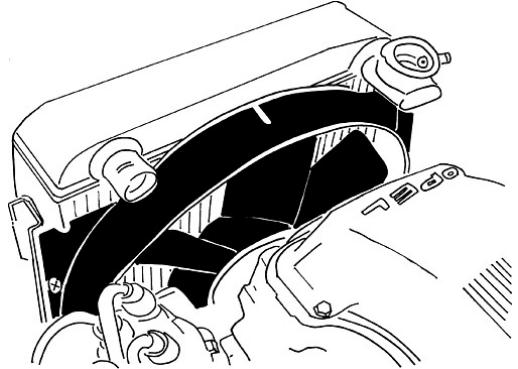


Opel Fan Blade Replacement Notes

Optimum cooling of the Opel engine requires maximizing the available airflow throughout the radiator fins. To achieve this, Opel GT Source has introduced a new original-style reproduction fan blade as a replacement for brittle and worn-out 40-year-old original fan blades.

Proper installation is achieved by reading and following installation instructions, verifying the condition of associated parts, and performing related maintenance inspections and repairs.



Disassembly

It's strongly advised that you remove the radiator before accessing the fan blade. (*Changing a fan blade with a radiator in place is not recommended, because the narrow gap increases chances of damage to radiator fins and/or your knuckles*).

(1) Jack up the car on a solid and even surface, until there is 12" clearance between the bottom of the front belly pan and the ground, and set firmly on jack stands. Slide a low, wide drain pan under the bottom of the radiator.

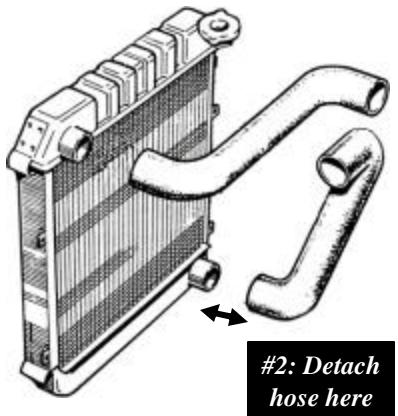
(2) When the car is cool, drain the radiator. Usually this means pulling the lower radiator hose (unless someone installed a drain petcock in your radiator). Remove the radiator cap, to quicken the draining process. Also loosen the heater hose at the water pump inlet and drain it too. Then remove the upper radiator hose.

Inspect the color of the coolant draining out, if it is brown (indicating internal rust), it's a good idea to consider back-flushing the entire cooling system. Also inspect the ends of the hoses, and if one or more are "soft" then consider replacing them.

(3) If your vehicle is equipped with a fan shroud, remove the 4 side screws or bolts holding the fan shroud to the radiator, and pull the shroud back over the fan blades.

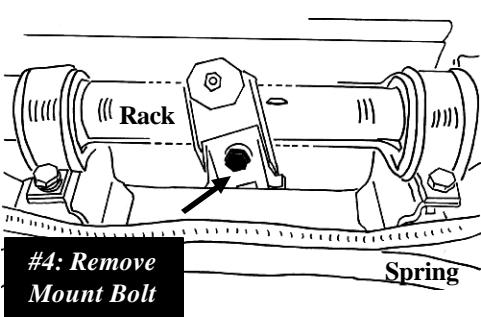
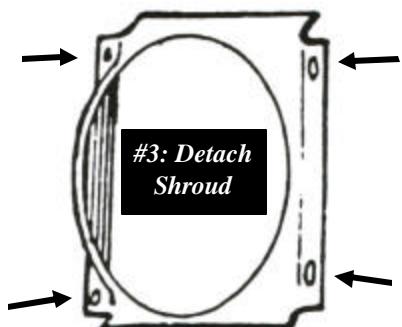
(4) Locate and Remove the lower 13mm mount bolt of the radiator (see diagram). Swivel the lower mount bracket so that it's parallel with the radiator bottom, then pull and lift the radiator out of the car.

(You may have to pull it free from the 2 side rubber bushings, before it will loosen up). Do your best to catch additional coolant that will drain from the bottom of the radiator.



