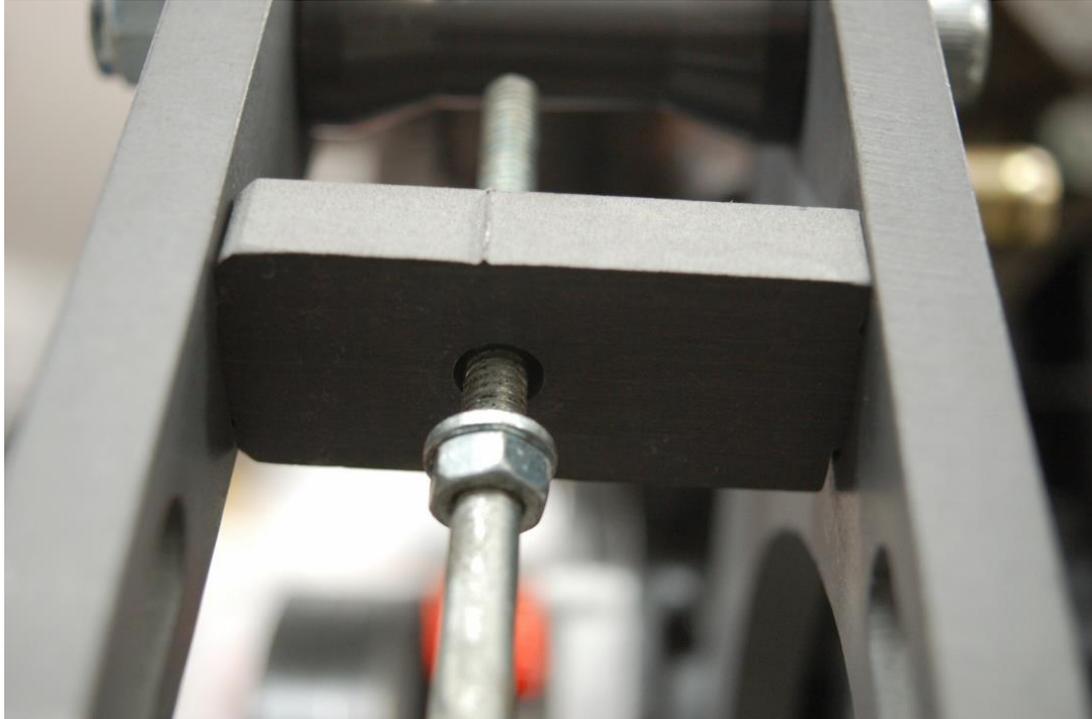


Remove the water pump pulley, clean spindle and fit new pulley using loctite on the M8x16mm bolts.

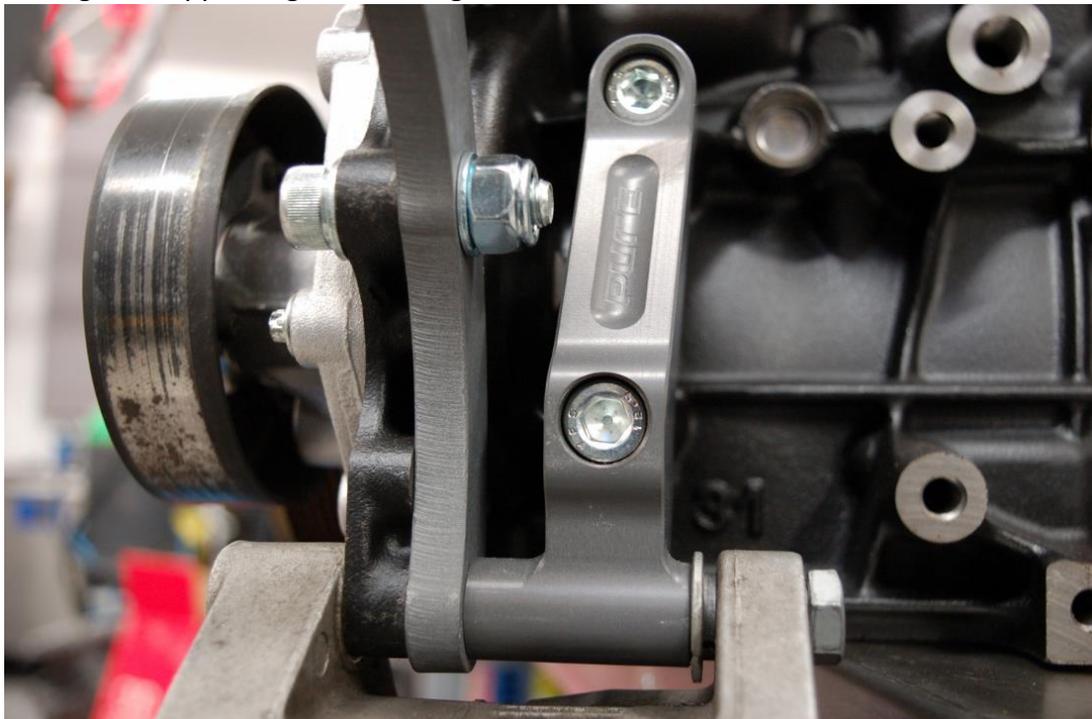
Remove the alternator pulley nut using the Renault tools or an impact wrench. Remove the pulley and the spacer, fit new spacer and the new pulley then refit the old nut using loctite.

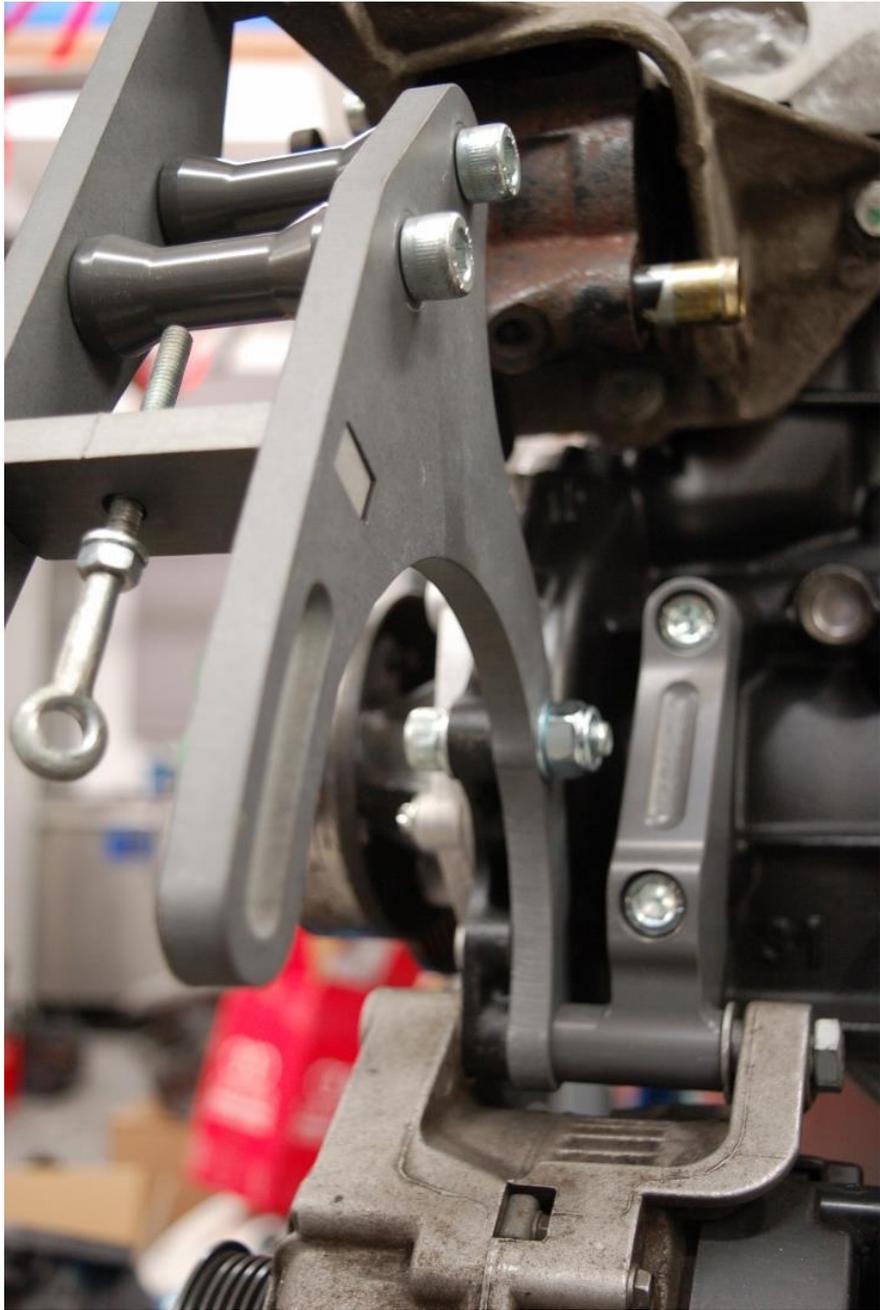


Loosely assemble the alternator tensioner arrangement noting that the eye bolt retaining plate is fitted with the chamfered corners to the belt side of the assembly. Bolts are fitted from engine side to belt side.