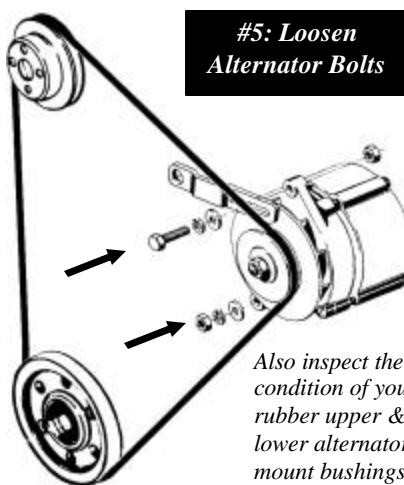
(5) Loosen the bolts attaching the upper and lower alternator mount brackets to the alternator, to provide slack on the fan belt. (This is also a good time to test your water pump; Grab the center of the fan and try to shake it—if it is “loose” your water pump bearings may be worn out).

(6) Remove the four 13mm-head fan bolts, then pull the fan off the pulley & water pump.

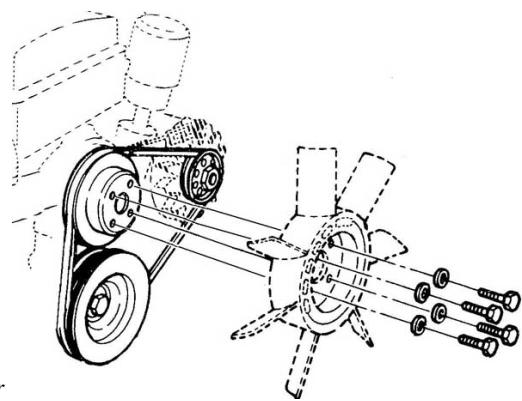


Above is an “under the car” view of the location of a critical 13mm mount bolt.

It is accessed from between the steering rack and the suspension cross member. (The bracket shown is behind the rack)



Also inspect the condition of your rubber upper & lower alternator mount bushings.



#6: Loosen 4 Fan Bolts

Installation:

(7) Clean the bolt threads (use a wire brush or wire wheel).

(8) Place the fan shroud loosely on the front of the engine.

(9) Align the 4 holes on the front of the water pump (where the fan blade mounts) straight up and down in a "cross" pattern. This alignment makes it easier to bolt the fan blade through the holes on the fan pulley (in case you are in a position to not be able to see the holes directly). If you have one, a short 8mm x 1.25mm stud can be used to align these holes (so you can use your fingers to start the fan blade bolts).

(10) Wrap the fan belt around the pulleys for the crankshaft, alternator, and the water pump pulley. (Make sure the belt is within the lower alternator bracket). Place the pulley onto the snout of the water pump, with the holes in the pulley aligned to the holes in the pump.

(11) Place the fan blade into position, with its holes aligned to the holes in the pulley. Use your fingers to start threading the 4 13mm bolts through the fan blade to the pump. Once the bolt is finger-tight, you can then rotate it with a wrench until the bolt is fully tight. (A good option, is to also place a dab of "lock-tight" type liquid on the bolt threads, for added security).

(12) Adjust fan belt, to 1/2" deflection at the midpoint between the fan & alternator pulleys (see diagram). Tighten alternator mount bolts in place.

(13) If radiator was removed, reinstall it now. *Don't forget to rotate the lower mount bracket, and then re-install the 13mm bolt at the bottom.*

(It is best to start threading it before the radiator is completely set down in place, as finding the correct angle for starting this bolt can be tricky).

(14) Attach lower radiator hose. The thinner end goes to the radiator. Orient the clamp there so the screw is on the side closest to the fender, and facing up (it's easier to reach that way). Connect the wider part of the hose to the water pump. Also attach heater hose to water pump (if necessary).

Note: Spraying a hose lightly with WD40 will provide much easier installation.

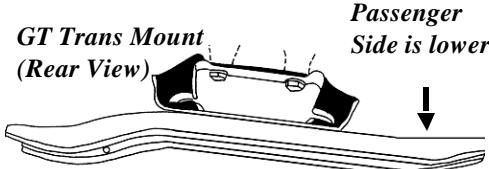
(15) Install upper radiator hose (the slight "bend" is closer the radiator end).

(16) If vehicle has a fan shroud, install it and tighten the mounting screws.