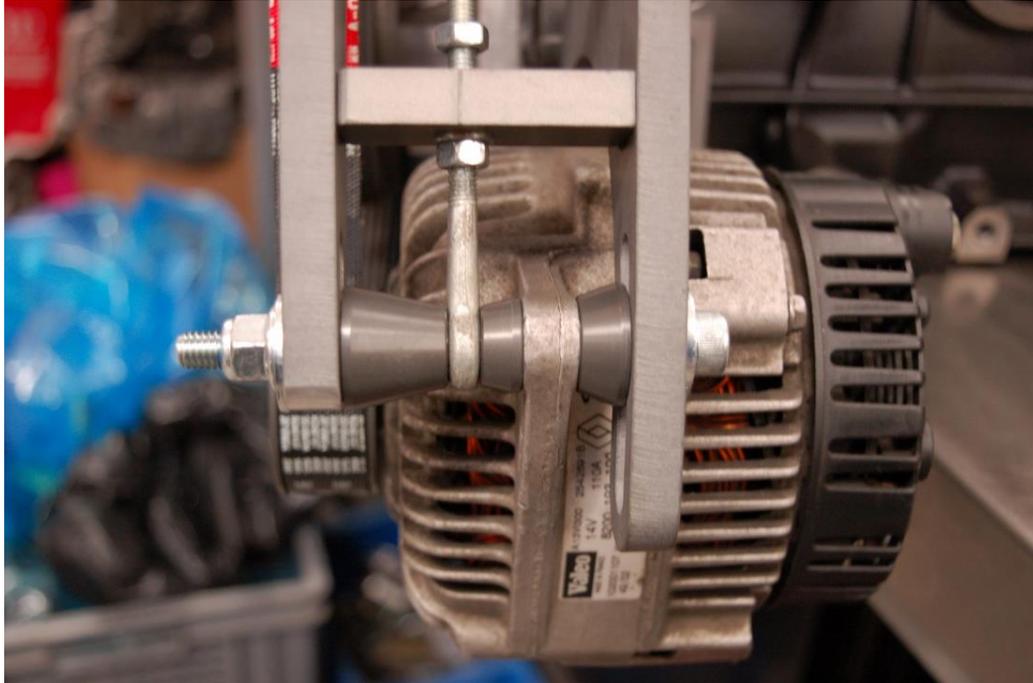


Loosely fit the alternator bracket to the engine block using Loctite on the M10x35 and M10x60 bolts, slot in the tensioner assembly and fit the M10x40 bolt through the upper engine block lug. Put the M8x30 bolt into the PAS pump bracket. Knock back the sliding sleeve in the alternator and fit the alternator to the brackets. Tighten the long alternator bolt to align the alternator and clamp the brackets tight. Now torque the alternator bracket to block bolts to 70Nm, and the M10 bolt and nut through the upper engine block lug to 70Nm.





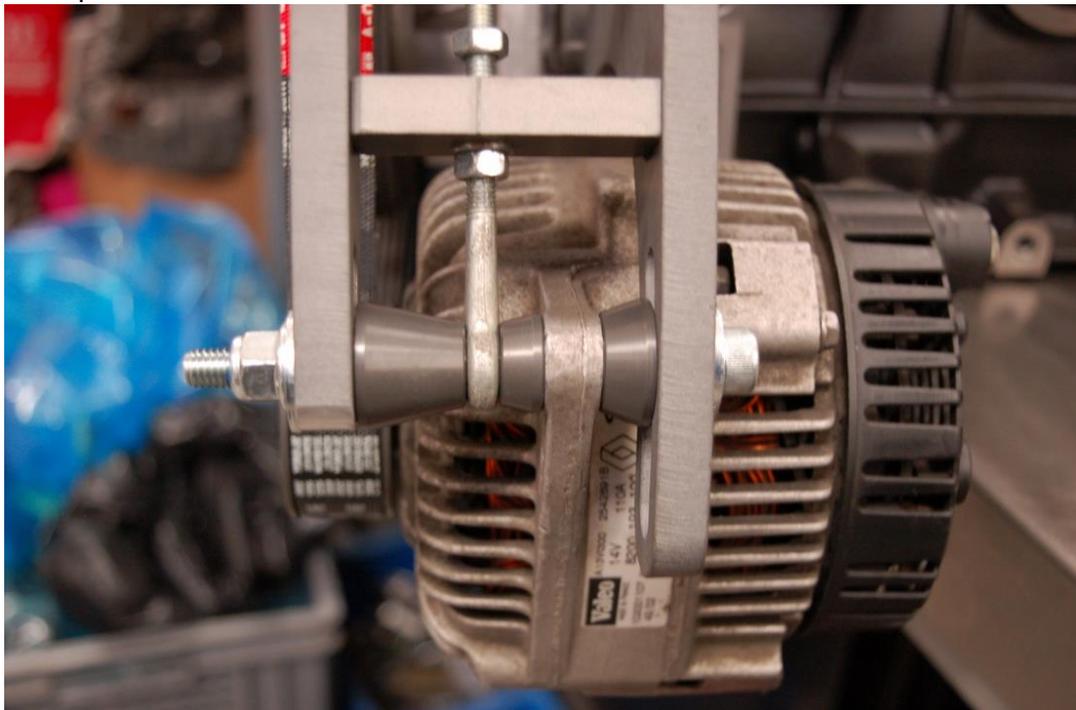
Very slightly slacken the long alternator clamping bolt to allow the alternator to rotate – do this only very slightly so the alternator can't become misaligned.
Now fit the spacers to the tensioning arrangement as shown:



Torque M8x30 into PAS pump bracket to 25Nm. Torque the M10x90 bolts and nylocs to 70Nm.

Tighten the M8x100 bolt and nyloc and then slacken very slightly to allow the alternator to be moved.

Wind the M6 locknuts on the eyebolt to allow the alternator to move into its upper most position.



Crank pulley fitting:

Remove the crankcase plug, throttle body, cylinder head blanking plugs, turn engine to TDC on No 1 cylinder and fit the crank and camshaft locking tools ensuring the slots in the cam are in the lower position.

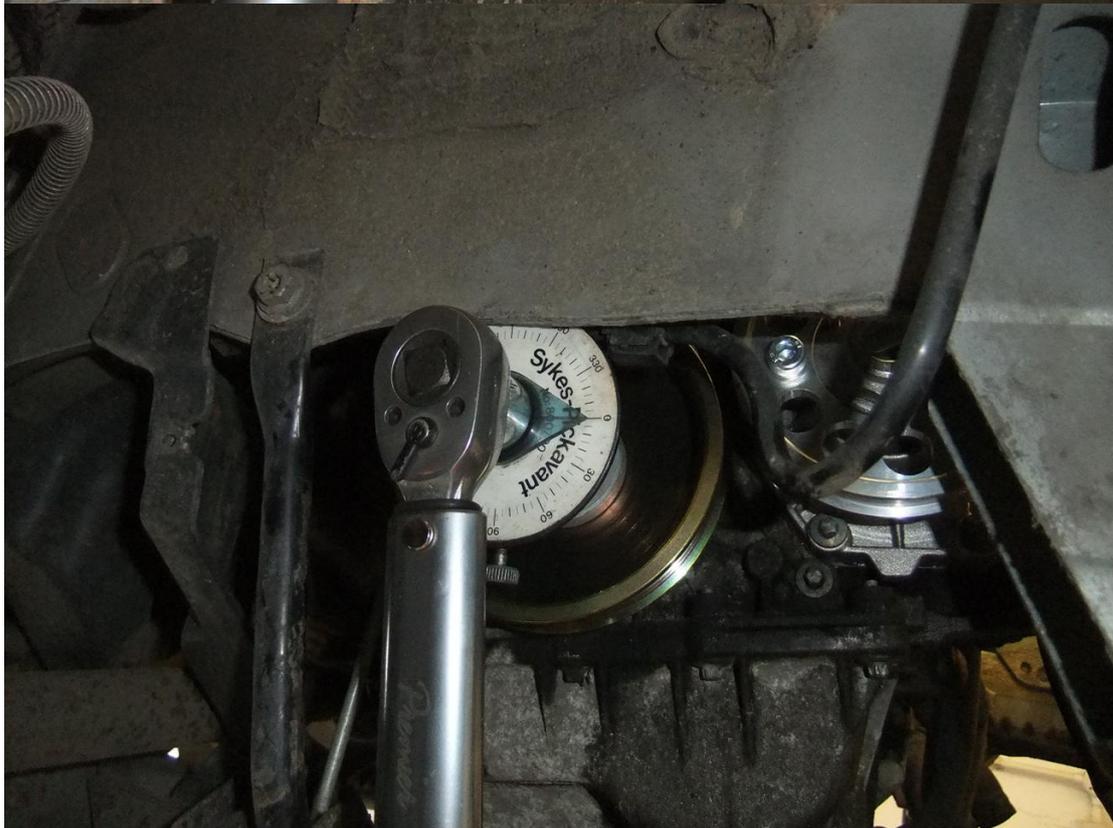


Lock the flywheel using a large screwdriver or similar, slacken and remove the crank pulley bolt and pulley.