(17) Verify there is an even clearance, between the tips of each fan blade and any other hardware (such as the fan shroud, crankshaft pulley, and radiator & hoses). If not, you should first check the condition and orientation of your engine & trans mounts.

On the Opel GT, engine and transmission mounts are intended to "lean" 5 degrees lower on the passenger side of the engine.

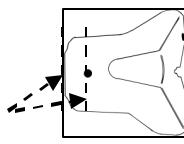
You should visually verify that your transmission mount support bracket and "ears" that connect motor mounts to the engine are correctly installed.



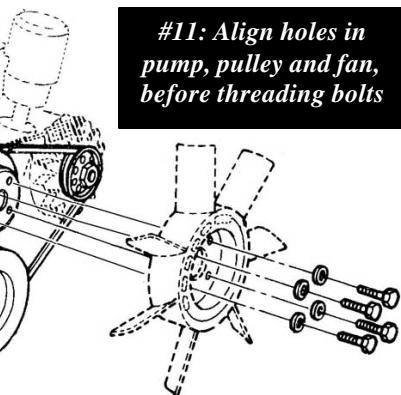
Motor Mount Brackets

Upper Mount Hole location on metal brackets, varies side to side

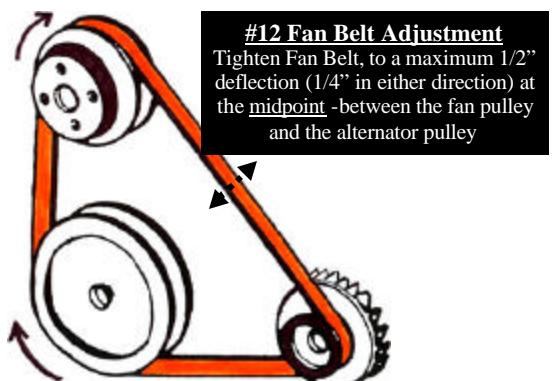
(Driver's Side): Edge of Hole to bracket edge is about 5/8"



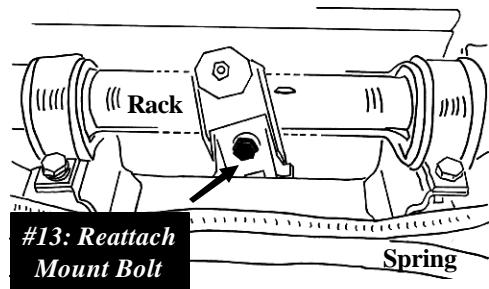
(Passenger Side): Edge of Hole to bracket edge is closer, about 5/16")



#11: Align holes in pump, pulley and fan, before threading bolts

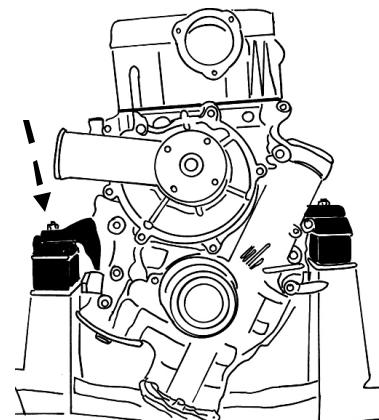


#12 Fan Belt Adjustment
Tighten Fan Belt, to a maximum 1/2" deflection (1/4" in either direction) at the midpoint -between the fan pulley and the alternator pulley



#13: Reattach Mount Bolt

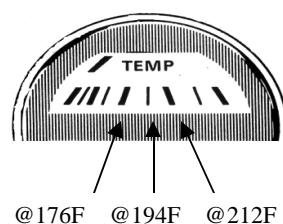
Below: Engine "leans" lower on passenger side in Opel GT



(18) Fill radiator with a 50%/50% mix of coolant and distilled water.

Usually this takes about 1 1/4 to 1 1/2 gallons total (more, if the engine block and heater hoses were fully drained). Leave radiator cap off, run vehicle until it is warm enough that the thermostat opens, then carefully "squeeze" the upper radiator hose (to "burp" the system) and top it off with an additional amount of coolant. Install the radiator cap.

(19) Monitor your temperature gauge (it should not exceed the 194F "mid-point" when driving).



@176F @194F @212F