Degrease the face of the crank sprocket and the back face of the new crank pulley. Measure the under head length of the old crank pulley bolt. If it is less than 49.1mm you can reuse, if not renew the bolt. If you reuse the old bolt, oil under the head and on the threads – don't oil new bolt. Fit the new pulley and hand tighten bolt.



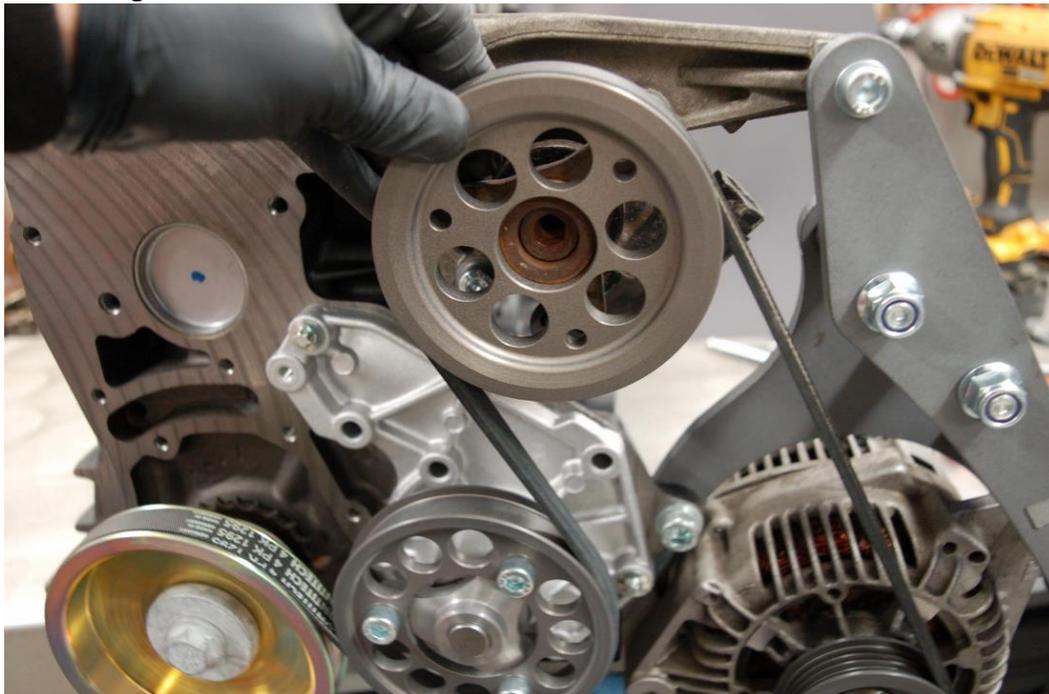
Lock the flywheel again using the screwdriver and torque the bolt to 40 Nm then angle tighten a further 110 degrees.



Remove the engine locking tools and turn the engine over by hand to reach TDC on number 1 cylinder and check that the timing tools can be refitted easily. If not then establish whether the crank is out with the cams or whether the cams are out with each other. In the unlikely event that the cams are out you may have to follow a cambelt replacement guide to regain the correct cam timing.

Remove the locking tools and refit the crankcase and cylinder head plugs.

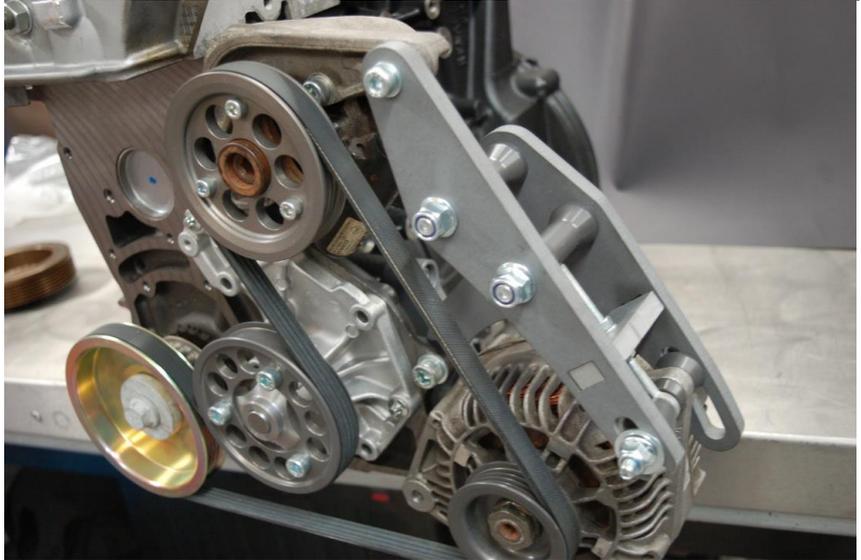
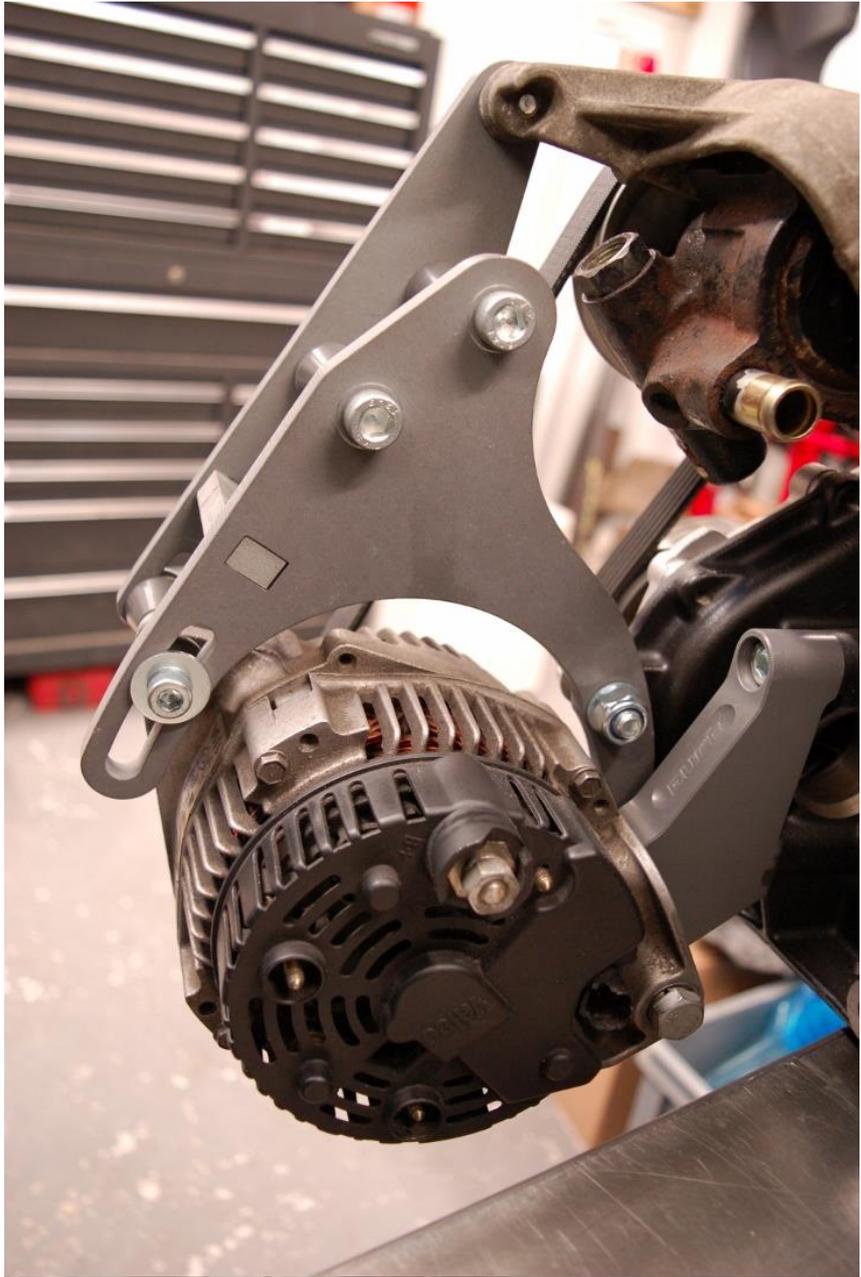
Now offer up the new PAS pump pulley, place the belt around the crank pulley, under the water pump pulley, around the alternator and around the PAS pump pulley - then fit the PAS pump pulley back on making sure the holes on the pulley align with the three mounting points on the pump. Tighten the PAS pump pulley bolts using Loctite to 8Nm.



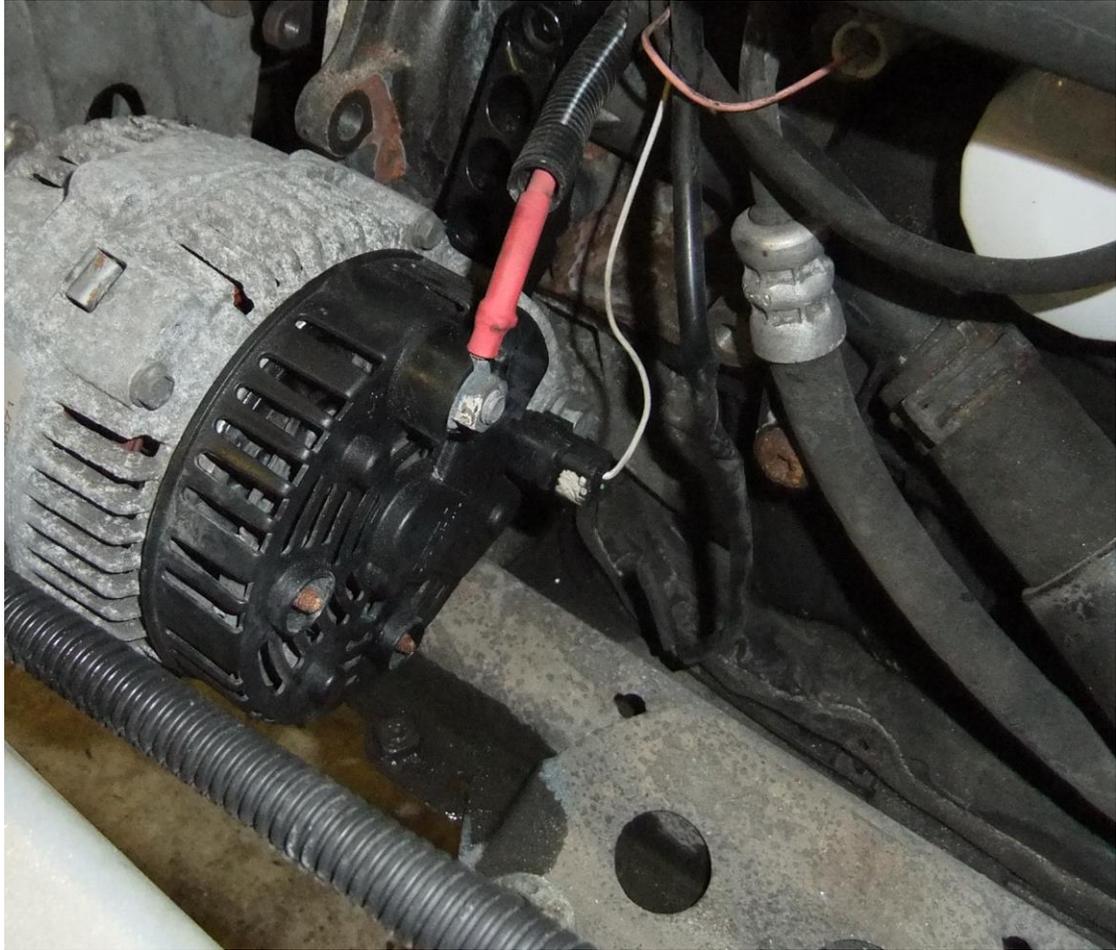
Turn the engine over by hand to ensure the belt is correctly located on all the pulleys.

Slacken the upper most M6 eyebolt locknut and then tension the belt using the lower lock nut. The belt tension should be set according to the load being placed on the belt, if the car has power steering it should be tighter than if the car has no power steering. Using a belt tension gauge such as the Schwaben® ES2222281, as a rough guide belt tension should be 14.0 at a tension setting of 16.0 or about 2.5mm of deflection with about 5kg load over a span of 50mm. You can also use your experience when tensioning the belt – if you don't have the experience in knowing how tight a multi V belt should be then you shouldn't be fitting this kit and should enlist the help of a professional with the required experience.

Once the belt is tensioned, torque the M8x100 bolt and nut to 35Nm, slacken both M6 locknuts and then tighten them both against the eyebolt retaining plate. Now torque the lower alternator bolt to 40Nm.



Refit the alternator wiring.



Remove the aircon condenser from the radiator and refit the radiator.
Refit all remaining components in the reverse order of removal (except the throttle body as the plenum needs to be removed to take out the aircon unit in scuttle), refill the engine coolant and bleed by removing the bolt (as shown below) in the thermostat housing until coolant starts coming out with no air.



Removing the air con unit from the heater.

Remove both wiper arms using a Renault puller tool or similar (gentle heating of the wiper arms helps when they are seized).

Remove the sealing strip across the scuttle panel.

Push the centre of both scuttle cover clips downwards gently and pull both clips out.

Remove the covers by pulling towards the centre of the car to unclip from the wing at the base of the windscreen.

Remove the water deflector above the heater fan.



Remove the clips holding the sound deadening to the bulkhead and pull it forwards. Remove the top two bolts and the NS bottom bolt from the heater cover panel, slacken the two bottom bolts and pull out the panel.

Remove the wiring plugs and the three small screws holding the fan blower in place – remove fan.



Remove the two 10mm bolts that hold the centre air duct in place and pull the duct towards the NS of the car.



Remove one bolt in the scuttle and the two bolts behind the dash in the driver's foot well that hold the main casing in place. (The bolts aren't quite shown on this picture but they are low down at either side of the bulkhead opening)



Remove (or move to one side) the engine intake plenum (top half of inlet manifold) and remove the aircon unit.



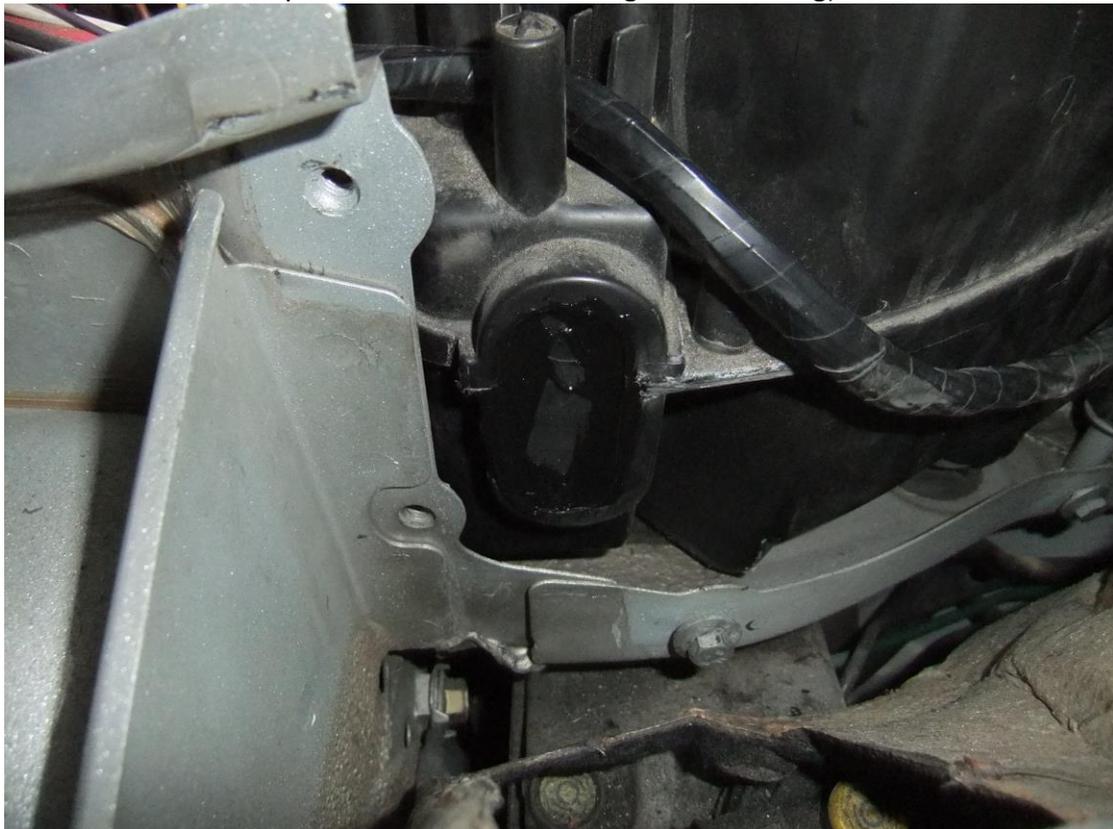
Remove the recirculation flap motor and all screws holding the two halves together.



Remove the aircon radiator.



Cut out a piece of plastic to fill in the hole that is left in the unit and bond in before putting the unit back in the car. (There is positive pressure inside the unit when the fan is on so bond the plastic into the outside edge of the casing)



Replace all parts in the reverse order of removal and give yourself a pat on the back for saving yourself over 16kg overall and over 1kg of rotating mass (not including the aircon compressor when it's switched on!!).

Servicing/Maintenance

At each service you should check the condition and tension of the belt and replace if necessary.

Should you need anything; all parts are available from Pure Motorsport separately at very reasonable prices.

If you get stuck please ring for help and advice.

www.pure-motorsport.co.uk

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